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Breastfeeding Education for Women with Diabetes, Pregnancy-Induced Hypertension and Multiple Gestations

Oluwapelumi Adefunmike Adeboyejo
Walden University

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Walden University

College of Health Sciences

This is to certify that the doctoral study by

Oluwapelumi. A. Adeboyejo

has been found to be complete and satisfactory in all respects,
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2016

Abstract

Breastfeeding Education for Women with Diabetes, Pregnancy-Induced Hypertension,
and Multiple Gestations

by

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MSN, Walden University, 2012

BSN, West Coast University, 2009

Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

Walden University

December, 2016

Abstract

Breastfeeding is considered a public health concern due to increased maternal/infant mortality and morbidity rates associated with persistent low rates in breastfeeding. Providing early breastfeeding education for women with diabetic, pregnancy-induced hypertension and multiple gestations can result in higher persistence rates and a decrease in maternal and infant mortality and morbidity rates. This quality improvement project provided early prenatal breastfeeding education for women with diabetes, pregnancy-induced hypertension and multiple gestations at a private clinic in Long Beach, Southern California. Evidence-based literature reviews were conducted through CINAHL and Medline (2009-2014). The descriptive study used for the project was made up questionnaires including 5 pre-survey questions completed by prenatal women prior to education and another 5 post-survey questionnaires after the education. Postnatal women were given 10 pre-survey questions before the education and a 10 post survey questions after the education. Variables included low and high income, level of education, and previous breastfeeding experience. Out of 100 targeted women, a total number (*n*) of 54 questions from a questionnaire were completed (54 %). These include 21 completed (21%) 5 pre- and 5 post-survey questions and 33 completed (33%) 10 pre and 10 post-survey questions. Early prenatal breastfeeding education increased maternal knowledge, intent and promoted self-efficacy. Providing early breastfeeding education is vital to decrease maternal-infant morbidity and mortality rates and promote positive social change.

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Dedication

This is in memory of my late father Bishop Enoch Olusola Adeboyejo (J.P) who God used as the foundation of my success in the nursing profession. Most importantly to my darling children Anthony Ayoola Oluwademilade and Florence Oluwafunmibi Fadonougbo, both of you made this happen. All your words of support and encouragement since the beginning of this program have thus provided a graceful outcome. And lastly, all glory to my God who started a good work of creation in me, and faithfully accomplished it to the honor of His marvelous name.

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Section 1: Overview of the Evidence-Based Project

Introduction

Promoting maternal infant child health (MICH) is the goal of Healthy People 2020 (2013). Essential VII of “The essentials of doctoral education for advanced nursing practitioners,” published by the American Association for Colleges of Nursing (AACN) in 2006 provided health promotion. It stated “clinical prevention and population health for improving the Nation’s Health emphasize health promotion and risk reduction and illness prevention through clinical prevention for individuals, families, and communities” (p. 15). This statement supports the goal of Healthy People 2020.

World Health Organization (WHO, 2013) considered breast milk as the essential food source for infants. It contains all needed nutrients, antibodies, and passive immunities necessary for adequate child growth, and for protection against diseases and infections (American Academy of Pediatrics [AAP], 2012, & World Health Organization [WHO], 2013, 2012, 2011). The WHO (2013, 2014) considered breastfeeding to be the most effective way of ensuring sensory and cognitive development in infants while protecting against infectious diseases. WHO (2013) encourages adequate information and support for increase breastfeeding rates worldwide.

The recognition of breastfeeding as the desired method of feeding infants (Godfrey & Lawrence, 2010) has not significantly increased breastfeeding rates globally. The Surgeon General commented on breastfeeding, stating “for nearly all infants, breastfeeding is considered the best source of infant nutrition and immunologic protection while providing maternal health benefits” (Damstra, 2012, p. 5). Damstra

(2012) added that breastfeeding is also known as a gold standard with extensive maternal and infant health benefits.

According to Damstra (2012, p. 5) in conjunction with further studies showed breastfeeding decreases infant morbidity rates thereby enhances economic stability, while more revenue is generated for the whole nation . Despite evidence concerning and advocacy supporting the benefits of breastfeeding for mothers, infants, and the national economy improvement, breastfeeding rates remain low globally [Healthy People 2020, 2013]. In 2013, Healthy People recommended an achievement of 81.9% breastfeeding rates nationwide by promoting exclusive breastfeeding through early education in Healthcare organizations.

The low rate of breastfeeding is more significant to high-risk patients who are diabetic or hypertensive or have had multiple gestations. The low breastfeeding rate is due to lack of breastfeeding education regarding the benefits of breastfeeding, especially early initiation and longer duration of up to 1 year of an infant's life [WHO, 2014; American Academy of Pediatrics, 2012].

Women who have had multiple gestations are at greater risk from associated disease complications or conditions like hypertension, diabetes, and postpartum bleeding as a result of overstretched uterine muscles. Studies showed that each additional baby increases the possibility of developing complications [Olusanya, 2011, National Institute of Child Health and Human Development [NICHD], 2013].

Encouraging mothers to initiate breastfeeding immediately after delivery will enhance uterine contraction due to the release of oxytocin from the pituitary gland

[Office on Women's Health, [OWH], 2014]. Oxytocin also promotes early involution of the uterus and decreases incidence of postpartum bleeding [Office on Women's Health, [OWH], 2014].

Furthermore, evidence from the literature [World Health Organization, [WHO], 2013, 2012; AAP, 2012] indicated that breastfeeding is the optimal infant feeding method for decreasing complications associated with prematurity in multiple deliveries. Subsequent reviews of recent [2009-2014] evidence-based studies on breastfeeding success are associated with the provision of continuous and adequate education, support, and encouragement to breastfeeding to mothers for at least first 6 months of an infants' life [American Academy of Pediatrics, [AAP], 2012; Bennington, 2011; Mellin, Poplawski, Gole, Mass, 2011; & WHO, 2013].

According to Goodman and DiFrisco (2012) provided adequate significance on the Surgeon General's breastfeeding "Call to Action" which emphasized support for breastfeeding and its positive roles in promoting the health of both mothers and their infants. The Baby-Friendly Hospital Initiative (BFHI) strategy supports breastfeeding by introducing the 10 steps to successful breastfeeding practices. According to BFHI, these steps will result in better breastfeeding outcomes in the Healthcare organizations.

Goodman and DiFrisco (2012) provided succinct support to the World Health Organization [WHO, 2010] and the United Nations Children's Fund (UNICEF) by emphasizing the importance of the Baby-Friendly Hospital Initiative [BFHI], which was founded in 1991. The significance of BFHI is to promote early breastfeeding initiation,

recognize hospitals and birthing centers that teach mothers optimal breastfeeding practices (BFHI USA, 2010a, 2010b).

Increased maternal-infant health concern from persistent low breastfeeding rates has been documented by various studies due to persistent delay in early initiation of breastfeeding. This resulted from delay in immediate skin to skin bonding and a lack of effective continuation of exclusive breastfeeding duration for at least the first 6 months of an infant's life (American Academy of Pediatrics, [AAP], 2012).

Several literature reviews from [American Academy of Pediatrics, [AAP], 2012; & World Health Organization, [WHO], 2013, 2010] provided support for increasing the duration of exclusive breastfeeding. The literature reviews added that continuation of breastfeeding for infants should be continued as complementary foods are being introduced for 1 year and also as desired by both mother and infant (AAP, 2012).

The primary goal of the Centers for Disease Control and Prevention [CDC], 2013, 2011] and Division of Nutrition, Physical Activity, and Obesity [DNPAO] was focused on decreasing maternal-infant morbidity and mortality rates. Therefore, promoting effective breastfeeding will provide a positive outcome needed to achieve the primary goal of DNPAO by improving maternal-infant health.

The current data retrieved from the Centers for Disease Control and Prevention [CDC], (2013), and National Immunization Survey [National Immunization Survey [NIS], 2013] showed progress in early breastfeeding initiation over the last 10 years from 40% to 77%. However, according to the CDC and the NIS, this progress has still not reached the recommended target of 81.9% established by Healthy People 2020 (2013).

The achievement of targeted breastfeeding continuation and duration goal of 81.9% recommended by Healthy People 2020 (2013) needed to be attained for optimal breastfeeding. According to the World Health Organization [WHO] (2013) several research studies have identified negative impacts from breastfeeding discontinuation earlier than 6 months of an infant's age. According to the WHO (2013) this has also been attributed to increase in maternal-infant mortality and morbidity rates.

Health issues associated with discontinuation of breastfeeding include otitis media, type 2 diabetes, childhood obesity, prolonged infant hospitalizations, sudden infant death syndrome (SIDS), and allergic diseases [American Academy of Pediatrics [AAP], 2013]. There are significant adverse impacts from the gap in promoting exclusive breastfeeding that are evident in increased maternal morbidity as documented in high rates in uterine cancer, type 2 diabetes, breast cancer, ovarian cancer, and postpartum depression (AAP, 2013).

Further review of the current literature on evidence-based practice showed that breastfeeding offers many benefits to both mothers and infants. Some studies also supported breastfeeding in other women with high risk health issues, for example: pregnancy-induced hypertension [Office on Women's Health, [OWH], 2013]. This is because breastfeeding helps in the provision of antibodies and immunities in newborns while it enhances relaxation and restoration of mothers back to early involution [WHO, 2012, 2011]. The Office on Women's Health (Office on Women's Health [OWH], 2013) stated that breastfeeding decreases the incidence of developing type 2 diabetes, and

promotes significant healthy cognitive and sensory development in newborns after delivery.

Background of the Project

The student has a great concern in effectively decreasing maternal-infant morbidity and mortality rates and promoting breastfeeding raises the question of whether mothers who are high risk are given adequate early breastfeeding information and education throughout their pregnancy period [American Academy of Pediatrics [AAP], 2013, & Healthy People (2020), 2013]. The literature reviews completed for this project demonstrated a possibility of an increase in the health status of high risk women and their infants by promoting early breastfeeding practices.

Achieving effective, optimal breastfeeding outcomes is accomplished through adequate support practices including prenatal breastfeeding education (Smith, Coley, Labbok, Cupito, & Nwokah, 2012). The evidence from Smith et al., (2012) showed that effective support groups that encouraged maternal intent and self-efficacy in mothers positively impact maternal-infant health. Though most women with high risk pregnancies do not have the financial resources for the prenatal classes, evidence has shown the curriculum is structured with little or no emphasis on promoting early breastfeeding or the advantages to high risk new mothers (Smith et al., 2012).

Although prenatal education classes are informative, their focus is mainly directed toward pregnancy, the labor process, and child-birth. Concerns of high risk mothers with conditions such as pregnancy-induced hypertension (PIH), multiple gestations, and diabetes on their health and infants' outcomes after delivery are ignored (Smith, Coley,

Labbok, Cupito, & Nwokah, 2012). Some research studies showed healthcare professionals' comfort levels are a barrier in providing sufficient education on benefits of early breastfeeding, postpartum breast care, and lactation in high risk women (Mellin, Donna, Poplawski, Gole, & Mass, 2011).

In addition, the ability for early initiation of skin to skin contact between mother and infant immediately after delivery meets an infant's nutritional, psychological, and physical needs known as the maternal-infant dyad (Bergman, 2012). This is considered one important way to foster early breastfeeding in infants (Malekpour, 2007).

Oftentimes, a mother's choice to breastfeed their infant is based on their perception that breastfeeding is a "chore." This is because they do not have prior knowledge, information, or practical demonstrations about breastfeeding and its potential psychological and physiological advantages for them and their infants. Hong et al. (2012) identified a significant gap between a mother's breastfeeding awareness needs and provision of breastfeeding education prenatally.

Due to lack of awareness on breastfeeding recommendations and the nutritional value of breast-milk on the part of most mothers, emphasis in this project was placed on improving communications with healthcare providers and women mostly in late pregnancy and postpartum (Hong et al., 2012). Furthermore, many first-time postpartum mothers, particularly high risk women, encountered breastfeeding difficulties when unforeseen medical issues arose with either the mother or infant (Hong et al., 2012).

The inadequacy or limited information on breastfeeding and lack of support from healthcare workers for dealing with breastfeeding difficulties were reported to have

negative effects on breastfeeding outcomes (Hong et al., 2012). Therefore, an important aspect in providing unlimited support, continuous breastfeeding education, and awareness of breastfeeding guidelines as recommended by the [World Health Organization [WHO], 2014] was associated with a mother's intent to breastfeed and breastfeed exclusively (Hong et al., 2012).

This project affected social change through breastfeeding education. This was evident as the targeted population verbalized an improved breastfeeding intent, self-efficacy, knowledge, and increased breastfeeding duration. The population in this project, who were mainly women with pregnancy-induced hypertension (PIH), diabetes, and multiple gestations, received information on current evidence-based practices with sufficient breastfeeding awareness prenatally and during the postpartum period.

Specific emphasis on health benefits of breastfeeding to mothers and their infants for example: decrease in breast cancer, otitis media, and Sudden Infant Death Syndrome (SIDS) promoted positive social change in breastfeeding. Though some women had breastfeeding knowledge, they were provided additional support and effective communication during prenatal education sessions and were assisted in ensuring their knowledge and positive social change for effective breastfeeding outcomes.

Problem Statement

The Joint Commission Perinatal Core Measure Set (2013) was a standardized performance measure that included PC-05: An exclusive breast milk feeding for stable term infants. As defined by the Joint Commission, exclusive breastfeeding means that a newborn receives only breast milk and no supplementation, including liquids or solids

with the exception of drops, vitamins, medicines, or minerals throughout the newborn's hospital stay.

Beginning January 1, 2013, the Perinatal Core measure indicated that discharges will include an additional subset measure PC-05a: A measure was used to consider a mother's choice for exclusive breastfeeding (Joint Commission, 2013). According to the obstetrician (OB) at the selected obstetric and gynecology clinic for this project, the rate of exclusive breastfeeding education is persistently low at less than 50%. This is considered a lot below the recommended 81.9% breastfeeding rate by Healthy People 2020, (2013).

Women at the private obstetrics and gynecology clinic located at Long Beach, California who were diabetic, had multiple gestations, and had PIH are those that most needed breastfeeding education. Ultimately, lack of breastfeeding education resulted in decreased breastfeeding initiation, duration, and in exclusive rates at hospital discharge.

Purpose Statement

The purpose of this project was to promote evidence-based practices by educating women with diabetes, pregnancy- induced hypertension (PIH), and multiple gestations at the private obstetric and gynecology clinic at Long Beach, California on the benefits of early and long-term breastfeeding. This project also increased awareness in maternal self-efficacy, which increased knowledge and intent toward effective breastfeeding outcomes and positive social change.

Project Objectives

The objectives for this breastfeeding project were to:

- Develop a breastfeeding plan using the existing breastfeeding materials in the obstetric clinic with additional information specific to diabetic, pregnancy-induced hypertension, and multiple gestation women.
- Conduct an in-depth, evidence-based literature review on exclusive breastfeeding and high risk patients.
- Provide an updated literature review that would supplement the work of medical professionals including doctors, nurses, and medical assistants in this private obstetrics and gynecology clinic to support the high risk women for successful breastfeeding.

Project Questions

The following questions were the focus of this breastfeeding project:

- What is the current rate of women with diabetes, pregnancy induced hypertension (PIH), and multiple gestations in the private obstetrics and gynecology clinic who want to breastfeed after delivery?
- Are there changes in breastfeeding rate, knowledge, intent and efficacy in women with diabetes, pregnancy induced hypertension (PIH), and multiple gestations toward breast-feeding after being given breastfeeding education?

Nature of Project

The nature of this project was to improve maternal knowledge and intent, and to promote self-efficacy in women with pregnancy induced hypertension, diabetes, and

multiple gestations at the private obstetrics and gynecology clinic, Long Beach, California. This dual project was first to provide breastfeeding education using evidence-based practices with current literature reviews. By assessing pre- and post-educational intervention on the population, I identified positive outcomes and implications for social change when targeted women in this project verbalized desire to breastfeed their infants after delivery.

Dennis's (2010) self-efficacy theory and self-efficacy scale supported evidence that new mothers and infants benefit from breastfeeding. This theory also provided an essential tool in promoting effective prenatal communication between the healthcare professionals and the high risk women and assessing the mothers' awareness in breastfeeding knowledge.

Reduction of Gaps

The gap that existed in information related to all high risk women seen at the private obstetrics and gynecology clinic, Long Beach, California mostly concerning were those with diabetes, pregnancy induced hypertension, and multiple gestations as these women demonstrated a lack of knowledge in breastfeeding information. This project was intended to address this gap and lack of knowledge by providing information specific to the women's high risk conditions and facilitate early breastfeeding for their newborns after delivery.

While the doctors and other medical professionals in this clinic were informed about breastfeeding education and support for average patients, there was an identified gap in adequate and specific evidence-base practices and research information on

breastfeeding. The breastfeeding education information was intended to support all the high risk women with special focus on diabetic, pregnancy-induced hypertension (PIH), and multiple gestations in the obstetric clinic.

Significance of the Project

The significance of this project was to provide breastfeeding education to women with the high risk conditions of diabetes, PIH, and multiple gestations in the obstetric clinic. This increased their breastfeeding knowledge, promoted self-efficacy/intent, and duration of breastfeeding.

In describing breastfeeding, Godfrey and Lawrence (2010) explained that breastfeeding is a method that is “far more than nutrition” (p. 1597). Godfrey and Lawrence stated that breastfeeding is a necessity that creates a new mother-infant dyad and enhances the effective establishment of the immune system with the brain-building function while developing socialization with long-term health promotion.

Breastfeeding education in women with multiple gestations will also reduce the risk of sudden infant death syndrome (SIDS) and respiratory complications associated with prematurity and delay in sensory and cognitive development [American Academy of Pediatrics, 2012]. The project provided additional, current evidence-based information for the medical staff at the obstetric clinic to continue to provide optimal support and education to the high-risk women in the obstetric clinic.

Assumptions

It is assumed that high-risk women will want to provide their infants with optimal nutrition from breastfeeding and/or breast pumping. While considering breast milk as the

ideal infant food with nutritive antibodies uniquely designed and superior to formula for infants' protection against diseases and many allergies (WHO, 2013), it is also needed for mothers to decrease mortality and morbidity rates [Office on Women's Health, (OWH), 2013].

Another assumption was that all medical professionals at the obstetric clinic would want to provide additional breastfeeding education for women with diabetes, pregnancy-induced hypertension, and multiple gestations. This includes promoting early breastfeeding initiation and continued breastfeeding upon hospital discharge for a successful outcome.

Limitations

One limitation was the challenge of providing timely breastfeeding education to all women who had diabetes, pregnancy-induced hypertension (PIH), or multiple gestation. Another limitation was the way in which women's medical health statuses restricted their interest in or ability to breastfeed their infants after delivery.

An infant's health status, such as severe prematurity, could also be a barrier limiting the infant's ability to breastfeed after delivery. Efforts were made to improve the comfort levels and knowledge of the medical professionals at the clinic toward effective breastfeeding support. This was needed to enhance continuous provision of current evidence-based practices regarding breastfeeding education/practices to a targeted population of patients to decrease limitations of effective breastfeeding education and support.

Several literature reviews conducted for this breastfeeding project indicated that demographics such as culture, beliefs, and political, social, environmental, and mostly intrapersonal variables were barriers resulting in limitations to effective breastfeeding (Tenfelde, Finnegan, & Hill, 2011). Despite these limitations, multiple variables including previous successful breastfeeding experiences and high literacy levels increase breastfeeding success. Furthermore, being Caucasian, having middle to high socioeconomic status, being married, being a nonsmokers, and being healthy were associated with successful breastfeeding (Damstra, 2012).

Evidence also showed decreased breastfeeding rates in vulnerable populations such as in teenage mothers, the unemployed, those with low socioeconomic status, smokers, and mothers who previously fed their infants formula. There are considerable intergenerational problems, when some new mothers are likely to imitate infant feeding patterns from their mothers and mostly from social inequalities in health disparities areas (Brown et al., 2010) as cited by Renfrew, et al. (2012, p. 17).

Delimitations

This project was completed at a private obstetrics and gynecology clinic located at a diverse area in Long Beach, California under professional obstetric doctors and other medical staff. An initial knowledge and attitude assessment of all high risk patients towards breastfeeding was conducted. This was followed by specific focus on women with diabetic, pregnancy-induced hypertension and multiple gestations at the obstetric and gynecology clinic. The result of these assessments was used as a baseline for providing breastfeeding education intervention.

The baseline information collected from the initial assessment illustrated a specific and clear breastfeeding gap that was addressed in order to educate each individual woman with specific disease conditions. In essence, the breastfeeding education assisted targeted women to explicitly increase their understanding and knowledge regarding the benefits of breastfeeding. In addition, the information gathered aided breastfeeding education provided in conjunction with available breastfeeding tools at the clinic and with effective collaboration from the obstetricians and other medical staff in the clinic.

Implications for Social Change

According to Bennington (2011), exclusive breastfeeding promotion provides family, economic, and environmental advantages. These advantages included decrease in formula expenses by parents, energy/efforts of formula production, and transportation of artificial feeding products are benefits derived. Therefore, exclusive breastfeeding must be strongly encouraged for parents/families. Furthermore, promoting breastfeeding through education to mothers including the annual health care cost savings of \$3.6 billion dollars in the United States (Bennington, 2011) will enhance breastfeeding success.

Definition of Terms

Breastfeeding: This is a way that mothers initiate physical contact between themselves and their infants and provide nutrition to the infants with breast milk from the breast (WHO, 2014).

Exclusive breastfeeding: Physical contact made between mother and her infant whereby the infant receives only breast milk with no other liquids including water or

solids with the exception of oral rehydration solution, medications, and vitamins (WHO, 2014).

Diabetes: Is a disease in which the body is unable to adequately utilize and store glucose in the form of sugar. This therefore results to accumulation of glucose in the bloodstream causing high blood sugar (Joslin Diabetic Center, 2015).

Duration of breastfeeding: The provision of adequate and effective breastfeeding education to patients enhances breastfeeding initiation after birth and promotes longer duration of six months and till age two years as a complementary food according to UNICEF (2013).

Multiple gestations: This is the term that refers to when a woman is pregnant with two or more fetuses (San Francisco Perinatal Associates, 2007). It usually occurs when there is fertilization of two or more eggs (ova) at the same time after release, or the fertilization of a single egg that divides at an early stage of development (MDGuidelines, 2015).

Pregnancy-induced hypertension (PIH): Also called *toxemia* or *preeclampsia*, this condition is a form of high blood pressure during pregnancy, protein in urine, and edema (Children's Hospital of Wisconsin, 2015). It is mostly common in women with multiple gestations, who are having their first pregnancy, or who have a previous history of PIH. The condition occurs in about 7 to 10% of all pregnancies (Children's Hospital of Wisconsin, 2015).

Summary

This breastfeeding education project provided information to high risk women with diabetes, pregnancy-induced hypertension (PIH), and multiple gestations regarding the importance of breastfeeding. Furthermore, increased comfort levels and breastfeeding knowledge among all medical staff at the clinic enhanced positive attitudes to continue providing current evidence-based practices and literature reviews on breastfeeding benefits to women at the clinic.

Section 2: Literature Review

Introduction

I conducted a review of the literature to illustrate the benefits of breastfeeding for high-risk patients. The specific focus was on benefits of early breastfeeding initiation and long duration for women with diabetes, pregnancy-induced hypertension, and multiple gestation at the obstetric and gynecology clinic through education. In addition, to increase maternal knowledge, support intent and self-efficacy in breastfeeding.

The purpose of this section was to provide current evidence-based literature reviews on the impacts of breastfeeding on high risk women and their infants after delivery (Davis, Stichler, & Poeltler, 2013, p.463). Specific research was conducted from online database between 2010-2014 for current evidence-based literature reviews on breastfeeding benefits for women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations.

These literature reviews covered the following areas: Evidence-based practice review of (a) benefits of breastfeeding to all high-risk women/infants in the obstetric clinic, (b) the exclusiveness and duration of breastfeeding, (c) breastfeeding education for diabetic women (d) breastfeeding education for women with pregnancy-induced hypertension, and (e) breastfeeding education for women with multiple fetuses.

Theoretical Framework

Dennis's breastfeeding self-efficacy theory and breastfeeding self-efficacy scale [BSES] (2010) were the theoretical models for this project. These theories provided

succinct ways for adequately addressing selected problem of delay/gap in early initiation and continuation of exclusive breastfeeding immediately after delivery of infants.

This theory and scale were appropriate for this study because they are related to breastfeeding education used to assist new mothers. The breastfeeding self efficacy scale used by Dennis (2010) for breastfeeding education promoted maternal confidence and increased knowledge and skills while enhancing positive attitudes and support maternal intent (Dennis, 2010). All of these attributes were geared towards efficient and effective breastfeeding outcomes in mothers while providing prediction of whether or not a mother chooses to breastfeed her infant (Dennis, 2010).

Utilization of these theories for breastfeeding education enhanced evaluation of maternal intent, effort, and self-enhancing or self-defeating thought patterns that occur in conjunction with emotional response to breastfeeding (Dennis, 2010). Dennis (2010) incorporated Bandura's (1977) Social Cognitive Theory into the breastfeeding self-efficacy concept and theoretical model. She explained the importance of maternal confidence in relation to breastfeeding success (Dennis, 2010).

The logic model was another theoretical framework that was an excellent and efficient tool used in this breastfeeding project. According to Hayes, Parchman, & Howard, (2012).the logic model provides a successful and proven tool for effective program planning, implementation and process outcomes. This model provides the ability to describe relationships occurring between resources, activities, and results in relation to the desired project goal (Hayes et al., 2012).

Hayes et al. (2012) pointed out that the logic model assisted in the planning and implementation of healthcare projects which provided support and correlation for the breastfeeding education project. This framework also supported the identification of high-risk conditions of pregnancy for this project. The logic model provided a significant success for tracking key indicators for this project's outcomes.

An effective graphical/textual representation (Table 1) Hayes et al.'s (2012) study during the development of the logic model was a great tool for this project. The logic model's graphical/textual representation was previously used in planning and evaluating a primary care practice-based research network (PBRN) and linked to the breastfeeding education intervention project's design processes and theoretical assumptions.

In addition, providing an underlying assumption about the project using the logic model provided a very explicit and common approach integrated into planning, implementation and evaluation of the program (Hayes et al.) for the breastfeeding education. Hayes et al. further stated that the logic model supported program or project intent and proposed accomplishment needed for a desired breastfeeding education outcome.

Davis, Stichler, & Poeltler (2013) added that frameworks generally enhanced planned breastfeeding educational intervention. Frameworks were needed for integrating evidence and clinical expertise in this project regarding the breastfeeding education for women with diabetic, pregnancy-induce hypertension and multiple gestation women. Also, Dennis' Breastfeeding Self Efficacy Scale (BSES) and logic model provided accurate information, guidance and resources necessary to promote maternal

empowerment (Davis et al., 2013). Furthermore, Davis et al. emphasized the validity and reliability of frameworks as tools that are evident to enhance successful exclusive breastfeeding outcome for this project.

Literature Review Search Strategies

The strategic review utilized in retrieving relevant literature for this breastfeeding project included the use of electronic databases from Walden University's online library. This allowed me to retrieve data regarding breastfeeding history, scientific underpinnings, and evidence-based research.

Promotional materials concerning breastfeeding were taken from various organizations such as: The World Health Organization (WHO), and United Nations Children's Fund (UNICEF). Also, an in-depth literature search was conducted on the theoretical framework as applicable to the project of breastfeeding education for women with diabetic, multiple gestations, and pregnancy-induced hypertension (PIH).

Other sources of information used for the review in this project included scholarly journal articles, books, chapters of books, and dissertations in nursing. The databases used were from COCHRANE, Nursing Research Journals, PUBMED, and CINAHL Plus from 2009-2014. Key words searched included: *exclusive breastfeeding, evidence based-practices of breastfeeding in diabetes, pregnancy-induced hypertension, and multiple gestations.*

Benefits of Breastfeeding to High Risk Women/Infants

In a meta-analysis study to support benefits of breastfeeding to infants by Hauck, Thompson, Tanabe, Moon, and Vennemann (2011), breastfeeding benefits in relation to

the reduction of the risk of post-neonatal mortality were discussed. Though the authors concluded that breastfeeding reduces the incident rates of sudden infant death syndrome (SIDS) this is still unclear. However, physiologic sleep studies according to these authors showed breastfed infants had lower arousal thresholds compared to formula-fed infants leading to provision of a mechanism for protection against SIDS.

The American Academy of Pediatrics (American Academy of Pediatrics [AAP], 2011) further supported exclusive breastfeeding as part of their recommended protections against SIDS in the policy statement *SIDS and other sleep-related infant deaths: Expansion of recommendations for a safe infant sleeping environment*. The breastfeeding recommendation according to AAP provided similar efforts in decreasing formula feeding to infants with high-risk of SIDS while promoting the theory that exclusive breastfeeding of any duration enhanced reduction in the incident rates of SIDS.

Benefits of Exclusiveness and Duration of Breastfeeding

The quasi-experimental research study conducted by Mellin, Poplawski, Gole, and Mass (2011) on the impact of breastfeeding education programs and adherence to policies and protocols showed positive outcomes regarding the increase in exclusive breastfeeding rates. This study provided evidence based practices with improvement in healthcare provider's knowledge, comfort levels, and positive attitudes towards breastfeeding.

The Mellin et al. (2011) study provided further insight to a significant decrease in formula supplementation at night among new mothers as breastfeeding was desired. The

conclusion of this study suggested positive changes can be made with adequate breastfeeding educational program and protocols.

According to the study conducted by Mellin, et al. (2011), the long-term effects of impact evaluation on breastfeeding education programs and adherence to protocols demonstrated an increase in exclusive breastfeeding rates. An increase rate in breastfeeding is due to improved knowledge acquired by the healthcare providers and is shown in their comfort levels and attitudes towards breastfeeding support and encouragement to new mothers.

The meta-analysis study by Hauck et al. (2011) quantified and evaluated the outcome of the protective effect of breastfeeding. This study focused on the positive impact of breastfeeding on sudden infant death syndrome (SIDS) with the inclusion of information regarding exclusivity and duration of breastfeeding. Hence, promoting breastfeeding for the influence of recommending its potential utility in decreasing SIDS should be a strategy in the promoting maternal/infant health.

The guidelines in reporting these observational studies were proposed by Stroup et al. and the PRISMA Group (Hauck et al., 2011) While the hypothesis of breastfeeding is associated with decrease in the risk of sudden infant death syndrome (SIDS), it also included longer duration of exclusive breastfeeding. All these were contributory factors associated with a vital reduction in the risk of SIDS (Hauck et al.).

Hauck et al. (2011) documented breastfeeding definition as partial or exclusive breastfeeding, and breastfeeding at hospital discharge. They further explained their breastfeeding definition as any amount of time in an infant's age given to breastfeed, and

exclusive breastfeeding is for any length of time or duration involved in breastfeeding. This research included a statistical significance of eighteen case-control studies. The authors for this research provided a recommendation for breastfeeding of any duration as important in protecting infants against SIDS (Hauck et al., 2011).

Furthermore, relating breastfeeding implementation programs with short and intermediate health outcomes will improve breastfeeding outcomes. (Mellin et al, 2011). Mellin et al, (2011) research on formula feeding at night provided a significant decrease in formula feeding at night. Their research also showed an important decrease in hospitalization rates and medical expenses from office visits. The outcome of their research is especially vital for preventative illnesses such as otitis media, gastroenteritis, diarrhea, and procedural fees with wage loss from parents caring for their ill infants.

Liebert (2010) stated that providing breastfeeding education to patients had benefits for exclusive breastfeeding. He continued by explaining that breastfeeding education should be a continuous process during the intrapartum and immediate postpartum stages and that the inclusion of proper positioning and latch-on mechanisms to prevent pain associated with improper infant latch during breastfeeding was important.

According to Liebert (2010), emphases on breastfeeding education should be on the provision of nutrition provided during infant suckling as infant's swallowing cues demonstrated effective lactation as milk is produced and released. The ability to recognize the frequency of feeding/feeding cues, effective hand expression of breast-milk, and use of a pump if needed will enhance and increase the desired duration and continuation of exclusive breastfeeding (Liebert, 2010).

In another study conducted by Ajayi, Hellandendu, and Odekunle (2011) using a simple random selection in a local area of Kogi State, Nigeria. The results of this study showed a positive correlation in breastfeeding rates in mothers who had breastfeeding education compared to a negative correlation among mothers who had no breastfeeding education.

The contributory factors that negatively affected breastfeeding rates in their research study were mothers who returned to work, the hours of work, the occupation of the mothers, and the age of the mothers. Some variables like ethnicity, religion, and marital status were not considered significant to breastfeeding in this study (Ajayi et al. 2011).

Several well documented evidence-based studies (American Academy of Pediatrics, 2013, 2012 & World Health Organization, 2012, 2011) showed an increase in maternal-infant mortality and morbidity rates when infants are not breastfed. These rates include otitis media, childhood obesity, prolonged hospitalization due to illness, and sudden infant death syndrome (SIDS). Type 2 diabetes and allergic diseases with high maternal mortality and morbidity rates from breast cancer, ovarian cancer, diabetes and postpartum depression [Office on Women Health, [OWH], 2013 & WHO, 2012, 2011].

Similar to other researches, evidences were provided on breastfeeding information support by Agunbiade and Ogunleye (2012) in their mixed-method research design. Their research study provided insight into the crucial success in breastfeeding. The authors emphasized the efforts to curb infant malnutrition in conjunction with achieving the

millennium development goals four (reducing child mortality) and five (improving maternal health) (Agunbiade & Ogunleye , 2012).

In 2012, Agunbiade and Ogunleye's research study showed available evidence of a far reaching achievement of the millennium development goals (MDG) on maternal-infant health. Their study supported that continued breastfeeding can assist in achieving millennium development goals (MDG) from provision of adequate effective breastfeeding information to women. This education included early breastfeeding initiation, and longer duration. Agunbiade and Ogunleye added that multiple interwoven factors such as health status, psychosocial, cultural, political and economic factors can influence breastfeeding success.

Benefits of Breastfeeding Education to Diabetic Mothers

Research evidence has supported that breastfeeding assists in decreasing complications of diabetes including hypertension and type 2 diabetes (Office on Women's Health [OWH], 2013). A qualitative study conducted by Lundun and Berg (2011) explored experiences of mothers with type 1 diabetes provided added evidences in support towards effective breastfeeding.

Another study by Lundun and Berg (2011) used a hermeneutic reflective life world research approach. In this research, data was collected from consented participants through an audio-recorded focus group of 6-24 months post discharged women for about 90-120 minutes. This outcome of this study showed an extreme maternal self-efficacy for success demonstrated by these participants despite difficult situations and struggles with breastfeeding, most especially in their glycemic control (Lundun & Berg, 2011).

Many participants in this study expressed profound disappointment towards the health care professionals from lack of support and negative attitudes shown to these women during their hospital stay. These mothers emphasized more frustration and concern with supplementing their infant feedings with formula which they considered a worse alternative with breastfeeding.

Results of this study as documented by Lundun and Berg (2011) showed frequent hypoglycemic episode during breastfeeding in some women with no assistance from healthcare professionals. However, these mothers still continued to breastfeed their infants. The importance of health care professional's availability to provide needed breastfeeding education to diabetic mothers mostly on adapting to self-need was emphasized in this study.

This education according to the researchers should be given in relation to maternal diabetic management and breastfeeding to ensure safety of both mother and infant. Lundin, Wennergren, Elfvin and Berg (2011) in their prospective observational survey with a case-control design in comparing breastfeeding outcomes between mothers with type 1 diabetes group (DG) and mothers without diabetes (reference group -RG).

This study according to Lundun et al. (2011), illustrated the challenges encountered with diabetes and breastfeeding initiation. This, according to these authors, could ultimately result from increased complicated pregnancy, labor, cesarean section, and or instrumental deliveries. Neonatal morbidity, congenital malformations, effects of prematurity compounded with respiratory distress, are also factors that can decrease breastfeeding initiation.

The presence of neonatal hypoglycemia common in infants born of diabetic mothers may also be an added factor in complicating postpartum breastfeeding regimen (Lundin, et al. 2011). Neonatal hypoglycemia resulted from fetal intrauterine hyperglycemia and hyper-insulinism which is from a response to maternal hyperglycemia. Even though there are certain inconsistencies in this study, documentation according to Lundin, et al. stated that early maternal-infant separation further increases hindrance in breastfeeding.

In another systematic review based on the standards outlined in the meta-analysis of observational studies in epidemiology (MOOSE) guidelines used for the meta-analyses and systematic reviews of observational studies conducted by Patelarou, Girvalaki, Brokalaki, Patelarou, Androulaki, and Vardavas, (2012). This study focused on the hypothesis of whether breastfeeding and increased duration in infants tends to have a protective role for the infants against developing type 1 diabetes in the future compared to formula feeding.

The authors' study evaluated 161 previous studies with only 28 articles reviewed after exclusion of 133 articles from abstract review that were not significant to the research. The concept of comparing breastfeeding, duration and formula feeding on future development of type 1 diabetes in infants as they reach childhood and adolescence was implemented.

Patelarou et al. (2012) further explained inclusion of their systematic study in their methods based on all epidemiological designs including cross-sectional, case-control, cohort or randomized control trial. These designs were used to evaluate the type

of nutritional intake given to infants during the first months of life either with the provision of breastfeeding or formula feeding (Patelarou et al.).

These researchers also included the duration of total and exclusive breastfeeding, with the time of formula introduction as an effect on type 1 diabetes during childhood. Among excluded factors in this research were studies that referred to adults and to animals. As part of the study, evidences showed positive family history of type 1 diabetes with healthy children not included in this research (Patelarou et al., 2012).

In each study findings, researchers utilized a predesigned form in extracting information. These findings included demographics, study design, population, data selection used, aim of the study, and infant feeding type. The main outcome of the research contained factors used for adjusting or matching multivariate analysis.

The results of each case-control study reviewed as cited by Patelarou et al., (2012) used the case-control designed by Mayer et al.; Borch-Johnsen et al. and Glatthaar et al. which founded children with diabetes had shorter breastfeeding duration of less than three months. This outcome was compared to a control study which showed breastfed infants for over 12 months are less likely to develop type 1 diabetes.

There were no associations found between breastfeeding of any duration and risk of developing type 1 diabetic (Kyvik et al). But the systematic review study conducted by Patelarou et al. (2012) stated that evidences provided exclusive breastfeeding of longer duration for 12 months produces immunities. These tend to protect infants against the development of type 1 diabetes in childhood and adolescence life.

Lundin, et al. (2011) also supported high level breastfeeding education and promoting breastfeeding at hospital discharge. From these researchers study, their predictive factors for breastfeeding were independent factors for continuous breastfeeding at two months postpartum.

Lawrence and Godfrey (2010) from their expert opinion explained the significance of promoting, supporting and providing breastfeeding education to diabetic mothers. The ability to implement the expert's views will ultimately result in "prompt immediate, invaluable, and demanding job of initiating milk production needed for breastfeeding success" (p. 1598).

The prospective observational survey with case control design on diabetic mothers by Lundin, et al. (2011) concluded their findings from previous published study. Lundun et al. continued that high level breastfeeding education and full-term vaginal delivery are predictive factors for early breastfeeding initiation. More so, these two are needed in achieving continuous breastfeeding up to six months postpartum (Lundun et al.).

However, they further explained the use of different study designs at different time periods either during pregnancy or after delivery can be considered for future studies. This, according to the researchers' result from several countries showed general increase in breastfeeding rates together with positive attitudes.

Breastfeeding Education for Pregnancy-Induced Hypertension

The impact of breastfeeding has also been documented from several studies on hypertension in pregnancy. Among these studies was a positive effect of breastfeeding

evident by a decreased blood pressure (Lupton, Chiu, Lujic, Hennessy, and Lind, 2012). It further assists in the reduction of high incidence of complications associated with pregnancy-induced hypertension (PIH) including seizures and convulsions, stroke, and even death (Lupton et al.).

In the abstract from an observational study focused on breastfeeding determinants, association and altering a woman's risk of high blood pressure (HBP). The study collected data from 83,139 women ages 45 and up. The criteria for recruited participants were in conjunction with their physician's diagnosis of high blood pressure, parity, and breastfeeding duration.

Using logistic regression, the relative risks (RR) and confidence intervals were 99% risk of women who had high blood pressure (HBP). The outcome of this research study by Lupton et al. (2012) in Australia showed increased breastfeeding duration has a significant decrease on high blood pressure.

This study also involved both cumulative lifetime duration and duration per child and concluded that the longer a woman breastfeeds, the lower the risk of having HBP. In essence, an increased breastfeeding duration has a significant association in decreasing risk of having HBP (45 to less than 53 years, 6-12 months breastfeeding per child: RR 0.82, 99% CI 0.68-0.98, $p = 0.004$) (Lupton et al., 2012).

The positive effect of increased breastfeeding duration is more evident in much younger ages (45 to less than 53 years and 53 to less than 60 years) with great benefit in preventing HBP (Lupton et al., 2012). Despite the support of this study with the World Health Organization's recommendations to breastfeed for a minimum of 6 months,

however, an outcome documented from this study showed that breastfeeding benefits declines with an increase in maternal age with no association between breastfeeding and HBP in women greater than 69 years.

In another systematic review on long-term effects of breastfeeding by Horta and Victora, (2013) on over 1000 participants, protective effect of breastfeeding was documented with weight loss which ultimately decreases incidence of high blood pressure. Though several proposals were included in this study, there was limited evidence on the mechanism of action on the effect of breastfeeding against high blood pressure (HBP).

Improving Breastfeeding Education for Women with Multiple Gestations

Multiple births with compounding complications including prematurity of these infants are factors that are considered most vital to promoting breastfeeding. Bennington, (2011) discussed her support in breastfeeding in multiple pregnancies including twins, triplets, and or quadruplets. Her breastfeeding advocacy for multiples provided advantages that include health, immunology, and nutritional, developmental, physiological, psychological, social, environmental, and economic benefits.

In a qualitative study conducted by Cinar, Alvur, Kose, and Nemut, (2013) on breastfeeding twins used a data analysis framework. Identified themes from Cinar et al.'s (2013) study illustrated mother's willingness to breastfeed and continue breastfeeding. Sufficient breastfeeding advices from healthcare personnel and experienced mothers provided significant support to new mothers who had multiple babies.

Cinar et al. (2013) discussed several evidences of complications associated with prematurity from multiple births including low-birth weight infants, post-natal complications that comprised of several recurrent sepsis, necrotizing enterocolitis and retinopathy of prematurity. However, many research studies showed significant decrease in these complications with early provision of breast-milk to premature infants.

This study used a qualitative narrative interview-based design in a State Hospital in Sakarya provincial center in May 2012. The participants were mothers with multiple deliveries and ten women who volunteered to participate and accept home-visits ranged from 21 to 34 years. These mothers were from middle-class economic status and had gestational age within 33 and 39 weeks. Among the ten mothers that volunteered four were primiparas and the remaining six had previous breastfeeding experiences with singleton deliveries.

All mothers enrolled in this study were delivered via cesarean section with an actual age range of twins between 2 to 24 months. Hospitalization of one or more infants was from two days to four weeks after birth in the neonatal intensive care unit (NICU). While five sets were discharged home on the same day with their mothers (Cinar et al., 2013).

Summary

Educating mothers on benefits of exclusive breastfeeding was facilitated by incorporating evidenced-based literature reviews. This promoted increased knowledge and enhanced positive attitudes towards early initiation and continuation of exclusive

breastfeeding for at least six months of an infants' life by new mothers [American Academy of Pediatrics [AAP], 2012; World Health Organization [WHO], 2013, 2012].

Several research studies with scientific underpinnings and current evidence base-practices showed there are optimal results from promoting exclusive breastfeeding by mothers to their infants [World Health Organization [WHO], 2013, 2012]. The ability to achieve a successful breastfeeding relies solely on education and support provided to mothers by healthcare professionals with emphasis on breastfeeding benefits to both mothers and their infants (Damstra, 2012).

Damstra (2012) further added that more studies have documented positive impact on maternal attitudes towards breastfeeding outcomes by supporting and encouraging maternal intent during breastfeeding counseling/education. More so, Damstra included providing education, continuous support from the healthcare professional and providing physical assistance at the onset of breastfeeding with appropriate referrals to lactation consultants enhanced successful outcomes.

All these factors resulted in achieving desirable outcomes towards increased breastfeeding rates at hospital discharge in women with diabetic, pregnancy-induce hypertension, and multiple gestations (Damtra, 2012). However, ability to effectively and adequately encourage maternal self-efficacy towards effective breastfeeding is of essence in achieving a better breastfeeding outcome (Dennis, 2010). In addition, the Millennium Development Goal (MDG) encouraged inclusion of breastfeeding as a preventative and treatment services to decrease infant mortality and morbidity rates in education given to mothers.

Section 3: Methodology

Introduction

The national recommendation standards for breastfeeding [Centers for Disease Control and Prevention [CDC], 2011 & U.S. Department of Health and Human Services [DHHS], 2011] encouraged all hospitals that desire to achieve Baby Friendly Hospital Initiative (BFHI) to implement the evidence for the 10 steps to successful breastfeeding (Appendix A). This standard recommendation is needed to achieve early breastfeeding initiation and increase breastfeeding rates at the time of hospital discharge thereby meeting the goal of Healthy People, 2020 (2013). These steps have also been found to correlate with increased breastfeeding duration [CDC, 2011].

Breastfeeding is a major factor in disease prevention and health promotion in mothers and infants (Abrahams & Labbok, 2009). Therefore, breastfeeding education approach is an initial basis for implementation of this evidence-based project. This project also identified barriers to meeting clinical and organizational needs for effective breastfeeding outcomes (Melnik & Fineout-Overholt, 2011).

Evaluation Methods

This breastfeeding education project for women with diabetic, pregnancy-induced hypertension and multiple gestation and high risk women increased breastfeeding knowledge, supported maternal intent, self-efficacy, and breastfeeding duration. This educational project also resulted in improved health for new mothers, infants, and entire targeted populations (AACN, 2006).

Provision of this breastfeeding education intervention supported steps three to 10 of the Baby Friendly Hospital Initiatives [BFHI]-Evidence for the ten Steps to Successful Breastfeeding (Appendix A). Moreover, all current breastfeeding assessment resources available at the obstetric clinic and different types of breastfeeding education tools were utilized and fostered the breastfeeding education to the identified target populations.

In this project, I developed an educational checklist and provided breastfeeding education to new mothers for 10 minutes via face-to-face sessions in a private room. This program included current evidence-based literature reviews on the benefits of exclusive breastfeeding for high-risk pregnant women. Women who were given the breastfeeding information had verbal consent obtained by the obstetrician during their prenatal or postnatal visit to increase their knowledge, support, intent, and self-efficacy in breastfeeding.

Women who were prenatal completed questionnaires with five pre-survey questions to assess their knowledge, intent, and self-efficacy in breastfeeding and postpartum women completed questionnaires with 10 post-survey questions. After providing the breastfeeding information, prenatal women completed another five post-survey questions from a questionnaire, while post-partum women completed 10 post-survey questions from a questionnaire. Initial informational emphasis was directed toward the national goals and recommendations of early initiation and duration of breastfeeding through promotion of early skin to skin contact (Mellin et al., 2011).

The topic checklist was utilized during the breastfeeding education for women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestation women. One

significant topic discussed was the mother's ability to recognize an infant's feeding cues and signs for effective milk transfer from mother to baby as noted from wet diapers. Information included in the breastfeeding education was the negative impact mostly experienced by mothers associated with mixed feeding (breast and formula feeding) and use of pacifiers when exclusively breastfeeding.

Mellin et al., (2011) in their study emphasized the significance of feeding frequencies and infants' abdominal size during the first week of life. This information supported the breastfeeding education and ultimately provided reassurance and increased knowledge to mothers that their infants were receiving adequate feeding.

I provided additional education visual aid in form of "roadmap to breastfeeding success" [Tedder, 2011] (Appendix B) as an added educational tool to support the breastfeeding information for the targeted population for women with diabetic, pregnancy-induced hypertension and multiple gestations. The visual aid was an illustrative way to encourage new mothers toward a successful breastfeeding outcome from birth up to 1 year of age, as recommended by Healthy People 2020, (2013).

Breastfeeding Assessment Resources

I compiled current available educational resources in the obstetric clinic on breastfeeding education together with my literature reviews in developing and providing effective breastfeeding education for the targeted population for this project. These resources were used for women with diabetic, pregnancy-induced-hypertension and multiple gestations at the clinic during the breastfeeding education project.

I used literature reviews of current and existing breastfeeding educational materials for high risk women with diabetic, pregnancy-induced hypertension and multiple gestations in the obstetrical clinic. All of these tools provided excellent educational support during the breastfeeding education as the tools focused on improving breastfeeding knowledge, support intent, and self-efficacy to increase breastfeeding initiation and duration.

Types of Breastfeeding Education Program

Several evidence based studies suggested that no single educational method or tool is valid in promoting breastfeeding education. Implementing various educational tools has been reported as an excellent predictor in breastfeeding motivation, initiation, and duration (Lumbiganon, Martis, Laopaiboon, Festin, Ho, & Hakimi, 2012).

The breastfeeding educational tools used for this project included the visual aids, “roadmap to breastfeeding success” by Tedder (2011) (Appendix B). Although I planned to use a video as one of the visual aids, the clinic had not yet purchased a new DVD/TV at the time of the project.

The other methods that I used to distribute information regarding breastfeeding were face to face, individual teaching with the patients for 10 minutes and a single breastfeeding education pamphlet that was published in English. This educational project was completed using a developed supplemental up-to-date breastfeeding education checklist (Table 2) on different topics provided to the target populations to improve breastfeeding outcome.

Evaluation Plans: Program Assessment Tools

Dennis's (2010) Breastfeeding Self-Efficacy Scale (BSES), along with the six sequences of the logic model framework were also tools used in providing breastfeeding education for this project. These tools had been used and tested for validity and reliability. Therefore, utilizing these tools for the project promoted and supported maternal self-efficacy through increased knowledge and intent while it enhanced an effective implementation and positive outcomes.

Dennis's (2010) theoretical framework and logic model were tools used to increase breastfeeding knowledge and enhance positive attitudes for this project. These frameworks were used to encourage early breastfeeding initiation in women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations. The breastfeeding education checklist (Table 2) was an additional tool used to evaluate topics covered during the breastfeeding education for the targeted population of women who were high risk.

Table 1

Logic Model Framework (2012)

Target Population	Underlying Assumptions	Resources/Challenges	Activities	Outputs	Outcomes
Diabetes, PIH and multiple gestations women.	High risk women with diabetes, PIH and multiple gestations verbalized desire to provide their infants with optimal nutrition from breastfeeding and/or breast pumping.	Educational tools including visual DVD, Roadmap to breastfeeding successful pamphlet and pamphlet available in English version.	A one-one breastfeeding education to verbally consented women with diabetic, PIH and multiple gestation high risk in the obstetric clinic.	The student provided 5 pre-survey questionnaires for prenatal women and 10 pre-survey questionnaires for post-partum women.	Obstetricians/other medical professionals/staffs at the clinic continued to provide additional breastfeeding education to all high risk patients.

(Table continues)

Target Population	Underlying Assumptions	Resources/ Challenges	Activities	Outputs	Outcomes
	All OB doctors and other medical staffs at the clinic showed their desire to provide additional breastfeeding education to diabetic, PIH, and multiple gestations after the project completion.		Provided current evidence-based literature reviews on breastfeeding education to the obstetricians and other medical staffs in the clinic. This was to assist the staffs to continue to support, motivate and encourage patients towards exclusive breastfeeding.	The breastfeeding education was provided by student to verbally consented women with diabetic, PIH and multiple gestation patients in the obstetric clinic on one-one. She followed with provision of pamphlets.	Focusing on diabetic, PIH and multiple gestations during each pre-natal or post-natal visit.

Table 2

Breastfeeding Education Checklist for women with Diabetic, Pregnancy-Induced Hypertension and Multiple Gestations

Breastfeeding Education Topics	Signature
Benefits of exclusive breastfeeding in diabetic, hypertensive and multiple gestation	
Importance of early STS.	
Effective positioning and latch.	
Initiation of breastfeeding.	
Advantages of rooming-in for exclusive breastfeeding.	
Optimal milk supply.	
Breastfeeding frequencies and infants' abdominal size in first week of life.	

Adapted from “*The criteria for evaluation of step 3 for Baby-Friendly® designation*” (BFHI, 2010).

I also utilized another educational visual tool known as the roadmap to breastfeeding success- Developing your Great Parenting Skills (GPS) by Tedder (2014) (Appendix B). This educational tool promoted a visual illustration that provided information regarding desired healthy infant growth and exclusive breastfeeding from prenatal period to age one of an infant life during the educational session for identified populations. The GPS also sustained established early breastfeeding initiation, duration, and continuous breastfeeding support via education after hospital discharge, while

appropriate referrals to an out-patient lactation clinic and Women Infant Children (WIC) programs were emphasized during the educational sessions.

Subsequently, women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations were informed about how successful breastfeeding outcomes are achieved at home when difficulties associated with breastfeeding are adequately addressed by healthcare professionals. These difficulties might include ineffective latch by the infant, low milk supply, or positioning and will be effectively managed by lactation educators/consultants. The ability to effectively assist new mothers after discharge will foster continuation of breastfeeding duration and enhance self-efficacy.

Project Evaluation

Evaluation of this evidence-based breastfeeding education project to women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations were conducted using prenatal breastfeeding self-efficacy scale (Dennis, 2010; Wells, 2006, Thompson & Kloeblen-Tarver, 2006) (Appendix C). The Likerts' scale questionnaires comprised of 10 itemized questions (Damstra, 2012) (Appendix D). These questionnaires also included five pre-tests questions (Appendix E) and five post-tests questions (Appendix F) on breastfeeding self-efficacy, knowledge and intent.

Reliability and validity of these tools from previous tests enhanced repeat use of the tools for this breastfeeding education project. These evaluation tools aided to assess maternal self-efficacy, knowledge, motivation, and attitudes of women with diabetic, pregnancy-induced hypertension and multiple gestations at the obstetric clinic towards breastfeeding. More so, the reliability and validity of these tools provided tendency for

enhanced exclusiveness towards effective breastfeeding from the education project at completion.

Maternal pre-education assessment on the following:

- Breastfeeding self-efficacy
- Breastfeeding knowledge
- Breastfeeding intent

Maternal post-education assessment conducted on the following:

- Breastfeeding self-efficacy
- Breastfeeding knowledge
- Breastfeeding intent

Summary

I focused on increasing maternal knowledge; promote positive attitudes towards exclusive breastfeeding after identifying gaps and obstacles to breastfeeding initiation and duration in target populations (diabetic, pregnancy-induced hypertension and multiple gestations). This led to critical analysis of different current literature reviews on breastfeeding education in the targeted populations. This project supported several literature reviews conducted for this education that early pre-natal breastfeeding education provided to the targeted populated facilitated an increase in positive social change towards breastfeeding outcome.

In this section, breastfeeding education was focused on women with diabetic, pregnancy-induced hypertension and multiple gestations. An initial meeting was held with the obstetrician (OB) on the purpose of the breastfeeding project and the targeted population. Interestingly, the OB was delighted to have this education project completed at his clinic for the identified women. According to him, “providing the breastfeeding education at the clinic will increase maternal knowledge, support motivation and increase individual self-efficacy, at the same time enhance great sense of increased comfort levels and knowledge in the medical staffs.”

These high risk women were selected for the breastfeeding education after verbal consent had been obtained from interested patients by their obstetrician (OB) after each pre-natal and post- natal visit. A private room was utilized to provide the breastfeeding education on one to one basis. Each selected pre-natal individual was given questionnaires comprised of five pre-survey questions and five post-survey questions. While post-partum women selected were provided 10 pre-survey and 10 post-survey questions in a questionnaire. The pre-survey questionnaires were given to assess level of knowledge on breastfeeding from each participant. Post-survey questionnaires were given after the education.

During the breastfeeding education, I used tools that included breastfeeding education checklist focused on the breastfeeding topics as guidance. At the end of each breastfeeding education session, each participant was given a breastfeeding pamphlet (English) and roadmap to breastfeeding success-Developing Your Great Parenting Skills

(GPS) (Tedder, 2011) as a visual tool to support the women towards breastfeeding success.

After completing the breastfeeding education, the post-survey questionnaires result showed significant increase in knowledge, intent and self-efficacy in all women given the breastfeeding education. In addition, most of the participants verbally expressed appreciation and confident feeling to initiate breastfeeding immediately after delivery. While post-partum women in the identified population verbally stated their desire to continue with breastfeeding for at least 6 months of their infant's age.

Section 4: Finding, Discussion and Implication

Introduction

This breastfeeding education project was based on current literature reviews to promote maternal-infant child health (MICH), which is one of the major goals of Healthy People 2020 (2013). Breast-milk derived is the main food for infants and contains all needed nutrients, antibodies, and passive immunities needed for adequate growth and development.

In addition, it protects all infants against diseases and infections [World Health Organization [WHO], 2013, 2012, 2011; American Academy of Pediatrics [AAP], 2012]. Furthermore, WHO (2013, 2014) and several other studies considers breastfeeding to be the most effective way a mother can feed her infant as it enhance increase sensory and cognitive development in infants earlier in an infant's life.

The purpose of this breastfeeding education project was to improve knowledge, intent, and self-efficacy in women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations toward effective breastfeeding outcomes and positive social change. Several literature reviews conducted for this project documented the significance of early breastfeeding education in improving maternal knowledge, thereby decreasing the complications associated with the disease conditions addressed in this project and subsequently increasing breastfeeding outcomes.

Methods of Protecting Human Subjects

All data were obtained after approval from the Walden University Institutional Review Board (06-12-15-0289466). Despite patient involvement in this project for data collection, there were no risks associated with unauthorized use of their data or violation of confidentiality.

The goals for this educational project were to improve knowledge, support intent, and increase self-efficacy in women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations at a private obstetrical clinic. Another goal was to provide the medical professionals at the clinic the most current literature reviews on breastfeeding education specific to the identified high risk population.

Analysis of Data

The breastfeeding project education data were gathered using descriptive statistics on women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations during their pre-natal and post-partum women at the private obstetric clinic in Long Beach, California. Patients with the projected disease conditions had an initial verbal discussion from the obstetrician regarding the benefits of the breastfeeding education regarding their respective disease conditions. Tables were used to illustrate the number of participants in total that responded to each itemized questions from the questionnaires before the breastfeeding education and after the education in prenatal and postpartum women (Table 3).

Table 3

Total Participants

Participants in project	%
Pre-natal	33
Post-natal	21
Total Participants	54

Verbal consent was obtained from patients who expressed a desire to breastfeed their infants after delivery and within the target disease conditions. These patients were informed that I would provide a breastfeeding educational overview. A five itemized pretest survey questions in a questionnaire was the initial assessment to determine maternal knowledge, intent, and self-efficacy regarding breastfeeding (Table 4).

Table 4

Five pre-test survey questions

Number (n) of participants	Response rate (%)
6	100
8	40
7	40
6	60
6	60

This was followed by providing breastfeeding educational information from the checklist (Table 2) to individual patients via face to face for 10 minutes and with a pamphlet. Lastly, the participants were given questionnaires containing a five post-test

survey questions for prenatal women and 10 post-survey questions for post-partum women to evaluate the effectiveness of the breastfeeding education.

This project was completed after providing breastfeeding education to 54% of the anticipated 100 patients within the target population. Of this number, 33% were prenatal patients while 21% were postpartum patients. All these patients completed both the pre-survey and post-survey questions in the questionnaires prior to the breastfeeding education and after the breastfeeding education.

I discarded 46% of the remaining unanswered questions due to incomplete data from the participants and time constraints to complete the breastfeeding project. All demographic variables collected from each participant in the target populations were done during the 10 minutes face to face breastfeeding education session. These demographic data included age, level of education, and socioeconomic status (Table 5).

Table 5

Demographic variables/methods

Number (n) of participants	Response rate (%)
Participant's Age	Face to face
Participant's level of education	Face to face
Socio-Economic Status	Face to face

The result from the breastfeeding education project from all the post-survey questionnaires showed significant increase in knowledge, intent, and self-efficacy among the participants. Though, many of the participants verbalized some level of knowledge

about breastfeeding from family and previous breastfeeding experiences, they showed interest in receiving additional current literature reviews which I provided to increase their knowledge, intent, and most especially their self-efficacies.

Findings

A descriptive analysis was completed using tables with frequencies and percentages for the participants in this project. These are shown in Tables 6 and 7 below. In this breastfeeding project, 54% of the patients that completed the surveys were between the ages of 19 to 25 years old while 46% were between the ages of 26 to 38 years old. The average age of the targeted population that participated in this project was 26 years.

Table 6

Average age of participants

Targeted population (%)	Average age
54 (completed survey)	19-25 years old
46 (Discarded survey)	26-38 years old
100 (Targeted population)	26 years old

Data collected during the 10 minutes face to face educational session and post-survey questionnaires showed higher percentages in breastfeeding knowledge among participants who had previous breastfeeding experience(s) with family support to subsequently breastfeed their infants after delivery or continue until 6 or 12 months of their infant age. Some data collected showed previous formula fed and low

socioeconomic status with less family support indicated possible decrease in breastfeeding initiation from lack of breastfeeding knowledge.

Due to the health disparities these experienced women and inexperienced women with less family support, I provided extensive breastfeeding education to the women with less family support and low socioeconomic status. The focused breastfeeding goal on these specific women with low socioeconomic, and less family support was to provide adequate professional support, increase their knowledge and support intent and self-efficacy in hopes of achieving a positive breastfeeding outcome according to Brown et al., (2010) as cited by Renfrew, et al. (2012, p. 17).

This educational program that I designed was based on each patient fitting these criteria:

- Breastfeeding self-efficacy
- Breastfeeding knowledge
- Breastfeeding intent

I used the questionnaires containing five pre-test survey questions (Damstra, 2012) as an initial assessment on women with (diabetic, pregnancy-induced hypertension and multiple gestations) after verbal consent was obtained by the obstetrician. Following the OB visit, these women were provided breastfeeding education based on their pre-survey response to the five pre-test survey questions. Another five item post-test survey questions (Damstra, 2012) from a questionnaire was given to the participant women. Post-partum women with diabetic, pregnancy-induced hypertension and multiple

gestations were given 10 post-partum survey questions from a questionnaire (Wells et al., 2006).

Despite 100 survey questionnaires distributed, only 54 (54%) completed questionnaires were collected and used for data analysis in this breastfeeding project. The remaining 46 (46%) questionnaires were discarded due to incomplete data and limited time to complete the project. The completed data collected included 33 pre-natal pre/post survey questionnaires and 21 post-natal pre/post survey questionnaires.

Tables 7 and 8 below show the number of pre-natal women who answered each five item questions in the questionnaire before the breastfeeding education and 10 questions in the questionnaire in post-partum women prior to their breastfeed education. Similarly, Tables (9 &10) illustrated higher positive responses from exact number of women that participated in the project from the questions in the post-survey questionnaire in prenatal and post-partum patients. In essence, a positive increase in responses from the participated women in Tables 4 and 6 signified positive outcomes from the breastfeeding education project.

Table 7

Five pre-survey questions

Number (<i>n</i>) of participants	Response rate (%)
6	100%
8	40%
7	40%
6	60%
6	60%

Table 8

Five Post-survey questions

Number (n) of participants	Response rate (%)
6	100%
8	40%
7	80%
6	100%
6	80%

For this breastfeeding education project, out of the 54% completed survey questionnaires, 21% of postpartum women with diabetic, pregnancy-induced hypertension and multiple gestations were included. They were given 10 pre-survey and 10 post-partum survey questions in a questionnaire (Well et al., 2006; Damstra, 2012).

Completed data collected and analyzed showed 21% post-partum women completed the pre-survey and post-partum survey questions from the questionnaires. Below, Table 9 showed pre-survey questions while Table 10 showed post-survey questions from questionnaires. Also included are the numbers (*n*) of participated high risk women and their response rates (%) for each question before and after the breastfeeding education.

Table 9

10 Pre-survey questions

Number (<i>n</i>) of participants	Response rate (%)
3	20%
2	40%
2	60%
3	40%
3	40%
1	70
2	70
3	30
1	20
1	50

Table 10

10 post-survey post-partum questions

Number (<i>n</i>) of participants	Response rate (%)
3	70%
2	100%
2	90%
3	100%
3	80%
1	100
2	80
3	60
1	70
1	80

Discussion of Findings

The total population of women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations without adequate knowledge and support toward successful breastfeeding outcomes is very important at the private obstetric clinic, Long Beach, California.

This project was able to identify gaps affecting exclusive breastfeeding knowledge, self-efficacy and intent among targeted population at the clinic before delivery and four weeks post-partum. Therefore, provision of breastfeeding education was identified as means to improve maternal and infant outcomes towards effective breastfeeding outcomes.

Furthermore, achievement of targeted breastfeeding continuation and duration goal of 81.9% recommended by Healthy People 2020 (2013) needs to be attained (CDC, 2012) for optimal breastfeeding. According to the WHO (2013; 2012) several research studies have identified negative impact from breastfeeding discontinuation earlier than 6 months of an infant's age which was also attributed to increase in maternal-infant mortality and morbidity rates.

World Health Organization (WHO, 2014; 2013), emphasized on several research studies conducted and provided recent literature review evidences on successful breastfeeding outcomes from early education mostly to women with intent to breastfeed after delivery. In support of the WHO (2014; 2013), the Centers for Disease Control and Preventions (CDC, 2013, 2011) Division of Nutrition, Physical Activity, and Obesity

(DNPAO), has its primary goal focused on decreasing maternal-infant morbidity and mortality rates through breastfeeding education.

The breastfeeding project started with an initial meeting with the main obstetric doctor at the private obstetric clinic, Long Beach, California. My focused discussion was directed to current evidence-based literature reviews and research outcomes on the breastfeeding education to improve the health of women with diabetic, pregnancy-induced hypertension (PIH) and multiple gestations at the obstetric clinic.

During this discussion, emphases were made on the project methods and components including Logic Model and Dennis (2010) breastfeeding self-efficacy model tools. These tools were considered reliable and valid to promote effective communication between health care professionals and the targeted populations. This process was repeated to other four obstetric doctors (OB) at the clinic on different days on individual basis to improve the importance of breastfeeding education.

The medical assistants (MA) and the Comprehensive Perinatal Services Program (CPSP) at the clinic were given information on the breastfeeding project, methods and its components. They were informed on different days of the project purpose which is intended to increase maternal knowledge, self-efficacy, support intent and provision of current literature reviews as supplements to the available literature at the clinic for the healthcare team.

Provision of current literature reviews supplements to the MA and CPSP was intended to empower and provide comfort in supporting the targeted patients who desired to breastfeed their infants after delivery. I utilized the breastfeeding checklists (Table 2)

which assisted to focus on the needed topics for the breastfeeding educational project. In addition, emphasis was directed on maternal knowledge, intent and self-efficacy during the educational sessions. During the course of the education, participant's questions were regularly answered and encouragement provided on self-motivation and a successful breastfeeding outcome.

Furthermore, prenatal patients who expressed their desire to breastfeed their infants after delivery and post-partum patients within the targeted populations were provided current literature research reviews on the benefits of breastfeeding during the 10 minutes face to face session. The roadmap to your-Develop your Great Parenting Skills (GPS) (Appendix B) pamphlet was handed to individual woman to support their knowledge on successful breastfeeding outcome for at least one year (WHO, 2012).

Implications for Nursing Practice

The above findings categorically showed effective breastfeeding education to women with diabetics, pregnancy-induce hypertension and multiple gestation to increase their individual self- efficacy, knowledge and intent towards successful breastfeeding outcome. The enthusiasm showed by these participants to receive current evidence-based literature reviews on their personal disease conditions as it relates to diabetics, pregnancy-induced hypertension and multiple gestations was outstanding.

The majority of these participants verbalized their intent to breastfeed their babies after delivery. While the breastfeeding education assisted in improving maternal knowledge, support intent and enhance self-efficacy thereby decreasing gaps in knowledge, self-efficacy and individual intent. This breastfeeding education project also

empowered all the health care professionals at the obstetric clinic to continue to encourage these patients in breastfeeding for a positive social change in maternal health.

Several research studies on breastfeeding reviewed for this project (2009-2014) documented the significance of breastfeeding benefits, providing education to healthcare professionals and mothers has shown improved outcomes in breastfeeding success. Hospitals are therefore encouraged to implement the evidence for the ten steps to successful breastfeeding as an educational tool in achieving a Baby Friendly Hospital Initiative [BFHI] (WHO, 2014) and in the hospital policies and procedures to improve nursing practice.

Project Strengths

A desired outcome from this breastfeeding project showed 90% of women with diabetic, pregnancy-induced hypertension and multiple gestations had increased knowledge, self-efficacy and supported intent and motivation to breastfeed their infants after delivery. Post-partum patients among the targeted populations were able to express their desire to continue breastfeeding their babies till one year of age as recommended by American Academy of Pediatrics [AAP, 2012], and Centers for Disease Control and Prevention, [CDC, 2013].

Another motivating factor from the targeted women in the project was expression of an increased breastfeeding knowledge benefits to mothers and infants and decrease in their mortality and morbidity rates. These expressions and communications demonstrated that most of these participants were unaware of breastfeeding benefits specifically to high risk mothers in relation to women with diabetic, PIH, and multiple gestations.

This education further encouraged the target populations by empowering them to initiate breastfeeding immediately after delivery, and or continue with breastfeeding as a post-partum mother till at least one year of age [Healthy People 2020, (2013)].

Healthcare professionals at the obstetric clinic verbalized adequate increase in knowledge to continue to provide breastfeeding education and support to all obstetric women, but most especially high-risk women at the clinic.

Limitations

An identified limitation of this project was inability of the target population to complete all the data in the questionnaires. This was due to the time frame for the completion of the breastfeeding educational project. Also I was not able to utilize the DVD due to a defective device. Therefore, participants were provided a 10 minutes face to face breastfeeding education and pamphlets in English with the great parenting skills (GPS) as a tool to use after delivery. It was recommended to the clinic staff to purchase a new DVD player so patients can be able to watch the video on breastfeeding education while waiting to be seen by the obstetrician (OB) doctor.

Summary/Conclusion

There is an important need for social change towards knowledge gaps for successful breastfeeding in high-risk women. This project identified this need, and an effective breastfeeding education project provided positive outcomes and improved social change towards effective breastfeeding knowledge.

This breastfeeding education project for women with diabetes, pregnancy-induced hypertension and multiple gestations showed a desired and effective outcome. It is

imperative to note that patients were empowered in breastfeeding via breastfeeding education provided by all medical staffs using current evidence-based literature reviews. This ultimately provided an opportunity for a social change in improving maternal-infant health.

In addition, combination of multiple methods including face to face, pamphlets and visual tools were essential educational tools needed for the success of this breastfeeding education project. These methods increased patients' self-efficacy, knowledge and intent towards efficient and effective breastfeeding thereby provided support in decreasing maternal/infant mortality and morbidity rates [World Health Organization [WHO], 2014; American Academy of Pediatrics [AAP], 2014].

Section 5: Dissemination Plan

The dissemination plan for this breastfeeding improvement education project was completed during the course of this project. The breastfeeding educational project was provided at the private obstetric and gynecology clinic in Long Beach, California to women with diabetic, pregnancy-induced hypertension and multiple gestations. This breastfeeding education was considered a vital strength of the project completion. Additional resources in time were contributed to commuting to the clinic to ensure that all the medical professionals were aware of the breastfeeding project, its concepts and methods involved in completing the educational project within a defined time which ultimately led to positive outcomes.

In addition to disseminating this breastfeeding project, submission of this completed project to the journals of professional organizations including Association of Women Obstetrics and Neonatal Nurses (AWHONN) and March of Dimes are methods to improve maternal-infant health via publication. These organizations support promoting maternal-infant health through breastfeeding education.

Analysis of self

The roles that I fulfilled during the execution of this project included: scholar, doctor, mentor, educator, and manager. In all of these roles, the most significant aspect was to create a private environment conducive to promoting breastfeeding education to the targeted women to create positive social change.

The obstetric doctors (OBs), medical assistants (MAs), and comprehensive perinatal services program (CPSP) staff were involved in this project at the obstetric clinic.

Each individual was educated on breastfeeding benefits in women with diabetics, pregnancy-induced hypertension and multiple gestations. The obstetric doctors were met on an individual basis, and were provided current evidence-based literature including scientific underpinnings of the benefits of breastfeeding in the targeted population.

Other staff members in the office, including the MAs and CPSP staff were also given education with current evidence-based literature and components of the project, thereby providing support to patients who desired to breastfeed after delivery. This educational program was based on each patient's knowledge, intent, and self-efficacy.

Summary

It is imperative to promote maternal-infant health through early breastfeeding education prenatally. This will decrease maternal/infant mortality and morbidity rates in these targeted populations. Promoting, encouraging, and supporting women with diabetic, pregnancy-induced hypertension and multiple gestations in breastfeeding success through education will also foster positive social change in the community through education.

Healthcare professionals need to continue to provide information on the benefits of breastfeeding and information regarding the risks of not breastfeeding to these high risk women throughout pregnancy and postpartum. Effective collaboration and communication from all healthcare professionals toward exclusive breastfeeding will increase maternal knowledge, support intent, and promote self-efficacy, thereby creating social change.

The ability of healthcare professionals to continue educating women on the benefits of breastfeeding to both mothers and infants especially in women with diabetic,

pregnancy-induced hypertension (PIH) and multiple gestations will foster positive social change. This will ultimately decrease maternal-infant mortality and morbidity rates.

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Appendix A: Evidence for the Ten Steps to Successful Breastfeeding

Every facility providing maternity services and care for newborn infants should:

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

(UNICEF, 2012; WHO, 2014; & Baby-Friendly USA, 2012).

Appendix B: Roadmap to Breastfeeding Success (Tedder, 2011)

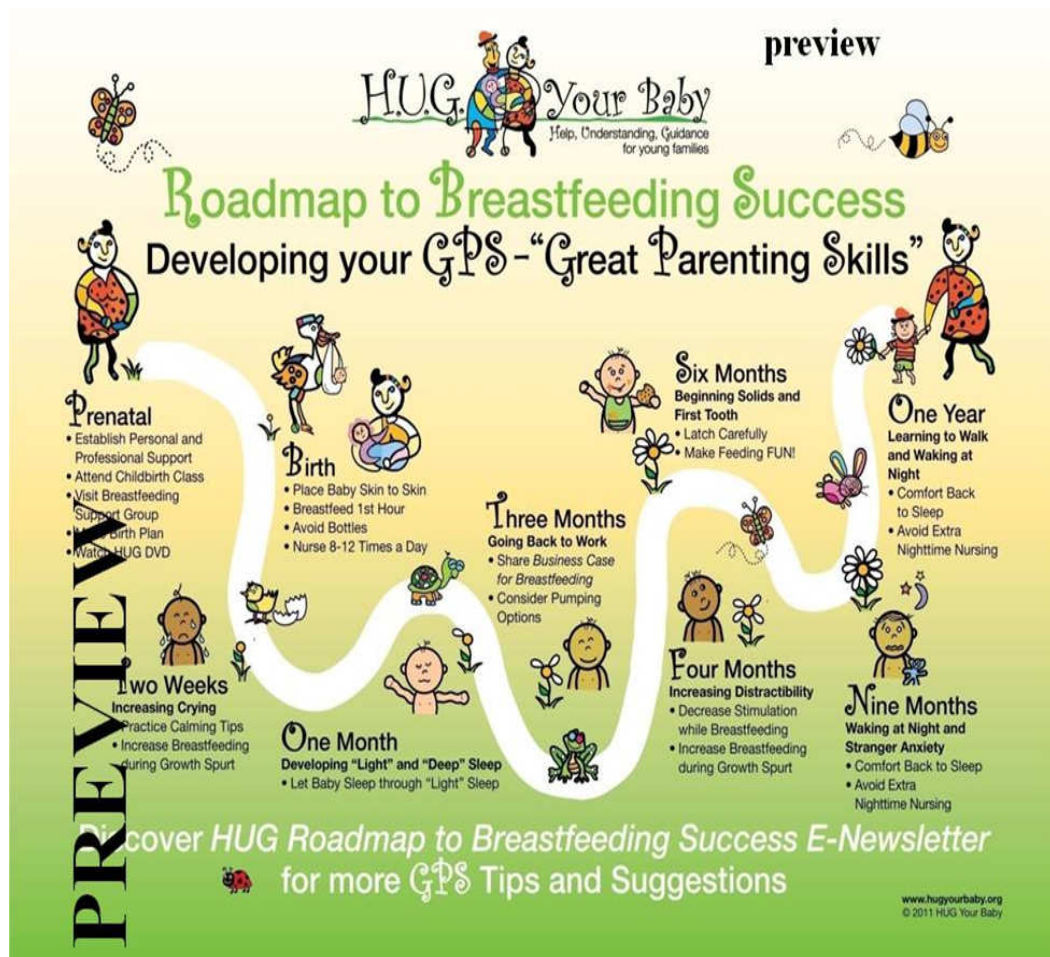


Figure 1. Roadmap to Breastfeeding Success.

Appendix C: Prenatal Breastfeeding Self-Efficacy Scale

(Not at all sure). 2. (Slightly sure). 3. (Fairly sure). 4. (Very sure). 5. (Completely sure)

1. I can make time to breastfeed my baby even when I feel busy
2. I can breastfeed my baby even when I am tired
3. I can schedule my day around the breastfeeding of my baby
4. I can breastfeed my baby when I am upset
5. I can breastfeed my baby even if it causes mild discomfort
6. I can use a breast pump to obtain milk
7. I can prepare breast milk so others can breastfeed my baby
8. I can find out what I need to know about breastfeeding my baby
9. I can find the information I need about problems I have breastfeeding my baby
10. I know who to ask if I have any questions about breastfeeding my baby
11. I can call a lactation counselor if I have problems breastfeeding
12. I can talk to my healthcare provider about breastfeeding my baby
13. I can breastfeed my baby when my family or friends are with me
14. I can breastfeed my baby around people I do not know
15. I can breastfeed my baby when my partner is with me
16. I can breastfeed my baby without feeling embarrassed
17. I can choose to breastfeed my baby even if my partner does not want me to
18. I can choose to breastfeed my baby even if my family does not want me to
19. I can talk to my partner about the importance of breastfeeding my baby
20. I can breastfeed my baby for one year

Wells et al., (2006)

Appendix D: 10 itemized Questionnaire

(Don't know) 1; (maybe) 2; (sure) 3; (Very sure) 4; (confidently sure) 5.

1. I can make time to breastfeed my baby on demand

1 2 3 4 5

2. I can talk to my healthcare provider about breastfeeding my baby

1 2 3 4 5

3. I can schedule my day around the breastfeeding of my baby

1 2 3 4 5

4. I can breastfeed my baby even if it causes mild discomfort

1 2 3 4 5

5. I can use a breast pump to obtain milk

1 2 3 4 5

6. I can breastfeed my baby without feeling embarrassed

1 2 3 4 5

7. I can find the information I need about problems I have breastfeeding my baby.

1 2 3 4 5

8. I can call a lactation counselor if I have problems breastfeeding

1 2 3 4 5

9. I can breastfeed my baby when my family or friends are with me

1 2 3 4 5

10. I can choose to breastfeed my baby even if my partner does not want me to

1 2 3 4 5

Appendix E: Five pretest questionnaires on breastfeeding education

Using the numbers below, please provide level of knowledge, attitude before breastfeeding education intervention:

(Not at all) (1); (not likely) (2); (probably) (3); (definite) (4); (confidently sure) (5)

Rank your level of knowledge before breastfeeding education intervention:

1. I will initiate early breastfeeding immediately after birth of my infant (s).
2. I understand the benefits of breastfeeding to my infant (s) and myself.
3. I am motivated to provide exclusive breastfeeding to my infant (s)
4. I am very confident and knowledgeable in breastfeeding.
5. I have intent and motivation in breastfeeding.

Appendix F: Five post-test questionnaires on breastfeeding education

Using the numbers below, please provide level of knowledge and attitude after breastfeeding education intervention:

(Not at all) (1); (not likely) (2); (probably) (3); (definite) (4); (confidently sure) (5)

1. I will initiate early breastfeeding immediately after birth.
2. I understand the benefits of breastfeeding to my infant and myself.
3. I am motivated to provide exclusive breastfeeding to my infant (s)
4. The breastfeeding education provided increased my knowledge and level of understanding in breastfeeding
5. The breastfeeding education provided supported my intent and motivation.