

4-20-2015

The Effect of an Antenatal Breastfeeding Intervention on Breastfeeding Self-Efficacy and Intention Among Inner City Adolescents

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**THE EFFECT OF AN ANTENATAL BREASTFEEDING INTERVENTION ON
BREASTFEEDING SELF-EFFICACY AND INTENTION AMONG INNER CITY
ADOLESCENTS**

by

JAMIE EL HARIT, BSN, RN

EVIDENCE-BASED PRACTICE PROJECT REPORT

Submitted to the College of Nursing and Health Professions

of Valparaiso University,

Valparaiso, Indiana

in partial fulfillment of the requirements

For the degree of

DOCTOR OF NURSING PRACTICE

J El Harit 4/20/15
Student Date

2015

Immunization 4/20/15
Advisor Date

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DEDICATION

I would like to dedicate this EBP project to my family, without whom I would not have completed this degree. Both of my parents, my husband, and my three beautiful children helped carry me through this process. I share this with them. We are done, we did it!

ACKNOWLEDGMENTS

I would like to thank many for their support and direction with this EBP project. First, I would like to thank Professors Julie Koch DNP, RN, FNP-BC and Amy C. Cory PhD., RN, CPNP for their support, insight, and knowledge. Additionally, I would like to thank both Sally Lemke, MS, RN, WHNP-BC and Amy Manion, PhD, RN, CPNP for their support and assistance with this project implementation. A special thank you to the Zeta Epsilon Chapter of Sigma Theta Tau for their generous grant which offset much of the costs associated with this project implementation. Additionally, I give much gratitude to Dr. Paula Meier, Katharine McGee, and the X University Mothers Milk Club and Breastfeeding Peer Counselor Program for their assistance with this project. Finally, I would also like to acknowledge the staff and students at S Academy for welcoming and accepting me into their school.

TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
DEDICATION.....	iii
ACKNOWLEDGMENTS.....	iv
TABLE OF CONTENTS	v
LIST OF TABLES.....	vii
LIST OF FIGURES	viii
ABSTRACT.....	ix
CHAPTERS	
CHAPTER 1 – Introduction	1
CHAPTER 2 – Theoretical Framework and Review of Literature	10
CHAPTER 3 – Implementation of Practice Change	55
CHAPTER 4 – Findings.....	66
CHAPTER 5 – Discussion.....	75
REFERENCES.....	86
AUTOBIOGRAPHICAL STATEMENT.....	94
ACRONYM LIST.....	95

APPENDICES

APPENDIX A – Summary of Appraised Evidence.....	91
APPENDIX B – Prenatal Breastfeeding Self-Efficacy Scale and Intention Questionnaire.....	103
APPENDIX C – Intervention Outline.....	105
APPENDIX D – Participant Demographic Questionnaire.....	107
APPENDIX E – Participant Consent Form.....	108
APPENDIX F – HIPPA Authorization Form.....	114

LIST OF TABLES

<u>Table</u>	<u>Page</u>
Table 2.1 Levels of Evidence	57

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
Figure 4.1 Effect of Intervention on Total Prenatal BSES.....	74
Figure 4.2 Effect of Intervention on Prenatal BSES Factor 1.....	75
Figure 4.3 Effect of intervention on Prenatal BSES Factor 2.....	76
Figure 4.4 Effect of Intervention on Prenatal BSES Factor 3.....	77
Figure 4.5 Effect of Intervention on Prenatal BSES Factor 4.....	78
Figure 4.6 Effect of Intervention on Level of Breastfeeding Intention.....	79

ABSTRACT

According to Healthy People 2020, infants who are breastfed have improved nutritional, immunological, developmental, and social outcomes (USDHHS, 2014). Despite the benefits of breastfeeding and the focused international efforts to increase levels of breastfeeding, adolescents remain largely unaware and continue to have among the lowest levels of breastfeeding initiation (CDC, 2013; Spear, 2006). The purpose of this EBP project was to reduce the disparities of breastfeeding initiation by increasing breastfeeding self-efficacy and intention in an inner city specialty high school. Synthesis of the evidence demonstrated that needs-based, repeated antenatal education delivered by a lactation expert including breastfeeding peer counselor supports was best practice for engaging the adolescent population. Utilizing *Social Cognitive Theory* as the theoretical framework and the *Stetler Model for Evidence-Based Practice* as a model for practice change, an educational intervention was implemented incorporating an Internationally Board Certified Lactation Consultant (IBCLC), peer counselors, and breastfeeding support. Pre- and post-intervention breastfeeding self-efficacy and intended infant feeding preference were collected utilizing the Prenatal Breastfeeding Self-Efficacy Scale (BSES). Non-parametric statistical testing did not reveal any significant differences between mean self-efficacy scores (81.2 and 83.4 respectively, $p = .500$). Linear regression was performed on pre and post- intervention breastfeeding intention revealing that, while the intervention did positively impact intention, results were not statistically significant ($p = .133$).

Key words: adolescent, breastfeeding, intention, initiation, lactation consultant, peer counselor, self-efficacy

CHAPTER 1

INTRODUCTION

Breastfeeding has many health benefits to both infants and mothers. Infants who are breastfed have improved nutritional, immunological, developmental, and social outcomes (U.S. Department of Health and Human Services [USDHHS], 2011; U.S. Preventative Services Task Force [USPSTF], 2008). The practice of breastfeeding prevents or decreases the risk of disease in infants including asthma, sudden infant death syndrome, childhood obesity, Hodgkin's disease, and hypercholesterolemia (Keister, Roberts, & Werner, 2008; Schoenfelder et al., 2013). According to the World Health Organization (Horta & Vitoria, 2013), breast milk is the superior nutrition for infants, providing immunologic support. Additionally, premature infants who are breastfed demonstrate improved developmental outcomes (Keister et al., 2008). Additionally, breastfeeding has also been correlated with improved health outcomes for mothers with reductions in risk of breast and ovarian cancers, decreased post-partum bleeding, and earlier return to pre-pregnancy weight (Horta & Vitoria, 2013; Keister et al., 2008).

Additional benefits achieved through exclusive breastfeeding include those impacting economics and environment. Formula costs are eliminated for individual families. Societal costs could also be impacted with reductions stemming from decreasing the formula stipends given to women who participate in the Women, Infants, and Children (WIC) program. Positive environmental impact includes the elimination of disposal of formula cans and bottles (Keister et al., 2008).

The World Health Organization (WHO), and the United Nations Children's Fund (UNICEF), in addition to the American Academy of Pediatrics (AAP) have recommended

exclusive breastfeeding for at least the first six months of life (AAP, 2012; WHO & UNICEF, 2009). Hospital-based promotion of breastfeeding has recently been a focus to improve the initiation of breastfeeding for infants born in the United States.

Breastfeeding exclusivity during the birth hospitalization is a National Quality Forum endorsed metric for evaluating the quality of perinatal care and is a metric reported to the Joint Commission [TJC] (TJC, 2013).

The Baby Friendly Hospital Initiative was launched globally in 1991 by the WHO and UNICEF in an effort to implement practices that protect, promote, and support breastfeeding (WHO & UNICEF, 2009). Recommended practices have been focused on the care of mothers and infants during the postpartum phase. Hospital practices to promote the initiation and support of breastfeeding have included skin-to-skin contact directly after delivery, immediate introduction to the breast, and mother and infant rooming-in (WHO & UNICEF, 2009). While incremental improvements in both initiation and breastfeeding duration rates have been reported by designated *Baby-Friendly Hospitals*, experts have contended that further improvement can and should be made across the continuum of care (WHO & UNICEF, 2009).

Despite the benefits of breastfeeding and the focused international efforts to increase levels of breastfeeding, adolescents have remained largely unaware (Spear, 2006). According to the Centers for Disease Control and Prevention (CDC), adolescents have had among the lowest levels of breastfeeding (CDC, 2013). According to Grady and Bloom (2000), after controlling for other demographic risk factors, the greatest risk for low initiation, duration, and exclusivity of breastfeeding was being an adolescent mother. The infants of adolescent mothers have been largely missing the health benefits and protections of breast milk, and this population has been largely overlooked in the

promotion and protection of breastfeeding (Hunter, 2012; Moran, Dykes, Burt, & Shuck, 2006).

The low prevalence of breastfeeding is further impacted by socioeconomic status and race (Apostolakis-Kyrus, Valentine, & DeFranco, 2013; CDC, 2013). Apostolakis-Kyrus et al. (2013) identified that white adolescents were more likely to initiate breastfeeding than black adolescents (45.5 % vs. 41.5%, $p < .01$). Additionally Apostolakis-Kyrus et al. noted that the most significant factors impacting breastfeeding initiation were the influences of Medicaid insurance and marital status, resulting in an adjusted relative risk difference from 0.47 to 0.85.

Statement of the Problem

Infants born to adolescent mothers may receive great benefit from breastfeeding. Researchers have even suggested that successful breastfeeding may impact the adolescent mother in many positive ways as well, such as reducing depression and substance abuse by fostering self-efficacy and a positive sense of self (Azar, Paquette, Zoccolillo, Baltzer, & Tremblay, 2007). Noting these benefits, it would behoove society to engage adolescents in breastfeeding by developing breastfeeding promotion and mechanisms of support that are meaningful and directed at the demonstrated and vocalized needs of the adolescent mother.

Data from the literature. Despite both world-wide and national initiatives, the CDC reported only incremental increases in rates of breastfeeding initiation and duration to six months at a national level from 2000 to 2007 (CDC, 2013). In 2007, of all births reported in the United States, only 75% of infants had ever received breast milk, and only 43% were still receiving breast milk at 6 months. Statistics for the State of Illinois have been somewhat lower than national average with 70.2% of all infants born in 2007 having ever been breast fed and only 36% still receiving any breast milk at six months of

age (CDC, 2013). Breastfeeding initiation and duration rates have also been found to be lower in urban areas (Noble et al., 2003). This holds true for the City of Chicago as well. Less than 67% of all births in 2007 had ever been fed breast milk, with only 34% still receiving breast milk at six months of age (CDC, 2013).

Many socioeconomic factors have impacted the initiation and duration of breastfeeding. In the CDC's National Immunization Survey (2013), 59.7% of African American infants born in 2007 were reported as ever receiving breast milk and 27.9% still breastfed at six months of age, compared to these rates in white infants: 77.7% and 45.1%, respectively. Participation in governmental assistance programs is another socioeconomic factor impacting breastfeeding practices. According to the CDC (2013), mothers who participated in the WIC program were less likely to initiate breastfeeding (67.5%) and sustain the practice to six months (33.7%) when compared to mothers who were deemed ineligible for WIC assistance (84.6% and 54.2 %, respectively).

Additionally, younger maternal age has been associated with decreased rates of initiation and duration of breast milk feeding (CDC, 2013). In a retrospective cohort study of all live births in 2006 and 2007 in the state of Ohio, researchers found that adolescent mothers, defined as less than 19 years of age, were 57% less likely to breastfeed than mothers of traditional childbearing age (Apostolakis-Kyrus et al., 2013). Many adolescent mothers have received less breastfeeding education prior to delivery than mothers of traditional childbearing age (Hunter, 2012; Moran, Dykes, Burt, & Shuck, 2006). According to Kornides and Kitsantas (2013), women exposed to a low amount of breastfeeding information are very unlikely to breastfeed. Therefore, increasing the exposure to antenatal breastfeeding education would appear to impact breastfeeding outcomes.

Many modifiable factors have been demonstrated to impact the initiation of breastfeeding. Meedya, Fahy, and Kable (2010) identified that mother's intention to breastfeed, her breastfeeding self-efficacy, and social supports were three modifiable risk factors strongly associated with breastfeeding initiation. While the most influential social supports for breastfeeding initiation are the adolescent mother's own mother and the father of her child, healthcare workers have been identified as vital surrogate family members in providing influential support (MacGregor & Hughes, 2010). This EBP project was aimed at impacting breastfeeding initiation by leveraging these modifiable factors with the utilization of breastfeeding experts as social supports.

A woman's stated intention to breastfeed has been one of the strongest predictors of breastfeeding initiation and duration (Hill, Arnett, & Mauk, 2008; Meedya et al. 2010). Keister et al. (2008) reported that by the beginning of the third trimester most women have decided on their intent to breastfeed. Intention to breastfeed is impacted by both a woman's own attitude and by her social influences (Meedya et al., 2010). The importance of mother's reported intention to breastfeed and her breastfeeding self-efficacy have been correlated with breastfeeding initiation, exclusivity, and duration in many studies (Baghurst et al., 2007; Blyth et al., 2004; Meedya et al., 2010; Mossman, Heaman, Dennis, & Morris, 2008; Semenick, Loiselle, & Gottlieb, 2008; Ystrom, Niegel, Klep, & Vollrath, 2008;). According to Blyth et al. (2004), mothers reporting an intention to breastfeed for six months were 2.4 times more likely to have discontinued breastfeeding at four months than those mothers who reported an intention to breastfeed for 12 months.

Breastfeeding self-efficacy has been the subject of many studies about breastfeeding. In the study conducted by Blyth et al. (2004), findings also demonstrated that mothers with high breastfeeding self-efficacy were more likely to be breastfeeding

compared to mothers with low self-efficacy (79.3% vs. 50%, $p < .001$). Researchers have recommended integrating self-efficacy enhancing strategies to increase mother's breastfeeding self-efficacy due to the strong predictive value of self-efficacy scores to both duration and level of breastfeeding (Blyth et al., 2002). Bailey, Clark, and Shepherd (2008) also demonstrated that breastfeeding self-efficacy predicted breastfeeding duration.

Positive breastfeeding attitudes and confidence scores were also associated with increased initiation and duration rates in adolescent mothers (Mossman et al., 2008). Mossman et al. (2008) found that social supports influenced both the initiation and continuation of breastfeeding. Brown (2013) examined the associations among breastfeeding duration, maternal personality, and maternal confidence and social support. Brown (2013) also associated the specific maternal traits of introversion and anxiety to a mother's reduced social networking. Women demonstrating these traits were found to be less likely to initiate and continue breastfeeding.

Data from the clinical agency. The site of implementation for this EBP project was a school-based clinic within an inner city public high school. The public school was the only school of its kind in a major metropolitan city in the Midwest serving female students in grades 6-12 who were either pregnant, parenting, or both. All of students were African American (87%) or Hispanic (13%) and from lower socioeconomic groups (X University college of nursing faculty member, personal communication, January 13, 2015). All students registered at the school also qualified for the state's free lunch program, and a high percentage received their healthcare at the school-based clinic (X University's College of Nursing faculty member, personal communication, January 13, 2015).

The director of the school-based clinic described low breastfeeding initiation rates among students who had delivered babies in past years. The director also reported that a previous doctor of nursing practice (DNP) student had implemented a project to train peer breastfeeding counselors who attended the high school in an effort to increase the initiation, duration, and exclusivity of breastfeeding among students (School-based clinic director, personal communication, June 9, 2014). Additionally, a college of nursing faculty member from a local university affiliated with the clinic had an on-going nutritional intervention focused, in part, on increasing breastfeeding rates among the students. As part of her continuing study at the school, data collected from 2013 demonstrated a 33% breastfeeding initiation rate among all students attending her lunchtime educational sessions (X University College of Nursing faculty member, personal communication January 13, 2015).

Previous implementations at the school-based clinic have involved the use of games focused on conveying information of appropriate infant nutrition and child development. A supportive, on-going relationship was developed between students and the college of nursing faculty member. An additional EBP project completed in 2013 recruited two adolescent mothers from the school and trained them as breastfeeding peer counselors through the X University's Mother's Milk Club in the hopes that future DNP students would utilize the peer counselors in additional work. Unfortunately, the two students attending the training graduated and have not been available for any follow up support to students currently attending the school.

Purpose of the EBP

Despite previous efforts to increase breastfeeding rates among adolescents, the need for continued support within this population persists. The purpose of this evidence-

based practice (EBP) project was to implement an antenatal intervention including education on (a) the benefits of breastfeeding, (b) common difficulties encountered with breastfeeding, and (c) methods to overcome those difficulties by utilizing other identified peer counselors and an expert lactation professional to increase breastfeeding self-efficacy and intention among inner city students attending an adolescent parenting program high school.

The clinical question. Adolescent mothers are at risk for poor breastfeeding initiation rates and programs need to be developed to target specific interventions to increase intention to breastfeed. These programs should be focused on improving self-efficacy. The resulting clinical question is “Will an antenatal intervention increase breastfeeding self-efficacy, intention, and initiation among a cohort of inner city adolescents?”

PICOT. Formulating clinical questions in a structured format leads to the identification of the most relevant evidence (Fineout-Overholt & Stillwell, 2011). The format utilized for this EBP project included the following: the population of interest (P), the intervention or issue of interest (I), the comparison (C), the outcomes, and the time frame (T). According to Fineout-Overholt and Stillwell (2011), PICOT questions that are well-built, clearly articulated, and focused drive the further steps of the EBP process. The burning clinical question for this EBP project was developed using the PICOT format:

P – The population of interest for this study was pregnant adolescents attending an inner-city adolescent parenting program high school.

I – The intervention was an antenatal breastfeeding educational program consisting of three, separate sessions focused on increasing

breastfeeding knowledge, self-efficacy, and generating social support within the group and between students and breastfeeding experts.

C – The comparison was pre-intervention breastfeeding self-efficacy and intention as measured by the Prenatal Breastfeeding Self-Efficacy Scale (BSES) and stated intention regarding infant feeding choice.

O – The outcome measures were post-intervention self-efficacy measured again using the Prenatal Breastfeeding Self-Efficacy Scale and post-intervention change in breastfeeding intention. Unfortunately due to project implementation timing and lack of access to subjects during the summer, an initial goal of measuring actual breastfeeding initiation rates and post-partum breastfeeding self-efficacy was unfeasible.

T – Three weeks in the spring of 2015.

Significance of the Project

Breastfeeding has been demonstrated to impact both infant and maternal health, reducing morbidity and mortality (AAP, 2012). Many organizations including the WHO with UNICEF, and the USPSTF have developed goals to increase the initiation, continuation, and exclusivity of breastfeeding in order to achieve public health goals relating to health promotion and illness prevention (USPSTF, 2008; WHO & UNICEF, 2009). Despite the proven benefits of breastfeeding to both mother and infant and world-wide efforts to increase breastfeeding initiation, adolescents are largely unaware and remain to have among the lowest rates of breastfeeding (CDC, 2013; Spear, 2006;).

Infants born to adolescent mothers are at increased risk of preterm birth and low birth weight (Khashan, Baker, & Kenny, 2010). Breast milk feeding, whether by breast or bottle, has been associated with additional health benefits to preterm infants, including

reductions in nosocomial infection and necrotizing fasciitis, as well as improvements in longer term outcomes such as visual acuity and neurocognitive outcomes (Rodriguez, Miracle, & Meier, 2005). Breastfeeding promotion in this high-risk population is imperative to achieving improvements in health outcomes in the United States.

This EBP project aimed to determine a mechanism of increasing breastfeeding self-efficacy and intent among a cohort of adolescent pregnant females. The developed intervention can be utilized as a framework for continued intervention within this specialty high school. Furthermore, it can serve as a model to impact breastfeeding initiation rates within urban areas with increased prevalence of teenage pregnancy.

CHAPTER 2

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

The Social Cognitive Theory was chosen as the theoretical framework for this EBP project as the theory utilizes both personal and social determinants to enact change in individual behavior. Breastfeeding behavior, especially among adolescents, is influenced by both self-efficacy and social support which are two key concepts within this framework. The Stetler Model of Evidence Based Practice was utilized as the guiding framework for project implementation. In the proceeding paragraphs, key concepts of the Social Cognitive Theory are presented and linked with application specific to this EBP project. Each of the five phases of the EBP project implementation are discussed in relation to the Stetler Model of Evidence Based Practice, and the literature review which served as the basis of the synthesis of literature and ultimately formulated the best practice recommendation is detailed.

Theoretical Framework: Social Cognitive Theory

Within Social Cognitive Theory (SCT), human behavior is defined as the product of the dynamic interaction between personal, behavioral, and environmental influences. The theory focuses on a person's potential ability to alter and build environments to suit purposes they create for themselves (Bandura, 1998). Key concepts of this theory are divided into five categories: psychological determinants of behavior, observational learning, environmental determinants of behavior, self-regulation, and moral disengagement (Bandura, 1998).

Psychological determinants of behavior. When an individual considers a behavior change, the expected outcome from that behavior change is one key

psychological determinant. How strong is the belief that a behavior will result in a desired outcome? For instance, will a behavior lead to feelings of increased self-worth? A woman deciding to breastfeed may do so, in part, because she believes the behavior of breastfeeding can lead to increased satisfaction with mothering and bonding with her infant (Moore & Coty, 2006). Additionally, this concept also has a social outcome expectation. How will others evaluate the behavior? In many cultures, breastfeeding is positively perceived; whereas in others, a social stigma and embarrassment may exist. A perceived negative social reaction to breastfeeding in public has been associated with decreased levels of breastfeeding initiation and duration (Moore & Coty, 2006).

Self-efficacy is another key psychological determinant identified within this theory. Bandura (1998) developed the concept of self-efficacy, and it has been widely utilized in many different theories. Self-efficacy refers to how strong a person believes he or she can perform a task or achieve a particular goal. Self-efficacy has been determined to be one of the greatest predictors of behavioral intention (McAlister et al., 2008). In one Norwegian study conducted by Ystrom et al. (2008), findings demonstrated that high general self-efficacy increased the odds of breastfeeding.

Bandura (1998) stated that there are four ways to increase self-efficacy: mastery experience, social modeling, improving physical and emotional states, and verbal persuasion. According to Bandura (2004), the experience of performance mastery has the strongest impact on self-efficacy beliefs. Mastery experience can be achieved by having the individual succeed at demonstrating desired behaviors. Mastery experience is one element of building confidence (Bandura, 1998). Increased performance confidence is one factor that has been demonstrated to influence breastfeeding initiation and

increase duration of breastfeeding (Brown, 2013; Kjelland, Corley, Slusher, Moe, & Brokopp, 2013; Laantera, Pietila, Ekstrom, & Polkki, 2012; Mossman et al.2008).

Bandura (1998) posited that “if you see someone like yourself succeed, you are more likely to believe that you have the capacity to do so”. (p. 5) Social modeling has been identified as an important factor in increasing self-efficacy. The implementation of peer breastfeeding counselors has been demonstrated to impact self-efficacy, as well as rates of breastfeeding initiation (Hoddinott, Lee, & Pill, 2006). Additionally, increasing physical and emotional states can also increase self-efficacy. This can be achieved through efforts to reduce stress and promote positive feelings regarding a behavior.

Verbal or social persuasion can also impact self-efficacy not only by providing a positive reinforcement for desired behaviors, but also by arranging things to increase the odds of successful behavior change (Bandura, 1998). Postpartum breastfeeding support through both lactation support services and support groups has been demonstrated to impact duration of breastfeeding in many studies (Andaya, Bonuck, Barnett, & Leschewski-Goel, 2012; Brown, 2013; Pobocik et al., 2000).

Observational learning. Central to SCT has been the position that people learn through observing others. Bandura identified four processes to observational learning: attention, retention, production, and motivation (Bandura, 1998). The access a person has to observe through media, peer, and family models is important in terms of attention. Retention of information is based upon intellectual ability and the format of the education provided. Production is the actual performance of the desired behavior, and this is implicitly connected to self-efficacy. How strongly the person believes that the behavior will result in the desired outcomes, as well as the personal determination of the costs and benefits, impacts motivation. For example, the belief that breastfeeding is superior

to formula feeding can impact motivation. Additionally, if the behavior is deemed to be burdensome motivation to perform the behavior will be diminished (Bandura, 1998).

Environmental determinants of behavior. An essential construct within SCT is that observational learning alone will not lead to successful behavior change; environmental supports must also be present (Bandura, 2004). Two such environmental supports are incentive motivation and facilitation. Incentive motivation, as an environmental determinant, includes the provision of rewards or punishments. Facilitation involves creating systems that make the desired behavior easier to perform. An example of these two forms of environmental supports specific to this EBP are providing education about breastfeeding barriers and supplying the participant with access to a breast pump.

Self-regulation. People often accept short-term negative outcomes from their behavior when they anticipate more positive long-term outcomes. Individuals can manage their own behaviors in similar ways through self-regulation (McAlister et al., 2008). McAlister et al. (2008) described six ways that Bandura identified of achieving self-regulation: (a) self-monitoring, (b) goal-setting, (c) feedback, (d) self-reward, (e) self-instruction and (f) enlistment of social support.

Moral disengagement. Though less relevant to this breastfeeding promotion project, moral disengagement is described within the SCT as a mechanism or mechanisms by which individuals can violate moral standards. It is through moral disengagement that individuals can “excuse” their bad behaviors. This concept includes mechanisms such as euphemistic labeling, which attributes less offensive words to describe violent acts as a way to “sanitize” the actions; dehumanization and attribution of blame to victims; diffusion and displacement of responsibility by attributing decision-

making to others; and perceived moral justification for immoral acts by defining them as being beneficial or necessary (Bandura, 1999). Breastfeeding is proven to be superior over formula feeding and poor outcomes in infants and mothers have been correlated with not breastfeeding. From this perspective, formula advertising and dispensing of formula via hospitals and healthcare providers could be viewed as a form of moral disengagement. In the recent past, mothers were told formula was as good a source of nutrition as breast milk and in many cases was perceived to be superior to breast milk. The additions of docsaehaenoic acid and other supplements to formula can make it to appear to have not only the same nutritional value, but also possess an immunological value equivalent to breast milk. Thus, it would appear that both formula manufacturers and healthcare agencies that dispense formula have seemingly participated in the tactics of moral disengagement.

Evidence-Based Framework: The Stetler Model of Evidence Based Practice

Many evidence based practice models would be appropriate to use for this EBP project. All models have the following common steps: (a) identification of a problem, (b) identification of stakeholders, (c) identification of a practice change that has demonstrated effectiveness through research, (d) identification and development of mechanisms to overcome potential barriers to the practice change, (e) dissemination of information about the practice change to front-line staff, (f) implementation of practice change, (g) evaluation of practice change, and (h) development of measures to sustain the practice change (Ciliska et al., 2011). Seven models were reviewed and considered as potential frameworks for this practice change. The model was ultimately chosen as it was a simple, practitioner-oriented model and had frequently been utilized in implementing evidence-informed practice.

The Stetler Model of Evidence-based Practice was originally developed in 1976 as the Stetler/Marram Model for Research Utilization (Ciliska et al., 2011). Its focus was on realistically applying research findings into practice (Ciliska et al., 2011). It has undergone three revisions since 1976 to further the use of critical thinking in the application of research findings into practice (National Collaborating Centre for Methods and Tools [NCCMT], 2011). The latest 2001 version has been linked to the concept of evidence-based nursing practice.

The model provides detailed steps to facilitate the implementation of appropriate and effective practice change based upon the most reliable evidence. The Stetler Model of Evidence-based Practice consists of five steps: (a) preparation, (b) validation, (c) comparative evaluation/decision making, (d) translation/application, and (e) evaluation. Each phase is designed to (a) facilitate critical thinking, (b) result in the use of evidence in daily practice, and (c) reduce human error made in decision-making (NCCMT, 2011).

Preparation. The preparation phase begins with the identified need for practice change. In terms of this evidence-based practice project, breastfeeding initiation and short-term duration rates among minority adolescent women were noted to be lower than national averages; these findings clearly demonstrated a need for intervention. A systematic plan for initiating a literature review on practices to improve rates of breastfeeding initiation for this specific population within the environment of a public school setting was developed. Key search terms were identified and various trials of literature searches were conducted to identify the best, most relevant evidence.

Environmental factors were considered, such as constraints on time and follow up with future participants. Intervention sessions had to be conducted within the allotted time of the students' lunch periods. In the preparatory phase when the project manager

attended nutritional education sessions, it was noted that it was necessary to modify educational modes to hold the students' interest and actively engage them. Thus, modifications were made to the original teaching plan. Additionally, the project manager had first considered hiring previous students who were trained peer counselors to better incorporate the students' social systems. This plan was revised because the peer counselors could not be reached. The project manager then attended training sessions and became a certified breastfeeding peer counselor and also enlisted the assistance of a fellow DNP student who was also a certified breastfeeding peer counselor working within the university's medical center's perinatal department. Additional social supports were identified within the classroom. Fellow students, previous breastfeeding mothers who attended the nutritional education sessions, were engaged to provide further social support to participants.

Validation. Within the Stetler model, this phase combines the utilization-focused assessment and critique of studies and guidelines with a summary of collected evidence related to the identified need (NCCMT, 2011). All evidence reviewed for this EBP was critiqued utilizing appropriate evidence appraisal tools, and the reviewer's focus was on applicability to the intended participants of the project. Evidence was summarized for inclusion in the developed EBP.

Comparative evaluation/decision making. In this phase, the project manager synthesizes cumulative findings in terms of similarities and differences and determined the feasibility of applying the practice change within the practice setting (NCCMT, 2011). The project manager should take into consideration the targeted setting, current practice, and feasibility of implementation in the intended setting (NCCMT, 2011). The investigator can decide on four different courses of action: (a) decide to use the research

findings either instrumentally, conceptually, or symbolically, (b) consider use by gathering more internal information, (c) delay use by determining more research is needed, or (d) reject use (NCCMT, 2011). Based upon the synthesis of evidence the project manager determined that no specific evidence based education module/program existed, thus an education plan was created based on concepts described in the literature. The education plan consisted of the following elements: (a) benefits of breastfeeding to mom and baby, (b) common difficulties encountered, and (c) demonstration and hands on practice with mechanisms to overcome barriers to successful breastfeeding.

Translation/application. In this phase, findings are translated into practice change recommendations. Practice change recommendations are then disseminated to the appropriate staff, procedures and protocols are developed, and change is implemented (Ciliska et al., 2011). For this EBP project, once research findings were summarized, a plan of implementation to increase breastfeeding self-efficacy and intention was developed with input from the clinic director and other identified stakeholders.

Evaluation. During the evaluation phase, data on the impact of the practice change on defined metrics were collected. Within this EBP project, data were initially planned to be collected to determine the impact of the intervention on breastfeeding self-efficacy, and initiation of breastfeeding. Due to time constraints and identified issues with follow-up access to participants during the post-partum period, the project goals and data collection plan were modified to focus on breastfeeding self-efficacy and intention to breastfeed in the antenatal period.

Literature Search

After the preparation phase was completed and the appropriate PICOT question developed, the second phase of the Stetler model was initiated. According to the Stetler model (Ciliska et al., 2011), the validation phase involves conducting a thorough literature review, critique, synthesis, and analysis. A description of the conducted literature search, appraisal, and synthesis of evidence follows in the paragraphs below.

Search engines and key words. After determining the population and environment of project implementation, the PICOT question was thoroughly formulated and a literature search was undertaken to determine best practice recommendations. Six computer-based databases were included in the search as well as a hand search of five different publications and a review of expert practice recommendations and guidelines from the USPSTF, the National Guideline Clearinghouse, and the World Health Organization (WHO). Databases searched included Cumulative Index to Nursing and Allied Health Literature (CINAHL), Proquest Nursing and Allied Health Source, MEDLINE via EBSCO Interface, Joanna Briggs Institute Evidence Based Practice (JBI), Cochrane Library, and PsycINFO. Searches were conducted for peer-reviewed literature published between the years of 2005-2014 within CINAHL, MEDLINE, PsycINFO, Proquest, and Cochrane Library utilizing the major subject heading of breastfeeding and terms attitude or self-efficacy or inten* or initiat* or duration, and educat* or interven* or promot* and vulner* or teen* or adolescen* and antenna* or prenat*. The search terms of breastfeeding and antenat* or prenat* were utilized within JBI.

Inclusion and exclusion criteria. To focus the search for relevant evidence relating to the specific PICOT question, strict inclusion and exclusion criteria were developed. Inclusion criteria included the following: (a) published in scholarly, peer-

reviewed journals, (b) published after 2005, (c) printed in the English language, and (d) involved interventions within the antenatal time period. Excluded literature included those that (a) involved post-partum or hospital-based interventions without a measurable antenatal component, (b) focused on interventions for preterm births, those infants with congenital defect, or after delivery stays in a neonatal intensive care unit, and (c) included interventions not focused on the mother (e.g., interventions targeting nursing staff or other medical providers). After development of the inclusion and exclusionary criteria, all abstracts from the identified literature were reviewed. Additionally, a hand search of five prominent breastfeeding publications, the National Guideline Clearinghouse, the USPSTF, and the WHO recommendations were reviewed to ensure relevant literature was not overlooked. Twenty references were identified for potential inclusion and the full texts were printed and reviewed in detail. One additional reference was included despite not meeting the inclusion criteria as it was recurrently identified within the manual search and was noted to be classic, foundational research, offering much insight to the population of this specific EBP project. Of these 21 articles, 11 were included in the final literature review based upon the developed inclusion and exclusion criteria. These articles were then analyzed and critically appraised.

Levels of evidence. After evidence was appraised, it was subsequently rated using the rating system for the hierarchy of evidence developed by Melnyk and Fineout-Overholt (2011). Within this system, Level I evidence includes evidence from a systematic review or meta-analysis of all relevant randomized control trials. Level II rating is for evidence obtained from well-designed randomized control trials (RCTs), Level III is evidence from well-designed non-randomized control trials, Level IV is evidence from well-designed case control and cohort studies, and Level V evidence is from systematic reviews of descriptive and qualitative studies. Level VI is evidence from

a single descriptive or qualitative study and Level VII is evidence from expert opinion or reports from expert committees (Melnik & Fineout-Overholt, 2011). Within the literature which provided the supportive evidence for this project, two articles were Level I evidence, four were Level II, three Level IV, one Level V, and one Level VII. Table 2.1 includes the leveling of the evidence included in this EBP project.

Appraisal of relevant evidence. Melnyk and Fineout-Overholt's (2011) rapid critical appraisal checklists were used to evaluate each article. The three Level I articles were reviewed utilizing the rapid critical appraisal checklist for systematic reviews of clinical intervention studies (Melnik & Fineout-Overholt, 2011). Level II evidence was reviewed utilizing Melnyk and Fineout-Overholt's (2011) rapid critical appraisal checklist for randomized control trials. Level IV evidence was appraised utilizing rapid critical appraisal checklists for case-control and cohort studies. Finally, the Level V evidence appraised for this EBP project was appraised utilizing the rapid critical appraisal checklist for qualitative evidence (Melnik & Fineout-Overholt, 2011). All included evidence met criteria for quality and thus were included in the body of evidence supporting this EBP intervention.

Level I evidence. Dyson, McCormick, and Renfrew (2005) performed a systematic review utilizing the Cochrane criteria to "evaluate the effectiveness of interventions which aim to encourage women to breastfeed in terms of changes in the number of women who start to breastfeed" (p. 1). The reviewers searched the Cochrane Pregnancy and Childbirth Group's Trials Register which contained (a) trials identified from quarterly searches of the Cochrane Central Register of Controlled Trials, (b) weekly searches of MEDLINE, and hand searches of 30 journals and proceedings of major conferences, (c) weekly current awareness alerts from 44 journals and (d) monthly

Biomed Central email alerts. Additionally, the reviewers hand-searched the *Journal of Human Lactation*, *Health Promotion International* and *Health Education Quarterly* publications from inception through 2007. No language restrictions were utilized in their search for RCTs with or without blinding; the search focused on the primary outcome measures of any breastfeeding initiation and duration of any and/or exclusive breastfeeding.

Two reviewers independently assessed over 1,400 titles and abstracts identified from their search for relevance. Through this process, the reviewers identified 83 articles that were potentially relevant to their intended review. One of the reviewers developed a prescreen form that was utilized to assess papers against inclusion criteria and to classify included studies into the particular intervention. The second reviewer independently assessed 50 papers that were deemed to be excluded based upon the prescreening to ensure they were not relevant to the review. All remained excluded.

Data extraction and quality appraisal forms were used to extract data from the remaining 11 studies by one of the authors; this process was followed by a check of the data by the second author to ensure reliability and validity. Validity and potential bias within the studies were further assessed utilizing the Cochrane criteria. Disagreements were discussed and settled between authors. The final review consisted of data extracted from eight articles. Three studies contributed to the review, however did not contribute data due to the methodological concerns of the reviewers.

A fixed-effect approach was utilized to summarize results; differences among studies were assumed to be due to chance. Once substantial statistical heterogeneity was demonstrated, each study was reanalyzed using a random-effects model to estimate the treatment effect (Dyson et al., 2005). All included studies evaluated the

effect of the intervention in terms of breastfeeding initiation. Nine studies were performed in the US, one was conducted in Australia, and one was completed in Nicaragua. Nine of the studies evaluated the impact of the interventions on both breastfeeding initiation and duration. Nine studies targeted low income participants; all but one on low income women was performed in the US. The following types of interventions were evaluated in the included studies: (a) health education of pregnant women, five trials, (b) peer support, one trial, (c) breastfeeding promotion packs, one trial, and (d) early mother-infant contact, one trial.

Through meta-analysis of the five RCTs focusing on health education, Dyson et al. (2005) reported a statistically significant increase in the number of women initiating breastfeeding after receiving health education ($RR = 1.57$, 95% CI [1.15, 2.15]). Further subgroup analysis performed by Dyson et al. (2005) of two of the studies which evaluated the effect of repeat, informal breastfeeding education which was personalized to each participant's needs also demonstrated a statistically significant increase in the women initiating breastfeeding after the intervention ($RR = 2.40$, 95% CI [1.57, 3.66]). Both of these studies were also conducted on low income women in the U.S. of varying ethnicities. One study included repeat antenatal education sessions in addition to on-going post-natal support from a lactation consultant based upon the woman's needs and requests. The researchers included participants regardless of their reported breastfeeding intention. The second intervention consisted of repeat antenatal sessions that focused on breastfeeding issues and the women's concerns; a breastfeeding researcher provided the education which targeted women who intended to formula feed or had not yet decided on whether to breastfeed or formula feed.

Subgroup analysis of the three remaining studies included 420 women which evaluated the effect of a generic, formal, single breastfeeding education session on the initiation of breastfeeding. The analysis revealed a positive increase in the number of women who initiated breastfeeding as a result of the intervention ($RR = 1.26$, 95% CI [1.00, 1.60]). One intervention consisted of generic information on parenting, including the benefits of breastfeeding that was delivered to each woman during a prenatal visit in her third trimester. The second intervention involved a one time, generic lecture and discussion about breastfeeding with a post-test questionnaire that assessed breastfeeding knowledge. The third intervention was a generic self-help booklet which was given to each participant seven weeks prior to her expected delivery date during a routine antenatal breastfeeding counseling session from a nutritionist. The reviewers suggest that interpretations from these remaining two studies should be cautious due to the lack of statistical heterogeneity ($I^2 = 0\%$).

The second category of intervention evaluated by Dyson et al. (2005) involved peer support for women considering breastfeeding. Only one RCT was included in the analysis for this category: the evaluation of antenatal, perinatal, and postnatal peer support services among 165 participants. Findings from this RCT demonstrated that this intervention was effective in increasing initiation rates among predominantly Latina women who were considering breastfeeding in the U.S. ($RR = 4.02$, 95%, CI [2.63 to 6.14]). Dyson et al. (2005) described that the peer counselors were community members who had completed high school, breastfed for six months, and received 30 hours of internationally recognized classroom training in breastfeeding management. Counseling services included at least one antenatal home visit, daily postpartum visits while in the hospital, and at least three home visits once home from the hospital. Breastfeeding

information was provided to participants in response to their questions and written materials were provided at their prenatal visits.

The analysis provided in this Cochrane review demonstrated that health education is likely to result in increased breastfeeding initiation rates among low income women in the US. Further, needs-based, one-to-one, informal sessions delivered in the antenatal period by a trained breastfeeding professional or peer counselor is most likely to result in increased initiation rates. Because the majority of the studies included in this systematic review focused on breastfeeding initiation and duration on predominantly low-income, minority women in the U.S., this evidence strongly supported the developed EBP practice recommendation.

Further support for the recommended practice change included a systematic review performed by Lumbiganon et al. (2012) who utilized the Cochrane Collaborative criteria to evaluate the effectiveness of antenatal education for increasing initiation and duration of breastfeeding. The reviewers searched The Cochrane Pregnancy and Childbirth Group's Trial Register, the Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, and hand searched 30 journals and the proceedings of major conferences. They additionally contacted experts and searched the reference lists of retrieved articles searching for all published, unpublished, and ongoing randomized control trials (RCTs) comparing two different methods of antenatal breastfeeding educational programs on duration of breastfeeding. The reviewers excluded quasi-RCTs and abstract-only publications. Participants were limited to pregnant women and interventions varied, but the researchers excluded studies that involved intrapartum or postpartum intervention.

Six reviewers assessed articles independently for inclusion based upon developed criteria and resolved disagreements through discussion. The included studies evaluated primary outcomes of duration of any breastfeeding, duration of exclusive breastfeeding, proportion of mothers who breastfed at three and six months, proportion of mothers exclusively breastfeeding at three and six months, and initiation rate of breastfeeding. Additionally, many secondary outcome measures were identified from the studies: maternal satisfaction, breastfeeding complications, and infant growth. The data from the included studies was abstracted by four of the reviewers utilizing a developed form. At least two of the reviewers independently abstracted data from each included study and discrepancies were resolved through discussion or through contact with the study's original authors. Detailed descriptions were provided regarding how the reviewers assessed for bias within the included studies, as well as explicit reasons for excluding studies from this review. A total of 19 studies were included in the final review. Of those, the data from 16 studies involving 8,262 women were included in the data analysis.

Findings from their review demonstrated that peer counseling, when compared with routine care, significantly increased breastfeeding ($RR = 1.82$, 95% CI [1.13, 2.93]). The reviewers also reported that a marginally significant increase in exclusive breastfeeding at six months was observed in a group receiving a booklet, plus video, plus lactation consultant education as compared with those who received booklet plus video alone ($RR = 2.23$, 85% CI [1.01, 4.92]), while lactation consultant education with a combined educational mode appeared to impact breastfeeding duration.

The findings from this systematic review provided further support for the inclusion of both an International Board of Lactation Consultants Certified Lactation Consultant (IBCLC) and peer counselors, as proposed in the recommended practice change, to

increase breastfeeding rates. The findings also supported the inclusion of a structured educational format to increase breastfeeding knowledge and the utilization of different methods of teaching including video, hands-on, and printed materials. The proposed practice change for this EBP integrated all of these aspects.

Level II evidence. Wambach et al. (2011) conducted a prospective, non-blinded, three-group RCT to determine the impact of an education and counseling intervention provided by a lactation consultant-peer counselor team on breastfeeding initiation and duration among adolescent mothers. Two control groups were used: one received usual care, the other was an attention control group. This group was used to control for nonspecific effects of treatment.

Participants were recruited from a bi-state metropolitan area in the mid-western US. Initially, four prenatal clinics, including two county health departments affiliated with three urban public and private teaching hospitals served as enrollment sites. Over the course of the study, three additional prenatal clinics and four high school settings were added, along with two affiliated hospitals. Most sites participated in the WIC program, had limited access to lactation consultative services, and none were designated Baby Friendly Hospitals (Wambach et al., 2011). Participants were nulliparous second trimester pregnant girls between the ages of 15 and 18 years, who planned to keep their newborn, were able to speak and read English, and had access to a telephone for follow up contact and study participation. Participants were excluded if they had a multiple gestation pregnancy, experienced preterm labor or birth, or gave birth to an infant with conditions that were known to impact breastfeeding success. Additional exclusions included participants who were treated for significant complications during labor and birth that prohibited or delayed breastfeeding beyond 48 hours or for which

breastfeeding was contraindicated. Enrollment procedures were standardized between sites, informed consent was obtained, and participants were randomly assigned to one of the three groups between October 2003 and August 2006. During the study, 390 pregnant teens were enrolled: 128 to intervention, 128 to attention control, and 134 to the control group. Eighty-one percent of the original 390 enrolled participants provided baseline data; of those, 92% provided analyzable data for the outcome of initiation.

The intervention consisted of antenatal, in-hospital, and postnatal education and support through four weeks postpartum from an IBCLC and a trained peer counselor (who had been a breastfeeding teen mother). Two antenatal classes were provided by both the lactation consultant and peer counselor; these classes focused on the benefits of breastfeeding for mother and baby, decision making, the “how to” of breastfeeding, and managing breastfeeding after returning to school or work. Participants were required to attend at least one of the classes in order to remain in the study. Support persons were also encouraged to attend. Peer counselor telephone calls occurred before and after class one and following class two, providing decision-making support and information. The intervention group also received a face-to-face in-hospital visit from the peer counselor. Those participants choosing to breastfeed also received a lactation consultant visit. Postpartum telephone calls were provided by the lactation consultant and/or peer counselor at 4, 7, 11, and 18 days and every 4 weeks for those who initiated breastfeeding until breastfeeding ceased. Participants in the intervention group also received a double-set up electric breast pump at no charge (Wambach et al., 2011).

The attention control group received interventions provided by an advanced practice nurse and trained peer counselor and paralleled the components delivered to the intervention group in the amount of content and timing and included two antenatal

education sessions on healthy pregnancy behaviors and birth preparation, but none of the educational components focused on breastfeeding. Participants in the attention control group also received peer counselor antenatal telephone support and an in-hospital visit from a peer counselor. Telephone interventions were only received by those attention control group participants who were breastfeeding. Postpartum calls for these participants were focused on supporting maternal transition and adaptation. In contrast, the standard control group participants received standard antenatal and postpartum care.

Measures collected at baseline and again in the third trimester included demographic characteristics. Infant feeding method attitudes and subjective norms, and perceived behavioral control were measured utilizing the psychometrically tested Breastfeeding Attrition Prediction Tool (BAPT), based upon the Theory of Planned Behavior. Two tests were used to measure breastfeeding knowledge: The Knowledge of Breastfeeding Scale (KBS) and the Breastfeeding Knowledge Questionnaire (BKQ). Both tests were combined to develop a 30-item measure validated for the study. Breastfeeding initiation was also measured and was defined by the researchers as initiating breastfeeding in the hospital with the intention to provide at least half of the infant's feedings at the breast or with pumped breast milk and was self-reported across all three groups. Breastfeeding initiation and continuation to six weeks postpartum was validated with postpartum clinic medical record checks from the six week postpartum visit. Postpartum data collected included infant feeding initiation in the hospital and breastfeeding duration at three and six weeks postpartum, and at two, three, four, five, and six months.

According to Wambach et al. (2011), chi-square analysis revealed that the intervention was associated with a significant increase in breastfeeding initiation (χ^2 ($df=2$) = 6.81, $p < 0.03$). Other statistically significant factors associated with breastfeeding initiation included breastfeeding knowledge, prenatal intention to breastfeed, the time the decision to breastfeed occurred, and social and professional support. It should be noted that, although the researchers included measures related to postpartum interventions within this study, these measures were not evaluated as a part of this EBP project, as the focus of inclusion for this EBP project was antenatal interventions.

The findings from this research provided support for this EBP project. This study supported the inclusion of an IBCLC and peer counselors in increasing breastfeeding initiation and self-efficacy in a lower socioeconomic adolescent population. Additionally, the evidence derived from this study supported the developed focused educational components including (a) the benefits of breastfeeding to mom and baby, (b) the “how to” of breastfeeding, and (c) managing breastfeeding after returning to work and school. Furthermore, this study demonstrated the impact of this type of education on breastfeeding intent.

Kronborg, Maimburg, and Vaeth (2012) performed a single RCT evaluating the effect of an antenatal training program on knowledge, self-efficacy, and problems related to breastfeeding and on breastfeeding duration in a large, university-affiliated clinic in Denmark. Participants included 1,193 nulliparous women recruited before week 21+6 days of gestation; 603 were randomized to the intervention group, and 590 were randomized to the control group.

The intervention group received the “Ready for Child Programme,” a program developed for the study consisting of three 3-hour modules. The intervention group attended the training sessions between week 30 and 35 gestation. The lectures and discussions included information about (a) the delivery process, pain, and coping skills, (b) infant care and breastfeeding, and (c) the parental role and the relationship between the woman and her partner. Breastfeeding education was approximately two hours of the total training and occurred during module two. Participants were (a) educated on components of importance for successful breastfeeding establishment, (b) prepared for conceivable breastfeeding problems, and (c) shown a film about breastfeeding (Kronborg et al., 2012). The control group received standard care by the clinic which did not include any antenatal training program, although the control group participants were not restricted from attending outside training programs.

Four separate questionnaires were sent to participants at 24- and 36-weeks gestation, and again at 6-weeks and 1-year postpartum. The first questionnaire collected baseline information. The second collected information on the services received from the midwife and attendance in antenatal training sessions; a question about confidence in initiating and continuing breastfeeding up to four months following birth was also included. The third questionnaire collected information on the woman’s experience of the first breastfeeding period and the status of current breastfeeding. The fourth questionnaire obtained information regarding the duration of any breastfeeding (Kronborg et al., 2012). Obstetric information such as delivery mode, gestational age at birth, and birth weight, was collected from the local birth cohort database and validated by trained midwives.

Outcome data collected by the researchers included duration of full breastfeeding and duration of any breastfeeding at 6-weeks postpartum, via questionnaire, and again at one year postpartum. Other variables collected via questionnaire were those relating to the breastfeeding process and included: sufficient breastfeeding knowledge, breastfeeding self-efficacy scores, using the Breast Feeding Self Efficacy Scale-Short Form (BSES-SF), and breastfeeding problems as the reason for experienced difficulties. These variables were collected at six weeks postpartum. Perinatal and child factors were collected in questionnaire three and included whether the infant was put to breast within two hours of delivery and if artificial supplemental feedings were given in the hospital setting.

Sixteen women in the intervention group and 15 women in the control group were lost to follow up. No statistical differences were noted between groups when assessing for baseline characteristics and infant and child factors. Most women cohabitated with their partners and had high levels of education. Most women had vaginal deliveries and formula supplementation while in the hospital was high in both groups. Baseline confidence levels were statistically similar. However, at 36-weeks gestation the intervention group demonstrated higher levels of confidence in breastfeeding until 4-months ($p = 0.05$). According to Kronborg et al. (2012), at 6-weeks postpartum, no differences between intervention versus control group were noted in BSES-SF scores (0.7% vs. 0.7%), reported breastfeeding problems as the reason for experienced difficulties (10% vs. 10%), or having stopped breastfeeding 6-weeks postpartum (6% vs 9%). Furthermore, no differences were noted between groups in reports of duration of breastfeeding at 1-year postpartum.

The researchers conducted supplemental analysis of data focusing on the breastfeeding process. This analysis revealed that women in the intervention group who at six weeks postpartum reported sufficient breastfeeding knowledge breastfed significantly longer than women in the intervention group who responded negatively to that question ($HR = 0.74$, CI [0.58 to 0.97]). In the control group no such association was identified. Additionally, in both groups a higher expressed self-efficacy score was strongly associated with a longer duration of breastfeeding, whether exclusive or otherwise.

Although the Kronborg et al. (2012) did not find a statistically significant effect of the intervention on breastfeeding duration, the intervention was associated with an increase in the number of women who reported having sufficient breastfeeding knowledge at six weeks after birth and this was reflected in a prolonged self-report of breastfeeding duration in the intervention group. The education developed as a part of this EBP project included elements of the Kronberg et al, primarily the focus on increasing breastfeeding knowledge and self-efficacy. Components shared between this study and the proposed intervention included education on (a) the benefits and components for successful breastfeeding establishment and (b) commonly encountered breastfeeding problems.

Nichols, Schutte, Brown, Dennis, and Price (2009) conducted a single RCT which evaluated the impact of participation in an antenatal self-efficacy enhancing intervention on breastfeeding self-efficacy at 4-weeks postpartum. A total of 90 English-speaking, adult, pregnant women from South East Queensland, Australia who were at 36 weeks or greater gestation and reported intent to breastfeed participated in the study and were randomly assigned to either the intervention or control group. The intervention group

received a nine-page interactive workbook focusing on enhancing breastfeeding self-efficacy. The control group received a five-page exploratory interactive workbook on parenting issues with no breastfeeding references. All participants received instructions on how to complete the workbooks and to return them within two weeks or before the delivery of their baby. All participants were blinded and contacted by a researcher at four weeks postpartum to collect data.

The data element of breastfeeding status was collected during the four week postpartum call. Breastfeeding status was defined as the “receipt of the infant of any breast milk within the past 24 hours,” (Nichols et al., 2009). Status was further classified into one of six categories: (a) exclusive breast milk, (b) almost exclusive breast milk, other fluids but no formula, (c) high breast feeding, less than one bottle of formula per day, (d) partial breastfeeding, at least one bottle of formula per day, and (e) token breastfeeding, breast given for comfort, not nutritional purposes, and (f) bottle-feeding, no breast milk. Breastfeeding self-efficacy was another measurement of this study. The 33-item Breast Feeding Self Efficacy Scale (BSES) was administered pre-intervention and again during the postpartum interview. The BSES had been used to measure breast feeding confidence in previous studies and had been validated and psychometrically tested in a variety of settings (Dennis & Faux, 1999; Wells, Thompson, & Kloeblen-Tarver, 2006).

The nine-page interactive workbook was created by the research team, reflected a breastfeeding self-efficacy framework, and was based on the four sources of self-efficacy as described by Bandura (1998): performance accomplishments, vicarious experience, verbal persuasion, and physiological response. A panel of consultants further reviewed the document for accuracy and suitability to the population. Readability

tests were conducted to ensure a reading level of 12 to 13 years of age. The workbook was also pilot-tested among 10 women who provided information on completion time, readability, and comprehension (Nichols et al., 2009).

The intervention correlated with an increase in breastfeeding self-efficacy using a workbook education module developed based upon the four general sources of self-efficacy proposed by Bandura (Nichols et al., 2009). Nichols et al. (2009) found that, after controlling for pre-test scores, participants in the intervention group scored significantly higher on the BSES when compared to the control group. A trend toward a significant difference in level of breastfeeding exclusivity was noted between intervention and control groups ($z = -1.84$, $p = .07$). Additionally, changes in BSES scores and breastfeeding behavior were analyzed by computing a change score for BSES from pre- to post-intervention; a significant relationship between change in breastfeeding self-efficacy and number of days of breastfeeding was noted, $r(89) = 0.44$, $p = 0.0001$ (Nichols et al., 2009).

There were some limitations to utilizing evidence from Nichols et al.'s (2009) study in the development of the proposed practice change for this EBP because participants had already demonstrated an intent to breastfeed; however, the utilization of an education module, which included printed materials, did demonstrate an increase in breastfeeding self-efficacy. Within this EBP project, the intervention utilized a breastfeeding educational brochure from the March of Dimes which included information regarding the potential difficulties encountered with the establishment of breastfeeding and mechanisms to overcome those barriers.

Noel-Weiss, Rupp, Cragg, Bassett, and Woodend (2006) conducted an RCT to determine the effects of an antenatal workshop on breastfeeding self-efficacy and

duration rates among English-speaking, nulliparous women expecting a single infant and a planned uncomplicated birth, and who were planning to breastfeed. The participants were recruited from a large tertiary hospital in Ontario, Canada. After exclusions and those lost to follow up, 92 women were randomized into the intervention or control group. After the 34th week of gestation the intervention group attended a 2.5-hour prenatal breastfeeding workshop formulated using Bandura's theory of self-efficacy and adult learning principles. The four sources influencing self-efficacy were incorporated into the workshop; these included performance accomplishment, vicarious learning, social/verbal persuasion, and emotional/psychological arousal (Bandura, 1998).

Randomization of subjects occurred after registration packets (which included consent, contact information sheet, prenatal demographic questionnaire, and the Breast Feeding Self Efficacy Scale-Short Form (BSES-SF), a revision of the BSES consisting of 14-items) were completed. If women had weaned their infants by the time of either of the postpartum telephone interviews, the BSES-SF was not administered. Researchers were blinded during the administration of the 4-week follow up postpartum telephone interviews which consisted of a postpartum demographic questionnaire, the BSES-SF, and a breastfeeding duration questionnaire. The same researcher telephoned each mother and completed a final BSES-SF and breastfeeding duration questionnaire.

Most participants in the study completed postsecondary education, had a family income in excess of \$70,000, and were in committed relationships. Prenatal goals for breastfeeding ranged from three to eighteen months, and 87% of the participants had made the decision to breastfeed prior to pregnancy. Additionally, 59% reported that their own mothers had breastfed, and 95% knew a friend or family member who had breastfed. (Noel-Weiss et al., 2006).

No statistical differences in demographics or in baseline BSES-SF scores were noted between the intervention and control groups $t(78) = -2.320, p = 0.23$. However, at week four postpartum, mean BSES-SF scores were significantly lower in the control group than in the intervention group $t(78) = -3.002, p = 0.004$. Thus, the researchers concluded that participation in the educational session was correlated with an increase in breastfeeding self-efficacy in the short-term postpartum period.

Noel-Weiss et al.'s (2006) study demonstrated that short-term breastfeeding self-efficacy can be impacted by an antenatal education program. A limitation of this study in the inclusion for this EBP is that study participants were from committed relationships, had higher family annual incomes, and reported an intention to breastfeed, even prior to pregnancy. But, the intervention performed in this study demonstrated increased postpartum breastfeeding self-efficacy. While this EBP project was not able to be continued to the 4-week postpartum period to determine its implications on continued postpartum self-efficacy, based upon the evidence provided in this study there was no reason to believe there would not be significant impact.

Level IV evidence. Volpe and Bear (2000) provided a breastfeeding intervention to determine its impact on breastfeeding initiation among students enrolled in a high school adolescent pregnancy program in Brevard County, Florida. The program provided 14- to 19-year-old pregnant high school students the opportunity to continue their secondary education in an alternative program focused on the development of parenting skills in addition to normal high school course work. The program offered free on-site daycare for the children of the students, as well as other benefits to assist in the students achieving their academic goals despite a teen age pregnancy. The comparison

group was a similar group of students enrolled in the school the year prior to the intervention group.

The researchers determined that randomization of participants was not possible during the same school year due to the close contact the students had with each other on a daily basis; therefore, they decided to derive the control group from students who attended the school during the school year 1995-1996 ($n = 48$), and the intervention group from a convenience sample of those attending in 1997-1998 ($n = 43$).

Researchers minimized potential confounding variables by ensuring all study participants received their primary education from the same teacher, attended the same school, and were taught in the same classroom as that of the members of the control group.

The intervention group received the same educational program as the control group with the addition of three comprehensive breastfeeding sessions called the Breastfeeding Educated and Supported Teen (BEST) Club. "The program uses role playing and games to educate the adolescent learner about the basics of breastfeeding in a nonthreatening, non-judgmental way," according to Volpe and Bear (2000, p. 198). The participants attended three weekly, 1-hour sessions that encouraged group response and interaction. Furthermore, the program used game playing as an educational tool and included rewards for positive outcomes. The instructor was a registered nurse clinician, IBCLC, who was assisted by a paid peer counselor from the local health department. The IBCLC provided the informal, didactic portions of the program and the peer counselor immersed herself in the group to provide support and encouragement. Following completion of the educational sessions, the peer counselor visited the school weekly to offer continued support for those breastfeeding mothers.

The outcome measured was breastfeeding initiation. Volpe and Bear (2000) defined breastfeeding initiation as any breastfeeding one or more times daily for at least three days post-partum. This outcome metric was collected by the program director when the adolescent returned to school two weeks after giving birth. The adolescent was asked what method she chose to feed her baby, if she reported choosing formula feeding she was asked if she ever breastfed and for how long. If the adolescent reported she chose to breastfeed, she was teamed with a peer counselor who supported the mother both with weekly face-to-face meetings and telephone counseling as needed. Support continued for all breastfeeding mothers until they chose to wean or until their babies were six months of age.

Demographic data was analyzed to determine any potential relationships between those characteristics and choice of infant feeding. Additionally, a chi-square analysis was performed to determine the relationship between program participation and choice of infant feeding. The population included in the sample was largely Caucasian (63%), with the remaining participants being African American (26%) and Hispanic (11%). The researchers did not otherwise identify any other significant differences between groups. The intervention group experienced a significantly higher rate of breastfeeding initiation than the control group (65.1% to 14.6%, $p < .001$). Volpe and Bear (2000) conducted logistic regression analyses to ensure the results were valid and that the intervention remained significant. Participation in the BEST Club was correlated with a significant increase in breastfeeding initiation among students attending a high school adolescent pregnancy program compared to nonparticipation (Volpe & Bear, 2000). The researchers did not examine the impact of the program on breastfeeding duration, and the researchers suggested that future studies should investigate the impact of the program on this outcome measure.

The findings from this study influenced the final intervention plan for this EBP project for many reasons. The study focused on adolescent pregnant women and the intent was to engage them in the initiation of breastfeeding. Additionally, the study site characteristics matched those inherent to the EBP project site; that being a specialty high school for pregnant and parenting teens. A noted difference was in the racial demographics between the study and the project populations.

Gill, Reifsnider, and Lucke (2007) conducted a quasi-experimental, non-randomized study evaluating the effects of an antenatal education and home-based postpartum support intervention on breastfeeding initiation and duration among a group of low-income, Hispanic women. A convenience sample was identified for inclusion by clinic staff and recruited by the research team from the waiting rooms at two public health department maternity clinics in a large city in the southwestern United States. One hundred participants were included in each group, and recruitment stopped when each group reached the 100 participants. All participants in each clinic were exclusively entered into the same group to avoid contamination. Minimal loss of participants was experienced, with 94 in the intervention group and 88 in the comparison group completing the study. Groups were comparable according to demographic data (i.e. age, marital status, educational level, previous experience with breastfeeding, and number of those born in Mexico). Participants were enrolled during their second trimester of pregnancy. Participants were to be excluded based on premature delivery (< 37 weeks), low birth weight infants (< 2500 grams), and any infants born with major congenital anomalies or conditions requiring intensive care after birth. Based on these exclusions, no participants were dropped from the study.

Two bilingual IBCLCs and three certified lactation educators formed the research team. The intervention included both prenatal education and postpartum telephone calls and home visits. The intervention was developed through the use of focus groups with low-income women and with WIC staff. Women participating in the focus groups knew the benefits of breastfeeding, but the perceived problems (e.g., pain, embarrassment, and inconvenience) discouraged them from initiating or continuing to breastfeed. Based on the findings from the focus group interviews, the intervention included information and discussion on pertinent issues (e.g., embarrassment); information about breast milk pumping was also provided and more discrete methods of public breastfeeding techniques were demonstrated. If requested, mothers were given free battery-operated breast pumps and correct latch-on and positioning techniques were demonstrated prior to delivery. These interventions were provided to during individual meetings with the IBCLC during a prenatal visit where opportunities to answer questions were provided. Between 36-weeks gestation and the time of delivery, women in the intervention group had another opportunity to meet with the IBCLC.

A member from the research team then called all women in the intervention group at 4-days, 2-weeks, 3-weeks, 4-weeks, and 6-weeks postpartum to determine how the mothers and infants were managing breastfeeding. If the mother requested a visit, or if any member of the research team felt it necessary, the IBCLC and/or lactation educators visited the participants in their homes. Again at 3-, 4-, 5-, and 6-months postpartum telephone calls were made to the participants and a follow-up visit occurred if requested or if the team deemed it necessary. At each home visit, infants were weighed. All mothers in the intervention group received at least one home visit. Participants in the comparison group received standard breastfeeding education through breastfeeding classes offered by the WIC clinic if the mother chose to attend (Gill et al., 2007).

Breastfeeding initiation data was collected as a self-report during the first postpartum research team follow-up telephone call. A total of 158 women completed the study, with 79 in each group. The intervention group experienced a significantly higher rate of initiation of breastfeeding than the control group ($OR = 2.31$, 95% CI [1.10 to 4.96]). This findings from this study demonstrated that encouragement and education about breastfeeding techniques that promote successful breastfeeding involving IBCLCs and other breastfeeding experts is correlated with an increased initiation in low-income Mexican-American women who participated in the WIC program (Gill et al., 2007).

The proposed practice change was only focused upon antenatal interventions. Therefore, all outcome data relating to postpartum support and intervention was excluded from inclusion in the appraisal of evidence for this project. Gill et al. (2007) demonstrated that IBCLC and lactation expert support combined with directed breastfeeding education including information about avoiding embarrassment by teaching discreet methods of breastfeeding and the use of breast pumps increased breastfeeding initiation among a group of lower socioeconomic Hispanic women. These strategies were consistent with the intervention utilized within this EBP project.

Caine, Smith, Beasley, and Brown (2012) conducted a study evaluating the impact of prenatal education performed by Indianapolis Healthy Start (IHS) case managers on behavioral changes toward breastfeeding and smoking cessation. All 512 pregnant IHS participants who received case management services during calendar year 2009 received education during the antenatal period about the importance of breastfeeding and were counseled to continue breastfeeding up to six months postpartum. Sixty-three percent of the participants were African American, 22% White, and 14% Hispanic. Over half of the HIS participants did not graduate high school (53%), 91% were Medicaid

recipients, and 23% were 18 years and younger. IHS case managers recorded continued breastfeeding at each postpartum visit until termination from the program. The case managers were all certified lactation specialists who were able to answer and assist with any breastfeeding concerns identified during the follow-up visits. The comparison group was all other Marion County births from January 2007 through December 2009.

IHS program data were collected by subcontractors and directly entered into the IHS Core Services Tracking System. Marion County birth and death information of county residents and IHS program participants was collected via the Marion County Health Department vital statistics program and was limited to births of infants born at greater than or equal to 20 weeks. Identification of IHS participants through birth and death records was performed by program staff.

To determine infant feeding practices at discharge from hospital, program staff reviewed birth certificate records on all live births in Marion County between January 2007 and December 2009 and, after query of IHS program records, program participants were identified and all nonmatching records were developed into a reference group (Caine et al., 2012). Additionally, information on breastfeeding initiation prior to hospital discharge was collected on all live births in the U.S. as a part of the U.S. Vital Statistics Birth Certificate program.

Most program participants (63%) were non-Hispanic blacks between the ages of 18 and 24 years (45%), and had an annual income of 100% or less of the federal poverty level for their household size (75%). Due to differences in breastfeeding rates among subgroups of women, the researchers performed a multivariate logistic regression model constructed with maternal age, race, ethnicity, and educational

attainment, location of home residence, primary hospital payer, and delivering hospital. After adjusting for these variables, Caine et al. (2012) concluded that IHS program participants were more likely to initiate breastfeeding than non-participants ($OR = 1.33$, 95% CI [1.10 to 1.61]). Caine et al. noted that the increase in probability was greater in women between 25 and 29 years of age and lower among women less than 18 years of age.

The impact of the described intervention on duration rates was again excluded from this review as the intervention had postnatal aspects which could confound the findings when determining the impact of the antenatal aspects of the intervention. Caine et al.'s (2012) findings demonstrated that antenatal support including one-on-one education and counseling during visits with a case manager correlated with increased breastfeeding initiation in low income, minority women in a county in the Midwestern U.S., despite that impact being lowest among adolescent women (Caine, et al., 2012).

Caine et al.'s (2012) study provided significant support for this EBP project. The EBP project implementation site was in a geographically similar area as that of Caine et al.'s study. The population within Caine et al. was primarily low income, African American pregnant women; the same demographics of the participants within this EBP project. While Caine et al. did not limit their focus to adolescents, adolescent females were included in the study and the intervention was an antenatal, supportive educational intervention delivered by breastfeeding experts.

Level V evidence. A qualitative meta-synthesis was performed by Schmied, Beake, Sheehan, McCourt, and Dykes (2009) examining women's perceptions and experiences of breastfeeding support, as well as describing differences existing between peer and professional support. The reviewers focused on studies with both primiparous

and nulliparous participants who initiated breastfeeding. When studies included a demographic subgroup, such as adolescents, the studies were included but close monitoring for potential outlier findings was implemented; however, studies with a clinical subgroup, such as Cesarean section, were excluded. The reviewers included studies that had a primary qualitative design, but large scale surveys were also included if qualitative details were described thoroughly enough by the researchers. The focus of the meta-synthesis was breastfeeding support and included both formal or other created peer and professional support, but excluded family and informal supports for breastfeeding using the following search criteria: published or available in English, inclusion in a peer-reviewed journal, and undertaken between 1990 and December 2007 with a focus on maternal experiences of breastfeeding support. Using breastfeeding as a key term in an initial search, the following key words were subsequently added: qualitative research, breastfeeding support, peer support, professional support, postnatal support, volunteer support, lay support, breastfeeding counselors, lactation consultants, health education, breastfeeding education, and lactation support. Reviewers searched MEDLINE, CINAHL, the Cochrane Library, PubMed, Meditext, Nursing Consult, Nidirs, Embase electronic databases, as well as *The International Breastfeeding Journal* (Biomed Central) for all relevant studies. The reviewers identified 254 articles, and abstracts of these articles were reviewed independently by two researchers. Sixty-six articles, including 5 reviews, were determined adequate for potential inclusion. After articles were appraised and discussed by both researchers, 46 articles remained in the review. Excluded articles either did not report original research, were focused on the experiences of the healthcare provider, did not include sufficient qualitative data, or included participant quotes that did not directly pertain to breastfeeding support (Schmied, et al., 2009). All other differences in opinions were then discussed with the

other researchers and 38 articles were then assessed utilizing the Joanna Briggs Institute for Evidence Based Nursing Qualitative Assessment and Review Instrument (JBI-QARI) software. Each article was appraised independently by a primary and then secondary reviewer according to developed criteria shared within the meta-synthesis. Other reviewers became involved until consensus could be reached and the final review consisted of 31 articles. Meta-ethnographic methods developed by Noblit and Hare were utilized to perform the meta-synthesis (Schmied et al., 2009).

Schmied et al. (2009) stated that they assumed internal validity of the original research reviewed based upon shared quotations or other illustrative data. The reviewers also reported confidence in achieving both external validity through the “theoretical saturation,” (Schmied et al., 2009, p. 591). The reviewers identified that “support for breastfeeding occurs along a continuum from authentic presence at one end, perceived as effective support, to disconnected encounters at the other, perceived as ineffective or even discouraging and counterproductive,” (Schmied et al., 2009, p. 591).

Schmied et al.’s (2009) qualitative findings relating to facilitative and reductionist style were appropriate to include within the evidence appraised for this EBP as they related to women’s perceptions of intervention and programs. According to Schmied, et al. (2009), “adopting a facilitative style is an approach to health promotion, or helping that is about enabling people to draw on a range of information and experience and to learn for themselves, and this emerged consistently across the studies as a positive form of support,” (p.595). A facilitative style often been referred to as adult-learning. Five themes emerged in this category of the meta-synthesis: (a) realistic information, (b) accurately and sufficiently detailed information, (c) encouragement for breastfeeding, (d)

encouraging dialogue, and (e) offering practical help. Realistic information was described by Schmied et al. (2009) with the following statement, “women wanted to be told about the more personal and practical aspects of breastfeeding, including challenges and difficulties they might encounter, as well as the positive benefits,” (p.595). Schmied et al. noted that women felt that standardized packages of information did not meet their needs for accurate and sufficiently detailed information, and despite the potential for this detailed information deferring them from initiating breastfeeding, they wanted to be the one in control of that decision. Schmied et al. also identified that while women want to see a facilitative approach adopted for encouraging breastfeeding they want it done in a sensitive and effective manner, so not to create pressure. “Adolescent mothers in general felt that professionals did not really encourage or expect them to breastfeed, and some wanted active and supportive encouragement,” (Schmied et al., 2009, p. 596).

Schmied et al. (2009) also identified that women want to have interactive dialogue with breastfeeding supporters; women liked to share their views in group learning situations and to be able to discuss their views with others. The researchers also identified that women want practical help from supporters; women wanted techniques to be demonstrated and they wanted practical advice to be given in an environment of personal stories (Schmied et al., 2009).

Conversely, the researchers identified a category of a reductionist approach to support that they felt led to a disconnected encounter; mothers did not want conflicting information and advice. Mothers also did not want information that was not personalized to their needs, for example, information that was standardized or provided more technical detail than they were prepared for. Women reflected that they preferred more

interaction and wanted to have education directed to what their needs and questions were at that time. (Schmied et al., 2009).

The qualitative data synthesized in this review supported the findings from the quantitative studies, where one-on-one, needs-based, hands-on education focusing on the benefits of breastfeeding and providing practical information and demonstration of techniques to overcome common breastfeeding difficulties was provided to mothers. This EBP project was developed to include aspects deemed pertinent based upon Schmied et al.'s (2009) meta-synthesis. These elements included (a) interactive learning, (b) non-judgmental approach to feeding preference, (c) discussion of both the positives and perceived negatives of breastfeeding while, and (d) providing practical tips and support while sharing personal stories.

Level VII evidence. Chu (2013) developed an evidence summary, shared within the Joanna Briggs Institute (JBI), as a set of best practice recommendations for antenatal preparation of breastfeeding. Search terms and databases searched were not shared within the publication. According to Chu (2013) "the evidence summary is based on a structured search of the literature and selected evidence-based healthcare databases," (p.2). While these key components were missing from the published article, the evidence summary demonstrated high level evidence and a thorough review. The researcher cited a Cochrane systematic review including 11 trials, involving 1553 women, an evidence based guideline, a single RCT including semi-structure interviews of 24 nulliparous women, a systematic Cochrane review, that included 19 studies, including 16 RCTs, with a total of 8262 participants, a systematic review that included 17 studies of which 15 studies were used for meta-analysis, another systematic review that included 38 RCTs, a prospective observational study involving 614 women, and

observational study involving 3033 women-infant pairs, and a before and after study involving 39 physicians and 179 women-infant pairs.

Evidence was leveled and practice recommendations were graded according to JBI definitions. The evidence from one Cochrane systematic review which included 11 trials, involving 1553 women that evaluated the effectiveness of antenatal breastfeeding education for increasing initiation and duration, demonstrated Level 1 evidence supporting peer counseling, lactation consultation, and formal breastfeeding education during pregnancy as a mechanism to increase breastfeeding duration. An additional finding from this evidence summary was that peer counseling was better than routine care for initiating breastfeeding. One Grade A practice recommendation was to offer opportunities for pregnant women and their partners to attend formal breastfeeding antenatal information sessions and to participate in peer counseling (Chu, 2013). Providing a combined educational approach utilizing various materials as well as time with a lactation consultant was also a Grade A practice recommendation based upon Chu's findings (2013).

Construct Evidence-Based Practice

According to Melnyk and Fineout-Overholt (2011) after appraising the evidence for validity, reliability and applicability to the clinical site, the evidence must be synthesized in order to generate a best practice recommendation. In addition to incorporating the synthesized evidence into a best practice recommendation, the APN must also consider the preferences and values of the clinical site leadership and participants in the program in order to answer the clinical question most appropriately and specifically for implementation. This process for implementing EBP was utilized within this EBP project.

Synthesis of critically appraised literature. The evidence clearly demonstrated the importance of four specific elements of antenatal education impacting breastfeeding outcomes: (a) the involvement of a lactation consultant in both educating and supporting the expectant mother, (b) peer counseling, (c) informal, needs-based education including content of potential difficulties and specific discussion and demonstrations of how to overcome them, and (d) repeated contact with breastfeeding educators or peer counselors in the antenatal period. The evidence from the literature appraisal was further synthesized utilizing these categories.

Involvement of a lactation consultant. IBCLCs are internationally certified clinical experts in promoting, facilitating, and advocating for breastfeeding and lactation. The certification requirements include clinical hours in the care and management of breastfeeding and lactating women and infants and education in breastfeeding and human lactation (IBLCE, 2011). Many of the studies appraised for this EBP project included the utilization of a lactation consultant to provide expert education and support to participants. The evidence summarized by Chu (2013) demonstrated that the utilization of a trained breastfeeding professional had positive impact on breastfeeding initiation rates. Studies included in this summary also demonstrated that the combined use of a lactation consultant, peer counseling, and formal education increased duration of breastfeeding (Chu, 2013). An RCT performed by Wambach et al. (2011) also demonstrated that the combined utilization of a lactation consultant and peer counselor for education and support of breastfeeding in a group of adolescent mothers resulted in a significant association between the intervention and initiation of breastfeeding ($p < 0.03$).

Dyson et al. (2005) performed a systematic review that demonstrated that education delivered by a trained breastfeeding professional or peer counselor is likely to result in increased initiation rates. The non-randomized study performed by Gill et al. (2007) also utilized IBCLCs in their intervention, including the opportunity for participants to speak to the IBCLC one-on-one. Their study results also demonstrated that the intervention group experienced significantly higher rates of initiation ($OR = 2.31$). Additionally, a study conducted utilizing Healthy Start participants in Indianapolis also included the utilization of lactation trained case managers (Caine et al, 2012). These researchers concluded that participants in the intervention were more likely to initiate breastfeeding than non-participants ($OR = 1.33$), although this increased likelihood was less significant in women less than 18 years of age (Caine et al., 2012). Volpe and Bear (2000) focused their intervention on adolescents in a high school pregnancy program. Their intervention also included the utilization of IBCLCs and demonstrated a significant increase in breastfeeding initiation in the intervention group when compared to the control group ($p < 0.001$).

Peer counseling. A peer counselor is often a mother with previous breastfeeding experience who has additional training in supportive techniques. The peer counselor can provide practical advice and support for breastfeeding women. Studies reviewed and included in the appraisal of evidence supported the utilization of peer counselors, especially in low income areas and with adolescent mothers to improve breastfeeding outcomes. The evidence summary performed by Chu (2013) identified that peer counseling was superior to routine care for initiating breastfeeding. Although only identified as Grade B evidence, Chu (2013) recommended the inclusion of lay support in the promotion of breastfeeding. One of the main results from the review conducted by Lumbiganon et al. (2012) was that “when compared with routine care, peer counselling

significantly increased initiation of breastfeeding,” (p.14). In a systematic review conducted by Dyson et al. (2005), peer support services significantly increased breastfeeding initiation ($RR = 1.82$, 95% CI [1.13, 2.93]).

The non-blinded RCT conducted by Wambach et al. (2011) also involved an intervention utilizing peer counselors among various sites in a bi-state metropolitan area in the Midwest U.S. Participants were predominantly low-income. Peer counselors were involved in the education sessions, as well as follow-up phone calls, and postpartum support for breastfeeding participants in the intervention group. Their intervention was also correlated with significant increases in breastfeeding initiation. In the BEST program intervention utilized in the Volpe and Bear (2000) study, peer counselors were utilized to promote and support breastfeeding among a group of adolescent pregnant girls. The peer counselors were involved in an educational program delivered by an IBCLC and also provided weekly in-school visits to participants to promote and support breastfeeding initiation. Additionally, postpartum telephone calls and home visits were performed as needed to breastfeeding participants. Again, results demonstrated statistically significant increases in breastfeeding initiation rates in the intervention group (Volpe & Bear, 2000).

Educational content. Although Lumbiganon et al. (2012) stated that their review identified that no one intervention was determined to be most effective for increasing breastfeeding initiation, other studies have suggested that informal, one-to-one needs-based, repeat education sessions are more effective in increasing initiation of breastfeeding (Dyson et al., 2005). Additionally, an evidence summary developed a Grade A recommendation that a combined educational approach utilizing various

materials, as well as one-to-one time with a lactation consultant, be offered to pregnant women and their partners in the antenatal period (Chu, 2013).

A needs-based approach was further supported by Kronborg et al., (2012). Participants in their intervention group were educated on the components of the successful establishment of breastfeeding and also prepared for the conceivable problems encountered with breastfeeding. Those participants reporting having sufficient knowledge of breastfeeding demonstrated improved breastfeeding outcomes. Nichols et al. (2009) utilized a self-efficacy enhancing workbook to increase breastfeeding self-efficacy in an attempt to improve breastfeeding outcomes among women who already declared an intent to breastfeed. The results of Nichols et al.'s study demonstrated an increase in breastfeeding self-efficacy in the intervention group and a trend for an increase in breastfeeding exclusivity. It was determined from the synthesis of evidence that the utilization of Bandurian concepts to build breastfeeding self-efficacy was effective as well as incorporating them in differing formats could achieve more significant results in breastfeeding outcomes (Nichols et al., 2009; Noel-Weiss et al., 2006). Additionally, Noel-Weiss et al. also demonstrated that increased self-efficacy was correlated with improved breastfeeding outcomes.

Wambach et al. (2011) developed an intervention that involved repeat educational sessions for adolescent pregnant women including information on the benefits of breastfeeding, decision-making, the "how to" of breastfeeding, and management techniques of breastfeeding after returning to work or school. Follow-up calls were made to participants and weekly peer counselor visits were scheduled for continued education and support. This intervention was associated with increased initiation rates. Within the Gill et al. (2007) study the intervention was developed based upon input from a focus

group. The focus group members identified that while they were aware of the benefits of breastfeeding, the perceived pain, embarrassment, problems, and inconveniences associated with breastfeeding had discouraged them from initiating or continuing to breastfeed. Thus, Gill, et al. developed their intervention to focus on overcoming the difficulties, minimizing the pain and embarrassment, and learning discrete techniques for breastfeeding. The women in this intervention group were also offered repeat contact with the IBCLC for any follow-up questions or issues (Gill et al., 2007). Within the Gill et al. study, their intervention also demonstrated significantly higher rates of initiation in the intervention group when compared to the control group ($OR = 2.31$). Caine et al. (2012) also demonstrated that a repeat intervention with Healthy Start program counselors was associated with increased initiation rates.

The BEST program utilized role playing and games during three breastfeeding education sessions to adolescent pregnant women to teach them about the basics of breastfeeding (Volpe & Bear, 2000). Each session was one hour and allowed for participants to be actively engaged in group response and interaction. The sessions included a didactic portion and an open discussion forum where the adolescent women could openly discuss issues related to breastfeeding. A peer counselor was present to offer support and also visited the participants weekly for follow-up (Volpe & Bear, 2000). The intervention was associated with increased levels of initiation among participants when compared to control (Volpe & Bear, 2000).

In addition to the systematic reviews and interventional studies included in the appraised evidence, a meta-synthesis of qualitative studies examined women's feelings with the education and support offered about breastfeeding. Data from this metasynthesis revealed that adolescent mothers felt neglected by healthcare

professionals in terms of breastfeeding education and support and that they want more active and supportive encouragement (Schmied, et al., 2009). Furthermore, women did not want packaged information, but instead wanted personalized, realistic information that was sufficiently detailed and practical help. Women did not want to feel judged for their feeding preferences and they did not want to feel pressured, but instead wanted to be given control over their decision-making and supported in that process (Schmied et al., 2009).

Best practice recommendation. The best practice recommendation based upon the synthesis of the appraised evidence (Appendix A) was that antenatal breastfeeding education and support be offered to adolescent pregnant women and the education and support should include IBCLC and peer counseling. The evidence reviewed and synthesized reflected that the antenatal breastfeeding intervention should include repeat education sessions that focus on increasing self-efficacy. The sessions and educational content should be individualized needs-based, and offer practical assistance (including demonstration), within an open forum that allows for discussion. Specifically education should focus on demonstrating the health benefits of breastfeeding to mothers and infants as well as provide the basic education on the “how-to’s” of breastfeeding, including feeding positions, establishing an adequate supply, and mechanisms to overcome the barriers to successful breastfeeding.

Answering the clinical question. Did an antenatal intervention increase breastfeeding self-efficacy and intention among adolescent pregnant enrolled in an inner-city parenting program high school? To answer this clinical question the project manager implemented a program utilizing the best practice recommendations detailed above among a group of consenting, pregnant adolescent women within an inner-city

parenting program high school. Pre- and post-intervention breastfeeding self-efficacy scores and pre- and post-intervention infant feeding intention were measured to determine how effective the intervention was in answering the clinical question.

Table 2.1

Levels of Evidence

Author(s)	Level of Evidence
Caine et al. (2012)	IV
Chu (2013)	VII
Dyson et al. (2005)	I
Gill et al. (2007)	IV
Kronborg et al. (2012)	II
Lumbiganon et al. (2012)	I
Nichols et al. (2009)	II
Noel-Weiss et al. (2006)	II
Schmied et al. (2009)	V
Volpe et al. (2000)	IV
Wambach et al. (2011)	II

CHAPTER 3

Method

Baseline data was utilized as the control data and case data consisted of post-intervention data, which was collected from the same subjects. Pregnant teenagers were initially planned to be followed through 2-4 weeks postpartum to determine initiation rates; however, due to time constraints, the EBP project was adapted to focus on the impact of the intervention on self-efficacy and intention to breastfeed. The following sections provide detail of the intervention.

Participants and setting. Participants were pregnant students in their second and third trimester who were attending a specialty inner-city high school for parenting and pregnant adolescents in a major urban region in the Midwestern United States. Students at the school were parenting and/or pregnant teenage girls from across the city who were recruited at the beginning of each school year from other public schools within the city based upon their pregnant or parenting status. The school offered similar educational curriculum as the other public schools, as well as additional support to empower the students to complete the requirements for their high school diploma. Furthermore, support and encouragement was offered to the students to pursue vocational training and post-secondary education. For instance, college placement tests were incorporated into the normal school schedule. The school also offered the students an excused maternity leave and an on-site child-care center for their children after they deliver. Additionally, within the school was a health clinic offering free advanced practice nurse (APN) health services and education to the students. Since many of the students had children that they must get home to after their school day, any detentions or conferences had been incorporated into normal school hours. Extra-curricular educational series were offered to the students from the local university, health clinic,

and other organizations focused on teaching the students parenting skills, including health and nutrition needs for this high-risk child population. The students had been attending previously established parenting nutritional education sessions during their lunch period during the school day and agreed to participate in three weekly education sessions focusing on breastfeeding.

Seven months prior to implementation the project manager participated in the lunchtime nutrition education sessions to become acquainted with the students. This allowed the students to gain comfort and familiarity with the project manager to allow for the establishment of a trusting relationship. This relationship allowed for a greater comfort level between the project manager and the students when discussing potentially embarrassing issues associated with breastfeeding.

Outcomes. This EBP project involved an educational intervention designed to focus on two outcomes within the high-risk population: (a) breastfeeding self-efficacy and (b) breastfeeding intention. The pre-intervention/post-intervention design utilized the *Prenatal BSES* questionnaire (see Appendix B), a validated measurement tool. Intention of infant feeding method (breastfeeding intention) was measured by surveyed self-report, added as question 21 as depicted in Appendix B.

Intervention. The EBP project involved three weekly sessions offered to recruited and consenting participants covering the benefits of breastfeeding to both mother and infant, common difficulties encountered with the beginning stages of breastfeeding, and mechanisms to overcome the difficulties (see Appendix C for an outline of the educational sessions). Prior to the first educational session, subjects completed the Prenatal BSES questionnaire and provided demographic information (Appendix D), as well as provided their intended infant feeding preference.

Prior to project implementation, students had been separated into two 45-minute lunch periods on most Tuesdays. The intervention was planned to be delivered to each lunch group of students.

Educational intervention session 1. During the first 45-minute educational session a video was utilized to deliver education regarding the benefits of breastfeeding to mom and baby, the science of lactation, the demonstration and importance of a proper latch, mechanisms to generate an adequate milk supply, and common difficulties encountered in the first few weeks of lactation and mechanisms to avoid and overcome them. The video was frequently paused to generate discussion and sharing within the group between those with breastfeeding experience, those who encountered difficulties, and first-time pregnant mothers. Participants were given the opportunity to ask questions and to have one-on-one time with the project manager, a certified breastfeeding peer counselor.

As described throughout this paper, there are many health benefits to breastfeeding. According to Kornides and Kitsantas (2013) maternal knowledge of the benefits of breastfeeding in the antenatal period was associated with an increased initiation and continuation of breastfeeding at two months. In the proposed intervention, participants learned of not only the health benefits to infant and mother, but also of the increased mother-infant bond. Barriers to initiating breastfeeding in this population have been feelings of being unprepared for childbirth, shame of the pregnancy, and concerns about returning to school (Feldman-Winter & Shaikh, 2007). These issues were all addressed during the group discussion as a part of the intervention.

The science of lactation was also reviewed with participants, which enhanced the understanding of the physiology of breastfeeding. Participants learned about the early milk colostrum and its importance in immunologic support of the newborn. They were

educated on the hormones of lactation and how, in the early stages of breastfeeding initiation, frequent feedings are important in establishing supply, but that the full milk supply would not be established for a week or two after birth. The participants were also educated on signs that their baby was getting enough milk.

Educational intervention session 2. During the second educational session, all of the students were scheduled into one, 35-minute lunch due to a diversity day at the school. Thus, the educational session was shortened. A hired IBCLC from X University Medical Center delivered the education during this session. Infant dolls were utilized during the intervention to demonstrate and provide hands-on learning of common infant breastfeeding holds. The reviewed holds included football, cross cradle, cradle, side-lying, and laid back nursing. Proper latch was described. Nipple shields and pumps were introduced as mechanisms to avoid nipple pain, establish an adequate milk supply, and reduce social embarrassment, as well as support continued breastfeeding as they planned for return to school. Questions and discussion between students and IBCLC were encouraged to share difficulties encountered by fellow students and then educate on mechanisms to overcome or avoid those difficulties. One-on-one time with the IBCLC was offered to all students.

Educational intervention session 3. During the third session, delivered by both the IBCLC and the project manager, common breastfeeding difficulties were discussed. Mechanisms for overcoming these difficulties were also reviewed. Participants were instructed on the use of nipple shields for a woman with inverted nipples or for a baby having difficulty with latching on. Various examples of nipple shields were brought to class and participants were allowed to handle the shields. Other products supporting breastfeeding were also introduced to the participants so that there was an

understanding of their use. Products brought to class included milk storage bags, nipple protective ointments, and breast pads.

Concerns about privacy and returning to school were also discussed in an open forum. Discreet breastfeeding techniques were described and the use of breast pumps was introduced. To reinforce information provided in session 2, an electric, double pump was utilized during the intervention to increase the participants' exposure and comfort with the concept of using a pump, as the pump would be one mechanism for continued breastfeeding upon return to school. Students were informed that the health clinic would be housing a hospital-grade pump and milk storage refrigerator for their use upon return to school. Discussion of possible health coverage for a personal breast pump also occurred. Students were instructed to speak with their Medicaid provider regarding the process of obtaining a personal breast pump prior to delivery of their baby.

Subjects were also offered individual and/or small group time with the IBCLC and breastfeeding peer counselor during the last two lunchtime sessions for any specific questions and concerns they may have had. A comprehensive breastfeeding guide, *Breastfeeding: A How to Guide*, published by the March of Dimes was purchased from their website by the project manager and distributed to participants at the end of the intervention. Additionally, contact information for the IBCLC program at X University Medical Center, as well as information regarding a local breastfeeding support program, was shared with participants. At the conclusion of the educational sessions the Prenatal BSES questionnaire was again administered and stated intention of infant feeding preference was also ascertained.

Planning. The Stetler Model of Evidence Based Practice was utilized for this project. As such, the stage of preparation involved identifying a need for a practice change and identifying a setting to which the change would be implemented.

Breastfeeding disparities have existed among adolescent, urban mothers (CDC, 2013). These same disparities were noted by the health clinic administrator at the S Academy. The validation phase of the model involved developing search criteria for a literature review and appraisal to determine the evidence relating to the target population. During the comparative phase, the appraised evidence was narrowed, based upon relevancy, and synthesized to develop a best practice recommendation. The translation phase involved taking the synthesized evidence and formulating a recommendation based upon time, financial, and environmental constraints identified from the implementation site and other key informants. During this phase, the project manager worked with the clinic administrator, a local university professor who ran a weekly nutrition education program at the school, a former DNP student who had implemented at the school the previous year, as well as leadership from X University's Mother's Milk Club and Breastfeeding Peer Counselor Program. Education material was identified, equipment was procured, and a planned intervention was developed specific for the S Academy. During this phase Institutional Review Board (IRB) permission was obtained in an effort to ensure protection of the rights of participants both from the Valparaíso University IRB and X University Medical Center IRB. The intervention was implemented and evaluated as detailed within this section.

Recruiting participants. Participants were recruited from students attending the specialty high school where X University has an on-site health clinic. Students were regularly invited to attend nutrition education session during the students' lunch hour on Tuesdays during the school year by a local university professor. After the lunch bell rang, the professor would enter the lunch room and inform and verbally invite the students to the program. Students could either come to the program, held in an empty classroom within the school, or remain in the lunchroom. A separate lunch was provided

to students to encourage them to attend the sessions. Additionally, nominal prizes were raffled off at the end of each educational session to encourage continued participation. Participants for this project were recruited from those students opting to attend the nutrition education session. All students, pregnant or not, were invited to attend the project sessions. The pregnant students were verbally informed of the project details and then provided their written consent (Appendix E) to participate in the EBP project. Additionally a HIPPA waiver, required by X University Medical Center's IRB was completed by all participants (Appendix F). All students were engaged in the educational sessions and were encouraged to participate as they could utilize the education provided in their future lives. This provided an avenue to utilize those students with previous breastfeeding experience as peer supports to the participants in the EBP project. Participants were informed verbally and within their written consent that they could participate in the educational intervention even if they opted out of the measurement for the project.

Data. Outcomes relating to this project were measured in a pre-test/post-test design. The impact of the intervention on antenatal breastfeeding self-efficacy and change in infant feeding intention were measured through a questionnaire detailed in the following section. The reliability and validity of the measurement tools as ascertained from the literature are detailed below.

Reliability and validity of measures. Breastfeeding self-efficacy was measured in this study using the Prenatal BSES. The Prenatal BSES was derived from the BSES, which had been used to determine maternal breastfeeding confidence during the postpartum period. The Breastfeeding Self-Efficacy Scale was developed by a group of researchers to measure maternal confidence with breastfeeding as a mechanism to identify mothers at risk of early breastfeeding termination due to low breastfeeding self-

confidence (Dennis & Faux, 1999). The researchers first performed a concept analysis of self-efficacy to identify the attributes, antecedents, and consequences prior to developing a theoretical structure. Then, the researchers applied self-efficacy to breastfeeding. According to Dennis and Faux three unique sub dimensions of successful breastfeeding arose from the content analysis performed on the literature: (a) technique, (b) interpersonal thoughts, and (c) support (Dennis & Faux, 1999). From these, 40-items were developed for the scale, and based upon Bandura's recommendations, a scale was developed with a positively worded item with 1 = "not sure at all" and 4 = "completely sure all of the time," (Dennis & Faux, 1999).

Content validity was determined using a panel of three measurement experts and four content experts. Dennis and Faux (1999) determined the overall content validity to be 86%. The panel was asked to place each item into one of three content domains and the placement was found to match among panel members 94% of the time (Dennis & Faux, 1999). Mismatched items were then revised and content validity was further ensured through postpartum interviews with two experienced breastfeeding mothers (Dennis & Faux, 1999). From these interviews, Dennis and Faux (1999) determined 88% of the items could be matched with coded participant quotes.

Researchers then tested the BSES within a convenience sample of 23 healthy breastfeeding mothers during their hospital stay to determine initial reliability. According to Dennis and Faux (1999), a Cronbach's alpha coefficient of 0.95 was obtained during this pilot, demonstrating high internal consistency. Researchers identified three items that would potentially be deleted and changed the scale to a five-point response option (Dennis & Faux, 1999).

The researchers then performed a methodological study with the revised scale among a sample of 130 in-hospital breastfeeding mothers. The researchers utilized two

other instruments, the questionnaire measure of individual differences in achieving tendency (QMIDAT) and the general self-efficacy scale (GSES) to evaluate construct validity of the BSES (Dennis & Faux, 1999). Construct validity was assessed by factor analysis, by comparing contrasted groups, and correlations with measures of theoretically related constructs (Dennis & Faux, 1999). During the initial stage of factor analysis three items were deleted based on developed criterion. Based upon the factor analysis performed by Dennis and Faux (1999) Cronbach's alpha coefficient was found to be 0.93 or greater.

The second method researchers utilized to determine construct validity was by comparing contrasted groups. Researchers took those subjects who scored very high and very low on the characteristic being measured. The researchers utilized those subjects who had previously breastfed a child and compared them to subjects who had no prior experience breastfeeding with the hypothesis that those with prior experience would score higher on the BSES. Dennis and Faux (1999) determined that BSES scores were in fact lower among primiparous women than scores among multiparous women with previous breastfeeding experience ($t = 4.9, p < 0.001$).

Lastly, researchers evaluated construct validity by determining the correlation to the BSES scores and other measures of breastfeeding self-efficacy or theoretically-based concepts utilizing the QMIDAT and the GSES. Researchers determined these hypothetically based relationships were only supported partially as the BSES was found to be positively correlated with the QMIDAT and negatively correlated with the GSES (Dennis & Faux, 1999). After construct validity was performed, 33 items remained within the BSES (Dennis & Faux, 1999).

Predictive validity was also determined during this study through the correlation of breastfeeding self-efficacy of the subjects and their infant feeding practices at six

week postpartum. Dennis and Faux (1999) determined through ANOVA analysis that the higher the BSES score the more likely the mother was exclusively breastfeeding at six weeks postpartum. Thus, the scale was determined to be a valid method for determining postpartum breastfeeding self-efficacy.

Wells, Thompson, and Kloeblen-Tarver (2006) developed and evaluated the psychometric properties of the Prenatal Breastfeeding Self-Efficacy Scale (Appendix B) and found that the scale accurately distinguished between women who intended to breast and women who intended to formula feed their infants. Content validity of the instrument was found to be high by two experts in self-efficacy with a content validity index of 0.90 (Wells et al., 2006). Internal consistency was measured using Cronbach's alpha and found to be 0.89, demonstrating that all items on the scale adequately correlated with the complete scale (Wells et al., 2006). Results from the researchers' factor analysis revealed that items on the scale fit into four themes: (a) confidence regarding the skills and demands required for breastfeeding or breast pumping, (b) confidence regarding gathering information about how to breastfeed, (c) confidence regarding breastfeeding around other people and feelings of embarrassment about breastfeeding, and (d) confidence regarding social pressure when breastfeeding (Wells et al., 2006).

This tool was administered as a pre-test, prior to the first interventional session, and as a post-test, immediately after the last intervention session, to determine the impact of the educational intervention on these four areas of self-efficacy.

Self-report of intention to breastfeed was also collected via a questionnaire pre- and post-intervention to determine the impact on stated intention. Many studies have utilized this mechanism for collection of this data. There is a possibility that the subjects reported falsely. Measures were undertaken to minimize the risk of false reporting. First,

the project manager stressed the importance of honesty in the data procurement so to help determine if the intervention was effective. The project manager also demonstrated support for the adolescent mother for any decision made regarding feeding preference so the participant would not experience guilt or pressure to answer falsely. Collection of self-report data was via paper which was anticipated to result in higher reliability of participant responses.

Management and analysis. The impact of the three educational sessions was determined by pre- and post-testing using the Prenatal BSES and pre and post self-reporting of infant feeding intention. Demographic data, as depicted in Appendix D, was collected prior to any part of the intervention and was utilized to formulate descriptive analyses of the sample.

Protection of human subjects. The rights of the subjects within the study were protected through various mechanisms. First, the project manager and the project site advisor completed training by the National Institutes of Health on the protection of human subjects participating in research. Permission to complete the EBP project was obtained from the on-site clinic director. IRB approval was obtained from both Valparaiso University and X University Medical Center's Institutional Review Boards. Consent for participation in the study and authorization to share personal information in research, following HIPAA regulations, were obtained (see Appendices E & F). Each subject was assigned a code to further protect her confidentiality of which only the principal investigator had access to. All confidential information was kept in a locked location to which only the project manager had access. After the completion of the study all data were destroyed.

The only identified risks to the participants in this study were (a) psychological stress and (b) potential guilt relating to their decision of infant feeding choice and

embarrassment over the subject matter. According to the meta-synthesis conducted by Schmied et al. (2009), women often feel pressured by healthcare providers to breastfeed and often undermine their efforts by not demonstrating support. The researchers found that this pressure and guilt could be diminished by the healthcare provider providing encouragement and respecting the mother's plan. Additionally, researchers recommended developing a relationship with the mother in the form of authentic presence and utilizing peer supporters (Schmied et al., 2009). All of these measures were undertaken to minimize the risk for participants within this project implementation.

CHAPTER 4

FINDINGS

The purpose of this EBP project was to determine if an antenatal educational intervention including information regarding the benefits of breastfeeding to both moms and babies, common difficulties encountered during the establishment of breastfeeding, and mechanisms to overcome those barriers utilizing peer counselors and an IBCLC would increase breastfeeding self-efficacy and intention among a group of adolescent pregnant women attending an inner city specialty high school.

Participants. Eight participants completed pre-intervention questionnaires, three were lost to follow-up as they were absent from school the final intervention day. All participants attended at least two of the educational sessions, none attended all three. Of the 5 participants who had both pre and post-intervention data, three were African American and two were Hispanic. All five were in their last trimester of pregnancy. All five participants were also recipients of WIC, had planned vaginal births with no identified problems with their pregnancies, and planned to return to S Academy after delivery. Two of the participants were 14 years of age, two were 15 years, and one was 18 years of age. Three were in 8th grade, one was in 9th grade and one was in 12th grade at the time of the intervention. They were all nulliparous, and demonstrated on the demographic questionnaire that they knew someone who had breastfed their baby. Only one participant indicated that she was not seeing a health care provider for prenatal care during her pregnancy.

Instruments. Participants completed the Prenatal Breastfeeding Self-Efficacy Scale (BSES) questionnaire prior to the educational intervention and immediately following the last day of the intervention. According to Wells et al. (2006), the scale

measures four themes of self-efficacy, and after psychometric testing, Wells et al. determined that the instrument reliably distinguished between those pregnant women who intended to breastfeed and those who intended to formula feed. The first seven questions on the scale related to the skills and demands associated with breastfeeding. The items included in this identified factor assessed whether the participant could breastfeed under conditions that could make breastfeeding more difficult. The second factor identified included five questions relating to the gathering of information about how to breastfeed. The third factor included four questions relating to breastfeeding around other people and the associated embarrassment with doing so. Factor four included two questions relating to social pressures women may experience when breastfeeding. The remaining two questions on the scale were not associated with any of the four factors but were retained as they proved indicative of the intention of the participant to breastfeed.

After development of the Prenatal BSES, Wells et al. administered the questionnaire to a sample of 279 low-income pregnant women and determined that the scale had a high degree of internal consistency demonstrated by a Cronbach's alpha = .89. Further, two breastfeeding experts provided ratings on elements on the scale and a content validity index was calculated based upon their ratings of items on the scale (content validity index = 0.90). Construct validity was examined by testing whether women who intended to breastfeed score higher on the scale than those who did not, as well as whether women who had previous breastfeeding experience scored higher on the scale than those who had no experience. Researchers determined that those participants who reported an intention to breastfeed scored higher on the scale than those without an intention to breastfeed ($t[189] = 6.04, p < .001$). Furthermore, those

that had breastfed a previous child also demonstrated a higher score on the scale ($t[149] = 4.99, p < .001$).

Participants in this EBP project were also asked to choose between the following three choices related to their intentions to breastfeed both pre-intervention and post-intervention to determine if the intervention had an impact on their breastfeeding intention: (a) I plan to feed my baby breast milk exclusively for the first six months of his life, (b) I plan to feed my baby breast milk and formula for the first six months of his life, or (c) I plan to feed my baby only formula for the first six months of his life.

Answering the clinical question. The clinical question for this EBP project was to determine if a needs-based educational intervention utilizing both an IBCLC and breastfeeding peer counselor would increase both breastfeeding self-efficacy and percentage of participants stating their intention to provide any breast milk to their babies. Non-parametric testing was performed on total Prenatal BSES and a Related Sample Wilcoxon-Signed Rank test was performed on all four factors to determine if the intervention had impacted any of the four individual factors within the Prenatal BSES. No significant difference was noted between mean total pre-test and post-test self-efficacy (81.2 and 83.4 respectively, $p = .500$). While demonstrating an increase in mean score for this factor, differences in mean scores for factor 1 (5.41 and 5.54) also did not demonstrate statistical significance ($p = .285$). Related Sample Wilcoxon-Signed Rank test results demonstrated that only factor 2 displayed any significant difference after the intervention (5.63 and 4.78 respectively, $p = .042$). Pre-test self-efficacy scores for this factor were higher than the post-test scores. Factor 3 mean results pre- to post-intervention (3.59 and 3.44, $p = .715$) and factor 4 mean results pre- to post-intervention

(4.21 and 4.16, $p = .500$) were also statistically insignificant yet demonstrated a tendency for a reduction in self-efficacy within these factors.

Linear regression was performed to determine if the intervention had an impact on pre- and post- intervention breastfeeding intention. The best-fit equation was determined to be $Post-intervention = 0.5 + 0.5 Pre-intervention$. Using this equation it was determined that although statistically insignificant ($p = .133$), the intervention did positively impact participants intention as demonstrated by an Adjusted r square index of .44 and a standardized coefficient β of 0.764.

Figure 4.1

Effect of Intervention on Total Prenatal BSES

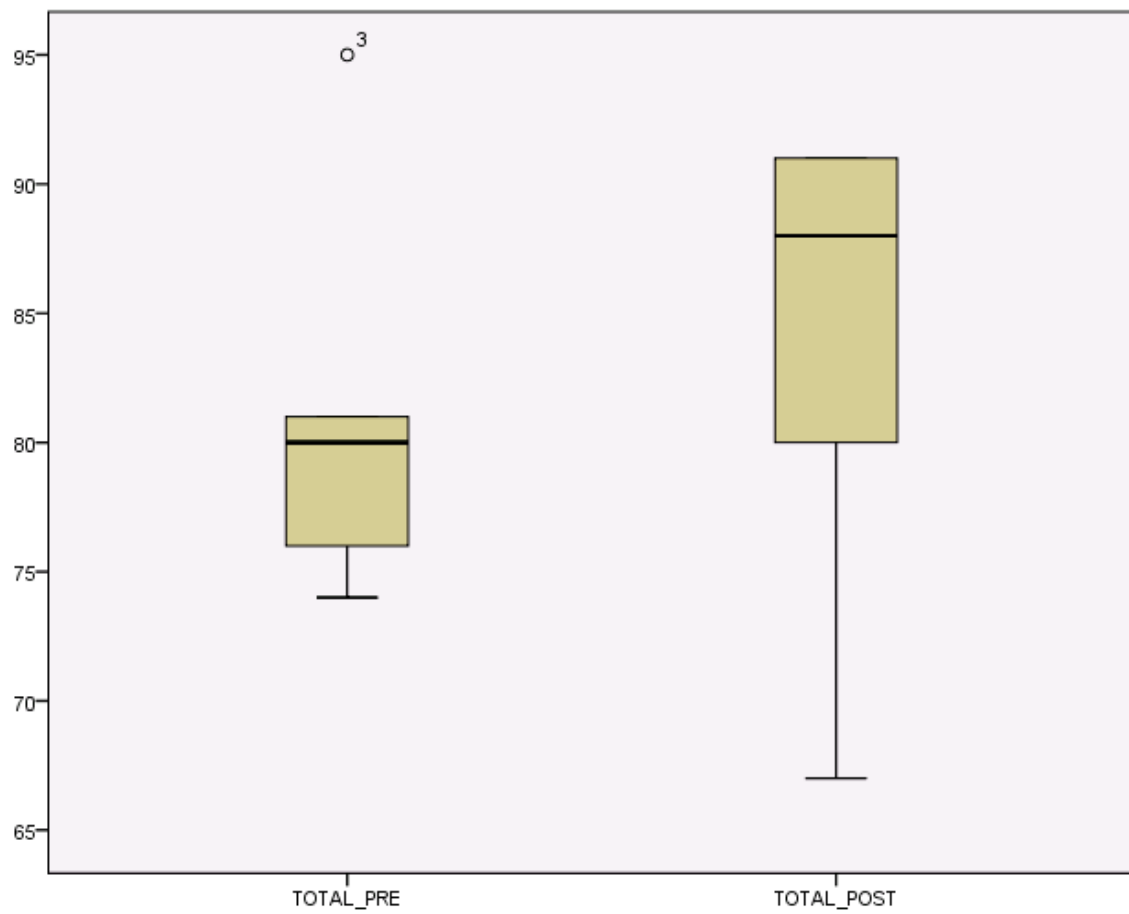


Figure 4.2

Effect of Intervention on Prenatal BSES Factor 1

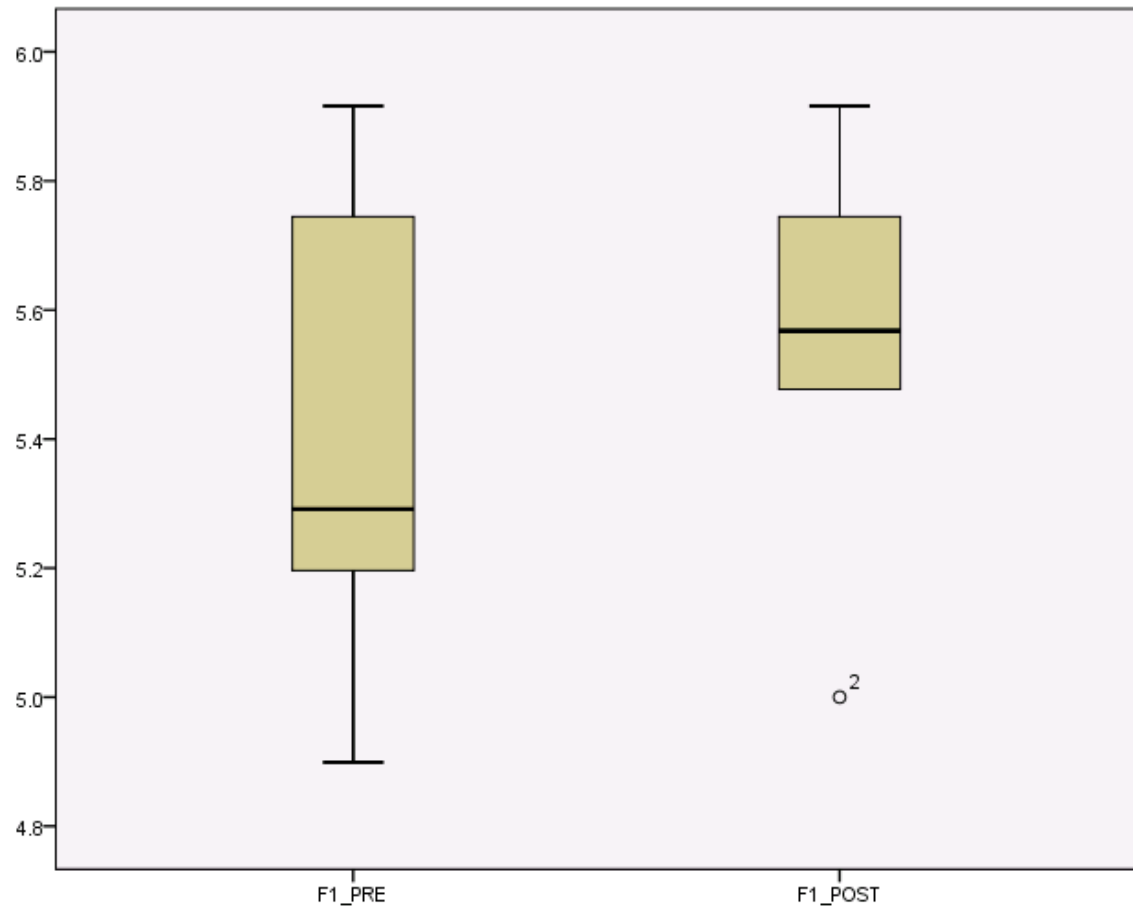


Figure 4.3

Effect of Intervention on Prenatal BSES Factor 2

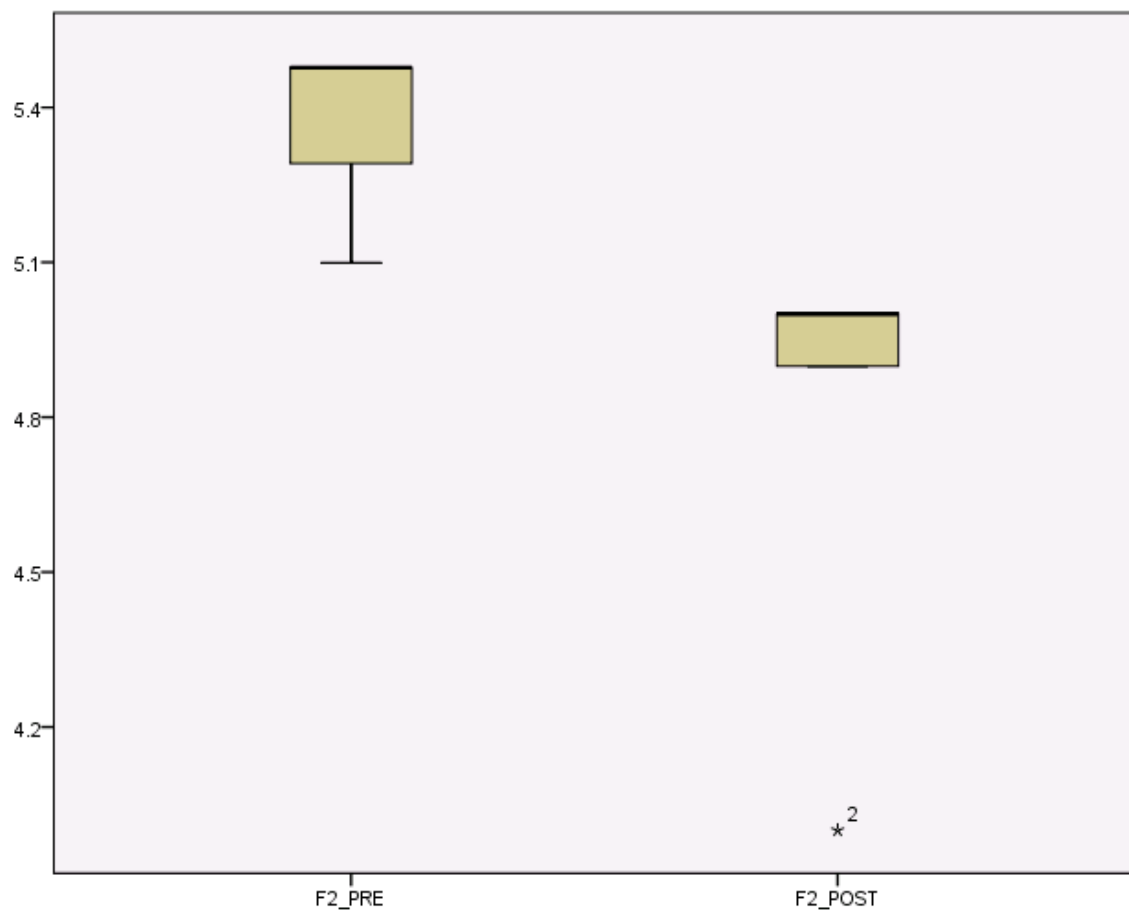


Figure 4.4

Effect of Intervention on Prenatal BSES Factor 3

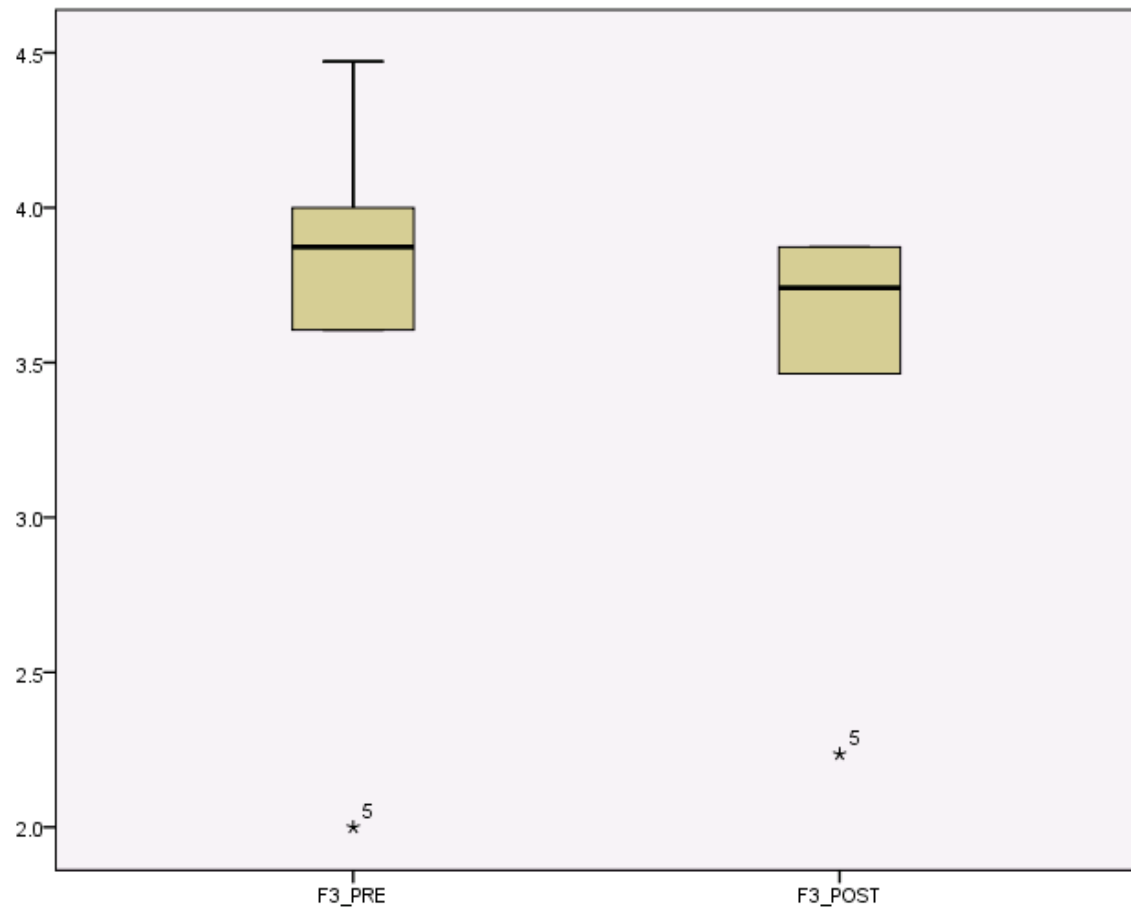


Figure 4.5

Effect of Intervention on Prenatal BSES Factor 4

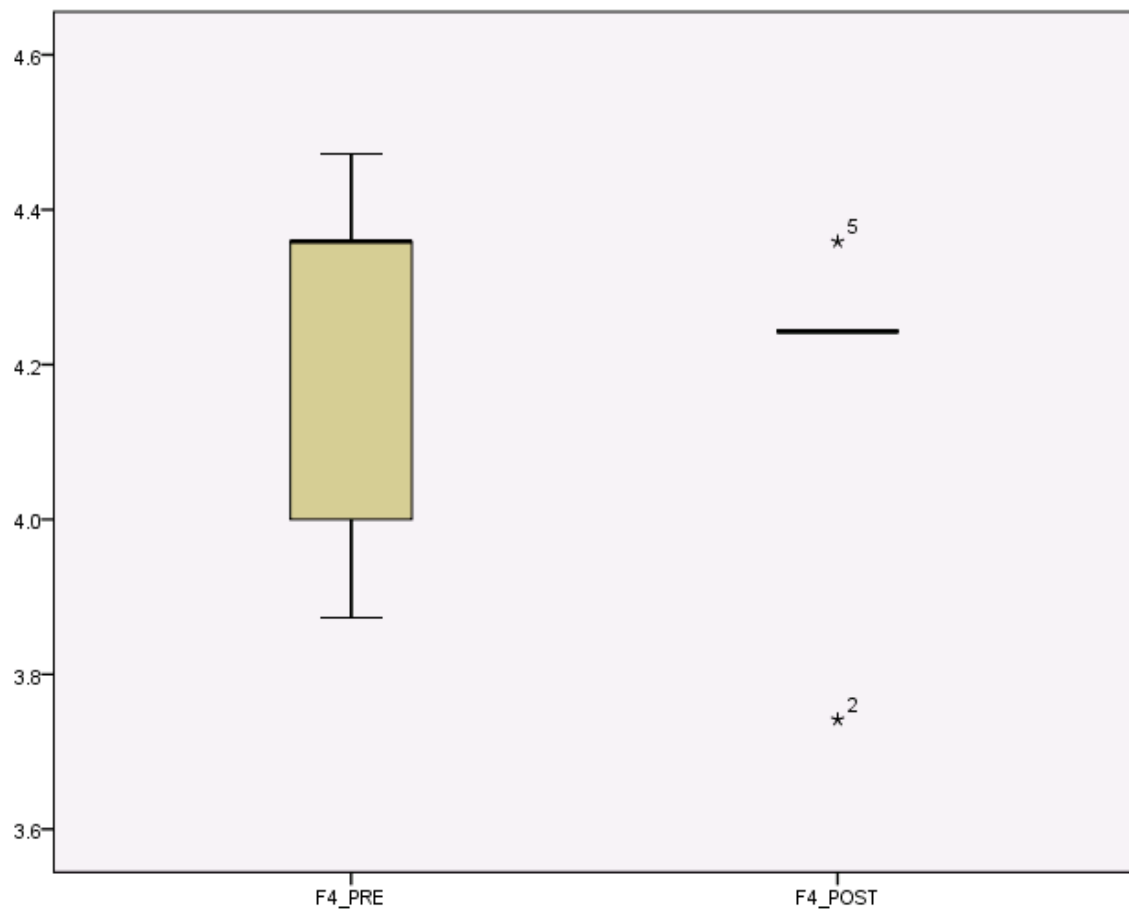
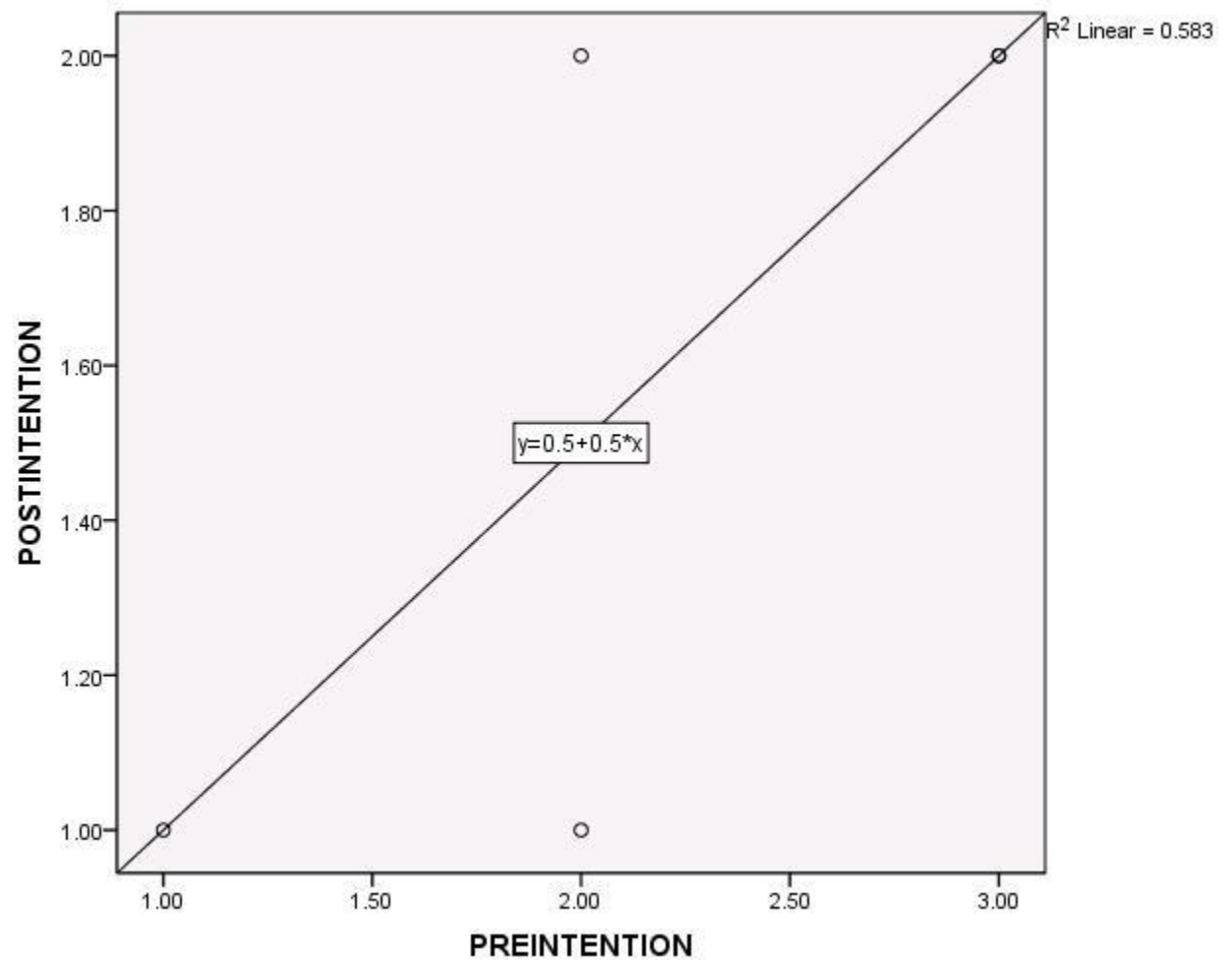


Figure 4.6

Effect of Intervention on Level of Breastfeeding Intention



CHAPTER 5

DISCUSSION

The purpose of this EBP project was to implement an antenatal intervention including education on the benefits of breastfeeding, common difficulties encountered with breastfeeding, and methods to overcome those difficulties by utilizing other identified peer counselors and an expert lactation professional to increase breastfeeding self-efficacy and intention among inner city students attending an adolescent parenting program high school. Because adolescent mothers are at risk for poor breastfeeding initiation rates, programs need to be developed to target specific interventions to increase intention to breastfeed. These programs should be focused on improving self-efficacy. The resulting clinical question was “Will an antenatal intervention increase breastfeeding self-efficacy and intention among a cohort of inner city adolescents?”

Explanation of Results

The EBP project implementation did not result in a statistically significant impact on breastfeeding self-efficacy. No significant differences in pre- and post-intervention Prenatal BSES scores were noted. When individual factor scores within the scale were examined, factor two scores appeared to be negatively impacted by the intervention. Factor two within the scale included questions related to the participants’ confidence in gathering of information or assistance when difficulties with breastfeeding were encountered. Pre- and post-intervention scores on factor two suggested that the participants were less confident with obtaining assistance with breastfeeding difficulties they may encounter. This result was an unexpected finding as much of the education and support provided within the EBP project focused on providing professional support contacts for the participants. For this EBP project a breastfeeding peer counselor was

defined to be a mother with previous breastfeeding experience who attended a specialty training to provide expert lactation support to other breastfeeding mothers. While the intention of the project manager was to utilize a peer counselor who was of similar age and socioeconomic background to the students, this was not possible. Instead the project manager, a mother with previous breastfeeding experience, completed the necessary training and served as the peer counselor for the project. Furthermore, students who had previous breastfeeding experience who attended the educational intervention were encouraged to share their breastfeeding experiences. Many of the experiences shared included the pain they experienced and the decreased milk supply they had, seemingly negative experiences. While the project manager attempted to utilize these shared experiences in incorporating methods to overcome difficulties, the impact of true peer experiences may have been more significant to the resulting self-efficacy of the participants.

While statistically insignificant, the results did indicate a positive effect on stated breastfeeding intention. If a participant indicated an intention to formula feed only pre-intervention, her intention changed to include some breast milk. Furthermore, if a participant indicated a pre-intervention intention that she would feed her infant breast milk and formula for the first six months of life, her intention was likely to change to exclusive breastfeeding post-intervention. An increased sample size may have generated more statistically significant results.

Applicability of Social Cognitive Theory as the Project Framework

SCT was very applicable as the framework for this EBP project. SCT posits that individual health is influenced by social, as well as individual, determinants (Bandura, 2004). Bandura identified that there are core determinants to translate evidence and knowledge into effective health practices. The core determinants identified were (a)

knowledge of health risks and benefits, (b) perceived self-efficacy, (c) outcome expectations, (d) health goals, and (e) perceived facilitators and social and structural impediments. Furthermore, Bandura has determined that personal change and motivation are dependent of self-efficacy (Bandura, 2004).

Within this EBP project, the intervention strongly utilized SCT as the educational sessions focused on providing participants with the knowledge of health risks and benefits associated with breastfeeding and increased maternal-infant bonding. Additionally, the intervention incorporated techniques to increase breastfeeding self-efficacy including demonstration and hands-on learning and teaching methods to overcome difficulties in establishing an adequate supply. Developing social supports amongst participants was also a focus on the intervention based upon SCT.

The intervention within this EBP project provided information regarding the short-term goals of breastfeeding as well as the expected outcomes. Participants were instructed on the importance of providing exclusive breast milk during the first few days of life as colostrum is produced. Evidence from research demonstrating the gastrointestinal protective benefits of delaying formula feeding until after the transitional milk is produced were shared with participants. Participants were educated on the realities of breastfeeding, including the demands associated with establishing an adequate milk supply and the potential difficulties the first few weeks of initiation. During this time the benefits were highlighted and stories were elicited from group members with previous breastfeeding experience relating to their increased satisfaction and self-worth associated with their breastfeeding success. Strategies and follow-up plans were developed with participants to increase their success with breastfeeding.

The intervention helped participants identify systems of breastfeeding support. Identifying facilitators was an important component of the intervention. Long-term

breastfeeding outcomes have been dependent upon the social and professional supports a woman has. Therefore, peer supports were identified within the school. Additionally, participants were provided with contact information for free lactation consult services and handouts were distributed which included on-line contact information for breastfeeding support.

Social and structural impediments to breastfeeding success were also discussed during the EBP project intervention. Embarrassment issues with breastfeeding in front of others were discussed. Discreet methods of breastfeeding were demonstrated. Additionally, student expectations were to return to school after delivery. In order to continue to breastfeed when the mother is separated from her infant during the day the use of a breast pump is necessary. One session of the intervention intensely focused on breast milk pumping, including the mechanics of the pump, the differences in types of pumps, and safe milk handling and storage. The participants were informed that a hospital-grade pump would be purchased soon to allow for efficient pumping at school upon their return from their maternity leaves.

By focusing on the core determinants delineated in SCT, the aim of this EBP project was to change breastfeeding intentions by providing participants with the necessary knowledge of the benefits of breastfeeding. Additionally, the goal of the intervention was to increase their self-efficacy in order to overcome the perceived personal and social barriers and provide the necessary motivation for change. The implementation also included goal development to tie breastfeeding to perceived outcomes and self-incentives and the identification of social supports.

Applicability of the Stetler Model as the EBP Model

The Stetler Model of Evidence-based Practice consists of five steps: (a) preparation, (b) validation, (c) comparative evaluation/decision making, (d)

translation/application, and (e) evaluation. Each phase is designed to (a) facilitate critical thinking, (b) result in the use of evidence in daily practice, and (c) reduce human error made in decision-making (NCCMT, 2011). The strength of this model was its ease of use within this EBP project. Following the steps of the Stetler Model, the first step of preparation involved the identification of a need for an improvement. During this step, the project manager identified literature demonstrating that breastfeeding initiation rates were lower among adolescents, especially those of lower socioeconomic status. The project manager then identified the site of implementation after meeting with lactation experts at X University Medical Center.

During the validation step the project manager developed the PICOT question and then performed a thorough review of literature to identify best practice recommendations. Six computer-based databases were included in the search, as well as a hand search of five different publications and a review of expert practice recommendations and guidelines from the USPSTF, the National Guideline Clearinghouse, and the World Health Organization (WHO). Databases searched included Cumulative Index to Nursing and Allied Health Literature (CINAHL), Proquest Nursing and Allied Health Source, MEDLINE via EBSCO Interface, Joanna Briggs Institute (JBI), Cochrane Library, and PsycINFO for peer-reviewed literature published between the years of 2005-2014. Inclusion and exclusion criteria were developed and all literature were assessed for inclusion. Eleven articles were chosen for inclusion, including one article published outside of the original inclusion criteria due to its determination to classic, foundational research, offering much insight to the population of this specific EBP project.

The evaluation and decision-making step of the Stetler model included the synthesis of evidence and development of the EBP project implementation plan. First,

the project manager appraised all included literature using Melnyk and Fineout-Overholt's (2011) rapid critical appraisal checklists and leveled the evidence according to the rating system for the hierarchy of evidence developed by Melnyk and Fineout-Overholt (2011). The project manager then evaluated the identified EBP practices and analyzed the feasibility of implementation within the setting of S Academy. Taking into consideration the time constraints and costs, the project manager utilized the synthesized evidence to determine the educational content and number of sessions. The project manager determined that the intervention would include: (a) the involvement of a lactation consultant in both educating and supporting the expectant mother, (b) peer counseling, (c) informal, needs-based education including content of potential difficulties and specific discussion and demonstrations of how to overcome them, and (d) repeated contact with breastfeeding educators or peer counselors in the antenatal period.

During the translation step of the model the project manager considered input from the faculty member from X University regarding educational content and session planning. Further, support from the clinic director was attained and IBCLC involvement was secured. Educational materials were identified and IRB approvals were obtained. Constraints relating to time and costs were evaluated by the project manager resulting in the decision to deliver the intervention over three sessions and include the IBCLC in the last two sessions. Due to time constraints the data collection plan was modified to exclude postpartum measures.

The last step of the Stetler model is that of evaluation. Important demographic data was collected and the project manager planned to utilize the collected data in secondary analyses. Due to both the low *n* and the lack of diversity in participants, secondary analyses were unable to be performed. The Prenatal Breastfeeding Self-Efficacy scale was identified as a valid and reliable tool and was utilized as a pre- and

post-intervention determination of breastfeeding self-efficacy in participants. Stated level of breastfeeding intention was also collected as a three leveled response: (a) intention to feed infant breast milk exclusively for six months, (b) intention to feed infant breast milk and formula for six months, or (c) intention to feed infant only formula for six months.

The use of the Stetler model as the guide for this project implementation was effective for many reasons. First, the steps utilized in the model were intuitive and practitioner-focused. Coupled with the ease of use, the model proved to be successful for use with a novice practitioner implementing EBP.

Strengths and Weaknesses

Evaluation of the project implementation by the project manager revealed many strengths and weaknesses that helped identify factors which enabled the successful implementation and also helped provide some context to the project results. Additionally, these factors could help identify areas for future inquiry for theory, practice, research, and APN education.

A strength of this implementation was the site itself. The fact that the school was a specialty public high school for parenting and pregnant adolescent females provided the project manager with a focused population. Additionally, pre-existing extra-curricular programs aimed at increasing knowledge of infant and child nutrition as well as growth and development, allowed this EBP project the support of the school leaders, as well as that of the school-based health clinic. School and clinic support were attained at the onset of the project.

Another strength was the involvement of the X University nursing faculty who had on-going grant support for semi-weekly lunch-time sessions with students. Her involvement and engagement with the students proffered participation in this EBP project. Furthermore, she provided lunch and door prizes from grant monies she had in

place for her on-going education interventions, thereby decreasing the costs of this EBP project implementation.

A major strength of this project implementation was the ability of the project manager to bridge the capabilities and knowledge between X University's Mother's Milk Club and Breastfeeding Peer Counselor Program and IBCLCs, as well as those from X University's College of Nursing, and X University's school-based health clinic. Access to educational materials and assistive and supportive services were able to be utilized in this project due to this strength. Additionally, the project manager was able to offer participants access to free consultative IBCLC services through X University as a result of this relationship building.

Another strength of this project implementation was the current and future potential for further work and support. During a follow-up implemented project the school-based health clinic offered students at S Academy daily access to a hospital-grade pump to encourage continued breastfeeding when the students returned to school. The school and clinic both delivered a message to students that breastfeeding was important. These types of supports could lead to increased rates of self-efficacy and intention rates in this population overall by helping remove impediments to health behaviors.

A final strength identified by the project manager was the established relationship that the project manager had with participants prior to project implementation. The project manager became a bi-weekly presence in the lunch-time educational activities. This on-going presence began approximately seven months prior to implementation and allowed for a trusting relationship to develop between students and the project manager. This trusting relationship facilitated an open and honest communication during the

intervention which allowed students to feel supported in asking difficult or embarrassing questions.

There were also a few limitations to this EBP project. First, the low sample of participants did not support the attainment of statistical significance. Studies within the synthesis of evidence demonstrated positive impacts on BSES and on intention. Similarly, a positive trend on the total BSES and three of the four factors was noted as a result of this project implementation, yet due to the low sample size the findings did not reach statistical significance

Another limitation related to the participants' peers. This limitation can be demonstrated in two ways. First, although the project manager served as a "peer" counselor the fact that she was not a true peer in relation to age and socioeconomic status, the impacts of breastfeeding peer counselors as demonstrated in other included studies, cannot truly be ascertained from this project. Even though the project manager was a trained peer counselor, a mother herself who had breastfed, the participants may not have been able to relate to her experiences as well as they could have if she were a teenage mother who had breastfed her infant. The project manager had identified students who attended the sessions who had previous experience breastfeeding and utilized their experiences to highlight methods to overcome breastfeeding difficulties as well as share the positive experiences experienced by the participants' peer groups during the sessions. However, the experiences shared by their peer group was generally negative in nature, including descriptions of incidences of severe nipple pain with breastfeeding and issues with establishing an adequate milk supply. While the project manager highlighted these negative experiences by teaching proper latch to reduce nipple pain and mechanisms to establish an adequate milk supply, these negative peer experiences may have impacted the perceived self-efficacy of the participants more than

the positively-focused education. It is therefore recommended that future implementations would screen peer supports to allow for a more balanced sharing of positive and negative experiences with breastfeeding.

Implications for Future Implementation

This EBP project has many implications for future implementation. The project manager thoroughly evaluated these implications. Those identified include recommendations for future theory, research, practice, and educational developments. Those implications identified are discussed below.

Theory. The Social Cognitive Theory fit very well with implementing an intervention to change health behavior. This seemed to hold especially true with an intervention aimed at increasing breastfeeding rates among adolescent girls. The need for a theoretical framework that took into account all the necessary elements of sustained behavior change, both psychological and social in nature was of paramount importance in this patient population. Sustained self-efficacy has been noted to be necessary for continued breastfeeding success; addressing social supports and impediments have also proven to be important in continued health practices. SCT appropriately addresses these issues. Additionally, the use of the Stetler model should be encouraged for future EBP projects because of its ease of use for novice practitioners. This step-by-step process allowed the practitioner to intuitively assess the evidence, link it to practice, develop EBP interventions, and evaluate the outcomes of those implementations.

Research. Implications for future research were also identified. While the synthesis of literature generally suggested the educational content important to impact breastfeeding self-efficacy and intention, no one educational content was identified as best practice. The delivery mode of the educational material needs to be evaluated both

quantitatively and qualitatively, especially in this focused population. This EBP project utilized a video and guided discussion to impart the necessary breastfeeding knowledge, while others utilized games and didactic educational techniques. More research needs to be performed to determine the most effective delivery mode.

Additionally, more research is needed in regards to the most effective duration of intervention. While the synthesis revealed that a repeated session intervention was more effective, it was unclear the number of sessions or the time duration of each session that was most effective in achieving the desired outcomes. Again, this should be examined in both a quantitative and qualitative manner. Future research also should be performed to determine the effects of antenatal interventions on sustained breastfeeding self-efficacy, initiation, and duration of breastfeeding to at least six months.

While this project implementation did not generate statistically significant results, it did demonstrate a positive impact on breastfeeding intention among adolescent pregnant females in their last trimester of pregnancy. While this requires further inquiry, the synthesis of evidence also supports that antenatal breastfeeding promotional programs should be more widely developed and implemented for this high-risk population to improve overall public health. Pregnant adolescents should be identified by schools and providers to ensure their inclusion in promotional activities including peer support and IBCLC services. Furthermore, future research should consider the impact of screening for and determining the impact of various types of peer support on breastfeeding self-efficacy, intention, and initiation. Additionally, it is a recommendation that adolescent age be a factor in evaluating issues related to breastfeeding promotion.

Education. Many researchers have documented that limited education is disseminated to health care providers on promoting and providing support and protections for continued breastfeeding (Hunter, 2012; Moran et al., 2006; Spear, 2006).

Based upon the recommendations by WHO, UNICEF, CDC, and the AAP, additional education should be required for all providers (including APNs) to promote the initiation, exclusivity, and duration of breastfeeding among women in the U.S. Furthermore, education of providers should include the importance of breastfeeding and methods to engage the adolescent mother, as studies have suggested that some providers are likely to believe this population of mothers lacks the intention to breastfeed and thus dismiss the adolescent mother in the promotion of breastfeeding (Hunter, 2012; Moran et al., 2006).

Conclusion

Despite the inability to achieve statistical significance, this EBP project was considered a success. The bridge in efforts between the school-based clinic and college of nursing faculty and the lactation experts and support groups at X University will undoubtedly prove to be successful in generating future efforts to engage students at S Academy in breastfeeding initiation. As more and more students initiate and seek support for continued, successful breastfeeding, peer breastfeeding support will be more readily available at the school for future pregnant adolescents. This increased exposure and enhanced peer support within S Academy has the potential to result in more students initiating breastfeeding and increase the visibility of breastfeeding within their communities. Increased breastfeeding initiation can help to meet the goals set by the WHO and UNICEF (2009) and the USPSTF (2008); thereby, improving population health.

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BIOGRAPHICAL MATERIAL

Jamie Lynn El Harit graduated with her Bachelor of Science in Nursing from Valparaiso University in December 1995. She has since had roles as a clinical nurse in various settings within the Northwest Indiana and Chicagoland area. Her clinical expertise includes care of patients within the following areas: telemetry, cardiovascular surgery, neurosurgery, and critical care. Jamie has also held supervisory and clinical staff education roles within a community hospital setting. She holds certification as an American Society for Quality Six Sigma Black Belt and has been leading performance improvement teams to improve safety, quality and efficiency of care for the last eight years, most recently within a large, tertiary, academic medical center in Chicago. Jamie is a member of the American Society for Quality, the Greater Chicago Area Chapter of the AACN, where she had previously served as a board member, Sigma Theta Tau, Zeta Epsilon Chapter, and the AANP. She is most recently a recipient of the Gerke Scholar Award. She has had poster presentations at three of the Institute for Healthcare Improvement's National Forums and was a multiple session speaker at the 2009 Society for Health Systems' National Conference. Additionally, she has co-authored case studies of the improvement efforts in which she has been involved. Through her work with improving organizational performance of the perinatal core measures and reducing disparities of breastfeeding outcomes in high risk populations, Jamie became interested in the promotion of exclusive breastfeeding as her EBP project. Jamie will receive her Doctorate in Nursing Practice as a Family Nurse Practitioner in May 2015 from Valparaiso University and plans to continue her involvement in ensuring safe, efficient, equitable, and high quality care to the patient populations she serves.

ACRONYM LIST

AAP: American Academy of Pediatrics

BF: Breastfeeding, breastfed

BSE: Breastfeeding Self-Efficacy

BSES: Breastfeeding Self-Efficacy Scale

BSES-SF: Breastfeeding Self-Efficacy Scale-Short Form

CDC: Centers for Disease Control and Prevention

CINAHL: Cumulative index to Nursing and Allied Health Literature

DNP: Doctor of Nursing Practice

EBP: Evidence-based Practice

IBCLC: International Board of Lactation Consultants Certified Lactation Consultant

IRB: Institutional Review Board

JB: The Joanna Briggs Institute

NCCMT: National Collaborating Centre for Methods and Tools

PICOT: The population of interest (P), the intervention or issue of interest (I), the comparison (C), the outcomes, and the time frame (T)

PP: Post-partum

RCT: Randomized Control Trial

SCT: Social Cognitive Theory

ACRONYM LIST

SR: Systematic Review

TJC: The Joint Commission

UNICEF: United Nations Children's Fund

USDHHS: U.S. Department of Health and Human Service

USPSTF: U.S. Preventative Services Task Force

WHO: World Health Organization

WIC: Women, Infants, and Children Program

APPENDIX A

SUMMARY OF APPRAISED LITERATURE

STUDY/LEVEL	PARTICIPANTS	PURPOSE/METHODS	INTERVENTION	RESULTS
Caine, V., Smith, M., Beasley, Y., Brown, H. L. (2012). Level IV	Participants were pregnant women, 56% aged less than 25 years and 63% African American, enrolled in Indianapolis Healthy Start.	To evaluate the impact of a prenatal education on behavioral changes toward BF. Cohort study.	Education and counseling provided by a certified lactation specialist case manager during antenatal period and continued for up to 6 months postpartum.	IHS program participants were more likely to BF than non-participants (OR = 1.33, 95% CI [1.10,1.61])
Chu, W. H. (2013). Level VII	Cochrane review of 11 trials, (1553 women), an EBP guideline, a Cochrane review of 19 studies (8262) women, 2 SRs, an RCT (24 female nulliparous interviews), an observational study, and a before and after study (39 physicians and 179 women-infant pairs).	To develop a best practice summary for antenatal preparation for BF. Cochrane review and development of evidence summary.		BF peer counseling, IBCLC, and formal BF education during pregnancy improved BF initiation and duration rates (Level I). Peer counseling was superior to routine care. Grade A practice recommendations: (a) offer opportunities for women and their partners to attend formal antenatal breastfeeding education sessions and participate in peer counseling, (b) provide combined educational approach utilizing various materials as well as time with an IBCLC.

<p>Dyson, L., McCormick, F. M., & Renfrew, M. J. (2005).</p> <p>Level I</p>	<p>11 RCTs, involving 1553 women, 8 of which were included in data abstraction.</p>	<p>To evaluate the effectiveness of interventions that aim to encourage women to breastfeed</p> <p>Systematic review (SR).</p>		<p>5 RCTs (582 women) education intervention increased initiation of BF, ($RR = 1.57$, 95% CI [1.15, 2.15])</p> <p>2 studies of low income women found that informal, personalized education increased BF initiation rates, ($RR = 2.40$, 95% CI [1.57, 3.66])</p> <p>3 RCTs (420 women) demonstrated an increase in BF initiation following a single education session, ($RR = 1.26$, 95% CI [1.00, 1.60])</p> <p>1 RCT demonstrated that Latina women receiving BF peer support demonstrated an increase in BF initiation, ($RR = 4.02$, 95% CI [2.63, 6.14], $p < 0.00001$)</p>
<p>Gill, S. L., Reifsnider, E., & Lucke, J. F. (2007).</p> <p>Level IV</p>	<p>Convenience sample of 200 Mexican women in 2 public health department maternity clinics in a large city in southwest US.</p>	<p>To evaluate the effects of an antenatal education and home-based postpartum support intervention among a group of low-income, Hispanic women on BF initiation and duration.</p> <p>Quasi-experimental, non-randomized study.</p>	<p>2 bilingual IBCLCs and 3 certified lactation educators provided prenatal BF education (including issue of embarrassment) and postpartum support.</p>	<p>The intervention group experienced a higher initiation rate than the control group ($OR = 2.31$, [CI 1.10, 4.96]).</p>

<p>Kronborg, H., Maimburg, R. D., & Vaeth, M. (2012).</p> <p>Level II</p>	<p>1193 nulliparous women in Denmark.</p>	<p>Assess the effect of a structured antenatal training program on knowledge, self-efficacy, problems related to BF, and BF duration.</p> <p>RCT.</p>	<p>Intervention group ($n = 603$) attended a structured 3-day antenatal training program, "Ready for Child" between weeks 30 & 35 gestation, including 2 hours of BF education including a BF video.</p>	<p>At 36 weeks gestation the intervention group demonstrated higher levels of confidence in BF than controls ($p = .05$).</p>
<p>Lumbiganon, P., et al. (2012).</p> <p>Level I</p>	<p>19 studies of 8506 women with 16 studies involving 8262 women, all RCTs, entered into data analyses.</p>	<p>Evaluate the effectiveness of antenatal education for increasing initiation and duration of breastfeeding.</p> <p>Compare the effectiveness of various forms of education for increasing BF initiation and duration.</p> <p>SR.</p>		<p>Peer counseling significantly increased BF initiation ($RR = 1.82$, 95% CI [1.13, 2.93]).</p> <p>No one educational intervention was any better than another in increasing initiation and duration of BF.</p> <p>Combination of BF booklet, video and lactation consultation was significantly better than routine care for exclusive BF at 3-months ($RR = 2.11$, 95% CI [0.99, 4.52]).</p> <p>Marginal increase in exclusive BF at 6 months in women receiving a booklet, plus video, plus IBCLC consultation compared with the booklet and video only group ($RR = 2.23$, 95% CI [1.01, 4.92]).</p>

<p>Nichols, J., Schutte, N. S., Brown, R. F., Dennis, C. L., & Price, I. (2009).</p> <p>Level II</p>	<p>90 adult, pregnant women from South East Queensland, Australia who were at 36 weeks or greater gestation</p>	<p>Evaluated the impact of participation in an antenatal self-efficacy enhancing intervention on BF self-efficacy at four weeks postpartum.</p> <p>RCT.</p>	<p>Intervention group received a nine-page interactive workbook focusing on enhancing breastfeeding self-efficacy. Control group received a five-page workbook on parenting issues with no breastfeeding references.</p>	<p>Intervention group reported higher levels of BSE after intervention than control, ($F[1,87] = 5.35, p=.03$, partial $\eta^2 = .06$).</p> <p>Mean duration of BF was higher in the intervention group versus control group (27.11 days, 25.38 days, $p = .05$).</p> <p>A significant positive relationship was noted between change in BSE and duration of BF, ($r[89] = .44, p = .001$).</p> <p>Antenatal BSE predicted duration of BF and more exclusive BF in the control group ($r[44] = .33, p = .03$).</p>
<p>Noel-Weiss, J., Rupp, A., Cragg, B., Bassett, V., & Woodend, A. K. (2006).</p> <p>Level II</p>	<p>92 women expecting a single child, an uncomplicated birth, and planning to BF were randomized to intervention or control.</p>	<p>Determine the effects of an antenatal workshop on BSE and duration rates.</p> <p>RCT.</p>	<p>Intervention group attended a 2.5 hour prenatal BF workshop based upon adult learning principles and self-efficacy theory.</p>	<p>Intervention group had a higher rate of exclusive BF than controls group (70% vs. 58%) and lower rate of weaning (15% vs.22%).</p> <p>The attender group was significantly more likely to be exclusively BF than the non-attender group ($OR = 1.7, 95\% CI[1.26, 7.94]$).</p>

<p>Schmied, V., Beake, S., Sheehan, A., McCourt, C., & Dykes, F. (2009).</p> <p>Level V</p>	<p>31 articles primarily of qualitative studies involving women who initiated breastfeeding.</p>	<p>Examine womens' perception and experience of breastfeeding support.to illuminate the components they deemed "supportive."</p> <p>Metasynthesis.</p>		<p>Two categories of themes were identified depicting what types of support women want.</p> <p>Authentic presence- perceived as effective support, a trusting, connected relationship that is genuine.</p> <p>Facilitative approach-providing realistic information, accurate and sufficiently detailed information, encouragement for breastfeeding, encouraging dialogue, and offering practical help. Women want support, not pressure.</p> <p>Additionally, adolescent mothers felt that professionals did not encourage or expect them to breastfeed.</p>
<p>Volpe, E. M. & Bear, M. (2000).</p> <p>Level IV</p>	<p>Adolescent girls ages 14-19 years who attended a high school adolescent pregnancy program ($n = 43$) those who attended the same program the year prior ($n = 48$).</p>	<p>Determine the impact of a specific BF education provided by a lactation consultant in group classes on BF initiation.</p> <p>Cohort study.</p>	<p>Intervention group attended 3 weekly, 1-hour sessions (BEST Club), led by an IBCLC and assisted by a peer counselor. Peer counselor visited the school weekly to support the breastfeeding mothers and provided telephone counseling for up to 6 months PP.</p>	<p>Intervention group experienced a higher rate of BF initiation than the control group (65.1% to 14.6%, $p < .001$).</p>

<p>Wambach, K. A. et al. (2011)</p> <p>Level II</p>	<p>One intervention group (n=128), one attention control (n=128), and one usual care control group (n=134).</p> <p>Participants aged 15 to 18 years, nulliparous, in the 2nd trimester, and planning to keep their infants, and were recruited from multiple sites in a bi-state metropolitan area in the Midwest US.</p>	<p>Determine impact of an education and counseling intervention provided by an IBCLC and a peer counselor team on BF initiation and duration up to six months postpartum.</p> <p>Prospective, 3-group, non-blinded RCT.</p>	<p>Intervention included antenatal, in-hospital, and postnatal education and support through 4- weeks PP from an IBCLC and a peer counselor.</p> <p>Two antenatal classes consisted of the benefits of BF, decision making, and the “how to” of BF and managing common difficulties. Participants were required to attend at least one session and support persons were encouraged to attend.</p> <p>Peer counselor telephone calls occurred before and after class 1 and following class 2 providing decision-making support.</p>	<p>Intervention associated with an increase in breastfeeding initiation ($p < 0.03$).</p>
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APPENDIX B**PRENATAL BREASTFEEDING SELF-EFFICACY SCALE
AND INTENTION QUESTIONNAIRE**

Questions 1-20 are anchored with a Likert-type scale where 1 indicates not at all confident and 5 indicates always confident.

1. I can make time to breastfeed my baby even when I feel busy.
2. I can breastfeed my baby even when I feel tired.
3. I can schedule my day around the breast feeding 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 feed 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 breast feeding.
12. I can talk to my healthcare provider about breast feeding 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 being 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.

21. I plan to:

- a. Feed only breast milk to my baby for the first six months of his life.
- b. Feed breast milk AND formula to my baby for the first six months of his life.
- c. Feed only formula to my baby the first six months of his life.

APPENDIX C

INTERVENTION OUTLINE

I. Day One

- a. Welcome
- b. Provide overview of EBP project
- c. Obtain consent from attendees who wish to participate in EBP project
- d. Administer Prenatal Breastfeeding Self-Efficacy Questionnaire and collect demographic data.
- e. Review PowerPoint on Benefits of Breastfeeding

II. Day Two

- a. Group discussion/review from Day One-Benefits of Breastfeeding
- b. Review PowerPoint slides and Ameda videos on Breastfeeding Basics, Positioning, on Proper Latch
- c. Demonstration/practice with positioning with dolls with assistance from peer counselors.
- d. Individual/small group time with International Board Certified Lactation Consultant offered for specific questions and concerns relating to breastfeeding.

III. Day Three

- a. Group discussion/review of Day One and Two content
- b. Review of common difficulties encounter with breastfeeding and methods to overcome, including Ameda handouts
 - i. Jaundice
 - ii. Nipple pain
 - 1. Discussion of achieving a proper latch

2. Discussion of appropriate use of nipple shields
- iii. Engorgement/Mastitis
- iv. Embarrassment/Nursing in public
- v. Return to school
 1. Pumping
 2. Pump and equipment introduced
- vi. Peer and family support
 1. Contact information and handouts provided for X University
Lactation Services
 2. Breastfeeding educational sheets from March of Dimes
provided to share with significant other/parents.
- c. Individual/small group time with IBCLC and peer counselors offered for
specific questions/concerns relating to breastfeeding.
- d. Administer Prenatal Breastfeeding Self-Efficacy Questionnaire.

APPENDIX D
PARTICIPANT DEMOGRAPHIC QUESTIONNAIRE

1. Name
2. Age
3. Grade
4. When is your expected due date?
5. Are you seeing a provider for your pregnancy?
6. Race
7. Do you know anyone who has ever breast fed their baby?
8. Will you or do you receive benefits from the WIC program? Will you be applying for benefits?
9. Will you be returning to Simpson Academy after you have your baby?
10. Is this your first pregnancy? If not, have you ever breast fed before?
11. Have you been told or do you have any problems with this pregnancy?
12. Are you planning a vaginal delivery or a C-section?

APPENDIX E.
CONSENT FORM

Investigator: Jamie El Harit, RN, BSN

Contact Information: 231 Hermitage, 201 Kidston, Chicago, IL 60612, 219-218-1920

Title of Study: Effect of an Antenatal Intervention on Breastfeeding Self-Efficacy, Intention, and Initiation Among Urban Pregnant Adolescents

Sponsor: Sally Lemke RN, WHNP-BC, Director, Community Based Practices, Instructor, Department of Women, Children, and Family Health Nursing, 600 S. Paulina AAC 1053A, Chicago, IL 60612, 312-563-6830



Subject Information Sheet and Consent Form

Introduction

You are being invited to take part in this research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take the time to read the information in this form carefully, as it may contain words you do not understand. You may wish to discuss it with your doctor, family, and/or friends. If there is anything that you do not understand or you would like more information, please ask questions and the study doctor or study staff will try their best to answer them. Once the study has been explained and you have had all your questions answered to your satisfaction, you will be asked to sign this form if you wish to participate. Before anything is done for this study, you must sign this form. A copy of this signed form will be given to you.

You do not have to take part in this study. You are free to withdraw from this study at any time you choose without giving a reason. This will not affect any future care you will receive. No promises can be made about the outcome of this as far as your current condition, either positive or negative. People who take part in research are called “subjects” instead of “patients”.

Why are you being invited to participate in this study?

You are being asked to take part in this study because you are a pregnant teenager attending class at Simpson Academy.

What is the purpose of this study?

The purpose of this study is to determine if providing information about the benefits of breastfeeding and teaching pregnant teenagers how to breastfeed will increase their self-confidence with breastfeeding and increase the chances that they will successfully

breastfeed their babies after delivery.

How many study subjects are expected to take part in the study?

It is expected that 20 to 30 pregnant teenagers at Simpson Academy will participate in this project. No other schools or students will be involved in the project.

What will you be asked to do?

You will be asked to give some information about yourself and your pregnancy that will help the investigator determine your eligibility to participate in the data collection for this study. It will be required that you provide a contact telephone number so that the investigator can call you after you have your baby. Even if you are not eligible to participate in the data collection of the study you will still be able to receive the same education and support that you would have received if you were eligible. If you are eligible to participate in the data collection for the study you will then fill out a short questionnaire about your breastfeeding self-confidence. You will then attend three educational sessions with breastfeeding experts over three different lunch periods at your school.

At the end of the third session you will complete the same breastfeeding self-confidence questionnaire that you filled out on the first day. After you deliver your baby the investigator will call you at home to ask questions about your birth experience and whether you breastfed your baby in the hospital. All educational material is evidence based and provided by health organizations such as the American Academy of Pediatrics, the Centers for Disease Control, and the La Leche League.

How long will you be in the study?

You will be a part of this study through the completion of the three educational sessions and one postpartum telephone call. After that, you will no longer be involved in the study. You may be removed from this study without your consent. Possible reasons may be that the investigator decides that other factors such as pregnancy complications, Cesarean section, or preterm labor may have occurred during your pregnancy, or the project is canceled.

What are the possible risks of the study?

You will be receiving information regarding the benefits of breastfeeding. This may make you feel pressured to breastfeed. The investigator will demonstrate support for whatever your decision about breast milk or formula feeding. Images of breasts and women breastfeeding may also make you feel embarrassed or uncomfortable. The education will be given respectfully, in a private room with all female participants.

Are there any anticipated pregnancy risks?

There are no anticipated risks to you, your pregnancy, or your baby by participating in this study.

Are there benefits to taking part in the study?

There may be no direct benefit to you for participating in this study. You will learn the benefits of breastfeeding to both you and your baby. You will be taught techniques to increase your self-confidence and success with breastfeeding. You may decide to breastfeed after your participation which can result in many health benefits for you and your baby.

What other options are there?

Instead of participating in this study, you may choose to attend one, two, or all of the education sessions and not provide any information or complete any questionnaires or you may decide to not attend any sessions and instead attend your regularly scheduled school lunch period.

What about confidentiality of your information?

Records of participation in this research study will be maintained and kept confidential as required by law. Your name will be assigned an identification number and only the investigator will be able to identify your information. The sponsor will not have access to any information. All information will be stored in a locked computer and will be destroyed at the end of the project. No other person(s) will have access to the information you share.

Your identity will not be revealed on any report, publication, or at scientific meetings. In order to conduct the project, the project investigator, Jamie El Harit will use and share personal health information about you. This includes information created or collected during the project. Examples of the information that may be shared include your race, eligibility for benefits from Women, Infants, and Children (WIC), pregnancy and delivery information, and whether you breastfed your baby. The project investigator will use this information about you to complete this evidence based project.

If you withdraw from this study, the data already collected from may not be removed from the study records. The study doctor and/or study team may ask you whether they can continue to collect follow-up data on you. If follow-up information will be requested, you will be asked to sign a separate consent form before this information can be collected.

The Rush Institutional Review Board (IRB) will have access to your files as they pertain to this research study. The IRB is a special committee that reviews new and ongoing human research studies to check that the rules and regulations are followed regarding the protection of the rights and welfare of human subjects.

What are the costs of your participation in this study?

There are no costs to you for participating in this evidence based project. All educational materials are provided free of charge. The time you may spend speaking with breastfeeding experts is also provided free of charge.

Will you be compensated or paid?

You will not be compensated or paid for your participation in this evidence based project. All attendees at each educational session will be entered for a drawing for a nominal prize (less than \$25.00 in value). Your participation in the project does not increase your chances of winning the raffle prize.

What happens if you experience a research related injury?

If you experience any injury or illness as a direct result of your participation in this research study, immediate treatment will be provided. However, the cost of that treatment will be billed to you or your insurance company. Please check with your insurance company regarding coverage.

Rush University Medical Center has no program for financial compensation or other forms of compensation for injuries which you may incur as a result of participation in this study.

What happens if you need emergency care?

If you need emergency care while you are participating in this study, it is important that you tell emergency personnel of your participation in this study and notify the study investigator as soon as possible.

Whom do you call if you have questions or problems?

Questions are encouraged. If there are any questions about this study or if you experience a study related injury, please contact: Jamie El Harit, (219)218-1920. Questions about the rights of study participants may be addressed to the Rush Research & Clinical Trials Administration Office at 1-800-876-0772 and to Rasha Abed from the Office of Sponsored Research at Valparaiso University at Arts and Sciences Building, Room 212, 1400 Chapel Drive, Valparaiso University, Valparaiso, Indiana.

SIGNATURE BY THE SUBJECT:

Name of Subject
Signature

Signature of Subject

Date of

SIGNATURE BY THE INVESTIGATOR/INDIVIDUAL OBTAINING CONSENT:

I attest that all the elements of informed consent described in this consent document have been discussed fully in non-technical terms with the subject. I further attest that all questions asked by the subject were answered to the best of my knowledge.

Signature of Individual Obtaining Consent
Signature

Date of

☐ *Check here if the Individual Obtaining Consent observed the signing of this consent document and can attest, to the best of their knowledge, the person signing the consent form is the subject or the subject's legally authorized representative and the person signing the form has done so voluntarily. By checking this box, the Individual Obtaining Consent does not need to sign on the Witness signature line (below).*

SIGNATURE BY WITNESS/TRANSLATOR

(for use if this consent is being used as a written summary of the research along with a short form consent OR when the person obtaining consent is not the witness):

I observed the signing of this consent document and attest that, to the best of my knowledge, the person signing the consent form is the subject or the subject's legally authorized representative and the person signing the form has done so voluntarily.

Signature of Witness/Translator
Signature

Date of

☐ Check here if a separate witness signature is not necessary.

SIGNATURE OF THE PRINCIPAL INVESTIGATOR

I attest that I am aware of the enrollment of this subject in the study discussed in this consent document.

Signature of the Principal Investigator

Date of

Signature

☐ Check here if Principal Investigator obtained consent and a separate signature is not required.

APPENDIX F**HIPPA AUTHORIZATION FORM****Rush University Medical Center****AUTHORIZATION TO SHARE PERSONAL INFORMATION IN RESEARCH**

Name of the Research Study: The effect of an antenatal intervention on breastfeeding self-efficacy and breastfeeding initiation rates among inner-city pregnant adolescents

Name of Principal Investigator: Jamie El Harit BSN, RN

The word "you" means both the person who takes part in the research, and the person who gives permission to be in the research. The word "we" refers to Rush University Medical Center, its employees and affiliates, including the study doctor and his/her research staff. You will be asked to sign this form along with the attached research consent form.

We are asking you to take part in the research described in the attached consent form. To do this research, we need to collect, use and possibly share information that identifies you. Some of this identifiable information may come directly from you and some may come from results of questionnaires or interviews. We will only collect information that is needed for the research. This information is described in the attached consent form.

If you sign this form, we will collect your identifiable information until the end of the research. We may keep the information forever, in case we need to look at it again for this research study.

Your information may also be useful for other studies. We can only use your information again if a special committee in the hospital gives us permission. This committee may ask us to talk to you again before doing the research. But the committee may also let us do the research without talking to you again if we keep your identifiable information private.

If you sign this form, you are giving us permission to collect, use, and share your identifiable information.

You do not have to sign this form. If you decide to NOT sign this form, you cannot be in the research study. We cannot do the research if we cannot collect, use and share your identifiable information.

If you change your mind later and do not want us to collect, use and or share your identifiable information, you need to send a letter to the researcher listed above. The letter needs to say that you have changed your mind and do not want the researcher to collect, use and share your identifiable information. If we cannot collect, use and share your identifiable information, we may decide that you cannot continue to be part of the study. We may still use the information we have already collected. We need to know what happens to everyone who starts a research study, not just those people who stay in it.

If you sign this form, we may continue to share the identifiable information collected for this study with the people listed in the Confidentiality section, without any time limit, unless you withdraw your authorization. This authorization does not expire.

CONFIDENTIALITY

We may share your information with people who help with the research. Some of these people may be other researchers outside of the hospital or are in charge of the research, pay for, or work with us on the research. Some of these people make sure we do the research properly. Some of these people may share your information with someone else. If they do, the same laws that Rush must obey may not protect your health information. For this study, we will share information with:

No one

If your information is transferred outside of the United States, different privacy laws may apply. Additionally, if one of the companies or institutions listed above merges with, or is purchased by, another company or institution, this authorization to use and disclose protected health information in the research will extend to the successor company or institution.

Any questions? Please ask the researcher or his/her staff. Their phone numbers appear in the attached consent form. You can also call 1-800-876-0772 at Rush with general questions about your rights and the research use of your health information. The researcher will give you a signed copy of this form.

SIGNATURE, DATE, AND IDENTITY OF PERSON SIGNING

The health information about _____ can be collected and used by the researchers and staff for the research study described in this form and the attached consent form.

Signature: _____

Date: _____

Print name: _____

Legal authority: _____