

EFFECTS OF AN EDUCATIONAL INTERVENTION ON BACCALAUREATE
NURSING STUDENTS' KNOWLEDGE AND ATTITUDE IN PROVIDING
BREASTFEEDING SUPPORT TO MOTHERS

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ABSTRACT

Breastfeeding provides many health benefits for both mother and baby, and mothers need support and encouragement in order to have breastfeeding success. National initiatives to promote breastfeeding support have been implemented in an effort to improve breastfeeding outcomes. The breastfeeding support that mothers receive should come from communities, healthcare providers, and nursing students. However, researchers reported that nursing students are not receiving the educational preparation to provide breastfeeding support that mothers need. The purpose of this study was to determine if an evidence-based educational intervention would have an effect on baccalaureate nursing students' knowledge and attitude in regard to breastfeeding support provided for mothers. A randomized pretest-posttest with comparison group design was used and breastfeeding knowledge and attitude scores were evaluated utilizing the Australian Breastfeeding Knowledge and Attitude Questionnaire (ABKAQ). Students participated in an evidence-based breastfeeding lecture followed by participation in either a simulation role-play with a standardized patient for the experimental group or viewing of an educational breastfeeding video for the control group. Statistical analysis results revealed a significant difference in pretest and posttest scores in regard to the students' breastfeeding knowledge and attitudes toward breastfeeding. No significant difference was found in breastfeeding knowledge and attitudes toward breastfeeding pretest and posttest scores between the groups. Although the results of this study revealed that there were no differences in breastfeeding knowledge and attitudes toward breastfeeding between the experimental and

control groups, providing students with the evidence-based educational interventions was beneficial as increased breastfeeding knowledge and attitudes toward breastfeeding were achieved.

DEDICATION

I wish to dedicate this dissertation to three very important people in my life. The first person is to my husband and friend, Phillip. You have provided me with unwavering support and encouragement and without you, this project would not have been possible. Thank you for your patience and understanding as I devoted my time to furthering my education. This is “our” degree; we are better together!

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LIST OF ABBREVIATIONS AND SYMBOLS

| | |
|----------|---|
| AAP | American Academy of Pediatrics |
| ABKAQ | Australian Breastfeeding Knowledge and Attitude Questionnaire |
| ABM | Academy of Breastfeeding Medicine |
| APN | Advanced Practice Nursing |
| ATI | Assessment Technologies Institute |
| AWHONN | Association of Women's Health, Obstetric, and Neonatal Nurses |
| BFHI | Baby Friendly Hospital Initiative |
| BFI | Baby Friendly Initiative |
| BSN | Bachelor of Science in Nursing |
| CCEI | Creighton Competency Evaluation Instrument |
| CDC | Centers for Disease Control |
| CLECS | Clinical Learning Environment Comparison Survey |
| DHHS | United States Department of Health and Human Services |
| IPCS | Interpersonal and Communication Skills |
| IRB | Institutional Review Board |
| ID | Identification |
| LPN | Licensed Practical Nurse |
| LVN | Licensed Vocational Nurse |
| <i>M</i> | Mean |

| | |
|-----------|--|
| MSPQ | Maternal Perceptions of Support Questionnaire |
| NCLEX | National Council Licensure Examination |
| NCSBN | National Council of State Boards of Nursing |
| NGNPS | New Graduate Nurse Performance Survey |
| NICU | Neonatal Intensive Care Unit |
| NLN | National League for Nursing |
| NSBQ | Nurses' Support for Breastfeeding Questionnaire |
| OB | Obstetric |
| OSCE | Objective Structured Clinical Examination |
| RP | Peer Role-Play |
| <i>SD</i> | Standard Deviation |
| SP | Standardized Patient |
| UNICEF | United Nations Informational Children's Education Fund |
| US | United States |
| WHO | World Health Organization |

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CHAPTER 1

INTRODUCTION

Breastfeeding has been identified as and recommended to be the preferred feeding method for infants, and it has been shown to be one of the most important contributors to infant and maternal health (American Academy of Pediatrics [AAP], 2012). Breastfeeding provides positive health outcomes and offers many benefits for both baby and mother. For the baby, breastfeeding establishes an effective immune system, builds brain function, develops socialization, and promotes long-term health (Godfrey & Lawrence, 2010). Breastfed babies have fewer illnesses, such as diarrhea, respiratory and ear infections, and allergic skin disorders because they receive the mother's antibodies.

For the mother, breastfeeding provides emotional satisfaction and uses up extra calories making it easier to lose the pounds of pregnancy. Lactating women also experience a decreased risk of breast, ovarian, and endometrial cancer (Westdahl & Page-Goertz, 2006). Breastfeeding has an additional benefit of decreasing a mother's risk of hip fractures and osteoporosis after menopause (Spatz & Pugh, 2007). Breastfeeding provides psychosocial benefits as well. According to Phillips (2011), breastfeeding evokes thoughts and feelings of closeness, bonding, and attachment. The bonding that occurs between mother and baby in the first few hours and days of life has a positive effect on breastfeeding success. The change in maternal behavior with the touch of the infant's lips on the mother's nipple; the positive effects of additional time for mother/infant contact; the reduction in abandonment with early contact, suckling and rooming-in; and the increased maternal oxytocin levels shortly after birth in conjunction with known

sensory, physiologic, immunologic, and behavioral mechanisms all contribute to the attachment of the mother to the infant (Kennell & McGrath, 2005).

Because of the benefits that breastfeeding offers for both mother and baby, providing breastfeeding support to mothers has been the focus of several national and international health organizations for many years. Fortunately, breastfeeding support is still in the forefront on the national level. Two national leaders have implemented initiatives promoting the importance of breastfeeding and are making significant impacts toward improving breastfeeding support and encouragement. The first national leader, Michelle Obama, began a campaign in 2010 to support breastfeeding with an emphasis on decreasing childhood obesity rates. The campaign also included an emphasis on removing barriers that prevent mothers from continuing to breastfeed after returning to work. The second national leader, the United States (US) Surgeon General, Dr. Regina Benjamin, in conjunction with the US Department of Health and Human Services (DHHS) issued a *Call to Action to Support Breastfeeding* (2011) for increasing breastfeeding support. The *Call to Action* outlines recommendations for 20 specific actions that should be taken to remove barriers for women who want to breastfeed their infant. The authors further note that support from family members, healthcare providers, healthcare systems, and employers assist in removing barriers and help to make breastfeeding success possible (DHHS, 2011).

Although recent reports show that breastfeeding rates have improved over the last decade, breastfeeding rates in the US still remain below the levels recommended by the Centers for Disease Control ([CDC], 2014). The Healthy People 2020 goal for breastfeeding initiation is 81.9%. The CDC (2014) report breastfeeding initiation rates for the US in 2011 were 79.2%, and 67.3% for the state of Alabama. Breastfeeding rates are below recommended levels in regard to exclusive breastfeeding rates at three months, as well. According to the Academy of

Breastfeeding Medicine's (ABM) Protocol # 7 (2003), exclusive breastfeeding is defined as "providing breast milk as the sole source of nutrition and receiving no other liquids or solids" (p. 2). The Healthy People 2020 goal for exclusive breastfeeding in the US at three months is 46.2%. However, the CDC (2014) reports exclusive breastfeeding rates for the US and Alabama for the year 2011 were 40.7% and 26.6%, respectively. This report confirms that there is still work to be done in regard to improving overall breastfeeding rates in the US.

There are a number of areas for focus to improve breastfeeding rates including the educational preparation of those who provide support to breastfeeding mothers such as nursing students. Nursing students need a thorough evidence-based breastfeeding education foundation to provide adequate breastfeeding support to new mothers. It is the responsibility of nurse educators to ensure graduates are competent to provide basic breastfeeding support and use these competencies in any healthcare or community setting (Dodgson & Tarrant, 2007).

Breastfeeding education should not be exclusive for obstetric nursing students because nursing mothers could present at any time to any department in the hospital (i.e., surgery, telemetry, or intensive care unit), or other healthcare setting (i.e., clinic, outpatient surgery center, or physician's office). These mothers will need breastfeeding support from the healthcare providers in these healthcare settings. Adequate breastfeeding education and training can ensure that nursing students have the knowledge and skill needed to provide effective breastfeeding support and encouragement during their clinical rotation and eventually professional practice. According to Spear (2006) if students are prepared to provide breastfeeding support to mothers, breastfeeding recommendations and goals can be achieved as set forth by the World Health Organization ([WHO], 2013), AAP (2012), DHHS (2011), as well as other organizations that support infant and maternal health.

According to Bernaix, Beaman, Schmidt, Harris, and Miller (2010) mothers often receive breastfeeding support that is inconsistent, inaccurate, or both while in the hospital. Freed, Clark, Harris, and Lowdermilk (1996) were the first researchers to identify and report that there is a lack of breastfeeding education in nursing curriculums, and they contended that the inconsistent or inaccurate breastfeeding support and information was due to the fact that maternal child nurses lack appropriate breastfeeding education and training. Then and more recently, authors contend that breastfeeding education and training, or the lack thereof, begins during obstetric rotations in nursing school programs, and unfortunately nursing students are being inadequately prepared to provide breastfeeding support that mothers need (Ahmed, Bantz, & Richardson, 2011; Bozette & Posner, 2012; Spatz & Pugh, 2007).

According to Ahmed et al. (2011), many researchers have found that nursing and non-nursing healthcare providers lack adequate knowledge, skills, and training to effectively provide breastfeeding support to mothers. Most nursing programs provide little to no breastfeeding content in curriculums; therefore nursing graduates are entering professional practice with limited knowledge and skills to provide breastfeeding support (Bozette & Posner, 2012). Spatz and Pugh (2007) also state that there is a lack of comprehensive breastfeeding content in nursing curricula across the US. Additionally, Spear (2006) reports that there is a need to strengthen both didactic and clinical components of the obstetric course to include information that will equip novice nurses to provide more breastfeeding counsel and support for childbearing women.

The studies to date have focused on the fact that nursing students are inadequately prepared to provide breastfeeding support to mothers. Researchers are reporting that students are graduating from their programs with limited or no breastfeeding knowledge, which can have a profound effect on their ability to provide breastfeeding support. Nursing students need

breastfeeding content to improve their breastfeeding knowledge and skills, because knowledge and skill are critical for providing breastfeeding support. The breastfeeding content that nursing students receive should be consistent, evidence based, and strategically integrated into nursing curriculums (Ahmed et al., 2011; Bernaix, 2000; Howett, Spangler & Cannon, 2006).

Still other studies have focused on the examination of breastfeeding educational interventions on nursing students' knowledge, attitude, or skill. The researchers who conducted the studies have reported improvements in nursing students' knowledge, attitude, and skill after the intervention has occurred. The challenge for nurse educators, however, is the limited availability of studies that provide evidence of the most effective ways to provide this breastfeeding educational foundation (Ahmed & El Guindy, 2011; Bozzette & Posner, 2012; Spear, 2006).

Significance

Reforms in nursing education are needed to provide nursing students with learning experiences to prepare them for professional practice. To guide researchers, the National League for Nursing (NLN) has identified research priorities specifically for the needed reforms. Because the researcher has not identified any studies that include the integration of Standardized Patient (SP) encounters as a teaching strategy for breastfeeding education, the researcher integrated an SP encounter as part of the teaching strategy for this study.

Both the integration of this new approach to breastfeeding education (SP encounter) and the NLN research priority leading reform in nursing education, provide significance for this study. The specific research priority applicable to this study states "development and evaluation of teaching/learning approaches that relate knowledge acquisition and evidence-based practice to the patient's actual care experience" (NLN, 2012). The results of this study will add to the body

of knowledge for an effective teaching strategy for breastfeeding education that can affect student knowledge and attitudes toward breastfeeding.

Watkins and Dodgson (2010) report that not only do universities lack uniform standards for breastfeeding education, but also that healthcare providers see that breastfeeding education in their curricula is deficient. Because of this lack in most nursing curricula, a transformation is needed so students will have the knowledge and skill to provide support to mothers.

Breastfeeding education is important because healthcare providers must be able to provide mothers with current and consistent evidence-based information to ensure breastfeeding success (Brodribb, Fallon, Jackson, & Hegney, 2008; Spatz & Pugh, 2007).

Theoretical Framework

The theory of reasoned action, first identified by Icek Ajzen and Martin Fishbein in 1975, was used as the framework for this research study. The authors suggest that a person's attitudes and beliefs about a particular behavior are developed based on prior knowledge and experience relative to the behavior and their social pressures (subjective norms) to perform or not perform the behavior (Ajzen & Fishbein, 1980; Bernaix et al., 2010). Based on this theory, a nursing student's attitude and experience regarding breastfeeding will affect how likely it is that they will provide breastfeeding support and encouragement to mothers. According to Fishbein (2008), the first step in using a reasoned action approach is to clearly define and describe the behavior or behaviors in which one is interested. In this case, the behavior is nursing students providing breastfeeding support to mothers. For nursing students to have a change in their behavior (providing breastfeeding support to mothers), educators must change the students' attitudes, beliefs, and knowledge about breastfeeding.

Although this researcher found no studies or references to confirm that students have a negative attitude toward breastfeeding, several researchers reported that increased breastfeeding knowledge did have a positive impact on attitude (Bernaix et al., 2010; Khoury, Hinton, Mitra, Carothers, & Foretich, 2002). The more knowledge the student has, the more confident they are to provide support, which affects their attitude in a positive way toward breastfeeding.

Accurate breastfeeding support can only be accomplished by giving students information to increase their breastfeeding knowledge, experience, and skill, and promote positive attitudes toward breastfeeding. Brodribb et al. (2008) state that positive attitudes toward breastfeeding must be accompanied by an appropriate knowledge base in order for providers to support breastfeeding mothers. Additionally, Bernaix (2000) stated that breastfeeding support can only be effective with breastfeeding knowledge and the positive attitude that the healthcare provider emanates.

Watkins and Dodgson (2010) found from their synthesis of breastfeeding interventions, that breastfeeding knowledge scores are significantly correlated with positive breastfeeding attitudes, and nurse educators must make an effort to increase breastfeeding knowledge to lead to improved attitudes. However, a major impediment in integrating and maintaining breastfeeding content into nursing curriculums is the overwhelming program of study/course loads and time constraints (Bozette & Posner, 2012; Spatz & Pugh, 2007). Bozette and Posner (2012) recommend the use of role-modeling behaviors as a means to reinforce breastfeeding knowledge and skill; students cannot be expected to perform a certain behavior (provide breastfeeding support) if they have not been provided adequate resources to do so. Nursing programs need to effectively educate nursing students in providing breastfeeding support (Spear, 2006).

Definition of Terms

1. Breastfeeding education is education that improves knowledge, skill, and behavior of healthcare providers on all aspects of breastfeeding (Shealy, Li, Benton-Davis, & Grummer-Strawn, 2005).

2. Breastfeeding knowledge does not yet have a formal definition; therefore the two words will be defined separately then combined. According to the Academy of Breastfeeding Medicine (2008) *breastfeeding* is defined as “the mother/child act of milk transference” (p. 267). *Knowledge* is defined as “information, understanding, or skill that is obtained from experience or education (Merriam-Webster Dictionary, online, n.d.). Thus, *breastfeeding knowledge* is understanding information related to all aspects of human milk feeding.

3. Breastfeeding support is any means of support provided by healthcare providers and includes counseling or interventions that improve breastfeeding outcomes (Shealy, Li, Benton-Davis, & Grummer-Strawn, 2005).

4. Evidence-based nursing education involves the use of best evidence to justify teaching or curricular interventions while considering the needs of individual learners, the professional judgment of nurse educators, as well as the costs of the interventions (Ferguson & Day, 2005).

5. Standardized Patient (SP) is “an individual who is trained to portray a patient with a specific condition, and can be used for teaching, assessment, and evaluation of student performance” (Association of Standardized Patient Educators, 2013).

Problem Statement

Because of the lack of evidence-based breastfeeding education, nursing students are not confident, knowledgeable, or engaged in breastfeeding education or the breastfeeding needs of

their patients which add to their discomfort when assisting a breastfeeding mother with technique or information (Watkins & Dodgson, 2010).

At the southeastern university where this study took place, specific breastfeeding information is only being taught twice during the entire course of study. First, the students receive a one-hour breastfeeding lecture given by a lactation consultant during orientation of the Maternal Child Nursing course. Secondly, the students receive specific breastfeeding information during the postpartum lecture. Besides these lectures, the students only have their textbook or information from personal experience to use as a reference for breastfeeding support. Students can assist a breastfeeding mother during their obstetric (OB) clinical rotation, but most do not feel comfortable doing so.

The results of two studies confirmed the fact that inadequate breastfeeding education is not limited to this one southeastern university. According to results from a study conducted by Freed et al. (1996), 69% of practicing nurses reported that they had not been taught breastfeeding management in nursing school. Additionally, Freed et al. (1996) state that nursing programs do not adequately prepare nursing students for their role in breastfeeding promotion. Ahmed and El Guindy (2011) report that although Egyptian baccalaureate nursing students utilize breastfeeding information in textbooks from Western countries, they lack clinical experience that will enhance breastfeeding knowledge and skill.

Purpose of the Study

The purpose of this study was to determine if an evidence-based educational intervention would have an effect on baccalaureate nursing students' knowledge and attitude in regard to breastfeeding support provided for mothers. Because lack of breastfeeding support is a major barrier to improving and maintaining breastfeeding outcomes, a student's breastfeeding

knowledge and attitude can influence their ability to support mothers. The educational intervention included an evidence-based breastfeeding lecture followed by a simulation role-play scenario with an SP for the experimental group and an evidence-based breastfeeding lecture followed by an educational breastfeeding video for the control group.

Research Questions

1. Will an evidence-based educational intervention improve baccalaureate nursing students' breastfeeding knowledge?
2. Will an evidence-based educational intervention improve baccalaureate nursing students' breastfeeding attitude?
3. Are there differences in breastfeeding knowledge between the experimental group, who participate in a simulation role-play and the control group, who watch an educational breastfeeding video?
4. Are there differences in attitudes toward breastfeeding between the experimental group, who participate in a simulation role-play and the control group, who watch an educational breastfeeding video?

Summary

Breastfeeding provides many health benefits for both mother and baby, and mothers need support and encouragement in order to have breastfeeding success. National initiatives in favor of breastfeeding and the promotion of breastfeeding support have been implemented in an effort to improve breastfeeding outcomes. The breastfeeding support that mothers receive should come from communities, healthcare providers, and nursing students. However, nursing students are not

receiving the preparation needed to provide the breastfeeding support that mothers need.

Examining the effects of an evidence-based educational strategy on nursing student's attitude and knowledge may provide nurse educators with information that can be used to transform breastfeeding education in current curricula.

CHAPTER 2

LITERATURE REVIEW

The following major databases were utilized for the literature review: CINAHL, ProQuest and Allied Health Source, Pub Med, and Cochrane Database of Systematic Reviews. Search terms were: breastfeeding education and nursing education, standardized patients, standardized patients and nursing education, standardized patients and breastfeeding education, breastfeeding support and promotion, breastfeeding knowledge and skills, evidence-based breastfeeding education, and evidence-based nursing education. These searches yielded a number of references that are presented in five categories to reflect selected relevant literature for this study. Those categories are breastfeeding support, breastfeeding knowledge, attitude, and skills, nursing education and breastfeeding education, evidence-based nursing education, and standardized patients. Studies as well as limited other supportive sources are presented.

Breastfeeding Support

The literature found related to breastfeeding support was not research based yet the literature indicated that support and encouragement from healthcare providers in the immediate postpartum period can have a significant impact on the breastfeeding success of mothers. The Association of Women's Health, Obstetric and Neonatal Nurses ([AWHONN] 2012) supports this fact by stating that the level of knowledge and attitudes of healthcare providers who support women learning to breastfeed can directly impact the ability of a mother to successfully breastfeed. Kornides and Kitsantas (2013) contend that mothers have a greater chance of initiating breastfeeding if they perceive that their healthcare provider is supportive of exclusive

breastfeeding. According to Renfrew, McCormick, Wade, Quinn, and Dowswell (2012) breastfeeding support should include providing reassurance, praise, information, and the opportunity for mothers to ask questions. The support should also be predictable, scheduled, and ongoing.

Ong et al. (2013) conducted a descriptive qualitative study to explore first-time mothers' (n=13) postnatal experiences and support needs after hospital discharge. Breastfeeding concerns were a common theme that emerged from the analysis of the qualitative data. Mothers reported difficulties with breastfeeding and admitted to developing improper feeding techniques and habits. The authors report that first-time mothers need active and engaging support from healthcare providers to promote proper breastfeeding practices during the postnatal period. Also, healthcare providers should adopt a listening-and-asking, instead of a presuming-and-telling approach to breastfeeding support (Ong et al., 2013).

Grassley (2010) conducted a review of the literature in the Medline and CINAHL databases for the years 2000 to 2009 to determine what aspects of social support adolescents need from nurses when initiating breastfeeding. The author reported that adolescents need informational, instrumental, emotional, appraisal, and network support for breastfeeding success. Additionally, the author contended that integrating all areas of the aforementioned social supports into the adolescents' care could promote positive breastfeeding experiences (Grassley, 2010).

Bernaix (2000) conducted a prospective study with maternal/newborn nurses (n= 50) and breastfeeding mothers (n= 136) to compare nurses' breastfeeding attitudes, subjective norms, and knowledge in providing breastfeeding support to mothers. Bernaix (2000) compared the nurses' breastfeeding attitudes, social pressures, and intentions to provide breastfeeding support to the

actual support that was given as perceived by the mothers. The researcher collected data from the nurses and their postpartum breastfeeding patients. The nurses completed the Nurses' Support for Breastfeeding Questionnaire (NSBQ) [64-item, 7- point Likert type scale used to measure breastfeeding attitudes, social pressures, and behavioral intentions] and the Lewinski Breastfeeding Survey Tool (16-item measurement tool that measures breastfeeding knowledge). The mothers completed the Maternal Perceptions of Support Questionnaire (MSPQ) [46-item, 5-point Likert scale questionnaire]. The researcher reported positive attitudes and strong intentions to provide breastfeeding support by the nurses, and mothers reported a moderate degree of support was received from the nurses. Further, the author contended that the best predictor of supportive behavior is the healthcare provider's knowledge and attitude about breastfeeding (Bernaix, 2000).

Because healthcare providers are in a position to provide breastfeeding support to mothers, the culture of the hospital can affect how well that support is given. Hospitals that adopt the 10-step evidence-based Baby Friendly Hospital Initiative (BFHI) promote a culture that supports breastfeeding. The BFHI is a global program sponsored by the WHO and the United Nations Informational Children's Education Fund (UNICEF) to protect, promote, encourage, and provide support to hospitals or birthing centers that offer lactation care for mothers (Khan & Akram, 2013; Murray, Ricketts, & Dellaport, 2007; Silfverdal, 2011). The effects of the BFHI improve maternal and infant health and increase breastfeeding rates and positive outcomes. The 10 steps for the US are:

1. Maintain a written breastfeeding policy that is routinely communicated to all healthcare staff.
2. Train all healthcare staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.

4. Help mothers initiate breastfeeding within one hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.
6. Give infants no food or drink other than breast milk, unless medically indicated.
7. Practice “rooming in”—allow mothers and infants to remain together 24 hours a day.
8. Encourage unrestricted breastfeeding.
9. Give no pacifiers or artificial nipples to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them upon discharge from the hospital or clinic.

Khan and Akram (2013) conducted an observational study to determine changes in breastfeeding practices of mothers after receiving counseling on the 10 steps as defined by the BFHI. The researchers compared the qualitative data from interviews of mothers in baby-friendly hospitals (n=196) with mothers in non-baby-friendly hospitals (n=40). Mothers from both hospitals received breastfeeding counseling from healthcare providers in the antenatal period. However, mothers in baby-friendly hospitals received breastfeeding help and support from healthcare providers, while mothers in non-baby-friendly hospitals received breastfeeding support and help from family members. The help and support from healthcare providers in the baby-friendly hospitals is significant in that the healthcare providers received training on breastfeeding policies and practices and work in an environment that is highly supportive of breastfeeding. The researchers reported that counseling under the BFHI improved breastfeeding practices up to 98.97% in baby-friendly hospitals compared to non-baby-friendly hospitals.

Abrahams and Labbok (2009) conducted a study to investigate the contribution of the BFHI to global trends in exclusive breastfeeding through the analysis and trends before and after

the implementation of the BFHI. The researchers analyzed exclusive breastfeeding data from the Demographic and Health Surveys from 1986-2006, specifically from developing countries (n=14). The researchers reported a statistically significant increase in exclusive breastfeeding rates after implementation of the BFHI for infants 0 to 2 months of age and 0 to 6 months of age.

A baby-friendly approach to breastfeeding education should be utilized in nursing programs, as well. The UNICEF's Baby Friendly Initiative (BFI) has developed best practice standards for university programs due to the criticism that students are graduating with insufficient knowledge and skills needed to support breastfeeding mothers (Cummings, 2008). The initiative is derived from the BFHI's 10 Steps to Successful Breastfeeding, and has been recognized as the minimum standard to improve clinical practice. Although the BFI standards for education have not been launched globally, the standards are needed to ensure that future healthcare professionals are equipped with the knowledge and skill to provide support to breastfeeding mothers (Cummings, 2008).

Breastfeeding Knowledge, Attitude, and Skills

To assist healthcare providers in improving knowledge and skill, educational strategies are needed to ensure accurate information is being provided to all breastfeeding mothers. A literature search on this topic revealed the importance of breastfeeding knowledge and skills in regard to breastfeeding. According to Ahmed et al. (2011) and Whelan, McEvoy, Eldin, and Kearney (2011), breastfeeding knowledge and skills are essential in promoting and supporting breastfeeding. Many nursing students graduate with inadequate knowledge and skills to provide support for breastfeeding mothers, and this lack of knowledge and skill negatively affect breastfeeding outcomes. Students who have adequate breastfeeding knowledge are more likely to provide breastfeeding support to mothers. A student's attitude regarding breastfeeding has an

impact on providing breastfeeding support, as well. Further, if any efforts to increase breastfeeding rates are to occur, the knowledge and attitudes of healthcare providers must be taken into consideration (Whelan, McEvoy, Eldin, & Kearney, 2011).

Bernaix, Schmidt, Arrizola, Iovinelli, and Medina-Poelinez (2008) conducted a time-series quasi-experimental study with a pretest-posttest design to determine if an educational intervention would improve lactation knowledge, attitudes, and beliefs of Neonatal Intensive Care Unit (NICU) nurses (n= 64). Mothers of infants in the NICU were also surveyed (n= 32). The nurses completed the NSBQ, and the mothers completed the MPSQ. The NSBQ was modified and included a 58-item, 7- point Likert type scale to measure breastfeeding attitudes, social pressures, and behavioral intentions. Five subscales are included within the scale, and reliability per Cronbach's alpha was above .72, except for one item. The MSPQ completed by the mothers was a 46-item, 5-point Likert scale questionnaire that evaluated the breastfeeding support that was received from the nurses. The tool was modified for this study, thus the reliability for this study per Cronbach's alpha was .94 (pre-intervention) and .96 (post intervention). Reliability for the subscales ranged from .79 to .92.

The nurses participated in a four-hour educational program with data collection taking place in six phases. Bernaix et al. (2008) reported that the educational program was effective in improving NICU nurse's knowledge, attitude, and beliefs in providing breastfeeding support to mothers. Additionally, the researchers reported that the mothers indicated a moderately favorable evaluation of the nurses' lactation support (Bernaix et al., 2008).

Radcliffe and Payne (2011) conducted a study to determine the effectiveness of a breastfeeding curriculum on dietician students' knowledge and attitude regarding breastfeeding. The sample consisted of two cohorts of students. The first cohort of students (n= 27) had no

breastfeeding content, while the second cohort of students (n= 34) had breastfeeding content integrated at all levels of their four-year curriculum. The measurement tool (questionnaire) consisted of a 50 multiple-choice survey that assessed the students' breastfeeding knowledge, attitudes, beliefs, future breastfeeding intentions, and perceptions of the breastfeeding training. The measurement tool was developed for the purposes of this study since there were no previously validated questionnaires available for dietitian students. The researchers utilized the principles for questionnaire design, and question development was overseen by a panel of experts, and based on outcomes applicable to dietitian graduate students. The validity and reliability information of the tool were not noted. Because of the integration of the breastfeeding curriculum, the researchers reported an increase in knowledge, attitude, and beliefs despite some knowledge gaps for the second cohort of students (Radcliffe & Payne, 2011).

Haughwout, Eglash, Plane, Mundt, and Fleming (2000) conducted a study to assess whether a problem-based interactive workshop would improve residents' breastfeeding assessment skill level. The sample consisted of two groups of second-and third-year family medicine residents (n=24). Because of scheduling conflicts, 10 residents were assigned to the control group, while the other 14 residents were assigned to the experimental group. Both groups completed a baseline written examination and Objective Structured Clinical Examinations (OSCEs) over a two-week period. The written examination included items related to breastfeeding knowledge, attitude, and experience. Attitude and skill items were based on a five-point Likert scale, whereas experience was assessed by specific questions (i.e., How many times have you taught a new mother about a breastfeeding position?). The researchers reported no reliability and validity information for the written examination.

Thirty days later, the experimental group attended a 4.5-hour workshop. The workshop was interactive with didactic lectures taught by family medicine physicians and lactation consultants, as well as SP encounters with nursing mothers (which were facilitated by the lactation consultants). After another 30 days, both groups completed the written examination and OSCE again. The researchers reported no difference in baseline knowledge and performance scores between the experimental and control groups. However, positive results favorable for the residents in the experimental group were reported in regard to assessment of position and latch of the infant, as well as the evaluation of sore nipples. A trend was noted toward the improvement in OSCE scores for the evaluation and treatment of low milk supply by the residents in the experimental group; however the difference was not statistically significant. There was little change in attitudes on the written examination for both the experimental and control groups as the baseline scores were positive to begin with. However, the researchers also reported that residents in the experimental group felt significantly more confident in their breastfeeding problem-solving skills after the 60-day study (Haughwout et al., 2000).

Nursing Education and Breastfeeding Education

Most of the literature found on breastfeeding education and nursing education indicated the importance of integrating breastfeeding education in nursing curricula. According to the DHHS (2011), inadequate and inconsistent breastfeeding education in nursing programs has been identified as a major barrier for nursing student's preparedness to provide breastfeeding support. Therefore, an educational change needs to occur. Current environments (nursing programs/ curricula) do not support the actions (instruction) needed to promote breastfeeding success in mothers by nursing students (Bozette & Posner, 2012; Freed et al., 1996). The content will need to be reorganized around the social, nutritional, and emotional aspects of breastfeeding, as well

as the health benefits for both mother and baby. The “breast is best” lecture approach is not enough. Students need not only to be told that breastfeeding is important, but also, they need to be told why it is important. The lecture-only approach to breastfeeding education will not provide students with the meaningful experiences needed to promote learning. According to Skiba and Barton (2006), the traditional classroom teaching paradigm (i.e. lecture) is not effective. Therefore, integrating any type of interactive teaching strategy helps meet the learning needs of students and promotes active and engaging learning experiences. Ahmed et al. (2011) report that a variety of teaching methods should be incorporated into the preclinical learning experience including e-learning modules, mid- to high-fidelity simulation using breastfeeding scenarios, discussion of identified breastfeeding problems, and role-play. Not only should the instruction prepare nursing students to provide support, but it should also provide nursing students with a deep understanding of the breastfeeding process as a whole. The instruction should include evidence-based information gathered from experts on breastfeeding, including, but not limited to the WHO (2013), AAP (2013), ABM (2013), and AWHONN (2013). Additionally, the instruction should provide students with information that is relevant, clinically based, and trustworthy (Brodribb, 2011).

In several studies, researchers (Bozette & Posner, 2012; Dodgson & Tarrant, 2007; Spear 2006) examined the effect of breastfeeding education containing more than a lecture approach to learning on student knowledge. Bozette and Posner (2012) conducted a pilot study with baccalaureate nursing students (n=24) utilizing a one-group comparison design with a pretest-posttest method for data collection. The study intervention included an evidence-based breastfeeding lecture along with breastfeeding resources and handouts for the students. The

researchers reported that the students had a significant increase in breastfeeding knowledge (Bozette & Posner, 2012).

Dodgson and Tarrant (2007) conducted a cross-sectional, quasi-experimental, non-equivalent control group study of baccalaureate nursing students (n= 273) to evaluate the effect of an educational intervention on nursing students' knowledge, beliefs, and attitudes regarding breastfeeding. The study intervention included 10 hours of breastfeeding education in three learning settings (didactic, laboratory, and clinical) for the experimental group, while the control group received information regarding elder care and acute adult nursing. A demographic instrument and three scales (knowledge, belief, and attitudes) were utilized to measure breastfeeding knowledge, belief, and attitude. The researchers reported that the 111 students in the intervention group had an increase in breastfeeding knowledge, and beliefs; however no significant changes were noted in breastfeeding attitudes (Dodgson & Tarrant, 2007).

Spear (2006) conducted a descriptive survey study with a sample of junior and senior baccalaureate nursing students (n= 80). Students completed a breastfeeding knowledge survey tool after successful completion of classroom and clinical experience in an obstetric course. Specific breastfeeding content was delivered via lecture, and clinical experience was obtained via rotations on an obstetric unit. Students could obtain a score of 100 on the knowledge survey. The researcher reported a sample mean score of 60 for this study. Although, students did not have a significant increase in breastfeeding knowledge, students were knowledgeable about different aspects of breastfeeding. For example, Spear (2006) reported 69% knew that breastfed babies do not need supplemental water and over three-quarters of the students (76.3%) knew how to assess a breastfed infant's hydration status. The three studies above indicate the importance of teaching strategies to promote meaningful learning experiences for students in an

effort to improve breastfeeding knowledge. Additionally, integrating evidence-based breastfeeding content to nursing curricula will equip graduate nurses with the knowledge and skills to support breastfeeding mothers (Spear, 2006).

Inconsistent and inaccurate breastfeeding information in textbooks is also a barrier for nursing students' preparedness to provide breastfeeding support (Philipp, Merewood, Gerendas, & Bauchner, 2004). The DHHS (2011) report that information on breastfeeding in medical texts is often incomplete, inconsistent, and inaccurate. Additionally, Philipp, McMahon, Davies, Santos, and Jean-Marie (2007) concur with this statement by writing that nursing and medical textbooks were found to provide inconsistent breastfeeding advice, and the information was at times inaccurate, inconsistent, and contained significant omissions. Because healthcare providers and students often refer to textbooks for breastfeeding information, it is imperative that students have access to the resources that contain accurate and consistent breastfeeding information.

In the *Call to Action to Support Breastfeeding*, the US Surgeon General emphasizes the importance of breastfeeding education in nursing schools, as well as education for all healthcare professionals. According to the DHHS (2011), breastfeeding education in nursing schools should be encouraged because breastfeeding is not a core element in program curricula. Strategies that should be implemented to improve breastfeeding education are three-fold: (1) improve the breastfeeding content in undergraduate and graduate education and training for health professionals, (2) establish and incorporate minimum requirements for competency in lactation care into health professional credentialing, licensing, and certification processes, (3) increase opportunities for continuing education on the management of lactation to ensure the maintenance of minimum competencies and skills (DHHS, 2011). An active approach to learning for breastfeeding education is encouraged and research shows active learning approaches are most

effective. Active learning strategies help engage learners' new knowledge and skill acquisition, which enhances transfer of knowledge to practice (DuHamel et al., 2011). Further, active learning promotes learner achievement, accommodates various learning styles, and engages the learner in higher order thinking (Phillips, 2005).

Evidence-Based Nursing Education

Evidence-based breastfeeding education is necessary to prepare students to provide support to breastfeeding mothers. According to Melnyk and Fineout-Overholt (2005) current best evidence is needed because practice can become outdated, which can have a negative effect on patient care. A literature search on evidence-based breastfeeding education returned limited results; however several articles and research studies on evidence-based nursing education were found. According to Finotto, Carpanoni, Turrone, Camellini, and Mecugni (2013) evidence-based nursing education is needed to enhance students' independent learning as well as their evidence-based clinical decision-making. Additionally, if students are not introduced to the elements of evidence-based practice, the concept of "best practice" can never be considered and students will carry out their practice based on their experience or that of their colleagues (McInerney & Suleman, 2010). For a student's practice to be evidence based, evidence-based concepts must be integrated into nursing curricula. It is the responsibility of nurse educators to incorporate evidence-based practice into their curricula and use evidence-based strategies to support teaching strategies (National Council of State Boards of Nursing, 2013; Profetto-McGrath, 2005).

Students must be able to access, evaluate, integrate, and use the best available evidence in order to achieve patient-centered care that is evidence based (Rycroft-Malone, Bucknall, & Melnyk, 2004). According to Polit and Beck (2008) best evidence refers to "findings from research that are methodologically appropriate, rigorous, and clinically relevant for answering

pressing questions” (p. 32). The pressing questions are related to nursing interventions, assessment, and the patient’s well-being, health and illness, as well as the nature of the patient’s experiences (Polit & Beck, 2008).

Jalali-Nia, Salsali, Dehghan-Nayeri, and Ebadi (2011) conducted a quasi-experimental posttest study design with baccalaureate nursing students (n=41) to evaluate the impact of evidence-based education on knowledge and attitude. The students were randomly assigned into experimental and control groups, in which the experimental group was taught specific medical-surgical nursing content utilizing an evidence-based approach. This approach included evidence-based learning activities, such as developing clinical questions using PICO (population/problem, intervention, comparison & outcome), searching for evidence, discussing articles, synthesizing the evidence, and developing a summary of findings. The control group was taught the same medical-surgical content the traditional way (lectures, questions and answers). The researchers used five questionnaires to examine the students’ knowledge and attitude. The first questionnaire measured the students’ knowledge of the principles of the evidence-based education, and consisted of 28 yes or no questions. The second and third questionnaires were multiple-choice and assessed the students’ subject matter knowledge. The fourth and fifth questionnaires were in a Likert scale format and were used to assess students’ attitude toward the course. The researchers reported a significant difference in knowledge of the principles of the evidence-based education from the intervention group. There was also a significant difference between the scores for attitude of the intervention group (Jalali-Nia et al., 2011).

Liabsuetrakul, Sirirak, Boonyapipat, and Pornsawat (2013) conducted a quasi-experimental study utilizing a pretest-posttest design with fourth-year medical students (n=114) to assess the effect of the integration of evidence-based medicine in a medical curriculum on

knowledge, attitude, and skill. The intervention included small group discussions with case scenarios and problem-based learning. A summative assessment via a course evaluation was utilized for data collection. Attitude and skill data were analyzed before the course initiated, and again at weeks 1, 5, 13, 25, and 37. The researchers reported an increase in student knowledge, as well as a dramatic increase in attitude, and skill because of the integration of evidence-based medicine (Liabsuetrakul et al., 2013).

Simulation is a teaching strategy that educators use to mimic certain patient conditions, as well as enhance nursing students' cognitive, motor, and critical thinking skills (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Simulation also provides a means for students to practice clinical skills in a safe, non-punitive learning environment. Although, researchers reported that simulation is an effective teaching strategy, studies lack evidence to validate that simulation could be used to replace traditional clinical experiences. The results of a recent study have provided evidence that simulation which is strategically integrated across nursing curriculums produce comparable end-of-program outcomes and that new graduates are prepared for clinical practice (Hayden et al., 2014).

Hayden et al. (2014) in conjunction with the National Council of State Boards of Nursing (NCSBN) conducted a study to determine if substituting high-fidelity simulation for traditional clinical experiences for prelicensure nursing students would produce comparable end-of-program competencies, as well as new graduates who are prepared for clinical practice. The study was reported in two parts: Part one was a randomized, controlled study with nursing students, and part two was a follow-up survey study of the new graduate nurses and their managers during the graduate nurses' first six months of practice.

Nursing students (n=666) from ten prelicensure programs across the US participated in the study, and were enrolled over a two year undergraduate nursing program. Students were randomly assigned to three groups: control group (students who had traditional clinical experiences [no more than 10% of simulation]), 25% group (students had 25% of traditional clinical experience replaced by simulation), and 50% group (students had 50% of traditional clinical experience replaced by simulation). Each school appointed faculty and staff members who attended three mandatory training sessions to learn about the NLN/Jeffries Simulation Framework, as well as a debriefing method. Participating programs utilized a standardized simulation curriculum to ensure that quality simulation scenarios were used at all sites. Faculty members from each program used scenarios from the standardized simulation curriculum that met the needs of the learning objectives. Labeled simulation medications, manikin programming files, and other supplies needed for running the scenarios were provided for each program. These processes were needed to ensure uniformity across programs. All students participated in traditional clinical experiences; the difference being the number of hours spent in the clinical environment. Additionally, all simulation experiences occurred in the simulation labs. Simulations included medium or high fidelity manikins, standardized patients, role-playing, skills stations, and computer-based critical thinking simulations (Hayden et al., 2014). Data from course outcomes (i.e. course level Assessment Technologies Institute [ATI] scores) and end of program outcomes (i.e., comprehensive ATI scores and End of Program Surveys) were collected from all programs and aggregated. The data were compared across the three groups. The researchers measured students' knowledge, competency, critical thinking, and perceptions of how well the students felt their learning needs were met. The ATI was used to measure students' knowledge. The Creighton Competency Evaluation Instrument (CCEI), New

Graduate Nurse Performance Survey (NGNPS), and the Global Assessment of Clinical Competency and Readiness for Practice were used to measure the students' clinical competency. The CCEI is a 23-item tool that was used to measure the students' clinical competency in the clinical and simulation setting. Cronbach's alpha for this tool ranged from 0.974 to 0.979. The NGNPS is a 36 item Likert scale tool with a Cronbach's alpha of 0.972. The Global Assessment of Clinical Competency and Readiness for Practice included one question that the evaluator answered about the graduating student. The evaluator rated the student on a scale of one to ten (1- among the weakest and 10-among the best). No reliability information was reported. National Council Licensure Examination (NCLEX) results were collected after the students graduated from their nursing programs. The Critical Thinking Diagnostic© was used to assess the students' critical thinking ability. This tool included five items, and the Cronbach's alpha was 0.976. The Clinical Learning Environment Comparison Survey (CLECS) was used to assess students' perceptions of how well they felt their learning needs were met in the traditional clinical and simulation environments. This tool included 29 items related to clinical learning, and provides a total score and six subscale scores. The Cronbach's alpha for the scores in the traditional clinical environment ranged from 0.741 to 0.877; Cronbach's alpha for scores in the simulation environment ranged from 0.826 to 0.913. Researchers reported no significant differences among the three groups' end-of-program educational outcomes and no significant differences were identified when simulation was used to replace traditional clinical experiences.

Part two of the study included the new graduates that participated in part one of this study. The new graduates were followed for the first six months of their clinical practice to determine long-term effects of simulation and whether substituting high-fidelity simulation for traditional clinical experience impacted professional practice. To assess clinical competency,

critical thinking, readiness for practice, and acclimation to the Registered Nurse role, students completed the NGNPS, Critical Thinking Diagnostic, and Global Assessment of Clinical Competency and Readiness for Practice tools at 6 weeks, 3 months, and 6 months. Managers were also asked to evaluate the new graduate using these measurement tools. Researchers reported that all three groups were prepared for professional practice, and there were no differences among the groups.

Overall, the researchers reported that up to 50% simulation can be substituted for traditional clinical experiences in prelicensure nursing programs. However, in order to ensure that simulation will be effective, best practice must be incorporated into simulation programs. According to the International Nursing Association for Clinical Simulation and Learning (2013) best practice for simulation must include: terminology, professional integrity of the participant(s), participant objectives, facilitation, facilitator, the debriefing process, and participant assessment and evaluation.

Standardized Patients

Inquiries on breastfeeding education and baccalaureate nursing students returned limited studies in which the educational strategy included the use of SPs as a teaching strategy. However, because of the many benefits that an interaction with an SP provides, and because the researcher did not find any studies that utilized SPs as a teaching strategy with breastfeeding education, the integration of an SP encounter as a teaching strategy was utilized for the purposes of this study. SPs have been used in medical education for many years, however SP use in nursing education has been limited to graduate nursing education (Bornais, Raiger, Krahn, & El-Masri, 2012). SPs have the benefit of providing students with a means to practice skills safely with live people, and educators have a means to provide consistent, meaningful learning

experiences (Anderson, Holmes, LeFlore, Nelson, & Jenkins, 2010; Bolstad, Yu, Shen, Covelli, Torpey, 2012). The utilization of SPs in baccalaureate nursing education can enhance learning as students are able to apply theory into practice, which promotes critical thinking and problem-solving skills. Additionally, Bolstad et al. (2012) reported that an interaction with an SP allows learners to experience all aspects of communication, such as body language and voice inflections, and an SP methodology has established high reliability with low bias.

Although students have the opportunity to role-play with their peers for certain clinical experiences, the SP interaction is a preferred approach in improving nursing student's communication skills. During role-play exercises students tend to gravitate to a peer they know, however use of an SP forces the student out of a comfort zone and provides an opportunity to approach the experience closer to the real-life environment in which he or she will be working. According to Bornais et al. (2012), students who have interactions with simulated real-life patients improve their interprofessional communication skills and are more likely to be less nervous when interacting with patients in a real clinical environment.

An interaction with an SP is also beneficial because students have different learning styles. In a study conducted by Kiluk, Dessurealt, and Quinn (2012) the researchers reported that medical students' personal learning styles were addressed by instituting several platforms during the SP encounter from which the students were to gain knowledge. For example, not only did the students have a one on one interaction with the SP, students were also able to view themselves on the video to examine verbal and non-verbal behaviors of themselves and the SP. Further, students were able to view other students' SP encounters, which exposed each student to different approaches to interactions with patients. The students could then take certain aspects of the other SP encounters and incorporate those aspects into their own practice in the future. The

discussion with the clinical faculty member during the debrief was also beneficial as the students learned verbal information and technique in providing patient care.

Several researchers (Becker, Rose, Berg, Park & Shatzer, 2006; Bosse et al., 2012; Lin, Chen, Chao, & Chen, 2013; Yoo & Yoo, 2003) have conducted studies to evaluate the use of SPs in student training. These researchers have reported positive benefits for the use of SPs. For example, Becker et al. (2006) conducted a pilot study utilizing a pretest-posttest, randomized control group design with senior undergraduate nursing students (n= 147) to compare the use of SPs with the usual method of instruction. The usual method of instruction consisted of patient encounters that are observed by faculty and the measure of competence based on multiple-choice, pen-and-paper tests. Students in the experimental group interacted with an SP with a specific disease process, while students in the control group participated in the usual method of instruction outlined above. Pretest and posttests were completed prior to and after the intervention. The Student Self-Evaluation of SP Encounter (six-item Likert scale with two open-ended questions) and the Communication Knowledge Test (20-item multiple-choice test) were the instruments used for data collection. The Student Self-Evaluation of SP Encounter was developed by the researchers and no reliability and validity information was reported. The Communication Knowledge Test was not tested for reliability and validity; however, the instrument was developed with input from Advanced Practice Nurse psychiatric experts. The researchers reported no significant differences between the treatment and control group scores on the pretests and posttests. However, the student responses from the qualitative data on the Student Self-Evaluation of SP Encounter reported positive experiences with the SP encounter and an improvement in their ability to think critically (Becker et al., 2006).

Bosse et al. (2012) conducted a randomized control pretest-posttest study with fifth year medical students (n=103) to explore the effects of the use of SPs and peer role-play (RP) on communication training. The students were divided into three groups (SP, peer role-play, and control). The researchers assessed self-efficacy of communication skills with the 24-item, 10-point Likert scale test. An objective structured clinical examination (OSCE) was utilized to provide quantitative feedback to the students on interview performance. The researchers reported significant self-efficacy post intervention scores for the SP and RP groups and no differences between the RP and SP group. The control group scores were not significantly different. Additionally, researchers also reported higher performance scores in the SP and RP groups compared to the control groups (Bosse et al., 2012).

Lin et al. (2013) conducted a randomized control study using a two-group design of advanced practice nurse (APN) graduate students (n=26) to examine the effectiveness of using SPs with SP feedback and group discussion to teach interpersonal and communication skills (IPCS) in graduate nursing education. All participants received a two-hour class instructing students in theoretical knowledge and clinical skills of IPCS. Then the students were assessed in 15-minute interviews with the SP before and after the class. Participants in the control group only received the class instruction and the SP assessment. The participants in the experimental group received the class instruction, SP assessment, and SP feedback according to the IPCS assessment tool. Additionally, the participants in the experimental group joined a faculty-led group discussion for an SP interview video. The Interpersonal Skills Assessment tool was utilized to determine the IPCS of the APNs and consisted of four dimensions: skills in interviewing and collecting information, skills in counseling and delivering information, rapport, and personal manner. The tool is a four-point Likert scale that has a reliability score of 0.89 per

Cronbach's alpha. The Student Learning Satisfaction scale, which consisted of nine dichotomous questions, was utilized to determine the participants' attitudes toward the SP methodology, skills performance, learning outcomes, etc. The reliability of the scale was acceptable (KR-20=0.61). All participants received the highest score at baseline for personal manner, which was the least improved on the second assessment. All participants showed significant improvement on IPCS scores in the interviewing and collecting information and counseling and delivering information dimensions. Additionally, all participants had extremely high Student Learning Satisfaction scores (Lin et al., 2013).

Yoo and Yoo (2003) conducted a quasi-experimental study using a nonequivalent control group, posttest design with sophomore level nursing students (n= 76). The researchers sought to evaluate the effects of two teaching methods on nursing student's clinical competence. The methods included a lecture and laboratory practice with a model versus an SP encounter. Students in the experimental group participated in the SP encounter while the control group participated in the lecture and practice session. The researchers evaluated clinical judgment by a written test, and clinical and communication skills were evaluated by a checklist. The researchers provided no validity and reliability information for the evaluation tools. The evaluation tools were utilized by the instructors and the SPs. The researchers reported that the experimental group had significantly higher scores than the control group in terms of clinical judgment, clinical skill performance, and communication skills (Yoo & Yoo, 2003).

Summary

The literature review revealed no prior research studies conducted on the integration of an SP encounter in breastfeeding education found by the researcher. Studies have focused on the lack of breastfeeding education in nursing curricula and that evidence-based educational

strategies have been essential in preparing graduates with the knowledge and skill to provide support to mothers. Researchers have reported that the integration of an SP encounter as an educational strategy has been beneficial in improving communication and critical thinking skills in students. Thus, research is needed to determine the effect of utilizing SPs in breastfeeding education. The results of this study will provide such information.

CHAPTER 3
METHODOLOGY
Research Design

A randomized pretest-posttest design with a comparison group was used for this study. The design was selected to evaluate the effect an educational intervention would have on nursing students' knowledge and attitude in regard to providing breastfeeding support to mothers. The educational intervention included an evidence-based breastfeeding lecture followed by a simulation role-play scenario with an SP for the experimental group and an educational breastfeeding video for the control group.

Sample

The research participants were traditional Bachelor of Science in Nursing (BSN) students who were enrolled in a Maternal Child Nursing course. The usual class size for the course averages 50-90 students. The research participants were in the third semester of a five-semester professional component in a four-year baccalaureate nursing program, and had no clinical or didactic courses that include any specific information regarding breastfeeding. Students had completed courses in the professional component such as Health Assessment, Clinical Nursing Skills, Clinical Pharmacology, Pathophysiology, and Diet Therapy. Students are typically aged 19-25, with some students in their late twenties and older. Historically, the majority of the students in each cohort are female, and one to eight of the students in the cohort are male. The only inclusion criterion for the research participants was that the student was enrolled in the Maternal Child Nursing course. No exclusion criterion was identified.

To reduce the risk of Type II errors, a power analysis was conducted to determine the sample size for this study (Cohen, 1992; Polit & Beck, 2008). According to Cohen (1992) conducting a power analysis to determine sample size and power is an important step in the research planning process. The value for effect size for a two-group *t*-test of means is estimated at “.20 for small effects, .50 for medium effects, and .80 for large effects” (Polit & Beck, 2008, p.604).

The G*Power 3 Statistical Power Analysis Program by Faul, Erdfelder, Lang, and Buchner (2013) was used to conduct a power analysis to determine the sample size for this study. Because there were no prior research studies found by the researcher on this topic utilizing the study methodology, an estimated effect size of .80 was used. To achieve a power of .80 and an estimated effect size of .80, the total sample size needed for this research study was 52 students, 26 for each group (Faul et al., 2013). Data were collected over two semesters with two cohorts of students. The estimated sample size is necessary for the two-group *t*-test of means with a level of significance of .05 (Polit & Beck, 2008). The minimum acceptable level of significance is .05 as a stricter level may be necessary when the research questions have a similar level of consequence.

Recruitment

Because there was a need to improve breastfeeding education at this southeastern university, and to ensure adequate recruitment and retention of research participants, all students enrolled in the Maternal Child Nursing course participated in interventions for this research study. The interventions implemented for the purposes of this research study were a requirement for all students in the course. Recruitment and informed consent occurred during the Maternal Child Nursing orientation, which takes place prior to the students’ clinical rotations (See

Appendix A for Recruitment Script). All students enrolled in the course are required to attend the orientation; therefore recruitment was best achieved at this time. The Maternal Child Nursing course is offered every semester, so recruitment could occur at the beginning of any semester. After being introduced to the class by the course coordinator, the researcher provided the students with information about the study, such as the purpose, problem, methodology, and what the expectations for the students were. The researcher also provided the students with specific information about the SP encounter, as well as the video. Since most students have already had an encounter with an SP in the health assessment course, the researcher described the setting of the SP encounter, SP scenario, as well as student expectations during the SP encounter. In regard to the video, the students were informed about the information and scenes that were shown. Opportunities for questions were provided throughout. Confidentiality and informed consent were also discussed. Because the interventions used for the study (the simulation role-play or the breastfeeding video) were mandatory as part of the simulation portion of the course, the students were only asked to provide consent to have their pre- and post-test responses analyzed. Students were also notified that no compensation would be awarded for their consent.

An informed consent was provided for the students to read and sign. Students were asked to place their signed informed consent in a box for the researcher to collect. After duplicates were made, the students were given a copy of their informed consent, which included the researcher's contact information. The researcher was available throughout the research process by appointment, phone, or email to answer any student's questions or address any concerns.

Setting

The study took place in a public university located in the southeastern part of the US. This university is accredited by the Southern Association of Colleges and Schools Commission

and awards baccalaureate, masters, educational specialist, and doctoral degrees. The college of nursing, where the study was conducted, is one of nine colleges and schools at this university. The college of nursing is accredited by the American Association of Nursing and the Commission on Collegiate Nursing Education, and awards baccalaureate, master's and doctoral nursing degrees.

The lecture was given to all students who participated in the study in a classroom, free of extraneous noise and distractions, in the Health Sciences building. The debriefing room next to the simulation lab rooms was utilized for the students in the control group who watched the breastfeeding video. The simulation lab where the SP encounters took place for the students in the experimental group is located in the same building as the classrooms, and was easily accessible for the students. The simulation lab rooms resembled a basic hospital room, and were appropriate for the research study, since the SP portrayed a mother on a postpartum unit.

Ethical Considerations

Approval to conduct the study was obtained from the university Institutional Review Board (IRB) and the University of Alabama's IRB (See Appendix B and C). When considering ethical issues with any human subject, it is imperative to obtain informed consent. The informed consent assures the participants that all data collected will be kept confidential, and that their rights will be protected. The informed consent also specifies other important information including, but not limited to the purpose of the study, the time commitment, and study plans (Rudestam & Newton, 2007). An informed consent was developed that detailed all aspects of the research study, and required the participant's signature (See Appendix D). A copy of the signed informed consent was provided for the participants, and was available for students to read, and sign after the recruitment presentation was made.

Confidentiality was considered and addressed through all stages of the research process. The researcher ensured that confidentiality was addressed with the students during recruitment, as well as during data collection and analysis. The DHHS (2002) contends that “confidentiality protections minimize subjects’ concerns over the use (or misuse) of the data” (p. 1). Further, assuring confidentiality encourages research participants to provide more accurate information, which improves the quality of the research study.

Group Assignment Procedure

Prior to data collection, the researcher randomly assigned the students to experimental and control groups. The researcher assigned the students from the names that were retrieved from the informed consents, selecting one from the bottom of the stack and then one from the top until all students were assigned. The students were assigned a letter and a number. Students in the experimental group were assigned a number with the letter A, while students in the control group were assigned a number with the letter B. This letter and number assignment process served as the student’s identification (ID) number that was used by the researcher for data analysis. The student also used this ID number when accessing the measurement tool. The researcher used the ID number as a means to identify and contact the student via email regarding how and when to access the online survey website, Qualtrics© software, version 2014 and to remind them of their ID number and which research group they have been assigned.

The researcher stored the signed informed consents, as well as list of student names, identification numbers, and student contact information, such as email addresses, in a locked cabinet in her office. Only the researcher had access to this cabinet.

Data Collection

Data were collected utilizing a survey. Surveys provide the researcher with a means for a rapid turnaround in data collection. Surveys are often fast and easy to complete, and they ease in assisting with answering certain research questions (Creswell, 2009). Students accessed the survey tool via Qualtrics®, before the lecture and after the study intervention. The total length of time needed for data collection was approximately 65 minutes, with the pretest taking 10 minutes, the intervention taking 45 minutes, and the posttest taking 10 minutes.

The students were asked to complete the survey prior to the breastfeeding lecture, and then access the survey again after the intervention was complete. According to Cohen, Manion, and Morrison (2011) the timing of the pretest and posttest is essential in a research project. The pretest should be conducted as close to the start of the intervention as possible, while the posttest should be conducted at an appropriate time after the intervention (Cohen et al., 2011). The posttest should not be taken too soon after the intervention because the recency effect may occur. The recency effect can occur because recently studied or presented information is recalled more easily, which influences the study outcome [i.e., students will score well on the posttest] (Cohen et al., 2011). However, the posttest should not be conducted too long after the intervention either, as the time lapse may affect the outcomes of the study. The time lapse will make it difficult to determine whether a particular variable or some other factor produced an effect on the study outcome (Cohen et al., 2011). Administering the posttest within a week of the intervention can increase recency effect therefore, the students were asked to access the posttest after seven days from completion of the intervention. The posttest took 10 minutes to complete. The researcher checked to see if the students had submitted responses to the posttest at 24 and 48 hours after the

seventh day. If responses were missing, the researcher sent a reminder email to the students who had not submitted responses by nine days post intervention.

Data Management

The data obtained via Qualtrics© is kept confidential and secure, and is owned only by the researcher. Although Qualtrics© does collect information from users of the site, such as visited surveys, and referring URLs, the information obtained is only used for website and service improvements. Students were not asked any identifying information when accessing the survey website (only their ID number). The data collected via Qualtrics© is stored on a secure server, and the data can only be accessed by a user with a log in and password. The researcher accessed the data for analysis purposes only.

Instruments

The Australian Breastfeeding Knowledge and Attitude Questionnaire (ABKAQ), developed by Brodribb et al. (2008) was the only data collection tool utilized to answer the research questions. A demographic survey to determine the sample description was also used in this study. The ABKAQ was utilized to determine the students' breastfeeding knowledge and attitude (see Appendix E). The original questionnaire was composed of 40 knowledge items and 20 attitude items, and is scored on a 5-point Likert scale (1[strongly disagree] to 5 [strongly agree]). Brodribb et al. reverse-scored 33 items on the scale that were negatively worded, and coded "don't know" responses as a 3 (neither agree nor disagree) for data analysis purposes. The ABKAQ took approximately 10 minutes to complete. Dr. Brodribb granted the researcher permission to use the tool (see Appendix F).

In regard to the knowledge items, Brodribb et al. removed four items because the items had an item-total correlation of $<.2$. In regard to the attitude items, Brodribb et al. removed two items because the items also had an item-total correlation of $<.2$. Therefore, the researcher used the 36 items for knowledge and 18 items for attitude that were used in the Brodribb et al. (2008) study. The reliability of this tool assessing for breastfeeding knowledge and attitude by Cronbach's alpha was 0.83 and 0.84, respectively.

For the purposes of this research study, the reliability of this tool assessing for breastfeeding knowledge and attitudes toward breastfeeding was determined by Cronbach's alpha. Results revealed that the Cronbach's alpha for pretest and posttest knowledge scores were 0.68 and 0.82. Cronbach's alpha for pretest and posttest attitude scores were 0.67 and 0.70.

The researcher developed a demographic survey comprised of nine items (see Appendix G). The students were prompted to respond to this survey prior to accessing the pretest. The demographic survey took about one minute to complete, and the responses to the survey were used to describe the sample of students who participated in the study.

Intervention

In preparation for the educational interventions, the researcher wanted to ensure that students in both groups received similar information. Therefore, the researcher presented the evidence-based breastfeeding lecture to all students as a group. The content that was presented in the lecture came from reputable agencies, such as the AAP, ABM, and CDC. The researcher viewed the educational breastfeeding video, and made minor adjustments to the SP script to include content that was discussed in the video. For example, the researcher modified questions that the SP asked to give the student the opportunity to discuss that specific content. Additionally, the researcher drafted the post intervention discussion questions to assess the

students' knowledge of the information discussed during the SP encounter, as well as the information viewed in the educational breastfeeding video.

The evidence-based breastfeeding lecture took place in an assigned classroom for the course, and it was given on the first day of the Maternal Child Nursing orientation that all students were required to attend. The researcher served as the instructor for the evidence-based breastfeeding content that was taught to the students. The evidenced-based breastfeeding content was presented in lecture format via PowerPoint and took approximately one hour. Students were taught evidence-based breastfeeding content that included the nurse's role in breastfeeding, health benefits for mother and baby, social, nutritional, and emotional aspects of breastfeeding, breast anatomy and physiology, positioning, identifying hunger cues, waking a sleepy baby, how to determine adequate feedings, barriers to breastfeeding and how to assist in overcoming barriers, supplementation (maternal and infant indications), and patient education as recommended by the WHO (2013) and AAP (2012). The researcher used a baby doll for example demonstrations during the lecture (i.e. breastfeeding positions, how to correct an incorrect latch, and how to wake a sleepy infant). The complete course curriculum can be found in Appendix H.

Prior to attending the lecture, students were notified by the researcher via email regarding how to access the demographic survey and the ABKAQ via Qualtrics©, and students were reminded about their ID number and to which group they were assigned. An email notification script can be found in Appendix I. Because all students admitted to this nursing program are required to purchase a Netbook laptop computer, the tool can easily be accessed via the Netbook. Because the tool can be accessed electronically, students can access the tool at home. Students

who did not complete the pretest prior to the lecture were given the opportunity to do so before the researcher began the lecture.

Experimental group. Students in the experimental group participated in a simulation role-play with an SP. The SP script is included in Appendix J. The SP script was originally obtained from the AAP Breastfeeding Residency Curriculum (AAP, n.d.). The script is an OSCE Case Study and is one of the curriculum teaching tools used by residency programs to assess residents' communication skills on counseling and treating patients with simulated breastfeeding problems and concerns. The entire Breastfeeding Residency Curriculum was developed by a team of physicians and was pilot-tested at 14 residency programs across the US. Tools obtained from this curriculum are flexible, and can be implemented to meet the needs of the user's facility. No specific validity information regarding the SP script was found by the researcher.

A schedule that included the students' names and time slot for the SP encounter was created by the researcher and was provided to the students through the Maternal Child Nursing course. Students were given 10-20 minutes for the encounter followed by a 15-20 minute post intervention debriefing. According to Bosek, Li, and Hicks (2007) the number of student/SP encounters depends on the scope of the responsibilities of the SP (i.e., conducting student evaluations). Because the SPs were not responsible for evaluating student performance in this study, the 10-20-minute length of time in the student/SP encounters was appropriate. All students had the same SP encounter to ensure consistent outcome measures. The role-play scenario included content to help prepare students to provide breastfeeding support. For example, an SP played the role of a new mother who is having trouble getting her baby to latch on. The student assisted the mother in solving her breastfeeding issue utilizing information learned in the lecture, as well as prior knowledge, if applicable. The students were expected to perform a postpartum

assessment, demonstrate breastfeeding positions with the SP, as well as practice communication skills regarding breastfeeding.

The SP, an individual who is trained to portray a patient with a specific condition (Association of Standardized Patient Educators, 2013), managed consistency in role-play content because the SP was trained on the case. The researcher trained the SPs on the case prior to the encounters with the students (SP training prior to an encounter is a normal routine in the SP program). SPs were recruited from the SP database. The SP database contains a list of all SPs, contact information, as well as descriptors (gender, race, age, etc.). Having access to this descriptive information allows the SP coordinator to select and contact the appropriate SP for specific cases.

For routine SP training, a date is scheduled, usually five to seven days after the SP receives the case via email. The training entails descriptions of the disease process, purpose, objectives (if any), how the SP is to act or dress to fully become immersed in the role, as well as a question and answer session. A review of the evaluation tool that the SP uses to evaluate the learner is also conducted, if applicable. If an evaluation tool is used for the SP encounter, the SP is trained on how to evaluate the learner (or participant). No evaluation tool was used for this study. The SP and the SP simulation faculty role-play the scenario several times until the SP is comfortable with the script. Training can occur with more than one SP at a time if several SPs are role-playing for the same case. For the purposes of this study, the SP was dressed in a hospital gown, and a baby doll was used. Because of the nature of the topic for the simulation role-play encounter, some students did not utilize the entire 20 minutes that was allotted for the role-play scenario. Therefore students were given a 10- to 20-minute time range. Thus, the SPs were trained to encourage participation from the student during the simulation role-play

encounter if the SP determined that the student was losing interest or needed prompting for further interaction.

Because the researcher did not obtain the sample size needed for this study in one semester, data collection occurred over two semesters. Therefore, three rooms were used (3 SPs) the first semester, and four rooms were used the second semester (4 SPs). The number of rooms used was based on the class size and time available for the SP encounter. Only one student participated in a room at a time. The researcher observed one room while other SP/simulation faculty observed the other rooms. It is routine that all simulations and SP encounters are observed by SP/simulation faculty to ensure consistency with role-play simulations. The SP/simulation faculty were not part of the simulation role-play scenario for this study, as their role was only to observe the simulation role-play, help manage the time, and direct the students into and out of the simulation rooms. After the SP encounter, a group post intervention debrief with the students allowed the students to reflect on the SP experience and ask questions. The debrief was facilitated by the researcher, which is also routine with all SP and simulation encounters. The debrief was only used as a reflective exercise for the SP encounter and was not used as part of data collection for this study (See Appendix K for Post Intervention Discussion Questions).

After completion of the SP encounter and debrief, students were asked to access the ABKAQ within 7 days. The researcher sent an email to the students on day five reminding them to access the tool, and again at 24 and 48 hours after the seventh day to those students who had not submitted responses.

Control group. As a group, students in the control group watched a breastfeeding video which included scenarios of healthcare providers providing support to new mothers, as well as

other ancillary breastfeeding information. The students watched the video in the debriefing room near the simulation lab rooms on the same day that the experimental group participated in the SP encounter. The video encounter took forty-five minutes, followed by a 10 minute post intervention debrief. The debrief gave the students the opportunity to reflect on the video and ask questions. The breastfeeding video, *In Our Hands* (Rush University Medical Center, 2012) was shown. The video is a valuable resource for healthcare professionals who are providing care to breastfeeding mothers. It included breastfeeding information, as well as clips of patients interacting with healthcare professionals. Video Link to order a copy:

http://shop.rush.ihost.net/productinfo_v3.aspx?productid=INOURHANDSDVD

Rush University Medical Center, located in Chicago, Illinois, created the Rush Mother's Milk Club for lactation services. Rush's Mother's Milk Club is an evidence-based lactation program that disseminates best clinical breastfeeding guidelines through research, and it is the model program for evidence-based lactation interventions (Rush Mother's Milk Club, n.d.). The video was developed by members in the program, and is one of the many educational resources developed to assist healthcare providers with providing breastfeeding support to mothers. The video was created to improve overall breastfeeding outcomes.

After completion of the SP encounter and debrief, students were asked to access the ABKAQ within seven days. The researcher sent a reminder email to the students on day five reminding them to access the tool, and again 24 and 48 hours after the seventh day to those students who had not submitted responses.

To make certain participants completed the entire study, the researcher encouraged participation. According to Polit and Beck (2008) the researcher should take steps to encourage participation by making the interventions enjoyable and motivational and take steps to decrease

participant burden during the intervention and data collection process. For example, the researcher ensured consistency with the SP and video encounters, as well as kept the scheduled encounters on time. Ensuring confidentiality throughout the research process encouraged participation, as well.

Data Analysis

Pre- and Posttest data were collected by accessing the online survey website Qualtrics© software, version 2014, which is licensed by The University of Alabama. If a student decided to withdraw from the study or did not complete the pretest or posttest, the student's pretest data was not analyzed. The researcher reported student withdrawal and incompleteness in research findings. Because data obtained was quantitative, the SPSS (Version 20.0) statistical computer software was used for data analysis. In an effort to answer research questions one and two, and because the researcher is interested in evaluating and comparing what effect the educational intervention will have on students' knowledge and attitude in the experimental and control groups, a paired sample *t*-test was employed. A paired sample *t*-test was used because the researcher wanted to evaluate and compare two measures of data from the same participants (Polit & Beck, 2008).

In an effort to answer research questions three and four, an independent *t*-test was employed. The independent *t*-test allowed the researcher to evaluate and compare data between group means. According to Polit and Beck (2008) the independent *t*-test should be performed when there are two independent groups and when the sample is dependent. Demographic survey data was examined using descriptive statistics, and included the means.

Summary

The researcher evaluated the effect an educational intervention had on nursing students' knowledge and attitude in regard to providing breastfeeding support to mothers utilizing a

pretest-posttest design with a comparison group. The sample was traditional BSN students who were enrolled in a Maternal Child Nursing course. Recruitment was obtained during a mandatory course orientation, and confidentiality was maintained throughout the course of the research study. Students participated in an evidence-based breastfeeding lecture followed by either a simulation role-play with an SP or an educational breastfeeding video. Data were collected via the online survey software Qualtrics© and analyzed using SPSS (version 20.0) statistical computer software.

CHAPTER 4

RESEARCH FINDINGS

The purpose of this study was to determine if an evidence-based educational intervention would have an effect on baccalaureate nursing students' knowledge and attitude in regard to breastfeeding support provided for mothers. A description of the sample is presented, followed by the results of the statistical analysis that was used to determine any differences between the groups prior to the evidence-based educational interventions. In the final section of this chapter, a discussion of the statistical analyses that were performed to answer the research questions are presented.

Sample Description

Descriptive statistics and frequencies were used to examine demographic survey data. One hundred twenty-five students enrolled over two semesters in the Maternal Child Nursing course were recruited for this research study. Of the 125 students who were recruited, data for twelve students were not used; 8 of the 12 students did not complete the posttest. Two students did not complete the pretest, but completed the posttest. One student refused to have their data analyzed, and one student was under the age requirement for the study. After eliminating the students whose data could not be analyzed, the researcher analyzed data of 113 students. The students were randomly assigned to experimental and control groups, and the groups were similar in size. The experimental group consisted of 56 students, and the control group consisted of 57 students. See Table 1 for number of participants per group.

Table 1 *Number of Participants per Group*

| Group | Frequency | Percent |
|--------------|-----------|---------|
| Experimental | 56 | 49.6 |
| Control | 57 | 50.4 |
| Total | 113 | 100.0 |

Demographic Data

Of the 113 nursing students, 18 (15.9%) were male and 95 (84.1%) were female. The majority of the students (50.4%) were between the ages of 18 and 21 years, followed by students aged 22-25 years (27.4%). Students aged 26-29 years, 30-33 years, and 34 years and older comprised 8.8%, 5.3%, and 8% of the sample, respectively. The most common ethnicity was White/Caucasian (64.6%), followed by Black/African American (20.4%). The next most common ethnicity was Asian which comprised 7.1% of student participants, followed by students of two or more ethnicities (4.4%). Hispanic/Latino students comprised 1.8% of student participants followed by American Indian or Alaskan Native students who comprised 0.9% of participants. One student (0.9%) chose not to answer the question. One hundred twelve students (99.1%) took the Maternal Child Nursing course for the first time, seventeen students (15%) reported having worked in a setting where they took care of breastfeeding mothers, two students (1.8%) were enrolled in or had completed an LPN or LVN program, and one student (0.9%) had taken a course to become a doula, midwife, lactation consultant, or childbirth educator. Of the 113 students whose data were analyzed, 10 students (8.8%) reported their spouse, significant other, or themselves had breastfed an infant, and 13 (11.5%) students reported assisting someone with breastfeeding (see Table 2 below). Of the 13 students who reported assisting with breastfeeding, the majority of the students had assisted a friend or family member.

Table 2 *Demographic Data for Participants (N=113)*

| | | N | % |
|--|-----------------------------------|----------|----------|
| Gender | | | |
| | Male | 18 | 15.9% |
| | Female | 95 | 84.1% |
| Age | | | |
| | 18-21 | 57 | 50.4% |
| | 22-25 | 31 | 27.4% |
| | 26-29 | 10 | 8.8% |
| | 30-33 | 6 | 5.3% |
| | 34 or older | 9 | 8.0% |
| Ethnicity | | | |
| | American Indian or Alaskan Native | 1 | 0.9% |
| | Asian | 8 | 7.1% |
| | Black/African American | 23 | 20.4% |
| | Hispanic/Latino | 2 | 8.1% |
| | White/Caucasian | 73 | 64.6% |
| | 2 or more ethnicities | 5 | 4.4% |
| | No Answer | 1 | 0.9% |
| First Time Enrolled in Maternal Child Nursing Course | | | |
| | Yes | 112 | 99.1% |
| | No | 0 | 0.0% |
| | No Answer | 1 | 0.9% |
| Work in Setting taking Care of Breastfeeding Mothers | | | |
| | Yes | 17 | 15.0% |
| | No | 96 | 85.0% |
| Ever Enrolled in LPN or LVN Program | | | |
| | Yes | 2 | 1.8% |
| | No | 111 | 98.2% |
| Ever Taken Course to Become a Doula, Lactation Consultant, etc. | | | |
| | Yes | 1 | 0.9% |
| | No | 112 | 99.1% |
| Self, Spouse, or Significant Other Ever Breastfed | | | |
| | Yes | 10 | 8.8% |
| | No | 103 | 91.2% |
| Ever assisted with Breastfeeding | | | |
| | Yes | 13 | 11.5% |
| | No | 100 | 88.5% |

Pre- Intervention Statistical Analysis Results

An independent samples *t*-test was conducted to determine any differences between the groups in regard to breastfeeding knowledge and attitudes toward breastfeeding prior to the evidence-based educational interventions. Prior to the evidence-based breastfeeding lecture, all students completed the pretest (ABKAQ) to determine their current breastfeeding knowledge and attitudes in regard to breastfeeding. Then students participated in a breastfeeding lecture facilitated by the researcher, followed by an intervention that included a role-play scenario with a Standardized Patient (SP) or viewing of an educational breastfeeding video. Students completed the posttest (ABKAQ) to determine any changes in breastfeeding knowledge and attitudes toward breastfeeding after the educational interventions. Statistical analysis results are presented below.

An independent samples *t*-test was conducted to determine if there were differences between the experimental and control groups in terms of breastfeeding knowledge and attitudes toward breastfeeding prior to the evidence-based educational interventions. Differences between the groups could impact study results if students in the experimental group had more prior breastfeeding experience than students in the control group or vice versa, then mean breastfeeding knowledge and mean attitude scores could impact study outcomes. Although the students were randomly assigned to experimental or control groups, and because the researcher did not analyze the data of 12 students, there was concern that the number in each group could have been unbalanced. With random assignment, having equality in the groups is important to study outcomes (Polit & Beck, 2008). The null hypotheses were: 1) there is no difference in breastfeeding knowledge between the experimental and control groups prior to the interventions, and 2) there is no difference in attitudes toward breastfeeding between the experimental and

control groups prior to the interventions. Mean pretest scores for the experimental and control groups were analyzed using an independent samples *t*-test. The independent samples *t*-test results revealed that there was no difference in mean pretest breastfeeding knowledge scores of the experimental group ($M= 3.28, SD= 0.50$) and mean pretest breastfeeding knowledge scores of the control group ($M= 3.39, SD= 0.45$), $t(111) = 1.20, p= .234, \alpha= .05$, prior to the interventions. The independent samples *t*-test results also revealed no difference in mean pretest attitude scores of the experimental group ($M= 3.57, SD= 0.45$) and mean pretest attitude scores of the control group ($M= 3.60, SD= 0.45$), $t(111) = .344, p= .732, \alpha= .05$, prior to the interventions. Thus, the groups were deemed similar, and failure to reject the null hypotheses was supported at the .05 level of significance. The results for group similarities for breastfeeding knowledge prior to the evidence-based educational interventions are displayed below in Table 3, and the results for group similarities for attitudes toward breastfeeding prior to the evidence-based educational interventions are displayed in Table 4.

Table 3 *Independent Samples T-Test for Group Similarities for Breastfeeding Knowledge Prior to the Evidence-Based Educational Intervention*

| Group | <i>N</i> | <i>M</i> | <i>SD</i> | <i>t</i> | <i>df</i> | <i>p</i> |
|--------------|----------|----------|-----------|----------|-----------|----------|
| Experimental | 56 | 3.28 | 0.50 | 1.20 | 111 | .234* |
| Control | 57 | 3.39 | 0.45 | | | |

* $p > .05$

Table 4 *Independent Samples T-Test for Group Similarities for Attitudes toward Breastfeeding Prior to the Evidence-Based Educational Intervention*

| Group | <i>N</i> | <i>M</i> | <i>SD</i> | <i>t</i> | <i>df</i> | <i>p</i> |
|--------------|----------|----------|-----------|----------|-----------|----------|
| Experimental | 56 | 3.57 | 0.45 | .344 | 111 | .732* |
| Control | 57 | 3.60 | 0.45 | | | |

* $p > .05$

Research Questions Statistical Analysis Results

There were four research questions for this study: 1) Will an evidence-based educational intervention improve baccalaureate nursing students' breastfeeding knowledge? 2) Will an evidence-based educational intervention improve baccalaureate nursing students' breastfeeding attitude? 3) Are there differences in breastfeeding knowledge between the experimental group, who participate in the simulation role-play and the control group, who watch an educational breastfeeding video? , and 4) Are there differences in attitudes toward breastfeeding between the experimental group, who participate in the simulation role-play and the control group, who watch an educational breastfeeding video? The results of the data analyses for the research questions are presented below.

Research Question 1: Will an evidence-based educational intervention improve baccalaureate nursing students' breastfeeding knowledge? A paired samples *t*-test was conducted to compare mean pretest and mean posttest scores of all students to determine if the evidence-based educational intervention improved the nursing students' breastfeeding knowledge. The null hypothesis for research question 1 was: the evidence-based educational intervention will not improve the nursing students' breastfeeding knowledge. The paired samples *t*-test results revealed that there was sufficient evidence to indicate that the evidence-based educational intervention improved the students' breastfeeding knowledge (pretest- $M = 3.33$, $SD = 0.47$, posttest- $M = 4.13$, $SD = 0.54$), $p = .000 < \alpha$. There was a statistically significant difference in pretest and posttest scores on the ABKAQ. Therefore, the null hypothesis was rejected at the .05 level of significance. The results are displayed in Table 5.

Table 5 Paired Samples T-Test Results for Breastfeeding Knowledge

| Effect | Pre M (SD) | Post M (SD) | p |
|-----------|------------|-------------|-------|
| Knowledge | 3.33(0.47) | 4.13(0.54) | .000* |

* $p < .05$

Research question 2: Will an evidence-based educational intervention improve baccalaureate nursing students' breastfeeding attitude? A paired samples *t*-test was conducted to compare mean pretest and mean posttest scores to determine if the evidence-based educational intervention improved the nursing students' attitudes toward breastfeeding. The null hypothesis for research question 2 was: the evidence-based educational intervention will not improve the nursing students' attitudes toward breastfeeding. The paired samples *t*-test results revealed that there was sufficient evidence to indicate that the evidence-based educational intervention improved the students' attitudes toward breastfeeding (pretest- $M = 3.58$, $SD = 0.45$, posttest- $M = 3.86$, $SD = 0.43$), $p = .000 < \alpha$. There was a statistically significant difference in pretest and posttest scores on the ABKAQ. Therefore, the null hypothesis was rejected at the .05 level of significance. The results are displayed in Table 6.

Table 6 Paired Samples T-Test Results for Attitudes toward Breastfeeding

| Effect | Pre M (SD) | Post M (SD) | p |
|----------|------------|-------------|-------|
| Attitude | 3.58(0.45) | 3.86(0.43) | .000* |

* $p < .05$

Because the interventions increased the students' breastfeeding knowledge and attitudes, a dependent samples *t*-test was conducted to determine which group experienced the most change in breastfeeding knowledge and attitudes toward breastfeeding. The dependent samples *t*-

test revealed that the control group experienced the most change in breastfeeding knowledge (experimental group- pretest- $M= 3.28$, posttest- $M= 4.07$, difference- 0.79 , control group- pretest- $M= 3.39$, posttest- $M= 4.20$, difference- 0.81). Additionally, the dependent samples t -test revealed that the control group experienced the most change in attitudes toward breastfeeding (experimental group- pretest- $M= 3.57$, posttest- $M= 3.80$, difference- 0.23 , control group- pretest- $M= 3.60$, posttest- $M= 3.91$, difference- 0.31). The results are displayed in Table 7.

Table 7 *Dependent Samples T Test Results to Compare Breastfeeding Knowledge and Attitudes toward Breastfeeding between Experimental and Control Groups*

| Effect | Group | Pretest (M) | Posttest (M) | Difference |
|-----------|--------------|-----------------|------------------|------------|
| Knowledge | Experimental | 3.28 | 4.07 | 0.79 |
| | Control | 3.39 | 4.20 | 0.81 |
| Attitude | Experimental | 3.57 | 3.80 | 0.23 |
| | Control | 3.60 | 3.91 | 0.31 |

Research Question 3: Are there differences in breastfeeding knowledge between the experimental group, who participate in the simulation role-play and the control group, who watch an educational breastfeeding video? An independent samples t -test was conducted to compare mean posttest scores to determine if there were differences in breastfeeding knowledge between the experimental group, who role-played, and the control group, who viewed the educational breastfeeding video. The null hypothesis for research question 3 was: there is no statistically significant difference in breastfeeding knowledge between the experimental group, who role-played, and the control group, who viewed the educational breastfeeding video. The independent samples t -test results revealed that there was not sufficient evidence to indicate a difference between the mean posttest knowledge scores of the experimental group ($M = 4.07$, $SD = 0.52$) and the mean posttest knowledge scores of the control group ($M = 4.20$, $SD = 0.56$), t

(111) = 1.26, $p = .212$, $\alpha = .05$. There were no significant differences found in breastfeeding knowledge between the experimental and control groups; thus, failure to reject the null hypothesis was supported at the .05 level of significance. The results are displayed in Table 8.

Table 8 *Independent Samples T-Test Results for Breastfeeding Knowledge between Experimental and Control Groups*

| Group | <i>N</i> | <i>M</i> | <i>SD</i> | <i>t</i> | <i>p</i> |
|--------------|----------|----------|-----------|----------|----------|
| Experimental | 56 | 4.07 | 0.52 | 1.26 | .212* |
| Control | 57 | 4.20 | 0.56 | | |

* $p > .05$

Research Question 4: Are there differences in attitudes toward breastfeeding between the experimental group, who participate in the simulation role-play and control group, who watch an educational breastfeeding video? An independent samples *t*-test was conducted to compare mean posttest scores to determine if there were differences in attitudes toward breastfeeding between the experimental group, who role-played, and the control group, who viewed the educational breastfeeding video. The null hypothesis for research question 4 was: there is no statistically significant difference in attitudes toward breastfeeding between the experimental group, who role-played, and the control group, who viewed the educational breastfeeding video. The independent samples *t*-test results revealed that there was not sufficient evidence to indicate a difference between the mean posttest attitude scores of the experimental group ($M = 3.80$, $SD = 0.41$) and the mean posttest attitude scores of the control group ($M = 3.91$, $SD = 0.46$), $t(111) = 1.40$, $p = .165$, $\alpha = .05$. There were no significant differences in attitudes toward breastfeeding between the experimental and control groups; thus failure to reject the null hypothesis was supported. The results are displayed in Table 9.

Table 9 *Independent Samples T-Test Results for Attitudes toward Breastfeeding between Experimental and Control Groups*

| Group | <i>N</i> | <i>M</i> | <i>SD</i> | <i>t</i> | <i>p</i> |
|--------------|----------|----------|-----------|----------|----------|
| Experimental | 56 | 3.80 | 0.41 | 1.40 | .165* |
| Control | 57 | 3.91 | 0.46 | | |

* $p > .05$

Summary

Data were collected and analyzed to determine if an evidence-based educational intervention would have an effect on baccalaureate nursing students' knowledge and attitude in regard to breastfeeding support provided for mothers. An analysis was conducted on pretest data using the independent samples *t*-test, which determined similarities between the groups prior to the evidence-based educational interventions. Pretest and posttest scores were analyzed and paired samples *t*- tests revealed statistically significant evidence to indicate that students' breastfeeding knowledge and attitudes toward breastfeeding improved. However, independent samples *t*- tests revealed there was not sufficient evidence to indicate a difference between breastfeeding knowledge and attitudes toward breastfeeding between the experimental and control groups.

CHAPTER 5

DISCUSSION

Breastfeeding provides many benefits for both mother and baby, and having support and encouragement from healthcare providers is crucial to breastfeeding success (AAP, 2012; AWHONN, 2012). Although recent reports show that breastfeeding rates have improved over the last decade, breastfeeding rates in the United States still remain below the levels recommended by the Centers for Disease Control (2013). Fortunately, there are a number of areas for focus to improve breastfeeding rates, including the educational preparation of those who provide support to breastfeeding mothers, such as nursing students. However, researchers reported that nursing students are inadequately prepared to provide the breastfeeding support and encouragement that mothers need (Ahmed et al., 2011; Bozette & Posner, 2012; Spatz & Pugh, 2007). Nursing students need a thorough evidence-based breastfeeding education foundation to provide adequate breastfeeding support and encouragement to mothers.

The purpose of this study was to determine if an evidence-based educational intervention would have an effect on baccalaureate nursing students' knowledge and attitude in regard to breastfeeding support provided for mothers. A pretest/posttest design with a comparison group was selected as the research methodology and the theory of reasoned action by Ajzen and Fishbein (1975) was used as the theoretical framework. The responses to the items on the Australian Breastfeeding Knowledge and Attitude Questionnaire (ABKAQ) were used to determine nursing students' breastfeeding knowledge and attitudes toward breastfeeding. A paired samples *t*-test and independent samples *t*-test were used for data analysis at the .05 level

of significance. In this chapter, a discussion of research findings, implications, limitations, recommendations for future studies, and conclusions are presented.

Research Findings

There were no differences between the experimental and control groups prior to the evidence-based educational interventions in regard to breastfeeding knowledge and attitudes toward breastfeeding. Therefore, the study outcomes were not influenced by differences in breastfeeding knowledge and attitudes toward breastfeeding between experimental and control groups. Thus, failure to reject the null hypotheses was supported. There was statistically significant evidence at the .05 level of significance to indicate that the evidence-based educational intervention improved the students' breastfeeding knowledge, as well as the students' attitudes toward breastfeeding. Thus, rejection of the null hypotheses was supported. Data analysis confirmed what the researcher anticipated: no differences between the experimental and control groups, and an improvement in breastfeeding knowledge and attitudes toward breastfeeding by the students.

Demographics. Brodribb et al. (2008) reported that personal breastfeeding experience may be a main source of breastfeeding knowledge and skill and is related to increased knowledge, attitudes, and confidence among healthcare providers. Although personal experience does not guarantee better knowledge and attitudes, there is a relationship between the length of experience and increased breastfeeding knowledge, attitudes, and confidence. Several students who participated in this research study reported some type of personal breastfeeding experience. The experience ranged from working in a setting where they took care of breastfeeding mothers to personally breastfeeding an infant. Each of these experiences has the potential to impact breastfeeding knowledge and attitudes toward breastfeeding. For example, licensure as a

Licensed Practical Nurse (LPN) or Licensed Vocational Nurse (LVN) has the potential to impact breastfeeding knowledge and attitudes toward breastfeeding because of course preparation for these roles. Doula or lactation consultant certifications can impact breastfeeding knowledge and attitudes toward breastfeeding because of the direct contact with breastfeeding mothers. The impact of these prior breastfeeding experiences on the study outcomes was insignificant as evidenced by the lack of differences between the experimental and control groups.

Theory of Reasoned Action. Bernaix et al. (2010) and Khoury et al. (2002) both reported that an increase in breastfeeding knowledge has a positive impact on attitudes toward breastfeeding; thus increasing the odds that a student will provide breastfeeding support. Because the evidence-based educational intervention improved the students' breastfeeding knowledge and attitudes toward breastfeeding, the theory of reasoned action was an appropriate theory to frame this study. With the theory of reasoned action, a person's attitudes and beliefs about a particular behavior are developed based on prior knowledge and experience relative to the behavior and their social pressures (subjective norms) to perform or not perform the behavior (Ajzen & Fishbein, 1980; Bernaix et al., 2010). Based on this theory, a nursing student's attitude and experience regarding breastfeeding will affect how likely it is that he or she will provide breastfeeding support and encouragement to mothers. For students who already had prior breastfeeding experience, the evidence-based educational interventions reinforced or clarified information already known. Additionally, the evidence-based educational interventions provided the students without prior breastfeeding experience with information and skills needed to provide support to mothers. The results of this study support the relationship presented in this theory as evidenced by the improvement of the students' breastfeeding knowledge and attitudes toward breastfeeding after participation in the educational interventions. The evidence-based educational

interventions increased the students' knowledge and attitudes toward breastfeeding; therefore, students who participated in this research study are more likely to provide breastfeeding support and encouragement to mothers during clinical experiences and professional practice.

Based on the information reported by Brodribb et al. (2008), Bernaix et al. (2010), and Khoury et al. (2002) students who already had prior breastfeeding experience may have already had high breastfeeding knowledge and positive attitudes toward breastfeeding. However, because the students in this study with prior breastfeeding experience were randomly assigned to the experimental and control groups, it cannot be determined from the results of this study whether the students with prior breastfeeding knowledge influenced the overall study results. The improvement may have come from prior breastfeeding knowledge or the effect of the educational interventions. Additionally, because the students were randomly assigned to experimental or control groups, gender, age, nor ethnicity impacted study results.

Breastfeeding Knowledge and Attitudes toward Breastfeeding. There was statistically significant evidence at the .05 level to indicate an improvement in the nursing students' breastfeeding knowledge and attitudes toward breastfeeding. Therefore, the researcher rejected the null hypotheses based on the statistical analyses for research question one, in regard to breastfeeding knowledge, and for research question two, in regard to attitudes toward breastfeeding.

The results of this study in regard to the improvement in breastfeeding knowledge and attitudes toward breastfeeding in baccalaureate nursing students were consistent with previous results reported in the literature. Bozette and Posner (2012) reported an increase in baccalaureate nursing students' breastfeeding knowledge after an evidence-based lecture with audiovisual components (PowerPoint, video, and photographs) and handouts. Dodgson and Tarrant (2007)

also reported an increase in baccalaureate nursing students' breastfeeding knowledge and beliefs after breastfeeding education that included 10 hours of didactic instruction followed by an eight week perinatal clinical rotation for the intervention group while the control group did not receive the instruction. Spear (2006) reported an increase in baccalaureate nursing students' breastfeeding knowledge after completion of classroom (breastfeeding lecture) and clinical rotation experiences. Additionally, Radcliffe and Payne (2011) reported an increase in breastfeeding knowledge, attitudes, and beliefs among dietitian students after a curriculum change that provided students with breastfeeding information that was scaffolded throughout the three-year curriculum.

This researcher, as well as the researchers in the four studies mentioned above, utilized more than a lecture approach to teach breastfeeding information, which had an impact on student breastfeeding knowledge and attitudes toward breastfeeding. According to Skiba and Barton (2006) the lecture-only approach is not effective in providing students with the meaningful experiences needed to promote learning. Thus, integrating interactive teaching strategies helped promote active and engaging learning experiences.

Based on the results of this research study and the results of the aforementioned research studies, the type of interactive breastfeeding educational intervention was not significant. The fact that students participated in an interactive (more than lecture) breastfeeding educational intervention was beneficial in improving breastfeeding knowledge. Students benefitted because of the knowledge gained and the positive effect on attitudes toward breastfeeding.

In contrast, the results of this study were inconsistent with results reported in the literature regarding medical education. Haughwout et al., (2000) reported no difference in baseline knowledge and performance scores in family medicine residents after participation in a

breastfeeding educational intervention that consisted of a 4.5 hour interactive, problem-based workshop. Residents attended a breastfeeding lecture facilitated by physicians followed by an interaction with an SP, facilitated by lactation consultants.

Differences between Groups in Regard to Breastfeeding Knowledge and Attitudes toward Breastfeeding. There were no significant differences between the experimental group, who participated in the simulation role-play and the control group, who watched the educational breastfeeding video in regard to breastfeeding knowledge and attitudes toward breastfeeding. Thus, failure to reject the null hypotheses for research questions three and four were supported.

The results of this study in regard to reporting no difference in breastfeeding knowledge and attitudes toward breastfeeding between the experimental and control groups were consistent with previous results reported in the literature. Becker et al. (2006) conducted a pilot study with nursing students to compare the use of SPs with the usual method of instruction. Similar to this study, students completed a pretest and posttest prior to and after an educational intervention. The researchers reported no significant difference between the treatment and control groups on pretest and posttest scores. Lin et al. (2013) conducted a randomized control study using a two-group design of APN graduate students to examine the effectiveness of using SPs with SP feedback and group discussion to teach IPCS in graduate nursing education. Similar to this study, the students completed a pretest and posttest prior to and after the intervention. The researchers reported no difference in IPCS between the experimental and control groups.

In contrast, Yoo and Yoo (2003) conducted a quasi-experimental study using a nonequivalent control group, posttest design with sophomore level nursing students to evaluate the effects of two teaching methods on nursing student's clinical competence. Although the research design differed from the research design employed in this study, researchers reported

that students in the experimental group, who participated in an SP encounter, had significantly higher scores than students in the control group in terms of clinical judgment, clinical skill performance, and communication skills. The researchers also reported that students who participated in the SP interaction more accurately identified needs of the patient, which helped to improve clinical judgment. Further, communicating with the patient increased the students' self-confidence (Yoo & Yoo, 2003). Although no differences were reported between the experimental and control groups in two of the three research studies mentioned above, students still benefitted from the interventions employed in this study, as increased breastfeeding knowledge and attitudes toward breastfeeding were achieved.

Because the intervention in the experimental group was a more interactive approach to breastfeeding education (simulation role-play) than the passive viewing of the educational breastfeeding video by the control group, the researcher anticipated higher posttest scores from the students in the experimental group in this study. Higher scores were anticipated from the students in the experimental group because of the benefits that an SP interaction offered. One specific benefit of SP interactions is the ability to experience all aspects of communication. Specifically, students experienced verbal and nonverbal cues, including the observation of voice inflections, body language, and facial expressions (Bolstad et al., 2012). Additionally, the SP interaction provided a means for students to use breastfeeding skills and information learned in the classroom. Students in the control group who watched the breastfeeding video did not experience these skills. Although students in the control group who watched the breastfeeding video did not experience the communication skills that students in the experimental group experienced, overall posttests scores were higher among the students in the control group. Even though communication skills and technique were a benefit for the students in the experimental

group, students in the control groups may have had higher breastfeeding knowledge and attitude posttest scores because the content in the educational breastfeeding video reinforced breastfeeding information students learned or already knew.

Implications

Three specific implications were identified based on the results of this study. The first implication is for nursing education. Because the lack of breastfeeding education has been identified as a major barrier for nursing students in providing breastfeeding support, the integration of breastfeeding educational interventions for healthcare providers is imperative because patients consider healthcare providers the source of information and guidance on breastfeeding (DHHS, 2001). However, researchers indicate that course loads, time constraints, and overburdened curricula have been reported by nurse educators as the reasons for the lack of breastfeeding education in nursing curricula (Bozette & Posner, 2012; Spatz, 2005, Spatz & Pugh, 2007). Despite these challenges, nurse educators must be creative in the curricular integration of breastfeeding educational interventions and find ways to address knowledge gaps. Based on the results of this study, effective breastfeeding educational interventions should assist students in having the meaningful learning experiences needed to provide effective breastfeeding support and encouragement. To provide meaningful learning experiences, nurse educators can incorporate the viewing of an educational breastfeeding video in the course for students to watch at home or use breastfeeding role-play scenarios. If the institution does not have an SP program, students can practice role-play scenarios with each other in the classroom or skills lab to enhance communication skills and improve breastfeeding knowledge. Nurse educators can use YouTube videos from reputable agencies, such as the CDC or DHHS that contain breastfeeding information, and provide additional breastfeeding information in the form of handouts,

pamphlets, or booklets. Additionally, nurse educators can invite guest lecturers to speak to students about breastfeeding, such as lactation consultants, mother/baby nurses, or representatives from breastfeeding support groups.

Even if nurse educators cannot find time to implement the educational interventions that were outlined in this study during the OB course, incorporating a comprehensive discussion on breastfeeding during clinical time is better than none at all. For example, breastfeeding information can be discussed during clinical pre- or post-conference. According to Williams, Young, Kearney, and Keough (2013) including brief, focused breastfeeding education for nursing students can have a major impact on a student's ability to provide breastfeeding support.

Because of the many benefits of breastfeeding, Spatz and Pugh (2007) suggest breastfeeding content be incorporated throughout the nursing curricula. Specifically, the authors suggest breastfeeding content be incorporated into other courses besides the OB course. For example, breastfeeding content can be introduced in foundational courses, such as a Nutrition course. In this course, breastfeeding can be presented as a natural process and as the standard for infant nutrition. Content such as the nutritional components of breastmilk, nutritional benefits of breastfeeding, as well as the differences in nutritional components of breastmilk and formula can also be discussed. In a Pharmacology course, information regarding medications and their effect on breastfeeding is important to discuss, and in an Anatomy and Physiology course, breast anatomy and breast changes during pregnancy and lactation can be discussed. Additionally, breastfeeding content can be discussed in the Pediatric Nursing course because breastfeeding is the standard nutrition for infants in regard to growth and development (Spatz & Pugh, 2007). Incorporating breastfeeding education throughout the nursing curriculum provides a means for

students to obtain important breastfeeding information that is often minimized or omitted because of time constraints in the OB course.

The second implication identified based on the results of this study is for nursing practice. Because nurses provide the majority of care to patients, incorporating breastfeeding education in nursing curricular will prepare professional nurses with information needed to provide support and encouragement to breastfeeding mothers in professional practice. Bozette and Posner (2012) report that the first six weeks postpartum can be challenging for breastfeeding mothers, therefore the influence of healthcare providers is crucial to a mother's feeding choices. Mothers need breastfeeding support and encouragement in the immediate postpartum period, as well as other times thereafter. Widespread breastfeeding support and encouragement teaching is needed because mothers can report to any area of the hospital after delivery, and it is imperative that nurses provide support and encouragement. Additionally, the public cannot be expected to be well informed and supportive of breastfeeding if nurses are not educated and well informed (Bozette & Posner, 2012).

Healthcare employers must ensure that nursing staff, particularly those in the obstetrical area, are provided with breastfeeding education on a continuous basis. Interactive breastfeeding educational strategies, such as the interventions used in this study can be incorporated into annual competency evaluations, for example. Nurses can watch an educational breastfeeding video that can be shown to nurses as a group or perhaps uploaded to the institution's online learning system. After completion of the video, nurses can complete a posttest to help reinforce breastfeeding content viewed in the video. Breastfeeding role-play scenarios can also be incorporated into annual competencies. The role-play scenarios would help enhance nurses' communication skills, and improve breastfeeding knowledge and attitudes. Arming nurses with

current, evidence-based breastfeeding information, along with specific strategies for interacting with mothers who choose to breastfeed, may provide nurses with the knowledge, confidence and motivation to provide encouragement and support to mothers (Bernaix et al., 2008).

Because nurses provide mothers with information that impacts breastfeeding choices and success, other factors warrant consideration, such as the medicalization of breastfeeding. Medicalize is defined as “to view or to treat as a medical concern, problem, or disorder” (Merriam-Webster online, n.d.). Most mothers view nurses as the experts on healthcare topics, such as breastfeeding, and will make infant feeding choices based on the “expert” advice of nurses (or other healthcare providers). However, mothers may feel obligated to breastfeed especially if breastfeeding is presented only in regard to the medical benefits because of the superiority of breastfeeding over formula feeding, along with the consequences that could occur if a mother does not breastfeed. If mothers feel obligated to breastfeed based on this presentation of breastfeeding, then breastfeeding would no longer be considered a choice, but rather a medical necessity. If the mother was unsuccessful with breastfeeding and had to bottle feed her baby, then the mother may feel she was endangering her child (Mahon-Daly & Andrews, 2002). Therefore, nurses must be mindful of how breastfeeding information is presented, so mothers are able to make informed infant feeding decisions given that breastfeeding is currently still a choice. Additionally, nurse educators must be cognizant of what students are taught about breastfeeding. Although breastfeeding is recommended as the preferred feeding method for infants, mothers still have the choice to do so.

The third implication that was identified based on the results of this study is for the nursing profession as a whole. One of the many roles of the nurse is being a patient educator. However, in order for nurses to be successful in this role, nurses should have a basic

understanding of what the patient educator role entails, as well as have a thorough evidence-based educational breastfeeding foundation. The patient educator role is an important one because the nurse assists patients with making healthcare decisions, thereby expanding the patients' ability to provide effective self-care (Syx, 2008).

The evidence-based educational foundation will prepare nurses to identify a mother's knowledge gaps regarding any aspect of breastfeeding and to educate mothers and their families with information and skills needed to initiate and maintain lactation. The breastfeeding educational foundation can be maintained by attending continuing education courses, conferences, and workshops in an effort to stay abreast of current evidence-based breastfeeding information that can be used to educate mothers and their families. Continuing education courses provide a means for nurses to receive the most current information and trends, and conferences and workshops provide a means for the nurse to be educated. Nurses can learn breastfeeding information from other healthcare providers, as well as observe or participate in breastfeeding role-play scenarios or case studies. Nurses can also network with other healthcare providers or vendors who have information or products that the nurse can use for patient education. Another way that nurses can keep abreast of current evidence-based breastfeeding information is by reading peer-reviewed journals, as they contain updated evidence-based information that is also useful for patient education.

Limitations

This researcher identified six specific limitations of this study. First, the researcher evaluated the breastfeeding knowledge and attitudes of a single sample of baccalaureate nursing students. The students were from one geographical location, and represented one specific university setting. Therefore, the researcher could not conclude that the results of this study are a

representation of all nursing students. A larger sample from more than one university may provide stronger evidence of the effects of the breastfeeding educational intervention on nursing students' knowledge and attitude. Although future studies should include larger samples of students in different geographical locations, this study did provide nurse educators with important information on means to enhance breastfeeding education in their curriculums. The second limitation was the inability to control or account for extraneous variables, such as differences in the personalities of the students and their receptiveness to the idea of breastfeeding. Further, differences in the innate personalities of the SPs could have influenced perceptions of the interventions even though the SPs were trained for consistency and content. Third, although SP training occurred to control for consistency and content of the role-play scenario, some simulation role-play encounters were slightly longer or shorter based on the interaction of the students and SPs. Fourth, because there was no prior research on the use of SPs as a strategy for breastfeeding education that was found by the researcher, there were no findings with which the researcher could compare these study findings or methodology. Fifth, the data that was evaluated for the purposes of this research study provided information to determine students' breastfeeding knowledge and attitude. An analysis of the comments that the students shared during the post intervention debrief would have provided valuable information, such as preparedness to provide breastfeeding support and specific breastfeeding information learned. Sixth, the researcher only evaluated the students' breastfeeding knowledge and attitudes toward breastfeeding, and did not evaluate hands-on experience. Because no differences were found between the experimental and control groups, an evaluation of hands-on experience could have made a difference on study outcomes. The evaluation of hands-on experience would have been

useful in determining which intervention better prepared the student for providing breastfeeding support in clinicals and professional practice.

Recommendations for Future Studies

Based on the results of this study, the following recommendations for future studies were made:

1. Future studies should not be limited to one sample of students from one geographic location. Therefore, replication of this study in other settings will provide data to determine the true effect that this evidence-based educational intervention has on baccalaureate nursing students' breastfeeding knowledge and attitudes toward breastfeeding.
2. Replication of this study should be conducted to include qualitative data from the students during the post intervention debrief. Students provided comments in the debrief that described specific thoughts and feelings about the interventions, and the evaluation of the comments from the students would be useful in determining which intervention was more beneficial in regard to confidence, communication skills, and preparation in providing breastfeeding support. The findings from this study did not provide such information.
3. Further research is needed to determine if the educational interventions made a difference on whether students later provided breastfeeding support in regard to the OB clinical setting or in professional practice. For example, a time series research study could be conducted in which students complete a breastfeeding knowledge survey prior to and after participating in the breastfeeding educational interventions. Students could complete the survey again prior to their OB clinical rotations or upon

entering professional practice. It would be beneficial to target those nurses who work in settings where breastfeeding mothers are because it is unknown as to when nurses in other settings would have contact with a breastfeeding mother. The evaluation of whether or not the educational interventions made a difference in the students' ability to provide breastfeeding support in the OB clinical setting or professional practice will provide relevance to the importance of breastfeeding education and its impact on breastfeeding outcomes.

Conclusions

The results of this study revealed that the evidence-based breastfeeding educational interventions had an effect on improving baccalaureate nursing students' breastfeeding knowledge and attitudes toward breastfeeding. Additionally, the results revealed that there were no differences in the breastfeeding knowledge and attitudes toward breastfeeding between the experimental and control groups; however the control group experienced more increased change in breastfeeding knowledge and attitudes toward breastfeeding than the experimental group. Although the results of this study revealed that there were no differences in breastfeeding knowledge and attitudes toward breastfeeding between the experimental and control groups, providing students with the evidence-based educational interventions was beneficial because increased breastfeeding knowledge and attitudes toward breastfeeding were achieved. A thorough evidence-based breastfeeding educational foundation is important, as it provides students with the knowledge and skill needed to provide breastfeeding support. Because researchers have reported benefits of breastfeeding education, nurse educators are encouraged to strategically incorporate breastfeeding information into current curricular in an effort to improve overall breastfeeding outcomes.

REFERENCES

- Abrahams, S., & Labbok, M. (2009). Exploring the impact of the baby-friendly hospital initiative on trends in exclusive breastfeeding. *International Breastfeeding Journal*, 4(1), 1-6.
- Academy of Breastfeeding Medicine (2008). Position on breastfeeding. *Breastfeeding Medicine*, 3(4), 267-270. doi: 10.1089/bfm.2008.9988
- Academy of Breastfeeding Medicine (2010). ABM Protocol #7: Model breastfeeding policy. *Breastfeeding Medicine*, 5(4), 173-177. doi: 10.1089/bfm.2010.9996
- Academy of Breastfeeding Medicine (2013). *About ABM*. Retrieved from <http://www.bfmed.org/About/Default.aspx>
- Ahmed, A., Bantz, D., & Richardson, C. (2011). Breastfeeding knowledge of university nursing students. *Maternal Child Nursing* 36(6), 361-367. doi:10.1097/NMC.0b013e31822de549
- Ahmed, A., & El Gundy, S. (2011). Breastfeeding knowledge and attitudes among Egyptian Baccalaureate students. *International Nursing Review*, 58(3), 372-378. doi:10.1111/j.1466-7657.2011.00885.x
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- American Academy of Pediatrics (n.d.). *Breastfeeding Residency Curriculum*. Retrieved from <http://www2.aap.org/breastfeeding/curriculum/index.html>
- American Academy of Pediatrics (2012). Breastfeeding and the use of human milk. *Pediatrics*, 129(3), e827-e841. doi: 10.1542/peds.2011-3552
- American Academy of Pediatrics (2013). *About the AAP*. Retrieved from <http://www.aap.org/en-us/about-the-aap/Pages/About-the-AAP.aspx>
- Anderson, M., Holmes, T., LeFlore, J., Nelson, K., & Jenkins, T. (2010). Standardized patients in educating student nurses: One school's experience. *Clinical Simulation in Nursing*, 6(2), e61-e66. doi: 10.1016/j.ecns.2009.08.001
- Association of Women's Health, Obstetric and Neonatal Nurses (2013). *Breastfeeding*. Retrieved from https://www.awhonn.org/awhonn/content.do?name=07_PressRoom/07_PositionStatements
- Association of Standardized Patients (2013). *Terminology Standards*. Retrieved from <http://www.aspeducators.org/node/48>

- Becker, K., Rose, L., Berg, J., Park, H., & Shatzer, J. (2006). The teaching effectiveness of standardized patients. *Journal of Nursing Education*, 45(4), 103-111.
- Bernaix, L. (2000). Nurses' attitudes, subjective norms, and behavioral intentions toward support of breastfeeding mothers. *Journal of Human Lactation*, 16(3), 201-209. doi: 10.1177/089033440001600304
- Bernaix, L., Beaman, M., Schmidt, C., Harris, J., & Miller, L. (2010). Success of an educational intervention on maternal/newborn nurses' breastfeeding knowledge and attitudes. *Journal of Gynecologic and Neonatal Nursing*, 39(6), 658-666. doi: 10.1111/j.1552-6909.2010.01184.x
- Bernaix, L., Schmidt, M., Arrizola, M., Iovinelli, D., & Medina-Poelinez, C. (2008). Success of a lactation education program on NICU nurses' knowledge and attitudes. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 37(4), 436-445. doi:10.1111/j.1552-6909.2008.00261.x
- Bolstad, A., Yu, X., Shen, J., Covelli, M., & Torpey, M. (2012). Reliability of standardized patients used in a communication study on international nurses in the United States of America. *Nursing and Health Sciences*, 14(1), 67-73. doi: 10.1111/j.1442-2018.2011.00667.x
- Bornais, J., Raiger, J., Krahn, R., & El-Masri, M. (2012). Evaluating undergraduate nursing students' learning using standardized patients. *Journal of Professional Nursing*, 28(5), 291-296. doi: 10.1016/j.profnurs.2012.02.001
- Bosek, M., Li, S., & Hicks, F. (2007). Working with standardized patients: A primer. *International Journal of Nursing Education Scholarship*, 4(1), 1-12.
- Bosse, H., Schultz, J., Nickel, M., Lutz, T., Moltner, A., Junger, J., Huwendiek, S., & Nikendei, C. (2012). The effect of using standardized patients or peer role play on ratings of undergraduate communication training: A randomized controlled trial. *Patient Education and Counseling* 87(3), 300-306. doi: 10.1016/j.pec.2011.10.007
- Bozzette, M., & Posner, T. (2012). Increasing student nurses' knowledge of breastfeeding in baccalaureate education. *Nurse Education in Practice*, Advance Online Publication. doi: 10.1016/j.nepr.2012.08.013
- Brodribb, W. (2011). Barriers to translating evidence-based breastfeeding information into practice. *Acta Paediatrica*, 100(4), 486-490. doi: 10.1111/j.1651-2227.2010.02108.x
- Brodribb, W., Fallon, A., Jackson, C., & Hegney, D. (2008). Breastfeeding and Australian GP registrars: Their knowledge and attitudes. *Journal of Human Lactation*, 24(4), 422-430. doi: 10.1177/0890334408323547

- Centers for Disease Control (2013). *Breastfeeding report card*. Retrieved from <http://www.cdc.gov/breastfeeding/pdf/2014breastfeedingreportcard.pdf>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159. doi: 10.1037/0033-2909.112.1.155
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). New York, NY: Routledge.
- Creswell, J. (2009). *Research designs: Qualitative, quantitative, and mixed methods, approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Cummings, M. (2008). Best practice standards for breastfeeding education: A baby friendly approach. *Nurse Education Today*, 28(8), 895-898. doi: 10.1016/j.nedt.2008.10.001
- De la Mora, A., Russell, D., Dungy, C., Losch, M., & Dusdieker, L. (1999). The Iowa infant feeding attitude scale: Analysis of reliability and validity. *Journal of Applied Social Psychology*, 29(11), 2362-2380. doi:10.1111/j.1559-1816.1999.tb00115.x
- Dodgson, J., & Tarrant, M. (2007). Outcomes of a breastfeeding educational intervention for baccalaureate nursing students. *Nurse Education Today*, 27(8), 856-867. doi: 10.1016/j.nedt.2006.12.001
- DuHamel, M., Hirnle, C., Karvonen, C., Sayre, C., Wyant, S., Smith, N., Keener, S., Barrett, S., Whitney, J. (2011). Enhancing medical-surgical nursing practice: Using practice tests and clinical examples to promote active learning and program evaluation. *Journal of Continuing Education in Nursing* 42(10), 457-462.
- Faul, F., Erdfelder, E., Lang, A., & Buchner, A. (2013). G*Power3 (Version 3.1.7) [Software]. Retrieved from <http://www.gpower.hhu.de/>
- Ferguson, L., & Day, R. (2005). Evidence-based nursing education: Myth or reality? *Journal of Nursing Education*, 44(3), 107-115.
- Finotto, S., Carpanoni, M., Turrone, E., Camellini, R., Mecugni, D. (2013). Teaching evidence-based practice: Developing a curriculum model to foster evidence-based practice in undergraduate student nurses. *Nurse Education in Practice*, 13(5), 459-465. doi: 10.1016/j.nepr.2013.03.021
- Fishbein, M. (2008). A reasoned action approach to health promotion. *Medical Decision Making*, 28(6), 834-844. doi: 10.1177/0272989X08326092
- Freed, G., Clark, S., Harris, B., & Lowdermilk, D. (1996). Methods and outcomes of breastfeeding instruction for nursing students. *Journal of Human Lactation* 12(2), 105-110. doi: 10.1177/089033449601200212

- Godfrey, J., & Lawrence, R. (2010). Toward optimal health: The maternal benefits of breastfeeding. *Journal of Women's Health, 19*(9), 1597-1602. doi: 10.1089/jwh.2010.2290
- Grassley, J. (2010). Adolescent mothers' breastfeeding social support needs. *Journal of Obstetric, Gynecologic and Neonatal Nursing, 39*(6), 713-722. doi: 10.1111/j.1552-6909.2010.01181.x
- Haughwout, J., Eglash, A., Plane, M., Mundt, M., & Fleming, M. (2000). Improving residents' breastfeeding assessment skills: A problem-based workshop. *Family Practice, 17*(6), 547-553. doi: 10.1093/fampra/17.6.547
- Hayden, J., Smiley, R., Alexander, M., Kardong-Edgren, S., Jeffries, P. (2014). The NCSBN national simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 5*(2), S1-S64.
- Howett, M., Spangler, A., & Cannon, R. (2006). Designing a university-based lactation course. *Journal of Human Lactation, 22*(1), 104-107. doi: 10.1177/0890334405283668
- IBM Corp. Released 2012. IBM SPSS Statistics for Windows (Version 20.0) [Computer software]. Armonk, NY: IBM Corp.
- International Association for Clinical Simulation and Learning (2013). Standards for best practice: Simulation. *Clinical Simulation in Nursing, 9*(6), S1-S32.
- Jalali-Nia, S., Salsali, M., Dehghan-Nayeri, N., & Ebadi, A. (2011). Effect of evidence-based education on Iranian nursing students' knowledge and attitude. *Nursing and Health Science, 13*(2), 221-227. doi: 10.1111/j.1442-2018.2011.00603.x
- Kennell, J., & McGrath, S. (2005). Starting the process of mother-infant bonding. *Acta Paediatrica, 94*(6), 775-777. doi: 10.1080/08035250510035634
- Khan, M., & Akram, D. (2013). Effects of baby-friendly hospital initiative on breastfeeding practices in Sindh. *Journal of Pakistan Medical Association, 63*(6), 756-759.
- Khoury, A., Hinton, A., Mitra, A., Carothers, C., & Foretich, C. (2002). Improving breastfeeding knowledge, attitudes, and practices of WIC clinic staff. *Public Health Reports, 117*(5), 453-462.
- Kiluk, J., Dessureault, S., & Quinn, G. (2012). Teaching medical students how to break bad news with standardized patients. *Journal of Cancer Education, 27*(2), 277-280. doi: 10.1007/s13187-012-0312-9
- Knowledge (n.d). In *Merriam-Webster online*. Retrieved from <http://www.merriam-webster.com/dictionary/knowledge>

- Kornides, M., & Kitsantas, P. (2013). Evaluation of breastfeeding promotion, support, and knowledge of benefits on breastfeeding outcomes. *Journal of Child Health Care, 17*(3), 264-273. doi: 10.1177/1367493512461460
- Liabsuetrakul, T., Sirirak, T., Boonyapipat, S., & Pornsawat, P. (2013). Effect of continuous education for evidence-based medicine practice on knowledge, attitudes, and skills of medical students. *Journal of Evaluation in Clinical Practice, 19*(4), 607-611. doi: 10.1111/j.1365-2753.2012.01828.x
- Mahon-Daly, P., & Andrews, G. (2002). Liminality and breastfeeding: Women negotiating space and two bodies. *Health and Place, 8*(2), 61-76. doi: 10.1016/S1353-8292(01)00026-0
- McInerney, P., & Suleman, F. (2010). Exploring knowledge, attitudes, and barriers toward the use of evidence-based practice amongst academic health care practitioners in their teaching in a South African university: A pilot study. *Worldviews on Evidence-Based Nursing 7*(2), 90-97. doi: 10.1111/j1741-6787.2009.00180.x
- Medicalize (n.d). In *Merriam-Webster online*. Retrieved from <http://www.merriam-webster.com/dictionary/medicalize>
- Melnyk, B., & Fineout-Overholt, E. (2005). *Evidence-based practice in nursing and healthcare: A guide to best practice*. Philadelphia: Lippincott Williams and Wilkins.
- Murray, E., Ricketts, S., & Dellaport, J. (2007). Hospital practices that increase breastfeeding duration: Results from a population-based study. *Birth, 34*(3), 202-211. doi:10.1111/j.1523-536X.2007.00172.x
- National Council of State Boards of Nursing (2013). *Evidence-based Nursing Education*. Retrieved from <https://www.ncsbn.org/2920.htm>
- National League for Nursing. (2012). *NLN research priorities in nursing education 2012-2015*. Retrieved from <http://www.nln.org/researchgrants/researchpriorities.pdf>
- Ong, S., Chan, W., Shorey, S., Chong, Y., Klainin-Yobas, P., & He, H. (2013). Postnatal experiences and support needs of first-time mothers in Singapore: A descriptive qualitative study. *Midwifery*, in press. Doi: 10.1016/j.midw.2013.09.004
- Philipp, B., McMahon, M., Davies, S., Santos, T., & Jean-Marie, S. (2007). Breastfeeding information in nursing textbooks needs improvement. *Journal of Human Lactation, 23*(4), 345-349. doi: 10.1177/0890334407307576
- Philipp, B., Merewood, A., Gerendas, E., & Bauchner, H. (2004). Breastfeeding information in pediatric textbooks needs improvement. *Journal of Human Lactation, 20*(2), 206-

210. doi: 10.1177/0890334404263921

- Phillips, J. (2005). Strategies for active learning in online continuing education. *Journal of Continuing Education in Nursing, 36*(2), 77-83.
- Phillips, K. (2011). First-time breastfeeding mothers: Perceptions and lived experiences with breastfeeding. *International Journal of Childbirth Education, 26*(3), 17-20.
- Polit, D., & Beck, C. (2008). *Nursing research: Generating and assessing evidence for nursing practice* (8th ed.). Philadelphia: Lippincott Williams and Wilkins.
- Profetto-McGrath, J. (2005). Critical thinking and evidence-based practice. *Journal of Professional Nursing, 21*(6), 364-371. doi: 10.1016/j.profnurs.2005.10.002
- Qualtrics (2014). Provo, Utah. Retrieved from <http://www.qualtrics.com/>
- Radcliffe, B., & Payne, J. (2011). Hearts and minds projects: A breastfeeding curriculum intervention to improve the education outcomes for nutrition and dietetics graduates. *Nutrition and Dietetics, 68*(3), 201-207. doi: 10.1111/j.1747-0080.2011.01534.x
- Renfrew, M., McCormick, F., Wade, A., Quinn, B., & Dowswell, T. (2012). Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database of Systematic Reviews*, Issue 5, Art. No. CD001141. doi: 10.1002/14651858.CD001141.pub4
- Rudestam, K., & Newton, R. (2007). *Surviving your dissertation: A comprehensive guide to content and process* (3rd ed.). Los Angeles: Sage.
- Rush Mother's Milk Club (n.d.). *Mission*. Retrieved from <http://www.rushmothersmilkclub.com/?p=Mission>
- Rush University Medical Center (Producer). (2012). *In our hands* [DVD]. Available from http://shop.rush.ihost.net/productinfo_v3.aspx?productid=INOURHANDSDVD
- Rycroft-Malone, J., Bucknall, T., & Malnyk, B. (2004). Editorial. *Worldviews on Evidence-Based Nursing, 1*(1), 1-2.
- Shealy, K., Li, R., Benton-Davis, S., & Grummer-Strawn, L. (2005). The CDC guide to breastfeeding interventions. Retrieved from http://www.cdc.gov/breastfeeding/pdf/breastfeeding_interventions.pdf
- Silfverdal, S. (2011). Important to overcome barriers in translating evidence based breast-feeding information into practice. *Acta Paediatrica, 100*(4), 482-483. doi; 10.1111/j.1651-2227.2011.02194.x
- Skiba, D., & Barton, A. (2006). Adapting your teaching to accommodate the net generation of learners. *The Online Journal of Issues in Nursing, 11*(2).

doi: 10.3912/OJIN.Vol11No02Man04

- Spatz, D., & Pugh, L. (2007). The integration of the use of human milk and breastfeeding in baccalaureate nursing curricula. *Nursing Outlook*, 55(5), 257-263.
doi: 10.1016/j.outlook.2007.07.003
- Spear, H. (2006). Baccalaureate nursing student's breastfeeding knowledge: A descriptive survey. *Nurse Education Today*, 26(4), 332-337. doi: 10.1016/j.nedt.2005.10.014
- Syx, R. (2008). The practice of patient education: The theoretical perspective. *Orthopaedic Nursing*, 27(1), 50-54.
- United States Department of Health and Human Services (2002). *Recommendations on confidentiality and research data protections*. Retrieved from <http://www.hhs.gov/ohrp/archive/nhrpac/documents/nhrpac14.pdf>
- United States Department of Health and Human Services (2011). *The surgeon general's call to action to support breastfeeding*. Retrieved from http://www.floridahealth.gov/chdManatee/Pdf/Surgeon_General's_Call_to_Action_to_Support_Breastfeeding.pdf
- Watkins, A., & Dodgson, J. (2010). Breastfeeding educational interventions for health professionals: A synthesis of intervention studies. *Journal for Specialists in Pediatric Nursing*, 15(3), 223-232. doi: 10.1111/j.1744-6155.2010.00240.x
- Westdahl, C., & Page-Goertz, S. (2006). Promotion of breastfeeding: Beyond the benefits. *International Journal of Childbirth Education*, 21(4), 8-16.
- Whelan, B., McEvoy, S., Eldin, N., & Kearney, J. (2011). What primary health professionals need to promote breastfeeding. *Practice Nursing*, 22(1), 35-39.
- World Health Organization (2013). *About WHO*. Retrieved from <http://www.who.int/about/en/>
- World Health Organization (2013). *The World Health Organization's infant feeding recommendation*. Retrieved from http://www.who.int/nutrition/topics/infantfeeding_recommendation/en/
- Yoo, M., Yoo, I. (2003). The effectiveness of standardized patients as a teaching method for nursing fundamentals. *Journal of Nursing Education*, 42(10), 444-44

APPENDIX A
RECRUITMENT SCRIPT

Recruitment Script

Hello, my name is Anjanetta Davis, and I am a student in the Instructional Leadership for Nurse Educators doctoral program at The University of Alabama under the supervision of Dr. Roy Ann Sherrod. I would like to invite you to participate in my research study entitled “Effects of an Educational Intervention on Baccalaureate Nursing Students’ Knowledge and Attitude in Providing Breastfeeding Support to Mothers”. I want to evaluate what effect an evidenced-based educational strategy will have on baccalaureate nursing student’s knowledge and attitudes regarding breastfeeding. This research will hopefully provide nurse educators with information that can be used to transform breastfeeding education in current curriculums.

You are being asked to participate in this study because you are enrolled in the MCN 348 Childbearing/Child Rearing Nursing course. All students who are enrolled in the MCN 348 Childbearing/Child Rearing Nursing course will participate in the following required course activities. You will complete a breastfeeding knowledge and attitude survey, and demographic survey via Qualtrics© on your computer, then participate in a breastfeeding lecture. You will then be randomly selected to participate in an encounter with a standardized patient in the simulation lab (a woman simulating the role of a breastfeeding mother), or watch a video with healthcare providers interacting with a breastfeeding mother. You will then complete the breastfeeding knowledge and attitude survey again. The entire process should take approximately 2 hours. However, because this is a research study, you may choose not to have your responses to the survey analyzed. There will be no benefit or penalty from the researcher, instructor, or course coordinator for having your survey responses analyzed or not analyzed.

This study has been reviewed and received clearance through the ethics committee at The University of Alabama, as well as the University of South Alabama. Your participation in this

study is voluntary; therefore choosing not to have your survey responses analyzed will have no impact on your grade in the MCN 348 Childbearing/Child Rearing Nursing course. All survey responses that are received will be kept confidential and will be used for research purposes only. There is little to no risk involved with participating in this study. Any risks that you may encounter are similar to those you experience with regular course work in terms of surveys, lectures, and fatigue.

If you are interested in participating in this study, please sign the informed consent and place in the box before leaving the classroom. Please remember to provide your student email address under your signature, which is located on the last page of the informed consent. You may withdraw your consent for the researcher to analyze your survey responses at any time without penalty. You will be contacted via email with the link to the survey, as well as your assigned student ID number.

If you have any questions or concerns about the study right now, please ask them. If you have questions or concerns about the study later on, please feel free to contact me. My information is below:

Anjanetta Davis, MSN, RN, CNL
(The University of Alabama EdD student)
251-490-3781
davis@southalabama.edu.

APPENDIX B
UNIVERSITY OF SOUTH ALABAMA
IRB APPROVAL LETTER



Anjie Davis <adavis.m@gmail.com>

IRBNet Board Action

1 message

SuzAnne Robbins <no-reply@irbnet.org>

Mon, Jan 6, 2014 at 3:38 PM

Reply-To: SuzAnne Robbins <srobbins@southalabama.edu>

To: Anjanetta Davis <adavis.m@gmail.com>

Please note that University of South Alabama Institutional Review Board (IRB) has taken the following action on IRBNet:

Project Title: [552434-1] Effects of an Educational Intervention on Baccalaureate Nursing Students' Knowledge and Attitude in Providing Breastfeeding Support to Mothers
Principal Investigator: Anjanetta Davis

Submission Type: New Project
Date Submitted: January 3, 2014

Action: WITHDRAWN
Effective Date: January 6, 2014
Review Type: Administrative Review

Should you have any questions you may contact SuzAnne Robbins at srobbins@southalabama.edu.

Thank you,
The IRBNet Support Team

www.irbnet.org

APPENDIX C
THE UNIVERSITY OF ALABAMA
IRB APPROVAL LETTER

Office for Research
Institutional Review Board for the
Protection of Human Subjects



February 11, 2014

Anjanetta Davis
Capstone College of Nursing
The University of Alabama
Box 870358

Re: IRB # 14-OR-042, "Effects of an Educational Intervention on
Baccalaureate Nursing Students' Knowledge and Attitude in Providing
Breastfeeding Support to Mothers"

Dear Ms. Davis:

The University of Alabama Institutional Review Board has granted approval
for your proposed research.

Your application has been given expedited approval according to 45 CFR part
46. Approval has been given under expedited review category 7 as outlined
below:

*(7) Research on individual or group characteristics or behavior (including,
but not limited to, research on perception, cognition, motivation, identity,
language, communication, cultural beliefs or practices, and social behavior)
or research employing survey, interview, oral history, focus group, program
evaluation, human factors evaluation, or quality assurance methodologies.*

Your application will expire on February 12, 2015. If your research will
continue beyond this date, please complete the relevant portions of the IRB
Renewal Application. If you wish to modify the application, please complete
the Modification of an Approved Protocol Form. Changes in this study cannot
be initiated without IRB approval, except when necessary to eliminate
apparent immediate hazards to participants. When the study closes, please
complete the Request for Study Closure Form.

Please use reproductions of the IRB approved stamped consent forms to
obtain consent from your participants.

Should you need to submit any further correspondence regarding this
proposal, please include the above application number.

Good luck with your research.

Sincerely,



350 Ross Administration Building
Box 870127
Tuscaloosa, Alabama 35487-0127
(205) 348-5461
fax (205) 348-3189
toll free (877) 870-1665

Carmitato T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer
Office for Research Compliance
The University of Alabama

APPENDIX D

INFORMED CONSENT FOR A NON-MEDICAL STUDY

**University of Alabama
Human Research Protection Program**

Informed Consent for a Non-Medical Study

Effects of an Educational Intervention on Baccalaureate Nursing Students' Knowledge and Attitude in Providing Breastfeeding Support to Mothers

Anjanetta Davis, MSN, RN, CNL, Instructional Leadership for Nurse Educators doctoral student

University of Alabama

You are being asked to take part in a research study. This study is called "Effects of an Educational Intervention on Baccalaureate Nursing Students' Knowledge and Attitude in Providing Breastfeeding Support to Mothers". Mrs. Davis is being supervised by Dr. Roy Ann Sherrod who is a professor at the Capstone College of Nursing at The University of Alabama.

This study is being done to look at what effect an evidence-based educational strategy will have on baccalaureate nursing students' knowledge and attitudes regarding breastfeeding. The results will provide nurse educators with information that can be used to change breastfeeding education in current nursing programs.

You have been asked to be in this study because you are a student in the MCN 348 Childbearing/Child Rearing Nursing course.

Approximately one hundred twenty-eight students will be in this study.

As a student in the MCN 348 Childbearing/Child Rearing Nursing course, you will do the following required activities:

- Complete a breastfeeding knowledge and attitude survey via Qualtrics® on your computer
- Complete a demographic survey
- Participate in a breastfeeding lecture
- Be randomly selected to participate in an encounter with a standardized patient in the simulation lab (a woman simulating the role of a breastfeeding mother), OR watch a video with healthcare providers interacting with a breastfeeding mother
- Complete the breastfeeding knowledge and attitude survey via Qualtrics® on your computer again

However, because this is a research study, you may choose not to have your responses to the survey analyzed.

Total time needed for the activities is approximately 2 hours.

Survey- 10 minutes

Demographic Survey- less than 1 minute

Breastfeeding lecture- 1 hour

Breastfeeding video (Control Group) - 55 minutes

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 2-13-14
EXPIRATION DATE: 2-12-15

Standardized Patient Encounter (Experimental group) - 45 minutes
Survey- 10 minutes

There is no cost to you for participating in this study, nor will you be compensated for being in this study.

There is little to no risk involved with participating in this study. Any risks that you may encounter are similar to those you experience with regular course work in terms of surveys, lectures, and fatigue.

Although there is no direct benefit to you for participating in this study, you may feel good about knowing that you have helped to possibly change breastfeeding education in an effort to improve breastfeeding outcomes.

All survey responses that are received will be kept confidential and will be used for research purposes only. The responses will be accessed through Qualtrics®, and only the researcher and person who is helping with data analysis will have access to the responses. Qualtrics® has confidentiality and security protection and has an encrypted database.

You do not have to answer any item on the survey that makes you feel uncomfortable, and you may withdraw your consent for the researcher to analyze your survey responses at any time without penalty.

Participation in this study is voluntary; therefore you may choose not to have your survey responses analyzed. Your decision as to whether or not you want the researcher to analyze your survey responses will have no impact on your grade in the MCN 348 course. There will also be no benefit or penalty from the researcher, instructor, or course coordinator for having your survey responses analyzed or not analyzed.

If you have any questions, concerns, or complaints about the study right now, please ask them. If you have questions, concerns, or complaints about the study later on, please call Anjanetta Davis at (251) 490-3781.

If you have questions about your rights as a person in a research study, call Ms. Tanta Myles, the Research Compliance Officer of the University, at 205-348-8461 or toll-free at 1-877-820-3066.

You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email the Research Compliance office at participantoutreach@bama.ua.edu.

After you participate, you are encouraged to complete the survey for research participants that is online at the outreach website or you may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED 2-13-14
EXPIRES ON 2-12-15

I have read this consent form, and I have had a chance to ask questions. I agree to take part in it.

By signing this consent form, I am certifying that I am at least 19 years of age or older, and therefore qualify to participate in this research study.

I will receive a copy of this consent form to keep.

I consent to have my survey responses analyzed for the purposes of this study

I do not consent to have my survey responses analyzed for the purposes of this study

Signature of Research Participant

Date

Research Participant Email Address

Signature of Researcher

Date

UNIVERSITY OF ALABAMA, FLD
CONSENT FORM APPROVED: 2-13-14
EXPIRATION DATE: 2-12-15

APPENDIX E

AUSTRALIAN BREASTFEEDING KNOWLEDGE
AND ATTITUDE QUESTIONNAIRE

To what extent do you agree or disagree with the following statements about breastmilk and breastfeeding? Please mark the appropriate response.

| | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|--|-----------------------|-----------------------|--------------------------------|-----------------------|-----------------------|
| Infant formula is more easily digested than breast milk (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastmilk is the ideal food for babies (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Formula feeding is a good way of letting fathers care for the baby (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastfeeding and formula feeding are both equally acceptable methods of feeding infants (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastfeeding increases mother-infant bonding (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastfeeding provides health benefits for infants that cannot be provided by infant formula (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mothers who | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| smoke should formula feed their babies (7) | | | | | |
| Breastfeeding is incompatible with working outside the home (8) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Fathers feel left out if a mother breastfeeds (9) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastfed babies need to be fed too often (10) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Infant formula is as healthy for an infant as breastmilk (11) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastfeeding is more convenient than formula feeding (12) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Formula feeding is the better choice if the mother plans to go to work (13) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The benefits of breastmilk last only as long as the baby is breastfed (14) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A mother who | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|---|---|---|---|---|---|
| <p>occasionally drinks alcohol should not breastfeed her baby (15)</p> | | | | | |
| <p>Formula feeding is more reliable because you can calculate the exact quantity of milk the baby is getting (16)</p> | ○ | ○ | ○ | ○ | ○ |
| <p>Current infant formulas are nutritionally equivalent to breastmilk (17)</p> | ○ | ○ | ○ | ○ | ○ |
| <p>Women should not breastfeed in public places such as restaurants (18)</p> | ○ | ○ | ○ | ○ | ○ |

To what extent do you agree or disagree with the following statements? Please mark the appropriate response. If you are unable to give a response to a statement, mark the first response column headed “don’t know”.

| | Don't Know (1) | Strongly Disagree (2) | Disagree (3) | Neither Agree nor Disagree (4) | Agree (5) | Strongly Agree (6) |
|--|-----------------------|----------------------------------|-----------------------|-----------------------------------|-----------------------|-----------------------|
| A woman with mastitis should express and discard her milk from that breast until treatment is complete (1) | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A correctly positioned baby will suck at the breast with a different action to that used by a baby feeding from a bottle (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastfed infants require extra water in hot weather (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is expected that breastfed infants will regain their birth weight by two weeks of age (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Exclusive breastfeeding (no other fluids or solids) is the most beneficial form of infant feeding for the infant the first six months of life. (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the first few weeks after birth a normal breastfed | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <p>infant will usually feed 8-12 times in 24 hours (6)</p> <p>A breastfeeding woman should be advised to wean if she becomes pregnant (7)</p> <p>It is normal for an adequately breastfed 2 week old infant to only pass a bowel movement every 3 days or so (8)</p> <p>Women who breastfeed have a lower incidence of premenopausal breast cancer (9)</p> <p>A mother who weaned her baby because of low milk supply will be unlikely to produce enough milk for any subsequent babies (10)</p> <p>A woman who has had a previous benign breast biopsy is usually unable to breastfeed (11)</p> <p>Amoxicillin is the drug of choice to treat mastitis in a woman 3 months postpartum (12)</p> <p>Breastfed infants are less likely to become obese children (13)</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

| | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| All women with cracked nipples should express their milk and rest the nipples for 24 hours (14) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Increasing her fluid intake will increase a mother's milk supply (15) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Introducing complementary feeds (water or formula) interferes with the establishment of breastfeeding (16) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Antenatal nipple preparation prevents nipple soreness in the first week postpartum (17) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A nipple shield should be used if there are any problems with the infant attaching to the breast (18) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Removal of breast milk (either by breastfeeding or expressing) is essential to maintain milk production (19) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Premature infants who are fed breast milk are less likely to develop necrotizing enterocolitis (20) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastfeeding is | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| contraindicated for women with Hepatitis C (21) | | | | | | |
| The nutritional content of breast milk changes throughout a breastfeed (22) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A woman with nipple and breast pain during an following a breastfeed may have a thrush infection of the nipple (23) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Formula fed infants have more ear infections than breastfed infants (24) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A change to infant formula will improve the symptoms of a breastfed baby with colic (25) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The most common cause of cracked nipples is poor positioning and attachment of the infant at the breast (26) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In most cases a breastfeeding mother must temporarily wean her baby while she is taking prescription medications (27) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Growth of breastfed infants | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| differ from that of formula fed infants (28) | | | | | | |
| In general, the most appropriate advice to give a woman with a low milk supply is to increase the frequency of breastfeeds (29) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Regular dummy (pacifier) use in the first month postpartum has been associated with a reduction in breastfeeding duration (30) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Formulas feeding has been associated with improved neurodevelopment (31) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A 'top-up" bottle after each breastfeed is the best way to manage an infant who is not gaining weight adequately (32) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A woman with a breast abscess can continue to breastfeed on both breasts (33) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A woman being treated for postpartum depression can continue to breastfeed (34) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|---|---|---|---|---|---|---|
| <p>Breastfeeding reduces the incidence of gastroenteritis in the infant (35)</p> | ○ | ○ | ○ | ○ | ○ | ○ |
| <p>Only feeding from one breast at each feed is a management option for a woman with an oversupply of breastmilk (36)</p> | ○ | ○ | ○ | ○ | ○ | ○ |

APPENDIX F

DR. BRODRIBB AGREEMENT



Anjanetta Davis <davis@southalabama.edu>

Breastfeeding Knowledge Tool

3 messages

Anjanetta Davis <davis@southalabama.edu>
To: w.brodribb@uq.edu.au

Thu, Jul 18, 2013 at 2:58 PM

Hi Dr. Brodribb,

My name is Anjanetta Davis and I am a student in the Instructional Leadership for Nurse Educators doctoral program at The University of Alabama in the United States. I have completed my coursework and have passed my comprehensive exam, and am now in the dissertation process. With my passion for breastfeeding, and completing my Master's project on improving breastfeeding outcomes on a postpartum unit, I am working on breastfeeding as the topic for my dissertation. I plan to conduct a quasi-experimental study to explore what effect an evidence-based educational strategy has on BSN students' knowledge and attitude regarding breastfeeding in providing support to breastfeeding mothers. I am planning to use the theory of reasoned action for my theoretical framework and am interested in using your Breastfeeding Knowledge Questionnaire as a measurement tool. Please let me know what information you may need if it is possible for me to use your tool. Perhaps we could schedule a phone conference to discuss. Thanks in advance.

Anjie Davis, MSN, RN, CNL
Adult Health Instructor/Simulation Specialist
USA College of Nursing
251-490-3781

Wendy Brodribb <w.brodribb@uq.edu.au>
To: Anjanetta Davis <davis@southalabama.edu>

Thu, Jul 18, 2013 at 5:04 PM

Hi Anjie,

I am happy for you to use my tool, but please acknowledge where it has come from in your dissertation and in any publications.

Attached is a copy of the questionnaire with an * beside the items I reverse scored for the scale.

For statistical analysis I first reverse scored all the negatively worded items and for the knowledge items I coded 'don't know' as 3 (neither agree nor disagree).

For the knowledge scale I removed the following four items because they had an item-total correlation of <.2

A nulliparous woman is able to lactate to breastfeed an adopted baby (item 37), The nutritional properties of breast milk are only effective for 9 months postpartum (item 52), Breastfeeding protects against rubella (item 53) and High maternal prolactin levels are essential for the initiation of lactation (item 54)

and then added the score for each item and divided by 36 so that I had a knowledge score with a minimum of 1 and a maximum of 5.

In fact, there were 7 items that had an item-total correlation $<.2$ in the Cronbach's alpha calculation that I kept in because I thought they were important facts (It is normal for an adequately breastfed 2 week old infant to only pass a bowel motion every 3 days or so,, Amoxicillin is the drug of choice to treat mastitis in a woman 3 months postpartum, Increasing her fluid intake will increase a mother's milk supply). Cronbach's alpha for the 36 items was .83

I did a similar process for the attitude scale removing two items (for the same reason) A mother knows instinctively how to breastfeed, and Mothers who formula feed miss one of the great joys of motherhood, adding the scores for each item and then dividing by 18. 5 represented the most positive attitudes, and 1 the least positive attitudes. Cronbach's alpha for the 18 items was .84.

Please let me know if you need any further information.

Kind regards,

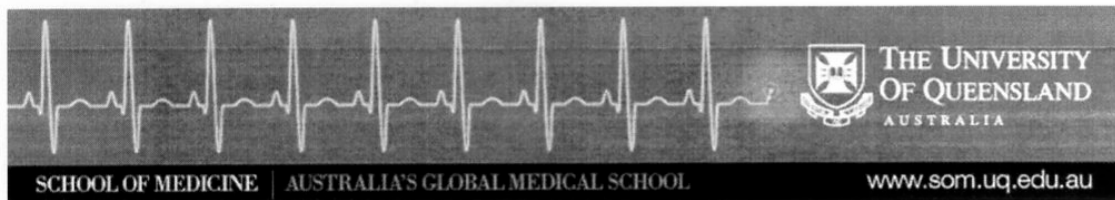
Wendy Brodribb

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APPENDIX G
DEMOGRAPHIC SURVEY

Demographic Survey

Please answer the following questions about yourself.

1. What is your age?

18-21

22-25

26-29

30-33

34 or older

2. What is your gender?

Male

Female

3. Please indicate your ethnicity.

American Indian or Alaskan Native

Asian

Black or African American

Hispanic/Latino

White/Caucasian

Two or more ethnicities

4. Is this your first time taking the MCN 348 Childbearing/Childrearing Nursing course?

Yes

No

5. Do you work in a setting where you take care of breastfeeding mothers (Labor and Delivery, Postpartum, Nursery, Mother-Baby, High-Risk Obstetrics, etc.)?

_____Yes _____No

6. Have you ever been enrolled in or completed a licensed professional nurse (LPN) or licensed vocational nurse (LVN) program?

_____Yes _____No

7. Have you taken any courses to become a doula, midwife, lactation consultant, childbirth educator, or any other course where you are prepared to assist breastfeeding mothers?

_____ Yes _____ No

8. Have you ever breastfed an infant?

_____Yes _____No

9. Have you ever helped anyone with breastfeeding? If so, who?

_____ Yes _____No

APPENDIX H
COURSE CURRICULUM

Breastfeeding Lecture Objectives and Plan

After lecture students will be able to:

1. Verbalize three advantages of exclusive breastfeeding for mother and infant
2. Identify breast anatomy and physiology
3. Verbalize signs of correct latch
4. Discuss breastfeeding supply and demand principle
5. Demonstrate and/or verbalize 4 breastfeeding positions
6. Verbalize how to wake a sleepy infant
7. Verbalize indicators of adequate infant nutrition
8. Define supplementation
9. Differentiate between breastfeeding and breastfeeding with supplementation
10. Verbalize reasons supplementation is indicated in the infant
11. Verbalize disadvantages of supplementation for breastfed infant
12. Verbalize when and how often infants should be fed
13. Verbalize breastfeeding support resources

Visual Aids:

PowerPoint

Baby Doll

Breast model

| Objective | Plan |
|--|---|
| 1. Students will verbalize three advantages of exclusive breastfeeding for mother and infant | <ul style="list-style-type: none"> • Describe advantages/benefits of exclusive breastfeeding for both the mother and infant via discussion. • Discuss active health initiatives and campaigns that support breastfeeding (ex. WHO, AAP, Michelle Obama, US Surgeon General) |
| 2. Students will identify breast anatomy and physiology | <ul style="list-style-type: none"> • Discuss breast anatomy and physiology. • Breast model will be used to reinforce information presented |
| 3. Students will verbalize signs of correct latch | <ul style="list-style-type: none"> • Verbal presentation of signs of correct latch • Images of breast problems due to incorrect latch • Demonstration and verbal presentation of ways to correct an incorrect latch |
| 4. Students will discuss breastfeeding | Present the supply and demand principle of breastfeeding via PowerPoint |

| | |
|--|--|
| supply and demand principle | |
| 5. Students will demonstrate and/or verbalize 4 breastfeeding positions | <ul style="list-style-type: none"> • Present 4 breastfeeding positions. • Students are given a demo by the instructor using a newborn-size baby doll. • Discussion regarding which positions are most useful for delivery type or infant preference. |
| 6. Students will verbalize how to wake a sleepy infant | Demonstrate with use of baby doll appropriate techniques for waking a sleepy baby during breastfeeding |
| 7. Students will identify indicators of adequate infant nutrition | Instructor will present via power point indicators/signs of adequate infant nutrition (ex. weight gain, wet diapers, etc.) |
| 8. Students will define supplementation | Define supplementation verbally and show examples (such as cans of formula) |
| 9. Students will differentiate between exclusive breastfeeding and breast-feeding with supplementation | <ul style="list-style-type: none"> • Review definition of supplementation. • Show and discuss examples of supplementing (pump, bottle) |
| 10. Students will verbalize when supplementation is indicated | Instructor will discuss maternal and infant indications for supplementation (ex. slow infant weight gain, maternal medications) |
| 11. Students will verbalize disadvantages of supplementation for the breastfed infant | Present adverse effects of supplementation for the breastfed infant (ex. Effect on bowel flora) |
| 12. Students will verbalize when and how often infants should feed | <ul style="list-style-type: none"> • Present the rule via PowerPoint: Breastfed babies should eat every 2 to 3 hours or on demand • Describe verbally how babies express their hunger (hunger cues) • Discuss best time for first feeding after birth |
| 13. Students will verbalize | <ul style="list-style-type: none"> • Present description of good breastfeeding support |

| | |
|---------------------------------------|--|
| breastfeeding support resources | <ul style="list-style-type: none">• Support and role of healthcare providers• Provide examples of breastfeeding support resources (ex. Lactation Consultant, La Leche League) |
|---------------------------------------|--|

APPENDIX I
EMAIL SCRIPT

Email Script

Dear Student,

Please allow this email to serve as your reminder to access Qualtrics© to complete the breastfeeding survey. The survey includes items to determine your breastfeeding knowledge and attitude. You will also complete a demographic survey, which will ask specific questions about you. Your student ID number is _____. Please remember to insert this number in the appropriate area in the survey.

(Link to Qualtrics© will be attached here)

Also, you have been assigned to the **experimental** group; therefore you will be participating in an encounter with a standardized patient in the simulation lab on the 2nd floor. Please report to the simulation lab, room _____ at (time) for your 45 minute standardized patient encounter.

After completing your standardized patient encounter, you will be asked to complete the posttest within 7 days after your standardized patient encounter. You will be asked your student ID number to access the posttest.

If you have any questions, please feel free to contact me. My contact information is below.

Thanks again for agreeing to participate in my research study.

Anjie Davis, MSN, RN, CNL
Office: 2044B
251-490-3781
davis@southalabama.edu

Dear Student,

Please allow this email to serve as your reminder to access Survey Monkey® to complete the breastfeeding surveys. The surveys include items to determine your breastfeeding knowledge and attitude. You will also complete a demographics survey, which will ask specific questions about you. Your student ID number is _____. Please remember to insert this number in the appropriate area in the survey.

(Link to Qualtrics© will be attached here)

Also, you have been assigned to the **control** group; therefore you will be watching a breastfeeding video, which includes breastfeeding content, as well as clips of healthcare providers interacting with breastfeeding mothers. Please report to room _____ on the 1st floor at (time). You will be expected to be in attendance for 55 minutes.

After completion of the video session, you will be asked to complete the posttest within 7 days after watching the video. You will be asked your student ID number to access the posttest.

If you have any questions, please feel free to contact me. My contact information is below.

Thanks again for agreeing to participate in my research study.

Anjie Davis, MSN, RN, CNL
Office: 2044B
251-490-3781
davis@southalabama.edu

APPENDIX J
STANDARDIZED PATIENT SCRIPT

Breastfeeding

Standardized Patient Role and Script

| | |
|-------------------------------------|--|
| Role Description | You are Christina Bosarge, (____) year old woman, who has just delivered your first baby. You were induced at 40 weeks gestation. Your labor was augmented with Pitocin and your baby was delivered vaginally after 3 hours of pushing. You have a first degree mediolateral tear to your perineum. You delivered a baby girl who weighed 8 pounds, 5 ounces, and is 20 inches long. You tried to breastfeed right after birth yesterday evening, and baby only nursed 6 minutes on each breast. You tried breastfeeding twice during the night, in which baby only nursed about 5 minutes on each breast, and it was hard to keep her awake. You nursed again this morning; however baby kept falling asleep on the breast. You want to nurse your baby; however you are concerned that you may not be able to. |
| Setting | Postpartum Room |
| Clothing | You are in a hospital gown that is opened in front. You wear a t-shirt underneath. You may wear sweat pants or pajama bottoms. You will be holding a baby doll swaddled in a blanket. |
| Medications | Due to the tear on your perineum, you are ordered Percocet every 4 hours as needed for pain. The nurse just gave you one capsule about 30 minutes ago. If asked, your pain level on a 1-10 scale is an 8. |
| Allergies | None |
| Presentation and Tone | You are exhausted after a long labor and lack of sleep during the night due to breastfeeding. You are anxious and will use non-medical terminology when speaking to the student. |
| Opening Question | “My baby won’t stay awake? How do I know if she is getting enough milk?” |
| Trigger Statement | I heard babies are supposed to breastfeed at least 15 minutes on each breast, but she won’t stay awake long enough to do that. |
| What You (SP) Can Expect | You will breastfeed your baby while being observed by the student. You will be in an uncomfortable position (hunched over) and the baby will only have the nipple in her mouth (not the areola). |
| Questions to ask the student | <ul style="list-style-type: none"> • “You see how she just falls asleep when she breastfeeds? Do you know what I can do to help keep her awake?” • “My nipple hurts really bad when she does breastfeed, is that normal?” • “Are there any benefits to breastfeeding for my baby and me?” • “Should I go ahead and give my baby some formula since I can’t tell if she is getting enough milk?” • “How often should I feed her?” • “When should I expect for my milk to come in?” • “What can I do to make sure that I am doing what needs to be done to help with my milk supply?” • “Is there someone I can call if I continue to have problems?” |
| Additional | <ul style="list-style-type: none"> • If the student touched you or your baby, did he/she wash their |

| | |
|---------------------|---|
| Observations | hands? <ul data-bbox="568 220 1136 298" style="list-style-type: none">• Did the student ask to watch you breastfeed?• Did he/she offer assistance? |
|---------------------|---|

APPENDIX K
POST INTERVENTION DISCUSSION
QUESTIONS

Post Intervention Q & A Discussion Questions

Experimental Group

1. Can someone describe the standardized patient encounter you just completed?
2. How do you feel your standardized patient encounter went?
3. How did the information you already knew about breastfeeding and/or the information you learned about breastfeeding from the lecture help you in providing breastfeeding support to the standardized patient?
4. What do you know now about assisting a breastfeeding mother that you did not know prior to this standardized patient encounter?
5. Is there any information that would have made this standardized patient encounter better for you?

Control Group

1. Can someone identify the main points that were discussed in the breastfeeding video?
2. Do you feel the information in the video and lecture will help you provide support to breastfeeding mothers? Why or why not?
3. From the information you saw in the video, why is breastfeeding so important?
4. What do you know now about assisting a breastfeeding mother that you did not know prior to watching the video?
5. Is there any information that you feel you still need to be effective at providing breastfeeding support to mothers?