PREDICTORS OF BREASTFEEDING SELF-EFFICACY AND INITIATION IN FIRST-TIME BREASTFEEDING MOTHERS:
A MIXED-METHOD PILOT STUDY

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DEDICATION

This thesis is dedicated to my family and friends. Thank you for your unconditional love, encouragement and support. I would like to give a special dedication to those who choose to breastfeed their infant.
If you can’t figure out your purpose, figure out your passion. For your passion will lead you right into your purpose.

– T.D. Jakes
ABSTRACT OF THE THESIS

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The purpose of this study was to evaluate predictors of increased breastfeeding self-efficacy (BSE) in first-time breastfeeding mothers. This mixed-method pilot study used qualitative and quantitative data based on the Breastfeeding Self-Efficacy (BSE) theory framework. BSE was developed from Albert Bandura’s Self-Efficacy model. Based on BSE, a higher breastfeeding self-efficacy scale (BSES) score is predictive of breastfeeding initiation and longer duration. In this study, an increased BSES score was therefore used as an outcome variable measuring maternal breastfeeding confidence. Data were collected through written pre-and post-test surveys at multiple breastfeeding courses at Sharp Mary Birch Hospital for Women and Newborns (SMBHWN) in San Diego, California.

It was hypothesized that older maternal age (≥ 25 years old), being of White/Caucasian descent, and completion of a Bachelor’s or higher professional degree were predictive of higher BSES score at pre-test. It was also hypothesized that BSES score would increase following attendance of a breastfeeding course. It was also hypothesized that qualitative data collected on the pre-test surveys would positively support the literature findings regarding the reported presence of formal and informal social support networks and intention of breastfeeding initiation.

Cronbach’s alpha (<.70) was used to test for reliability and reliability was obtained. Univariate one-way analyses (ANOVA) were conducted and findings suggested no significance in the relationship of increased breastfeeding self-efficacy at pre-test and the following variables: women who were of older maternal age, being of White/Caucasian race/ethnicity, and having completed a Bachelor’s or higher professional degree. Using the results of a Paired Samples t-test, there was a significant difference found in BSES scores from pre- to post-test, which supported the hypothesis. Using results of thematic analysis, as hypothesized, those who had the intent to initiate breastfeeding had positive influences of social network support, which was researched in the literature.

Keywords: breastfeeding, breastfeeding self-efficacy, self-efficacy
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CHAPTER 1
INTRODUCTION

BACKGROUND

Research has shown that breastfeeding has multi-dimensional positive outcomes for the mother, child, and society (Clark & Bungum, 2003; Stolzer, 2011). Breast milk, the most natural source of nutrition, has unique biological, protective properties optimally created for infants (Donnet-Hughes, Schiffrin, & Walker, 2008). The very first milk that is produced by the mother is called colostrum. The color of colostrum ranges from yellow to orange and it is known as ‘liquid gold’. This low-fat, high-protein fluid is rich in immune-protective components (Donovan, 2008; La Leche League International, 2006). After colostrum production, milk that is produced over the next nine days is termed as transitional milk and by 15 days post-partum, mature milk is produced until the mother decides to wean off this method of infant feeding. Mature milk contains such nutrients as zinc, calcium, and vitamins B6 and C, as well as folate and magnesium (Donovan, 2008). Many studies found that breast milk offers more health advantages than infant formula as its natural components boost immunity in young children. (Hassiotou, Geddes, & Hartmann, 2013; Steube, 2009). Many health professionals believe that breastfeeding is the natural way to feed infants (Allen & Hector, 2005). Although breastfeeding can offer social advantages such as an increase in mother–infant bond (Robinson & VandeVusse, 2011), breastfeeding initiation rates in the United States for 2013 were only at 76.5%. This rate is lower than the Healthy People 2020’s (2013) target goal of 81.9% initiation rate.

In the past decades, an increased number of hospitals in the United States have been enlisted and certified as ‘Baby-Friendly’ through which hospitals voluntarily institute policies and practices in support of families who make the decision to breastfeed (Saadeh, 2012). The global program known as the ‘Baby-friendly Hospital Initiative,’ launched in 1991, is defined by the World Health Organization/United Nations Children’s Fund (WHO/UNICEF) as ensuring the best start in life for all infants by making maternity wards protect, promote, and support breastfeeding in order to allow for healthy growth and
development (Saadeh, 2012). Additionally, recent studies have shown annual increases in exclusive breastfeeding rates of ‘Baby-Friendly’ hospitals (Abrahams & Labbock, 2009; Bartick & Reinhold, 2010; Chapman, 2010; Smith, 2013).

Sharp Mary Birch Hospital for Women and Newborns (SMBHWN) is a birthing center in San Diego, California and was utilized for participant recruitment. SMBHWN is a nationally recognized hospital for women, expectant mothers, and babies. Patient clientele of SMBHWN are a mix of Preferred Provider Organization (PPO) and private and public (MEDI-CAL) insurance and residents from all regions of San Diego County. Attendees of SMBHWN’s prenatal education courses resemble a normative obstetrical population with some high-risk patients. Prenatal educational courses are not limited to registered patients of Sharp hospital sites. Those who have an interest in attending prenatal educational courses must have health insurance and/or financial means to cover the cost of the courses. SMBHWN is not designated as ‘Baby-Friendly,’ though the hospital has begun its voluntary journey to become ‘Baby-Friendly’ in support of breastfeeding and the facility is currently implementing all of the ‘Baby-Friendly’ practices. In 2012, 8,833 babies were born at SMBHWN and that is more births than any other hospital in California. At SMBHWN, breastfeeding support groups are offered several times a week with hands-on assistance by lactation consultant staff. Every nurse at SMBHWN receives annual education on breastfeeding and all new nurses receive four hours of breastfeeding education. In 2012, SMBHWN’s in-hospital exclusive breastfeeding rate was 75.5 percent and 94 percent for any breastfeeding.

**STATEMENT OF THE PROBLEM**

Breastfeeding education coupled with positive social network support have been proposed by researchers as an ideal approach in increasing a mother’s breastfeeding self-efficacy (BSE). An increased breastfeeding self-efficacy has been shown to be associated with the mother’s intent and perceived ability to breastfeed (Blyth et al., 2004). Though further research is needed, several studies have indicated these methods increase breastfeeding initiation rates (Blyth et al., 2004; Cerandas, Noceda, Barrera, Martinez, & Garsd, 2003; Dennis, Hodnett, Gallop, & Chalmers, 2002; McLeod, Pullon, & Cookson, 2002; Scott & Binns, 1999). A multi-faceted approach such as breastfeeding education
coupled with social network support would be ideal for increasing breastfeeding initiation rates, but resources, such as breastfeeding education are limited. For example, breastfeeding education is not always readily available to mothers, and often, education, alone, is not well understood by the mothers who attend the courses. In these instances, educational resources that focus on knowledge in the area of breastfeeding are ineffective and rather, the successes of these mothers are dependent on role models, which tend to be the focus on the changing attitude of these mothers (Office of the Surgeon General (US), Centers for Disease Control and Prevention (US), & Office on Women’s Health (US), 2011). Studies have specifically indicated that increased breastfeeding self-efficacy is associated with women overcoming breastfeeding barriers (Blyth et al., 2002; Dennis & Faux, 1999; Entwistle, Kendall, & Mead, 2010; Nichols, Schutte, Brown, Dennis, & Price, 2009). The increase in breastfeeding self-efficacy is predicted to be due to breastfeeding education, mastered skill (occurring post-partum), and the woman’s social support. Women in the United States face a multitude of obstacles related to breastfeeding. Specifically, they lack breastfeeding knowledge and social support (formal and informal), skill mastery, and misinformation about the benefits of breastfeeding versus prepared formula.

In essence, a mother with a lower level of perceived breastfeeding self-efficacy (BSE) is more likely to discontinue breastfeeding prior to recommended time frames. In a study by Dennis and Faux (1999), the following Breastfeeding Self-Efficacy Scale (BSES) mean scores and infant feeding patterns at 6 weeks post-partum were calculated. For exclusive bottle-feeding, the BSES mean score was 145.3. The BSES mean score for combination (bottle-feeding and breastfeeding) feeding was 161.6. And, for exclusive breastfeeding, the BSES mean score was 173.5. In one study by Buxton et al. (1991), it was concluded that 27% of women who had low maternal self-efficacy during the prenatal period discontinued breastfeeding within the first week postpartum. Conversely, only 5% of mothers with a higher perceived self-efficacy discontinued breastfeeding within that same time period. Breastfeeding educational courses have been shown to positively support the woman’s decision to breastfeed.
**PURPOSE OF THE STUDY**

Using the Breastfeeding Self-Efficacy Theoretical Framework, one of the study’s aims was to use mixed-methods to assess the predictors of breastfeeding self-efficacy including: older maternal age (≥ 25 years old), White/Caucasian race/ethnicity, and higher educational level such as a Bachelor’s or higher graduate degree. Another aim of this study was to assess the success in the increase of breastfeeding self-efficacy following a one-time, three-hour breastfeeding course of mothers who are enrolled in the course and plan to breastfeed for the first time. And lastly, written responses to an open-ended question were coded to determine if social network support had a positive influence on a woman’s intention to initiate breastfeeding.

**THEORETICAL BASES AND ORGANIZATION**

The theoretical framework used in this study was the ‘Breastfeeding Self-Efficacy’ theory (Dennis, 1999), which was developed from Albert Bandura’s (1977) Self-Efficacy model. Albert Bandura’s (1997) book, *Self-Efficacy: The Exercise of Control*, defines self-efficacy as "beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments" (p. vii). A construct of the Social Cognitive Theory, this theory encompasses around the idea that people generally will only attempt to do things they believe they can accomplish and not attempt to do things in which they believe they will fail. Bandura’s theory describes self-efficacious people as those who learn from observation, where improved performance is associated with role modeling (Entwistle et al., 2010). People who are self-efficacious set challenging goals for themselves and maintain a strong commitment to those goals. These challenges are to be mastered by the individual and not viewed as threats to be avoided (Bandura, 1994). This pilot study assessed the breastfeeding self-efficacy of mothers using the Breastfeeding Self-Efficacy Scale (BSES) and BSES scores are used as a predictive indicator of a woman’s actual intent to breastfeed and length of breastfeeding duration (Nichols et al., 2009). BSES scores have repeatedly shown to be a helpful tool in the study of BSE and BSE’s relationship with breastfeeding initiation and duration. The initial BSES was pilot tested and revisions were made for feasibility and usability. The final BSES obtained a Cronbach’s alpha coefficient of .95, which indicated internal consistency. The BSES consisted of a 43-item scale, where respondents indicated on
a scale of 1-5 the degree of self-efficacy they felt for each statement. Items were preceded by the phrase “I can always.” A Likert-scale response of 1= not at all confident and 5 = always confident is used. Once all items are summed, scores have a possible range from 43 to 215 and a higher score indicates higher levels of breastfeeding self-efficacy (Dennis & Faux, 1999). In studies that involved adult mothers in Canada, Australia, China, and Puerto Rico, the first week postpartum have consistently predicted breastfeeding rates at 4, 6, 8, and 16 weeks postpartum. For example, adult mothers with higher BSES scores during the first week postpartum were more likely to be exclusively breastfeeding at 8 and 16 weeks postpartum as compared to mothers with lower BSES scores. Using mixed-methods, the following hypotheses are presented:

1. Older maternal age (≥ 25 years old), White/Caucasian racial background, and completion of Bachelor’s or higher professional degree are associated with increased breastfeeding self-efficacy scale score at pre-test.

2. Breastfeeding self-efficacy scale score will increase from pre- to post-test following a one-time, three-hour breastfeeding educational course.

3. Exploration of qualitative data using thematic analysis will support the literature findings that the reported presence of formal and informal social support networks has a positive influence on intention of breastfeeding initiation.

**LIMITATIONS OF THE STUDY**

This study was limited to those of the public who had health insurance and/or financial means to register and attend the breastfeeding educational course at Sharp Mary Birch Hospital for Women and Newborns. Therefore, the cost for the prenatal education courses may be an economic disincentive. Another limitation is the use of a pre-test and post-test design which measured breastfeeding self-efficacy for breastfeeding initiation. Given more time and resources, a more advantageous design would be a randomized, pre- and post-test design along with actual post-partum breastfeeding initiation data as well as periodic follow-up post-partum breastfeeding duration data.

The research site was selected due to the positive support for educational research of women’s health related issues. Survey instrumentation was limited to permission of hospital privacy confidentiality policy and HIPAA laws in the state of California, thus, pre- and post-tests used in this study were limited.

The study findings are also limited by a relatively small sample size and the self-selection of study participants and, therefore, the results cannot be generalized.
DEFINITION OF TERMS

- **Breastfeeding Self-Efficacy**: A mother’s perceived ability to breastfeed her child

- **Breastfeeding Self-Efficacy Scale (BSES)**: A 43-item, self-report instrument to measure breastfeeding confidence. All items are presented positively and scores are summed to produce a range from 43 to 215, with higher scores indicating higher levels of breastfeeding self-efficacy

- **Parity**: The state or fact of having a born offspring

- **Parous**: Bearing offspring of a specified number

- **Proclivity**: A tendency to choose or do something regularly; an inclination or predisposition toward a particular thing

- **Self-Efficacy**: An individual’s beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments
CHAPTER 2

LITERATURE REVIEW

THE EFFECTS ON HEALTH FROM BREASTFEEDING FOR THE MOTHER AND INFANT

Breastfeeding has positive psychological and biological impacts on both mother and infant and these benefits are becoming more well-known to the general population (Gunderson, 2008; Lamberti, Walker, Noiman, Victoria, & Black, 2011). Decades of research have shown that breastfeeding has an important role in the growth and well-being of not only the infant, but also the identity of the mother and her psychological well-being. Breast milk has been proven in several studies to have many positive outcomes for breastfeeding mothers (Allen & Hector, 2005; Perrine, Scanlon, Li, Odom, & Grummer-Strawn, 2012; Wojcicki et al., 2010). The positive benefits of breastfeeding include: the facilitation of uterine involution, accelerated return to pre-pregnancy weight, delay of postpartum ovulation, decreased risk of hip fractures and osteoporosis in postmenopausal women, a lower risk of breast and ovarian cancers, and type 2 diabetes (Ip et al., 2007; Murphy & Wilson, 2008; Tryggvadóttir, Tulinius, Eyfjord, & Sigurvinsson, 2001). Studies report a decreased risk of breast cancer in women, primarily premenopausal women, with a lifetime breastfeeding of more than 12 months (Ip et al., 2007). Studies have also found that breastfeeding for the duration of over 12 months during one’s lifetime was associated with a reduction in the risk of ovarian cancer (Ip et al., 2007). Women without a history of gestational diabetes mellitus (GDM) coupled with having a longer duration of breastfeeding during their lifetime have a reduced risk of developing type 2 diabetes, compared to those who have never breastfed (Ip et al., 2007).

For the young child, being breastfed can offer positive physical and mental benefits such as optimum nutrition, increased immunity, and a feeling of comfort (Kramer et al., 2008; Mikiel-Kostyra, Mazur, & Boltruszko, 2002). For pre-term infants, breastfeeding improves neurodevelopmental outcomes and may also impact other long-term health benefits including lower rates of juvenile diabetes, ulcerative colitis, lymphomas, obesity and asthma (Arenz, Rückerl, Koletzko, & von Kries, 2004; Grummer-Strawn & Mei, 2004; Oddy, Peat,
In addition, breastfeeding reduces the likelihood of Sudden Infant Death Syndrome (SIDS), gastro intestinal infection, upper and lower respiratory disease, childhood leukemia, and ear infections (Ip et al., 2007). According to The World Health Organization, it is currently recommended to exclusively breastfeed for the first six months of life. At six months, solid foods, such as mashed fruits and vegetables, should be introduced to complement breastfeeding for up to two or more years (WHO, 2013). Data from The Centers for Disease Control and Prevention’s Breastfeeding Report Card for first half of 2013 showed the percent of infants in the United States for whom breastfeeding is initiated is “high” at 77%. The same report indicated that 49% of infants who were born in the first half of 2013 were breastfeeding at 6 months (non-exclusively), which is up 35% from the year 2000. In addition, 16.4% of infants were exclusively breastfed at six months of age during that same period of time. The breastfeeding rate at 12 months had also increased from 16% to 27%. While those increases are positive, it is critical to establish and support breastfeeding during the early post-partum period (Centers for Disease Control and Prevention, 2013).

The economic impact of breastfeeding duration is considerable with significant cost savings (Ma, Brewer-Asling, & Magnus, 2013). Those who practice optimal breastfeeding strategies can benefit from large financial savings for their family, as well as society. A study by Bartick and Reinhold (2010), concluded that “$13 billion US dollars and 911 deaths (most of which would be infants) could be saved if 90% of families in the US were to meet current recommendations for exclusive breastfeeding for the first six months of life” (p. e1052). Approximately $1.3 billion more is spent by insurers, including Medicaid, to cover sick-child office visits and prescriptions to treat the three most common illnesses: respiratory infections, otitis media (ear infections), and diarrhea, in the first year of life for formula-fed infants than for breastfed infants. According to the United States Breastfeeding Committee's Fact Sheet (Weimer, 2001), “$3.6 billion excess dollars must be paid each year to treat diseases and conditions preventable by breastfeeding” (p. 1). Moreover, breastfeeding can result in “reduced health care costs and reduced employee absenteeism” for care attributable to child illness (American Academy of Pediatrics [AAP], 1997, p. 497). Since breastfed
infants are sick less often than those who are formula fed, breastfeeding mothers have been shown to miss less work, contributing to a more productive work force. This leads to lower medical costs for the employer and higher employee productivity. On average, the cost of powder formula may be up to $1,200 per year, which is four times that of breastfeeding, costing approximately $300 per year for increased food for a lactating woman. Furthermore, concentrated and ready-to-feed formulas are more expensive than powdered formula and the consumption of electricity or fuel is needed for the preparation of infant formula (USBC, 2002). It is clear that the cost savings stemming from breastfeeding can broadly benefit society.

**THE MEASURE OF BREASTFEEDING SELF-EFFICACY**

Self-efficacy is an individual’s beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1997). The ‘Breastfeeding Self-Efficacy Framework’ was developed by Cindy-Lee Dennis in 1999, using constructs based off of Bandura's Social Cognitive Theory (Bandura, 1977). The BSES content domains were developed from a literature review of breastfeeding problems and factors related to breastfeeding duration (Dennis, 1999). In Dennis' framework, breastfeeding behaviors are evaluated in order to understand the relation in its role of self-efficacy. Three conceptually unique sub-dimensions of breastfeeding success were gathered in this framework and are as follows: technique, intrapersonal thoughts, and support. The Self-Efficacy theory suggests that a person's level of perceived ability to perform a behavior may be influenced by four factors including: personal accomplishments, vicarious experiences, verbal persuasion, and physiological and affective states (Noel-Weiss, Bassett, & Cragg, 2005). The first factor, personal accomplishments, is the belief that successful experiences build strong belief in one's personal efficacy. Failed attempts undermine this notion, especially if failures occur before one's sense of efficacy has been established (Bandura, 1994). The second factor, vicarious experiences, enables the individual to build a strong sense of efficacy through the vicarious experiences provided by one's social models. Witnessing people similar to one's self succeed by sustained effort increases observer's beliefs that they also possess the skill set to master like activities required to be successful (Bandura, 1994). The third factor, verbal persuasion, is applicable when trying to strengthen
people's beliefs that they have what it takes in order to succeed. People who are verbally persuaded that they possess the capabilities to master activities are more likely to exert greater effort to sustain skills even if they harbor self-doubts and dwell on personal deficiencies when obstacles arise (Bandura, 1994). The fourth factor, physiological and affective states, describes the final way to enhance efficacy. This state is the reduction of people's stress reactions and the alteration of their negative emotional proclivities and interpretation of their physical states. This focuses on how the emotions are perceived versus the absolute intensity of emotional and physical reactions that is important. Those with a high sense of efficacy are likely to view their state of affective arousal as motivation to perform the activities, whereas those who are affected by self-doubt regard their arousal as debilitation (Bandura, 1994). These factors could be influenced by education and healthcare provider intervention (Bandura, 1977; Dennis, 1999). For the purposes of this study, focus was placed on the evaluation of personal accomplishments and vicarious experiences, as these two areas have been proven in studies to show positive effects on breastfeeding initiation and longer duration. An emphasis in positively influencing the prospective breastfeeding mother must be done so by education and healthcare provider intervention (Bandura, 1977; Dennis, 1999). Verbal persuasion and physiological and affective states were targeted in this study. Eidman’s (2011) master’s thesis concluded that a strong sense of self-efficacy encourages individuals to engage themselves fully in the activity and to endure hardships and setbacks.

Breastfeeding Self-Efficacy (BSE), or a mother’s perceived ability to breastfeed, has been used in studies as a predictor of breastfeeding as it is positively associated with breastfeeding initiation. A study by Laanterä, Pietila, Ekstrom, and Pölkki (2012), described breastfeeding confidence as “a dynamic, embodied and interdependent interaction among the mother’s expectations, their infant’s breastfeeding behavior, and [the woman’s] sources of support” (p. 934). Further research have indicated that maternal breastfeeding self-efficacy was a significant predictor of breastfeeding duration and speculated this increase in self-efficacy would ensure a mother’s perseverance if faced with difficulties (Blyth et al., 2002). New mothers who had a high self-efficacy were significantly more likely to continue to exclusively breastfeed up to four months postpartum compared to mothers with lower scores (Blyth et al., 2002). Studies indicated that if a woman was breastfed, she is more likely to
breastfeed her own child. For example, Mossman, Heaman, Dennis, and Morris (2008) stated, “[those] who were breastfed as infants had more positive attitudes toward breastfeeding than those who were bottle-fed” (p. 269). Several studies linked early breastfeeding discharge due to mothers’ difficulties and their concerns about breastfeeding competence and instruction (McKeever et al., 2002). High BSE, alone, will not promise that a mother will try to overcome challenges that breastfeeding may bring; however, when high BSE is working in conjunction with other positive support systems, the woman is more likely to persevere in breastfeeding.

**THE EFFECT OF MATERNAL AGE, RACE/ETHNICITY, EDUCATION LEVEL, AND SOCIAL SUPPORT ON BREASTFEEDING SELF-EFFICACY**

As previously mentioned, personal accomplishments and vicarious experiences were evaluated in this study and those include, but are not limited to the following variables: age, ethnic/racial background, education level, income, living with a partner, parity, social support, familial structure and employment. These variables are not influenced by a one-time, three-hour breastfeeding course, but rather can be analyzed for their predictive relationship with breastfeeding self-efficacy and in the planning of and recruitment for future breastfeeding education courses.

In a study by Meedya, Fahy, and Kable (2010), strong evidence concluded that older maternal age, being well educated, and being married are associated with breastfeeding initiation and duration. Maternal age is an important demographic variable as it has been shown to have a positive association with breastfeeding duration (Dubois & Girard, 2003; Kuan et al., 1999; Scott & Binns, 1999). Research indicates that women older than 25 years old and those with higher educational achievement were significantly more likely to initiate and continue breastfeeding at two months (Kornides & Kitsantas, 2013). Furthermore, marital status is another important indicator of breastfeeding. It has been concluded in studies that married women are not only more likely to breastfeeding their infants, but also do it for a longer period of time (Evers, Doran, & Schellenberg, 1998; Kuan et al., 1999; Li, Ogden, Ballew, Gillespie, & Grummer-Strawn, 2002).

Due to social sensitivity issues and instruction by Sharp Mary Birch Hospital personnel, for the purpose of this study, questions regarding marital status, cohabitation and
employment were not asked on survey instruments. In a study by Chin, Myers, and Magnus (2008), [For White/Caucasian women], education was one of the main predictive factors that had the largest effects on breastfeeding. Highly educated women were more likely to breastfeed than less educated women and the study concluded that women who attended college were four times more likely to breastfeed than those who only had a high school education. In addition, older women were more likely to breastfeed than younger women. These findings are concurrent with today’s literature and indicate that both mature maternal age and intellectual maturity may be substantial factors influencing a white woman’s decision to breastfeed (Chin et al., 2008). Mothers in the United States with less than a college education are half as likely as mothers with college degrees to initiate and continue breastfeeding. On the other hand, mothers who are more educated in the developing world are less likely to breastfeed (Raj & Plichta, 1998). The lower likelihood of breastfeeding among educated women in the developing world may be due to demanding careers and the need to contribute to their household. In addition, many employers may not have the resources to provide a safe and private place for the mother to breast-pump which can affect breastfeeding initiation and duration.

In a social context, a woman’s beliefs about the advantages and disadvantages of infant feeding arise in part from the interactions she may have with various formal and informal networks in her life. The presence of professional support has been shown in some studies to correlate with both breastfeeding initiation and duration of breastfeeding (Persad & Mesinger, 2007; Taveras et al., 2003). Formal networks include: breastfeeding support groups, lactation consultants, physicians and informal networks include: the infant’s father, other family members such has the woman’s mother and sister and close friends, especially female friends who have experienced breastfeeding. Breastfeeding is a learned skill where positive support stemming from female relatives and members of the close community can increase success of breastfeeding initiation and duration (Berridge, McFadden, Abayomi, & Topping, 2005). Many studies have concluded that having a solid foundation of social support can positively influence a woman’s decision to breastfeed (Cohen, Brown, Rivera, & Dewey, 1999; Kornides & Kitsantas, 2013; Mickens, Modeste, Montgomery, & Taylor, 2009). For example, in a study by Kornides and Kitsantas (2013), families that supported exclusive breastfeeding during the woman’s pregnancy were 8.21 times more likely to
initiate and continue to breastfeed. In the same study, positive support from clinicians of new mothers increased the odds of women initiating breastfeeding. Accordingly, the pregnant woman’s social environment may pose both positive and negative influences toward breastfeeding and hence, have an effect on confidence and persistence in breastfeeding. Some studies concluded that having social support from husbands’ or partners’ is most crucial (Cohen et al., 1999; Persad & Mesinger, 2007). For example, a study reported at 98.1% incidence of breastfeeding when the father was identified as being strongly supportive compared to 26.9% when he was indifferent with the feeding choice (Stremler & Lovera, 2004). Other studies suggest having support from mothers, friends and others in the woman’s social network is found to have positive effects (Balcazar, Trier, & Cobas, 1995; Bentley et al., 1999). Social support from formal and informal networks that are supportive of breastfeeding is needed as it has shown to increase the likelihood that the mother will breastfeed her infant.

**The Effect of Breastfeeding Education Courses on Breastfeeding Self-Efficacy and Breastfeeding Initiation**

Maternal breastfeeding confidence or self-efficacy is modifiable through interventions such as education and social support and can be done so through prenatal breastfeeding education (Eidman, 2011). Early breastfeeding education is important as many women report issues with breastfeeding in the initial months postpartum (Dennis, 1999). In today’s society, women rely on prenatal education and healthcare professionals for health information. Thus, providing information and support to expectant mothers is associated with increases with incidence and duration of breastfeeding (Ogburn, Philipp, Espey, Merewood, & Espindola, 2011). In a study by Deshpande and Gazmararian (2000) data suggested that, "breastfeeding education… may improve a woman’s chances of starting and continuing to breastfeed her newborn” (p. 119). For example, in a study by Lu et al. (2003), 75% of childbirth education class attendees were more likely to initiate breastfeeding compared to non-attendees. During a pregnancy, the commitment to breastfeeding is made in the first trimester (Griese, 1996), thus information regarding prenatal confidence provides adequate time for intervention during pregnancy (Wells, Thompson, & Kloeblen-Tarver, 2006). Furthermore, “obstetricians play a pivotal role in lactation management because
mothers usually make their decisions about feeding choice early in pregnancy” (Ogburn et al., 2011, p. 58). As part of the multi-faceted approach, options for breastfeeding education must be promoted early on in the woman’s pregnancy in order to increase the likelihood of initiation.

**THE EFFECT OF PSYCHOLOGICAL FACTORS ON BREASTFEEDING SELF-EFFICACY**

Psychological factors are modifiable and health professionals may choose to target these variables. Positively influencing these factors may lead to an increased self-efficacy, and therefore, may directly influence breastfeeding initiation and duration. It is stated in a study by Rempel (2004), “mothers engage in long-term breastfeeding for the health and emotional benefits that this practice provides their children” (p. 307). In addition, some mothers engage in long-term breastfeeding in order to allow their child to self-wean (Rempel, 2004). Factors such as a mother’s level of self-esteem, breastfeeding self-efficacy, experiences of stress, depression, and anxiety have shown to influence duration (O’Brien, Buikstra, Fallon, & Hegney, 2009). It is concluded in the same study that “those who struggle do not necessarily do so because they suffer from diagnosable mental health problems, nor are they bad mothers, or women who don’t want to breastfeed badly enough; instead, they may be simply women who possess psychological characteristics that pose a challenge to breastfeeding and early mothering” (O’Brien et al., 2009, p. 62). As research has shown, it is evident that the decision to breastfeed is just one dimension of a multitude of factors that can be associated with breastfeeding success.
CHAPTER 3

METHODS

DESIGN OF THE INVESTIGATION

This was a pilot study that used a mixed-method approach. First, a pre-and post-test experimental design was used to assess breastfeeding self-efficacy before and after participation in a brief, one-time breastfeeding course. Second, thematic analysis using qualitative data was implemented to gather information on themes within breastfeeding support through social network support. The investigator of this study attended multiple sessions of Sharp Healthcare's pre-existing, one-time, breastfeeding course at Sharp Mary Birch Hospital for Women and Newborns (SMBHWN) in San Diego, California. The course was described on the hospital’s website as “basic skills for successful breastfeeding” (Sharp Healthcare, 2013). Topics covered during the session included the following: “advantages of breastfeeding; breastfeeding basics; positioning; latch-on; breast pumps; and nursing bras”. It was recommended that the class be taken three to four weeks prior to due date (Sharp Healthcare, 2013). In addition, participants were encouraged to include a support person to accompany the pregnant woman in her course attendance. The one-time course was three hours long.

Due to SMBHWN’s breastfeeding educational course’s time restraints, hospital privacy confidentiality policy, and HIPAA laws in the state of California, survey instrumentation was limited. The original Breastfeeding Self-Efficacy Scale included a 43-item survey and for the purposes of this study, the original 43-item BSES measuring scale was condensed to a 4-item construct. Selection criteria for the 4-item construct was based on the premises of having an assortment of statements that encompassed the participant’s previous knowledge of breastfeeding and possible future obstacles that the mother may face with breastfeeding. Due to hospital policy, the researcher was not able to utilize statements that went against the hospital’s current breastfeeding policies. The breastfeeding policies included the ‘Baby-Friendly Hospital Initiative,’ which have been voluntarily adopted by SMBHWN. Multiple statements from the original 43-item BSES measuring scale
counteracted the ‘Baby-Friendly’ policies. In addition, the researcher interviewed female colleagues with and without breastfeeding experience to assist with the selection of the statements for the pilot study’s construct.

All project documents and instrument materials were approved by the Institutional Review Boards of Sharp Mary Birch Hospital for Women and Newborns (Appendix A) and San Diego State University (Appendix B). These documents included written informed consent (Appendix C) and pre- and post-test surveys. Subjects of the study gave consent on the same day they were given the pre- and post-test surveys. All pregnant women who were registered for the course and in attendance were verbally informed about the purpose of this study and completion of pre-tests was used as informed consent of participants.

The first variable of interest was the baseline BSES score. The second variable of interest was the change in the BSES score following exposure to the breastfeeding education course. The third variable of interest is the exploration of themes regarding social network support using qualitative data. In this pilot study, the following hypotheses can be analyzed:

1. Older maternal age (≥ 25 years old), White/Caucasian racial background, and completion of Bachelor’s or higher professional degree are associated with increased breastfeeding self-efficacy scale score at pre-test.
2. Breastfeeding self-efficacy scale score will increase from pre- to post-test following a one-time, three-hour breastfeeding educational course.
3. Exploration of qualitative data using thematic analysis will support the literature findings that the reported presence of formal and informal social support networks has a positive influence on intention of breastfeeding initiation.

Measures

Breastfeeding Self-Efficacy Scale (BSES) was developed using the Breastfeeding Self-Efficacy theory. This scale assesses the mother’s confidence in her ability to breastfeeding her infant (Mossman et al., 2008). It has been used in several studies to measure adult mother’s breastfeeding self-efficacy and its association with the mother’s breastfeeding duration (Blyth et al., 2002; Laanterä et al., 2012; Nichols et al., 2009). The measurement used in this study’s pre-test survey instrument (Appendix D) was a 5-point Likert-type scale, from 1-5, where multiple statements are asked. The following BSE Likert-scale statements were used to analyze increased breastfeeding self-efficacy scale score between pre- and post-test: “I feel that I am well prepared to breastfeed, I know how to initiate breastfeeding with the knowledge I have, I think I will be able to manage the situation
very well if my baby refuses to breastfeed, and I think I will be able to manage the situation very well if breastfeeding feels painful”.

Responses to all Likert-scale response-type statements on both pre- and post-tests were the following: “not confident at all, somewhat not confident, neither sure or unsure, somewhat confident, and very confident”, where a response of 1 means “not confident at all” and a response of 5 means “very confident”. Other information gathered in the pre-test survey instrument included demographic factors such as: mutually exclusive age range, racial/ethnic background, highest completed education level, whether or not it was the woman’s first live-birth and first time breastfeeding, and the length of time breastfeeding was planned along with the following, additional Likert-scale self-efficacy question: “How confident are you that you will be able to breastfeed for the length of time?” In addition, the following qualitative question was posed: “Who or what factors have influenced you in making the decision to breastfeed?” These statements and questions were compiled and used on the pre-test survey questionnaire. For the post-test survey instrument (Appendix E), the four identical Likert-type scale statements related to BSES score from the pre-test survey questionnaire were reused. Each response option on the post-test was assigned a point value, from 1-5, and the BSES score level was thereby quantified. For the purposes of this study, scores of four and five on the aforementioned survey questionnaires were considered as ‘high’ scores. A Cronbach’s alpha coefficient was obtained for pre- and post-test BSES scores and the results were .859 and .840, respectively, indicating internal consistency (reliability).

**Procedures**

The data collection procedure occurred as follows: at the start of each breastfeeding course, the lactation consultant invited the investigator to the front of the classroom. The investigator described the purpose of study and asked those who wished to participate to raise their hand. Each participant was handed a manila envelope which contained another envelope housed within it. In the larger of the two envelopes, participants found two separate pieces of paper which were the written informed consent and the pre-test survey. The post-test survey was enclosed separately in the smaller envelope. Pre- and post-test forms were matched with codes (i.e. #001A, #001B, respectively), and therefore, personal identifying information was not used. Subject participation was determined by completion of
pre-test survey. After review of the written consent and completion of pre-test, the participant replaced both forms into the large manila envelope and sealed the envelope with its metal fixture. After participants finished reading the consent form and completing the pre-test, the lactation consultant started her three-hour breastfeeding course. The envelope remained with the participant at their table space or on the floor, adjacent to the participant’s chair. After the completion of the breastfeeding course, the investigator was re-invited to the front of the class where she directed the participants to re-open their large envelope, remove the second envelope containing the post-test survey and directed the participants to complete the survey. After the participants had completed the post-tests, the subjects placed their own post-tests into the corresponding envelope and placed the envelope into the larger manila envelope. The outer envelopes were then affixed with their metal fixtures and collected by the principal investigator. Review of the written informed consent and completing the pre-test survey took approximately five minutes and completion of the post-test survey took approximately five minutes. Participants were instructed to keep the written informed consent document. Data collection occurred over a three-month time span from late May 2013 through late July 2013 and the investigator attended seven courses.

Participants in this study were recruited from the aforementioned breastfeeding courses held at Sharp Mary Birch Hospital for Women and Newborns. Not all participants in the education course chose to participate in the study and there was a 90% participation rate. Subjects recruited for the purpose of this study met the following inclusion criteria: outpatient pregnant woman, over 18 years of age, may have and have not experienced a live birth of their own, and plans to breastfeed for their first time. The goal was to recruit 40 participants; however, due to an overwhelming response, 70 subjects were recruited. Determined by participant responses on the pre-test, sixty-seven (n=67) pregnant women met eligibility inclusion criteria and three participants were disqualified (n=3) and were not included based upon prior breastfeeding experience.

The demographic variables used in this study were taken from the Centers for Disease Control and Prevention's (2013) "Infant Feeding Practices Study II - Prenatal Questionnaire." The variables of breastfeeding self-efficacy scale score were taken from the article in the Western Journal of Nursing Research, "Confidence in Breastfeeding Among Pregnant Women" by Laanterä et al. (2012).
In addition to using Likert-scale type statements to quantify BSES score, an additional mixed-method was used in this study. The method of thematic analysis using qualitative data was conducted to demonstrate themes of breastfeeding support on a social network platform. In this study, the purpose of the thematic analysis was to determine if having informal and formal social network support has a positive influence on a woman’s intention to initiate breastfeeding. For example, qualitative data analysis can be done using personal interviews with study participants. This qualitative analysis has been used to study themes within breastfeeding decisions (Russell, 2006), therefore, analysis was used to explore if any themes could be collected using the sole qualitative question posed: “Who or what factors have influenced you in making the decision to breastfeed?”

IBM Statistical Package for the Social Sciences Version 21.0 was used for all data analyses. Descriptive analyses including frequencies and cross-tabulations were run, Cronbach’s alpha test for reliability and univariate one-way analysis (ANOVA) were used, and Paired Samples t-test analysis was used to determine whether there was a change in mean score between pre- and post-test written surveys. And, as previously mentioned, thematic analysis using qualitative data was used to explore themes of breastfeeding support on a social platform.

**Potential Risk**

This study assessed the success in increasing breastfeeding self-efficacy scale score of a one-time, three-hour breastfeeding course. This course was designed and implemented by Sharp Healthcare at Sharp Mary Birch Hospital for Women and Newborn’s. Subjects participated in this study at their own will and were registered online through SMBHWN’s website during designated course times. Participation in this study was completely optional and potential subjects in this study were drawn from the attendees of SMBHWN’s breastfeeding courses. Subjects registered in the course were allowed and reminded the option to opt out of the study at any time before and after the breastfeeding course if they felt uncomfortable. Consent to participate was implied by subject’s completion of pre-test survey. Safeguards for subject protection was addressed by not utilizing identifying information when data was collected. The investigator has sole access to the data collected; however, data may be shared with Sharp personnel upon request. There was no known
potential risk of keeping this information as the surveys did not ask for the subject's name, medical record number, social security number, or any other information that would link the subject to her survey data. Additionally, the researcher collected all survey and consent forms and these forms were locked in a secured file cabinet in the researcher's office located off campus.

**DATA ANALYSIS PROCEDURES**

Demographic predictors of an increased level of breastfeeding self-efficacy scale (BSES) score and a statistically significant increase in BSES score following exposure to a breastfeeding education course are primary outcomes of interest in this study. IBM SPSS Statistics Version 21.0 was used for all data analyses. Descriptive analyses were performed via the following: frequencies and cross-tabulation. Cronbach’s alpha (> .70) was then used to check for internal consistency (reliability) of pre-test and post-test scores. Once reliability was established using Cronbach’s alpha (> .70), scale scores were conducted and analyzed separately for pre- and post-tests. Using these scale score results, Paired Samples t-test analysis was conducted to compare the average scores for pre- and post-tests. One-way univariate analysis (ANOVA) was then performed to identify if demographic variables were predictive of an increased BSES score. The following independent demographic variables were of particular interest and were analyzed: age, highest education level, and race/ethnicity to take into account other covariates of breastfeeding initiation and self-efficacy. P-value significance was set to ≤ .05 for all data analyses.
CHAPTER 4

PRESENTATION OF THE FINDINGS

DESCRIPTIVE STATISTICS

All participants were above 18 years of age and were planning to breastfeed for the first time. The study’s participants’ age categories were as follows: 18 to 24, 25 to 29, 30 to 34, 35 to 39, 40+. Race/Ethnicity categories included: White/Caucasian, Black/African American, Hispanic, Asian/Pacific Islander, Arabic/Middle Eastern, Native American Indian and Other. For “Other”, participants in this study who filled in the blank line on the survey, did so with the following: “Indian”, “Chinese, English, and German”, and “Multi-racial”. Education level categories included: “Below 12th grade”, “12th grade”, “Completed GED”, “Technical School”, “Some college or technical school”, “Bachelor’s Degree”, and “Master’s Degree or higher”. The race categories were recoded as “White/Caucasian” and “Non-White”. The “Non-White” category included the following: Black/African American, Hispanic, Asian/Pacific Islander, Arabic/Middle Eastern, Native American Indian, and Other. Educational level was recoded as: “No Bachelor’s Degree”, “Bachelor’s Degree”, and “Graduate Degree” and illustrated in Table 1. Under the “No Bachelor’s Degree” category, the following options were: “Below 12th Grade”, “12th Grade”, “Completed GED”, “Technical School” and “Some college or technical school”. Table 1 illustrates participants of this study.

The number of participants that had not previously breastfed and had not experienced their first live birth was sixty-six. In addition, there was one participant that had not previously breastfed but had already experienced one live birth, which met inclusion criteria and remained included in the study.

Using descriptive analysis, cross-tabulation was run to analyze the frequency of those who were of White/Caucasian descent who had or did not have a Bachelor’s or higher professional degree, and likewise for those who were of Non-white racial/ethnic background. For those of White/Caucasian descent, 13% did not have a Bachelor’s degree and 46% had
<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-24</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>25-29</td>
<td>9</td>
<td>11.8</td>
</tr>
<tr>
<td>30-34</td>
<td>39</td>
<td>51.3</td>
</tr>
<tr>
<td>35-39</td>
<td>10</td>
<td>13.2</td>
</tr>
<tr>
<td>40+</td>
<td>7</td>
<td>9.2</td>
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</tbody>
</table>

<table>
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<tr>
<th>Race/Ethnicity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White/Caucasian</td>
<td>40</td>
<td>52.6</td>
</tr>
<tr>
<td>Black/African American</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7</td>
<td>9.2</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>12</td>
<td>15.8</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>9.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th grade</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>Technical School</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Some college or technical school</td>
<td>8</td>
<td>10.5</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>30</td>
<td>39.5</td>
</tr>
<tr>
<td>Master’s Degree or higher</td>
<td>26</td>
<td>34.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity Recoded</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-white</td>
<td>27</td>
<td>35.5</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>40</td>
<td>52.6</td>
</tr>
</tbody>
</table>

(table continues)
Table 1. (continued)

<table>
<thead>
<tr>
<th>Education Level Recoded</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Bachelor’s Degree</td>
<td>11</td>
<td>14.5</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>30</td>
<td>39.5</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>26</td>
<td>34.2</td>
</tr>
</tbody>
</table>

either a Bachelor’s or higher degree. Three percent of Non-whites did not have a Bachelor’s degree and 37% had either a Bachelor’s or higher degree.

**Cronbach’s Alpha Test for Reliability**

Cronbach’s alpha (> .70) was used to check for internal consistency (reliability) of pre-test and post-test scores. All pre and post-test scores were confirmed as reliable and Table 2 illustrates these results.

Table 2. Cronbach’s Alpha Test for Reliability

<table>
<thead>
<tr>
<th></th>
<th>Cronbach’s alpha value if item removed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test</td>
</tr>
<tr>
<td>Feel well prepared to breastfeed with the knowledge I have</td>
<td>.811</td>
</tr>
<tr>
<td>Know how to initiate with the knowledge I have</td>
<td>.817</td>
</tr>
<tr>
<td>Manage the situation very well if my baby refuses to breastfeed</td>
<td>.808</td>
</tr>
<tr>
<td>Manage the situation very well if breastfeeding feels painful</td>
<td>.847</td>
</tr>
<tr>
<td>Cronbach’s alpha</td>
<td>.859</td>
</tr>
</tbody>
</table>

**Breastfeeding Self-Efficacy Scale Scores**

The means of the cumulative score of each of the four following statements in the pre-test for the breastfeeding self-efficacy section were as follows: “I feel that I am well prepared to breastfeed”, \( M = 2.69, SD = 1.076 \); “I know how to initiate breastfeeding with the knowledge I have”, \( M = 2.45, SD = 1.145 \); “I think I will be able to manage the situation very well if the baby refuses to breastfeed”, \( M = 2.42, SD = 1.047 \); and “I think I will be able to manage the situation very well if breastfeeding feels painful”, \( M = 2.93, SD = \)
1.172). Post-test cumulative scores were as follows: “I feel that I am well prepared to breastfeed”, \((M = 4.42, SD = .556)\); “I know how to initiate breastfeeding with the knowledge I have”, \((M = 4.48, SD = .533)\); “I think I will be able to manage the situation very well if the baby refuses to breastfeed”, \((M = 4.09, SD = .570)\); and “I think I will be able to manage the situation very well if breastfeeding feels painful”, \((M = 4.21, SD = .664)\). Table 3 illustrates the cumulative mean breastfeeding self-efficacy scale scores, accounting for the total mean of all four statements at pre- and then at post-test.

**Table 3. Cumulative Means for BSES Scores**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>2.6194</td>
<td>.93172</td>
</tr>
<tr>
<td>Post-test</td>
<td>4.2997</td>
<td>.47718</td>
</tr>
</tbody>
</table>

**PAIRED SAMPLES T-TEST**

Table 4 illustrates the results of the Paired Samples t-test for the comparison of means of the pre- and post-test cumulative mean scores.

**Table 4. Paired Samples T-Test**

<table>
<thead>
<tr>
<th></th>
<th>Paired dif</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 1</td>
<td>Post-test/Pre-test</td>
<td>1.68030</td>
<td>15.707</td>
<td>66</td>
</tr>
</tbody>
</table>

**ONE-WAY UNIVARIATE ANALYSES (ANOVA)**

One-way univariate analyses ANOVA was used for the following variables of interest: age, race/ethnicity, and highest education level. These independent variables were selected for further analyses to investigate if there was a predictive relationship in increased BSES score on pre-test surveys. For age, results at the \(p < .05\) level for the three conditions were \(F(4, 62) = 1.808, p = .139\). Race/ethnicity was recoded and categorized into the following two categories: Non-white and White/Caucasian. For race/ethnicity, results at the \(p < .05\) level for the three conditions were \(F(1, 65) = .991, p = .323\). And lastly, education level was recoded and categorized into the following three categories: No Bachelor's Degree,
Bachelor’s Degree, and Graduate Degree. For education level, results at the p < .05 level for the three conditions were F(2, 64) = .899, p = .412.

Additional ANOVA analyses were conducted using cumulative BSES score at post-test for testing predictive factors and their relationship with increased BSES post-test scores. The hypothesized independent variables were maternal age, race/ethnicity, and highest education level completed. The effect of age, race/ethnicity, and education level on cumulative BSE post-test scores were analyzed. For age, results at the p < .05 level for the three conditions were F(4, 62) = 1.186, p = .326. For race/ethnicity, results at the p < .05 level for the three conditions were F(1, 65) = .222, p = .639. And lastly, for education level, results at the p < .05 level for the three conditions were F(2, 64) = .587, p = .559.

Cumulative mean pre-test BSES score was the lowest for those with Bachelor’s Degree, with a mean score of 2.52, as compared to those with No Bachelor’s Degree or Graduate Degree. Participants without a Bachelor’s Degree had a slightly higher BSE score at pre-test than those with a Graduate Degree, with mean scores of 2.95 and 2.60, respectively. For post-test cumulative BSES mean score, results showed a slight increase in mean score had occurred as education level increased. No Bachelor’s Degree had a cumulative mean score of 4.18, and Bachelor’s Degree and Graduate Degree had mean scores of 4.28 and 4.36, respectively.

**Thematic Analyses**

Thematic analysis was conducted under the assumption that women’s supportive social networks in which supporters had previous knowledge or experience with breastfeeding practices. This was hypothesized in this study due to research found in articles by Balcazar et al. (1995), Bentley et al. (1999), and Cohen et al. (1999), therefore the author of this study had interest in exploring if and how a woman’s decision to breastfeed was related to the support received by family members and others in her social support network. The following themes were found among the cohort as a result of the asking the question, “Who or what has been an influence in your decision to breastfeed?”:

1. **Health benefits:**
   a. Previous knowledge of breastfeeding benefits, (n=45), Participants stated, “knowledge that it is healthy for baby,” “tons of health benefits from breastfeeding,” “the health of my baby,” and “breast is best for the baby
(health and growth), “just that I know it’s the healthiest option for my baby and myself,” “common sense, best thing for both baby and mom”;

b. Scientific papers discussing the health benefits, including long term benefits of the baby and mother; (n=12), Participants stated, “scientific papers discussing the benefits,” “studies have shown better health for the baby,” “literature,” “articles,” “I’ve read about many nutritive and physical benefits of breastfeeding for the baby and I want to give my baby any advantages and the best nutrition possible”;

2. Bonding aspect of breastfeeding as a source of relationship building between the mother and baby; (n=11), Participants stated, “relationship building,” “bonding,” and “bonding with child and mom”;

3. Economical benefit i.e. financial savings due to not having to purchase infant formula; (n=8), Participants stated, “heard formula is expensive,” “money” and “financial reasons (cost-savings),” and “cost of not buying as much formula”;

4. Informal social network; (n=22), Participants stated, “mother breastfed my sister and I,” “talking to friends and family,” “friends with children,” and “best friend couldn’t breastfeed but still pumped because of the amazing benefits for over a year”;

5. Formal social network; (n=8), Participants stated, “my doctor,” “my aunt (who) is a lactation consultant,” and “childbirth classes”;

6. Self-motivated; (n=2), Participants started, “I’m registered dietitian and have [a] strong feeling to make breastfeeding work,” “as a medical provider myself, immunologically it is the right thing to attempt for baby’s immune system.”

**DISCUSSION OF THE FINDINGS**

The purpose of this study was to identify any predictive factors of increased breastfeeding self-efficacy (BSE) as well as any statistically significant increase in Breastfeeding Self-Efficacy Scale (BSES) score following the one-time, three-hour breastfeeding course. First, it was hypothesized that maternal age, race/ethnicity, and education level were predictive of increased breastfeeding self-efficacy level as measured using BSES scale score on a written survey. Second, it was hypothesized that breastfeeding self-efficacy would increase from pre- to post-test following a one-time, three-hour breastfeeding education course. Lastly, it was hypothesized that the reported presence of familial and other supportive relationships would have a positive influence on a mother’s decision to breastfeed. Several studies, nationally and internationally, have analyzed and supported these hypotheses and the studies have found that new mothers with an increased breastfeeding self-efficacy score were significantly more likely to initiate breastfeeding, continue to breastfeed for a longer duration and exclusively breastfeed [as compared to those
with lower breastfeeding self-efficacy scores] (Blyth et al., 2002; Laanterä et al., 2012; Russell, 2006).

Several demographic variables were found in the literature to be predictive of an increased level of BSE at baseline/before class and those included: women of older maternal age (≥ 25 years old), who were of White/Caucasian race/ethnicity, had a Bachelor’s or higher professional degree, as well as the reported presence of familial and other supportive relationships (Balcazar et al., 1995; Bentley et al., 1999; Cohen et al., 1999; Kornides & Kitsantas, 2013; Meedya et al., 2010; Scott & Binns, 1999). The results of this pilot study did not conclude any significant findings for the hypothesized predictor variables (maternal age, race/ethnicity, and education level). The lack of similar findings may have been due the small population size and access, as this was a self-selected group of participants and a convenience sample. Additionally, as hypothesized, familial and other supportive relationships were found to positively influence the participants of this study. This supports the literature in that social network support helps facilitate intention of breastfeeding initiation (Berridge et al., 2005; Cohen et al., 1999; Kornides & Kitsantas, 2013; Mickens et al., 2009; Stremler & Lovera, 2004).

Another significant finding of this study was the overall improvement in the increase of breastfeeding self-efficacy scale score from pre-test to post-test as hypothesized following attendance of a one-time breastfeeding course. This result suggests that the breastfeeding educational course held at Sharp Mary Birch Hospital for Women and Newborns, in San Diego, California, is successful in increasing breastfeeding self-efficacy scale scores from pre-to-post breastfeeding course. This result may also conclude that there may be sampling bias due to self-report on the survey questionnaires.

Studies in the literature concluded that higher education level (Bachelor’s degree or higher) was predictive of breastfeeding initiation in those who were of White/Caucasian descent (Chin et al., 2008; van Rossem et al., 2009). The majority of the participants of this pilot study were of White/Caucasian descent and highly educated; however, consideration needs to be given to sampling biases such as self-selected convenience sample and the study region’s unequal distribution of diverse within racial/ethnic backgrounds and socio-economic status. This pilot study was located in a multi-national region of San Diego, where many of
the individuals are immigrants. Further comparative research would be interesting to assess differences between racial and ethnic groups within regions of San Diego County.

An interesting finding was that cumulative mean pre-test BSES score was the lowest for those with Bachelor’s Degree as compared to those with No Bachelor’s Degree or with a Graduate Degree. Participants without a Bachelor’s Degree had a slightly higher BSES score at pre-test than those with a Graduate Degree. This finding is not congruent with studies in literature that state having at least a Bachelor’s or higher professional degree is predictive of higher BSES score at pre-test (Chin et al., 2008; Kornides & Kitsantas, 2013; Meedya et al., 2010). The result may have been due to limitations of the study’s population sample, size and reach, as well as reporting bias such as self-report. It may be suggestive that there may be a factor of over-confidence of those who scored higher on the BSES at pre-test. A control group would have been advantageous to this pilot study; however, the researcher was unable to include a control group due to limitations of the hospital’s policies.
CHAPTER 5

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Breastfeeding initiation and duration are not at suggested target levels (Centers for Disease Control and Prevention, 2013). Breastfeeding self-efficacy has shown to be a factor that influences intent of breastfeeding initiation and length of breastfeeding duration. Educational classes have shown to be successful in increasing breastfeeding self-efficacy scores. Other studies have utilized one-time breastfeeding courses to provide education and this was consistent with the course reviewed for this study. This study lent support for a one-time breastfeeding course improving breastfeeding self-efficacy of first time mothers. Future investigators of participant recruitment need to consider encouraging women of low and high Breastfeeding Self-Efficacy Scale scores in an effort to positively influence the woman’s breastfeeding self-efficacy.

There were several limitations pertaining to this study. The primary limitation was a small sample size of n=67. This study was limited to self-selected convenience sampling.

A second limitation of this study was that there was not equal representation across demographic variables. Sixteen percent of participants did not have a Bachelor’s Degree, 45% had Bachelor’s Degrees, and 39% had Graduate Degrees. It is suggestive that the population who chose to attend breastfeeding educational course are those who take a further step in recognizing the value in available educational resources. Future investigators of participant recruitment need to consider encouraging women of all educational levels to attend breastfeeding educational courses. As discussed above, the breastfeeding educational course takes place in an ethnically diverse immigrant region and more efforts are needed to include this population.

Sixty percent of the participants of this study were of White/Caucasian racial/ethnic background and 40% were of Non-white racial background. Therefore, a third limitation of this study was that it was difficult to compare across racial groups. Future recommendations for demographic disparities are two-fold: More of an effort in the concentration of participant
recruitment for breastfeeding courses needs to be focused on equalizing demographic variables. Future investigators of breastfeeding self-efficacy need to consider studies that have a more equal racial/ethnic representation for the purposes of generalizability.

Studies in the literature have shown that being of White/Caucasian ethnic background and having at least a Bachelor’s degree has been associated with breastfeed initiation (Chin et al., 2008; van Rossem et al., 2009). The majority of the participants of this study were of White/Caucasian ethnic background (53%) and this group also had the highest rate of Bachelor’s or higher degree (31%, versus 25% for Non-white) and this finding was congruent with the literature. This result may be a due to sampling bias such as the population being self-selected and a convenience sample. As well, the region where this study took place may have had a population where there was unequal distribution of diversity within racial/ethnic background and socio-economic status.

A fourth limitation of this study was its pre- and post-test design. This limitation was two-fold. First of all, the participants completed the post-test survey immediately following the 3-hour breastfeeding course and participants may have felt overwhelmed with the dose of information, which may have given influence to their responses on the post-tests. Secondly, no post-partum data was gathered. Limited conclusions can be drawn regarding actual breastfeeding initiation rates and the relationship between breastfeeding self-efficacy and breastfeeding duration as other studies have implied. A future recommendation would be to follow participants post-partum to gain longitudinal evidence of breastfeeding initiation and duration. By following mothers post-partum, useful information can be further assessed regarding actual breastfeeding initiation rates and the relationship of breastfeeding self-efficacy and actual breastfeeding duration. This data can be useful to health professionals and researchers in the maternal and child health field as it has the potential to explore areas of discrepancy where breastfeeding support by way of breastfeeding self-efficacy can be improved. Therefore, improvements in overall breastfeeding rates could be met, and possibly exceed, Healthy People 2020’s (2013) goals. Additionally, this data can be useful to entities and agencies whose mission statements are supportive of breastfeeding, by assisting with the innovation of programs’ scopes of work. This would allow future insight to potential program development with health goals, objectives, and campaigns that would also lead to increased breastfeeding rates of initiation and breastfeeding duration.
REFERENCES


APPENDIX A

SHARP MARY BIRCH HOSPITAL FOR WOMEN
AND NEWBORNS IRB APPROVAL DOCUMENT
March 29, 2013.

Debra Poeltler, RN, MPH
Sharp Mary Birch Hospital for Women
3003 Health Center Drive
San Diego, CA 92123

RE: IRB #130381 / Women’s Outpatient Education – Prenatal Breastfeeding Classes

Dear Ms. Poeltler:

The Sharp HealthCare Institutional Review Board (IRB000000920; FWA0000084) has reviewed and approved your application for the above-referenced research activity in accordance with 45 CFR 46.110(b)(1), Category 7 and/or 21 CFR 56.110(b)(1). This approval includes:

- Research Narrative
- Waiver of authorization is allowed in accordance with 45 CFR 164.512(l)(2)
- Waiver of informed consent is allowed in accordance with 45 CFR 46.116(d)(1-4)
- Consent Letter (nvtd)
- Pre-test Survey Instrument (nvtd)
- Post test Survey Instrument (nvtd)

This action will be reported to all committee members at the April 17, 2013 meeting.

The following site(s) and site personnel are approved:

Site:
Mary Birch

Principal Investigator: Debra Poeltler, RN, MPH

Sub-investigator and Other Site Personnel:
Chincuanco, Janice

The IRB reference number is 130381. Please include this reference number in all future correspondence relative to this research activity.

As a reminder, it is the responsibility of the Principal Investigator to submit periodic status reports to the IRB. Periodic review of this research activity may be conducted via an expedited process and is scheduled for inclusion on the March 19, 2014 IRB meeting agenda. Approval for this research activity will expire if periodic review is not
conducted on or before 3/20/2014. Please provide a completed research status report to the IRB Office no later than 03/04/2014 to assure timely review and continuation of this research activity.

Changes or amendments to the research activity protocol, informed consent documents, and to other research activity-related documents, as well as new documents, tools or advertisements to be utilized as part of this research activity, must be reviewed and approved by the IRB before changes are implemented.

It is the policy of Sharp HealthCare IRB that the investigator(s) submit a copy of any abstracts, papers, manuscripts, posters, presentations, articles, etc. to the IRB prior to publication or dissemination. Sharp HealthCare would expect that if the results of the research project came to publication, their role would be properly recognized in the research or have the opportunity to have the organization’s name withheld. This also gives the organization the opportunity to prevent disclosure of data or information that is beyond the scope of the research agreement.

Thank you and please feel free to contact me at (858) 499-4836 if you have any questions.

Sincerely,

Lois Collier, CIP
IRB Specialist

Enc.
APPENDIX B

SAN DIEGO STATE UNIVERSITY IRB APPROVAL DOCUMENT
Expeditied Approval
Reg: 45 CFR 46.110(6)(7) – minimal risk
Submit Report of Progress by: 4/22/14

May 22, 2013

Student Researcher: Janice Chincuncan
Faculty Researcher: Dr. Paula Usita
Department: Public Health
Contract/grant number: N/A
IRB Number: 1247089


Dear Janice Chincuncan:

The above referenced protocol was reviewed and approved as expedited in accordance with SDSU's Assurance and federal requirements pertaining to human subjects protections within the Code of Federal Regulations (45 CFR 46). This approval applies to the conditions and procedures described in your protocol. Please notify the IRB office if your status as an SDSU-affiliate changes while conducting this research study (you are no longer an SDSU faculty member, staff member or student). This approval expires May 22, 2014.

- The following approved consent form(s) currently uploaded to your protocol file within the viRB system, within the Supporting Documents section is listed below, the requirement to obtain signature has been waived per 46.116(d). The SDSU IRB has determined that an additional IRB stamp (SDSU-specific) of approval is not required on this document:
  - Chincuncan_Consent Letter Approved with Stamp_5_13_2013.pdf

Graduate Students: This notification may be used as documentation to register in Thesis 799A. Attach a hard copy of this notice to your Appointment of Thesis/Project Committee form prior to submitting the completed form to Graduate and Research Affairs - Student Services Division. For questions related to this correspondence, please contact the IRB office (619) 594-6622 or e-mail irb@mail.sdsu.edu.

Sincerely,

Ramona Pate
Chair, Institutional Review Board

Choya Washington
Regulatory Compliance Analyst
Important information for ALL expedited and Full Committee studies:

Report of Progress:

*Please note your expiration date.* To request continued recruitment, data collection and/or data analyses, a Report of Progress must be submitted prior to the expiration date of your study. A lapse in approval requires that all research with human subjects be suspended until approval is obtained and may result in a temporary hold on funds, if your study is funded. The investigator will be out of compliance with federal regulation and university policy if human subjects continue to be involved in this project without a valid IRB approval.

The approved consent form has been uploaded to your protocol file within the vIRB system, within the Supporting Documents. This document bears the SDSU IRB's stamp of approval. Print a copy of this stamped form to use when documenting informed consent from research participants. Changes may not be made to the consent document without prior review and approval of the IRB. You are required to keep signed copies of the consent document for three years after your project has been completed or terminated.

To submit a request to extend IRB approval:

- Log in to your WebPortal account and access the protocol
- On the protocol Main Page, click on "Progress Reports"
- under Protocol Maintenance and enter a report
- Once you have filled in your responses on the report form, click "submit".
- You should receive an automated email verifying IRB receipt of your Report of Progress.

**REQUIREMENT:** Within the description box of the Report of Progress form, indicate which, if any, consent form(s) you are requesting to renew. Refer to the Consent Form Development section of the protocol and provide the IRB with the specific file names and date(s) of upload of the consent document(s) you are requesting to renew.

Modifications:

If any changes to your study are planned, you must submit a modification request and receive IRB approval prior to the implementation of study changes. To submit a modification request, please follow the necessary steps below:

**Modification steps:**

- Access the protocol via the Webportal
  [https://sunspot.sdsu.edu/pls/webapp/web_menu.login/](https://sunspot.sdsu.edu/pls/webapp/web_menu.login/)
- Protocol main page click on "Modifications" to enter a report
- Once the report has been filled out completely, click "submit"
- Make sure to email the IRB [irb@mail.sdsu.edu](mailto:irb@mail.sdsu.edu) notifying them that a modification has been submitted.
Requirements:

- To document your modification in detail, access your currently approved protocol in the “Full Document Viewer.”
- Copy and paste the document into Word and use “track changes” to document revisions to your protocol.
- Save the file (NameModification_Date) and upload it to your protocol file.
- When approved by the IRB, this document will be the current version of your approved protocol.

Please note the following:

a) For studies requiring consent translation: The SDSU Institutional Review Board (IRB) does not verify the accuracy of the translated document. IRB approval of this document for use in subject recruitment is based on your assurance that the translated document reflects the content of the IRB approved English version of the document.

b) If recruitment will take place through an outside agency or organization, confirm with that institution that you have permission to conduct the study prior to initiation of any study activities.

c) Approval is contingent upon the completion of the SDSU human subjects tutorial (found at: http://www-rohan.sdsu.edu/~pra/login.php) by all members of the research team. This certification must be renewed every 2 years.

d) The SDSU IRB requires investigators to report any problems that arise during the course of an IRB approved research study. Serious adverse events or unanticipated problems that are life-threatening or have resulted in serious injury or death must be reported to the IRB immediately whenever possible or within at least 48 hours from the onset of the incident. All other problems must be reported to the SDSU IRB within 5 days. To complete and submit an adverse event report, go to the Protocol Main Menu, click on “Adverse Events” under “Protocol Maintenance” and follow the instructions. For more information and consultation, contact the IRB office directly via Email at: IRB@mail.sdsu.edu or telephone: 619-594-6622, Monday through Friday from 8:00AM to 4:00PM.
APPENDIX C

SHARP MARY BIRCH HOSPITAL FOR WOMEN AND NEWBORNS INFORMED CONSENT LETTER
Breastfeeding Self-Efficacy Study of Pregnant Women

Thank you so much for taking the time to participate in this study. I know you are very excited for the upcoming birth of your new baby.

You are being asked to participate in a research study. This research is being conducted by Janice Chincuancio, a Master's in Public Health student at San Diego State University.

The primary objective of this study is to conduct a pre- and post-test survey analysis of your breastfeeding self-efficacy (confidence). These surveys will be distributed before and after taking Sharp Healthcare's 3-hour Breastfeeding Course.

Your participation in this study will take approximately 10 minutes in total. Potential subjects in this study will be drawn from the attendees of Sharp Mary Birch Hospital for Women and Newborns' breastfeeding courses.

Your participation in this study is voluntary, and if you do not wish to participate, you do not need to do anything further. If you choose to take part, your completion of one pre-test and one post-test will indicate that you have read this consent letter, have had a chance to ask any questions you have about the study and that you consent to participate. You can change your mind and stop your participation at any time.

Your individual responses to the research surveys will be held in strict confidence. Your individual responses will not be shared with anyone at the organization and will be accessible only to the researchers and the Sharp HealthCare Institutional Review Board. Each survey will have an entity initial and number for tracking response rate by entity. There will be no individual respondent identifiers attached to the survey. Your individual responses will be aggregated with all other participants in the study, and feedback will be provided to Sharp HealthCare personnel upon request.

There are minimal risks associated with your participation in this study. There may be discomfort caused by answering questions about breastfeeding. There may be no direct benefit to you from your participation in this study. It is hoped that the information collected during this study may be used to analyze the confidence pregnant women who plan to breastfeed for the first time and help explain better long-term, health outcomes in women and children.

If you have any questions at any time, please feel free to contact Janice Chincuancio at (619) 277-8630 or email: janice.chincuancio@gmail.com. In addition, if you have any questions about your rights as a participant in research you may contact the Sharp HealthCare Institutional Review Board at 858-499-4836.

Thank you for your consideration.

V1 30Apr2013

APPROVED
APPENDIX D

SURVEY INSTRUMENT: PRE-TEST
Breastfeeding Self-Efficacy Survey

Section 1:

Demographic Information: Please answer the following questions in the space provided.

1. Please select the age range that describes you:
   - [ ] Under 18
   - [ ] 18-24
   - [ ] 25-29
   - [ ] 30-34
   - [ ] 35-39
   - [ ] 40+

2. Please select your race (optional):
   - [ ] White/Caucasian
   - [ ] Black/African American
   - [ ] Hispanic
   - [ ] Asian/Pacific Islander
   - [ ] Arabic/Middle Eastern
   - [ ] Native American Indian
   - [ ] Other: __________________________

3. What is your highest level of education completed:
   - [ ] Below 12th grade
   - [ ] 12th grade
   - [ ] Completed GED
   - [ ] Technical School
   - [ ] Some college or technical school
   - [ ] Bachelor's Degree
   - [ ] Master's Degree or higher

4. How many weeks pregnant are you?
   __________________________

5. Will this be your first live-birth?
   - [ ] Yes
   - [ ] No

6. Will you be breastfeeding for the first time?
   - [ ] Yes
   - [ ] No
Breastfeeding Self-Efficacy Survey

7. How long do you plan to breastfeed?

______ Months

8. Using 1 to mean “Not at all Confident” and 5 to mean “Very Confident,” how confident are you that you will be able to breastfeed for the length of time you selected in Question #7?

<table>
<thead>
<tr>
<th>Not at all Confident</th>
<th>Somewhat Not Confident</th>
<th>Neither Sure or Unsure</th>
<th>Somewhat Confident</th>
<th>Very Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Section 2:
For the following set of statements, using 1 to mean “Not at all Confident” and 5 to mean “Very Confident,” circle your current confidence level.

1. I feel that I am well prepared to breastfeed.

<table>
<thead>
<tr>
<th>Not at all Confident</th>
<th>Somewhat Not Confident</th>
<th>Neither Sure or Unsure</th>
<th>Somewhat Confident</th>
<th>Very Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. I know how to initiate breastfeeding with the knowledge I have.

<table>
<thead>
<tr>
<th>Not at all Confident</th>
<th>Somewhat Not Confident</th>
<th>Neither Sure or Unsure</th>
<th>Somewhat Confident</th>
<th>Very Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

3. I think I will be able to manage the situation very well if my baby refuses to breastfeed.

<table>
<thead>
<tr>
<th>Not at all Confident</th>
<th>Somewhat Not Confident</th>
<th>Neither Sure or Unsure</th>
<th>Somewhat Confident</th>
<th>Very Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Breastfeeding Self-Efficacy Survey

4. I think I will be able to manage the situation very well if breastfeeding feels painful.

Not at all Confident  Somewhat Not Confident  Neither Sure or Unsure  Somewhat Confident  Very Confident

1  2  3  4  5

Section 3:

Please answer the following question in the space provided.

1. Who or what factors have influenced you in making the decision to breastfeed?

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Thank you for completing the Pre-test. Please replace this form along with your informed consent into the large manila envelope. Close envelope with metal fixture and keep envelope at your seat.
APPENDIX E

SURVEY INSTRUMENT: POST-TEST
POST-TEST

Breastfeeding Self-efficacy Survey

You have now completed your 3-hour breastfeeding course. Please answer the survey below based on what you learned today and how you now feel about breastfeeding.

For the following set of statements, using 1 to mean “Not at all Confident” and 5 to mean “Very Confident,” circle your current confidence level.

1. I know how to initiate breastfeeding with the knowledge I have.

   Not at all Confident | Somewhat Not Confident | Neither Sure or Unsure | Somewhat Confident | Very Confident
   | 1                     | 2                      | 3                     | 4                      | 5

2. I think I will be able to manage the situation very well, if my baby refuses to breastfeed.

   Not at all Confident | Somewhat Not Confident | Neither Sure or Unsure | Somewhat Confident | Very Confident
   | 1                     | 2                      | 3                     | 4                      | 5

3. I think I will be able to manage the situation very well, if breastfeeding feels painful.

   Not at all Confident | Somewhat Not Confident | Neither Sure or Unsure | Somewhat Confident | Very Confident
   | 1                     | 2                      | 3                     | 4                      | 5

4. I feel that I am well prepared to breastfeed.

   Not at all Confident | Somewhat Not Confident | Neither Sure or Unsure | Somewhat Confident | Very Confident
   | 1                     | 2                      | 3                     | 4                      | 5

Thank you for completing the Post-test. Please replace this sheet into the envelope in which it was provided. Keep envelope at your seat and researcher will collect.

APPROVED

By Sharp Healthcare Institutional Review Board at 9:59 am, Mar 18, 2013