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# Breastfeeding Self-Efficacy in a Sample of WIC Participants

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Breastfeeding Self-Efficacy in a Sample of WIC Participants

by

Sarah Rowe

A thesis submitted to the faculty of  
Gardner-Webb University Hunt School of Nursing  
in partial fulfillment of the requirements for the  
Master of Science in Nursing Degree

Boiling Springs, North Carolina

2015

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## Abstract

Breastfeeding is recognized as the gold standard for infant nutrition. Women enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) give birth to over half of the infants born in the US and over 50% of manufactured formula is sold to WIC participants. The aim of this study was to determine the breastfeeding self-efficacy score and to evaluate if there was a relationship between breastfeeding self-efficacy scores and initiation and duration of breastfeeding in a sample of women enrolled in a WIC program. A total of 33 subjects were included in this study. Findings indicated women enrolled in WIC had moderate feelings of breastfeeding self-efficacy at six weeks postpartum as measured by the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF). Results lacked evidence to support that those who initiated breastfeeding scored higher on the BSES-SF than those who did not. Results did support a positive relationship between higher breastfeeding self-efficacy scores and longer duration of breastfeeding. Specific recommendations for nurses regarding breastfeeding support are provided based on findings.

*Keywords:* Breastfeeding, Breastfeeding Self-Efficacy, Breastfeeding Self-Efficacy Scale, WIC

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## **CHAPTER I**

### **Introduction**

The benefits of breastfeeding are well documented for promoting ideal nutrition along with providing ideal growth and development (Shrifirad, Kamran, Mirkarimi, & Farahani, 2011). The ultimate goal of the Centers for Disease Control and Prevention (CDC) (2014) is to improve public health. One of the methods to improve public health is to increase breastfeeding by promoting and supporting optimal breastfeeding practices (CDC, 2014). Breastfed babies benefit from reduced risk of obesity, decreased development of asthma, reduced risk of SIDS, and increased immunities, while breastfeeding also provides health benefits to mom (Lessen, 2012).

Along with health benefits, there are economic benefits as well for mothers who choose to breastfeed. Economic benefits include reduced expenditures on infant formula, less insurance claims, and time off of work due to the documented health benefits of breastfeeding (U.S. Department of Health & Human Services [USDHHS], 2011). In 2011, the Surgeon General made a call to action to support breastfeeding. Although breastfeeding has been well documented as having substantial health benefits and many efforts have been established to increase awareness and promote breastfeeding, further intervention is still necessary.

### **Significance**

The World Health Organization (WHO) (2013) stated that “breastfeeding is the best way to provide newborns with the nutrients they need”. The WHO also recommended exclusive breastfeeding until six months and continued breastfeeding along with the addition of healthy foods up to two years and beyond. Along with the

WHO's goals for breastfeeding, the U.S. Department of Health and Human Services' (USDHHS) Healthy People 2020 program has established goals for breastfeeding recommending that "82% of infants breastfed at birth, 61% at six months, and 34% until one year" (Sutherland, Pierce, Blomquist, & Handa, 2012, p. 1666). Although there have been improvements the United States breastfeeding initiation rate is currently at 76.5%, with six and 12 months, 49% and 27% respectively (Pinto & Schub, 2014).

At present the scores are improving, but have not reached the target numbers. Currently breastfeeding is less common among women of lower income, black race, and younger maternal ages, with only 74% of infants ever being breastfed (Sutherland et al., 2012). Less educated women are less likely to initiate breastfeeding, as well as women who do not attempt breastfeeding with a first pregnancy being less likely to initiate breastfeeding in later births (Sutherland et al., 2012). Subsequently, women who successfully breastfed during a first pregnancy showed increased success in subsequent births (Sutherland et al., 2012). Factors such as demographic variables and access to available resources and support have an impact on breastfeeding initiation and duration of breastfeeding (Kim, Lee, Park, Jang, & Kim, 2013; Landau, 2011; Schlickau & Wilson, 2005).

### **Purpose**

With the documented evidence that women struggle with successful initiation and the continuation of breastfeeding for the first year, there are some specific demographics that seem to indicate women who are especially at risk for unsuccessful breastfeeding. Those who are less educated, younger, primiparous, poorer, a WIC participant, or living in the Midwest or South are less likely to initiate breastfeeding and more likely to stop

breastfeeding (Ruowei, Fein, Chen, & Grummer-Strawn, 2008). The purpose of this study was to determine if breastfeeding education in several rural southeastern United States counties was effective in providing WIC participants with the breastfeeding self-efficacy (confidence) to successfully initiate and maintain breastfeeding.

### **Theoretical or Conceptual Framework**

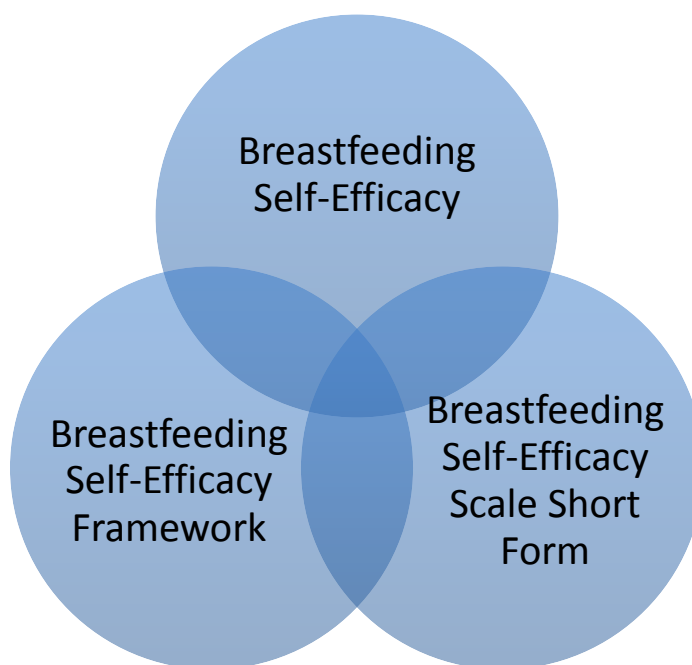
Even though education is an essential component of successful breastfeeding, mothers can have knowledge regarding breastfeeding, but still choose to bottle-feed. Knowledge alone does not ensure successful initiation and continued success with breastfeeding. Other factors play into a mother's choice as to whether or not she chooses to breastfeed.

Self-efficacy is a concept based on Albert Bandura's Social Cognitive Theory that he developed in 1977 (McCarter-Spaulding & Dennis, 2010). Bandura suggested in his theory that an individual's attitudes, abilities, and cognitive skills played a large role in how one interpreted a situation and then responded to that given situation (Noel-Weiss, Bassett, & Cragg, 2006). The theory suggested that self-efficacy "influences the choices people make and how they feel about facing a challenge" (Noel-Weiss et al., 2006, p. 351). This implied that those with higher levels of self-efficacy will be more likely to exert effort and persevere to succeed.

Breastfeeding is a skill that requires knowledge and the ability to persevere when difficulties arise. Bandura suggested that personal efficacy will influence whether coping behaviors will be initiated, how much effort will be expended, and how long it will be sustained when an individual faces obstacles (Bandura, 1977). Breastfeeding self-efficacy

“is a potentially modifiable variable that has been shown to predict a longer duration and increased exclusivity of breastfeeding” (McCarter-Spaulding & Dennis, 2010, p. 112).

Bandura’s self-efficacy concept was used in the development of the Breastfeeding Self-Efficacy Framework with the intention to promote the conceptual development of breastfeeding confidence and to help support interventions (Dennis, 2010). Dr. Cindy-Lee Dennis developed the Breastfeeding Self-Efficacy Scale, which was used in this study to determine if higher levels of breastfeeding self-efficacy indicated increased breastfeeding initiation rates and longer duration among WIC mothers. Previous use of this model has shown a positive relationship between self-efficacy and breastfeeding, and the purpose of this study was to investigate this relationship in the WIC population.



*Figure 1: Concept-Theory-Empirical Model Based on the Breastfeeding Self-Efficacy Framework*

Breastfeeding rates are impacted by a variety of variables such as geographic area, ethnicity, maternal education, and maternal age (Lessen, 2012). The WIC program is the largest governmental nutrition program and it encourages mothers to breastfeed. Pregnant women and new WIC mothers are provided with breastfeeding education and support in hopes of improving the nutritional status of infants (United States Department of Agriculture, n.d.). Nearly half of all mothers who give birth in the United States are enrolled in WIC (Lessen, 2012). Understanding the breastfeeding self-efficacy rates in the WIC population and the relationship between those scores related to initiation and duration of breastfeeding can provide helpful information for healthcare providers. With this in mind, the following research questions guided this study.

### **Research Questions**

1. What is the breastfeeding self-efficacy of women enrolled in a WIC program at six weeks postpartum?
2. What is the relationship between breastfeeding self-efficacy of women enrolled in a WIC program and breastfeeding initiation?
3. What is the relationship between breastfeeding self-efficacy of women enrolled in a WIC program and breastfeeding duration?

### **Definition of Terms**

The following terms are described for use in this study. *Breastfeeding Self-Efficacy* (BSE) refers to a mother's confidence in her ability to breastfeed her infant (Dennis, 1999). BSE score is defined as the literal number score that an individual received after completion of the breastfeeding self-efficacy scale. *Breastfeeding initiation* is defined in this study as whether or not a woman attempts breastfeeding. Women who

initiated are those who attempted breastfeeding. Those who did not initiate are women who did not attempt breastfeeding. *Duration* is referred to in this study as the length of time a women breastfed as indicated by “never attempted” with options continuing in weeks from one week to over six weeks.

The abbreviation *WIC* stands for the Special Supplemental Nutrition Program for Women, Infants, and Children. The WIC program was established to protect the health of low-income women, infants, and children up to age five who are at nutritional risk. The WIC program provides nutritious foods to supplement diets, nutrition education including breastfeeding promotion and support and referrals to health and other social services (United States Department of Agriculture [USDA], n.d). Federal government grants provide funding but state agencies are the ones who administer the WIC services. Pregnant, postpartum, and breastfeeding women, infants, and children up to age five who meet income eligibility and state residence criteria, and who are also deemed at “nutrition risk” can receive WIC services (USDA, n.d.). Benefits from WIC are not limited to just food, but include access to health screening, and services such as nutrition and breastfeeding counseling, immunization screening and referrals, and substance abuse referrals (USDA, n.d.).

### **Summary**

“Breastfeeding is the most natural and essential way for feeding newborn babies” (Shrifirad et al., 2012, p. 5). Currently the breastfeeding rates for initiation of breastfeeding as well as the duration of breastfeeding have not been reached in the United States. Breastfeeding significantly impacts the health of women and children and is an important public health issue (Bartick, Stuebe, Shealy, Walker, & Grummer-Strawn,

2009). With the continued need for increased breastfeeding rates and longer duration of breastfeeding in the US, evaluating the breastfeeding self-efficacy rates and looking at the relationship between self-efficacy and the initiation and duration of breastfeeding of mothers in the WIC population is essential. This will extend the information that is available about this population and provide useful predictive information to assist staff in their education and interventions with mothers.



## CHAPTER II

### Literature Review

Even though breastfeeding has existed for centuries, women still need knowledge (Mellin, Poplawski, Gole, & Mass, 2011) and proactive support in many forms (Seehusen & Ledford, 2013). In the US, bottle-feeding is accepted as a normal way to feed an infant when in actuality scientific evidence shows that breastfeeding is “the benchmark for infant feeding and that non-breastfeeding presents many risks for children, mothers, and society” (Lamontagne, Hamelin, & St-Pierre, 2009, p. 42). The purpose of this study was to determine the breastfeeding self-efficacy of postpartum mothers enrolled in WIC and to determine if there was a relationship between higher BSE scores and higher rates of initiation and duration of breastfeeding. Few studies exist that look at BSE in the WIC population.

A comprehensive literature search was conducted using the following: Cumulative Index for Nursing and Allied Health Literature (CINAHL), ProQuest Nursing and Allied Health Source, PubMed, Health and Psychosocial Instruments (HaPI), and Mosby’s Nursing Skills. An abundance of literature was available regarding breastfeeding education and variables that impact successful breastfeeding initiation and duration. The literature search included articles that supported breastfeeding interventions and breastfeeding self-efficacy studies. The following key words were utilized during the literature search: breastfeeding, breastfeeding education, breastfeeding self-efficacy, breastfeeding initiation, and breastfeeding duration.

## **Impact of Breastfeeding Education and Supporting Interventions**

Research suggested that a positive relationship exists between increased breastfeeding education and better success rates for breastfeeding (Kim et al., 2013; Mellin et al., 2012; Sutherland et al., 2012). Research has been conducted related to in-hospital practices that encourage early breastfeeding in hopes of having higher breastfeeding success rates. One such study included 82 women and concluded that early breastfeeding seemed to contribute to increased rates of exclusive breastfeeding without any formula supplementation. While on the other hand prenatal breastfeeding education was linked to sustained breastfeeding rates, and increased understanding. Limitations included a small sample size that was collected within a single institution (Kim et al., 2013).

Mellin et al. (2011) found that educational programs and adherence to protocols can help to increase exclusive breastfeeding, as well as helping to improve healthcare provider knowledge, comfort level, and attitudes regarding breastfeeding. This study included 53 health care providers consisting of obstetricians, pediatricians, and nurses. The study also included a pre-intervention patient group of 130 women, and a post-intervention group consisting of 77 women who had similar demographics. The healthcare providers completed a survey before the implementation of the education intervention and then again six months after the breastfeeding education intervention. Overall, the healthcare providers experienced a significant increase in knowledge and comfort level with breastfeeding issues after the intervention although there was not a significant change in attitude toward breastfeeding (Mellin et al., 2011).

Mothers in the pre and post intervention groups completed a survey and the results showed that the pre-intervention group reported 55% exclusive breastfeeding while the post-intervention group reported 63% exclusive breastfeeding. The post-intervention group also reported increased support from healthcare providers and an increase in nighttime breastfeeding, which reduced formula use at night. Implications for increased support and knowledge from healthcare providers was supported by the increase in exclusive breastfeeding that was noted at discharge following program initiation (Mellin et al., 2011). Limitations included small sample size and demographics that included primarily an affluent, white population.

Another study by Sutherland et al. (2012) found implications for increasing interventions aimed at women who had unsuccessfully attempted to breastfeed in earlier pregnancies as it was found that breastfeeding practices after a first birth is a significant predictor of breastfeeding in subsequent births. This study investigated maternal characteristics associated with breastfeeding initiation and success, and included 812 women. Findings indicated that cesarean birth did not impact breastfeeding initiation or success whereas differences were found in breastfeeding initiation by maternal education. Mothers who had a college degree were twice as likely to initiate breastfeeding. Limitations for this study included maternal recall which could have been subject to recall bias especially for women who breastfed for a short duration (Sutherland et al., 2012). Overall education is essential for successful breastfeeding. (Mellin et al., 2011 & Sutherland et al., 2012).

Other research studies have investigated the impact that various supporting interventions have in improving the health of children and moms. Prenatal education is

one of the initial interventions that impact breastfeeding outcomes as found by Shrifirad et al. (2012 ). Eighty-eight participants were included in this study with 44 in the experimental group and 44 in the control group. Individuals in the experimental group participated in a program consisting of group education that included education and behavioral skill-building interventions (Shrifirad et al., 2012). This study used the health belief model and found that prenatal education was successful as evidenced by improvement in indicators such as knowledge, self-efficacy, and attitude (Shrifirad et al., 2012). Self-efficacy, exclusive breastfeeding, and infant weight were all significantly higher in the experimental group which was consistent with findings that indicated breastfeeding self-efficacy and concepts such as confidence and perception of success are correlated with breastfeeding initiation and duration (Shrifirad et al., 2012). Limitations included a relatively small sample size.

Community-based breastfeeding counselors are being utilized more frequently as they have shown their influence to be a positive one for mothers who are breastfeeding. Mothers who are enrolled in WIC have the support and access to a peer counselor. Although many different types of support are available in different regions and institutions, studies suggested that the increased length of training for counselors' yields better outcomes for mothers (Sullivan, Bignell, Andrianos, & Anderson, 2011). Increased breastfeeding continuing education for breastfeeding counselors is associated with having more breastfeeding support skills with which to assist mothers (Sullivan et al., 2011). A cross-sectional study of 847 community-based breastfeeding counselors utilized an online survey that investigated education level, training, and breastfeeding support skills, and showed that continuing education is a significant predictor of the type of counseling

techniques used with clients (Sullivan et al., 2011). Limitations of the study included all data being self-reported and the inability to analyze data by state or region since the survey did not include a question pertaining to location of the respondent. Strengths of the study included the large sample size and the ability for generalization of results due to the survey being available to breastfeeding counselors across all 50 states as well as the District of Columbia and Puerto Rico (Sullivan et al., 2011).

Lamontagne et al. (2009) investigated the impact that a breastfeeding clinic had on women's breastfeeding experience. The study included 52 participants in the target group and 34 participants in the comparison group and utilized telephone questionnaires and semi-structured interviews (Lamontagne et al., 2009). Results showed that women who attended the breastfeeding clinic had a higher probability of breastfeeding for six months along with being more satisfied with their breastfeeding experience (Lamontagne et al., 2009). Limitations included a small sample size for the total population, participant bias due to voluntary participation, and use of non-validated but pretested instruments (Lamontagne et al., 2009).

Another study investigated using a certified lactation consultant and peer counselor in the education of first time moms. This study included 289 participants who were between 15 and 18 years old, were predominately African American, single, and primiparous (Wambach et al., 2011). The study aimed to determine if education and interventions provided by the lactation consultant and peer counselor team would increase breastfeeding initiation and duration up to six months postpartum. The intervention positively influenced breastfeeding duration within the experimental group

but did not influence initiation rates (Wambach et al., 2011). Limitations of this study included participant attrition and reliance on self-reports (Wambach et al., 2011).

Education is an essential component in increasing breastfeeding initiation and prolonging duration. Education in the form of classes, support groups, and peer-counselors, along with professional support from caregivers can assist in increasing breastfeeding (Pinto & Schub, 2014). Along with education, increased support and access to services for breastfeeding mothers increased the duration and satisfaction of breastfeeding (Kim et al., 2013; Lamontagne et al., 2009; Shrifirad et al., 2012; Sullivan et al., 2011). The U.S. preventive services task force recommended interventions that promote education during pregnancy and after birth (U.S. Preventive Services Task Force, 2008). Women who are enrolled in the WIC program in the selected health departments have access to a supportive group of healthcare providers who encourage breastfeeding and create an environment that facilitates successful breastfeeding through education and access to available services and equipment (Rutherford, Polk, McDowell District Health Department. [RPMDDHD], 2009, Policy #RPM-2015.014).

### **Specific Populations**

Several research studies investigated breastfeeding education in specific demographic groups. Summaries from WIC demographic information showed that 19.8% of enrollment was reported from black participants and Hispanics make up 41.5% of WIC participants (Johnson et al., 2013). With the Hispanic population experiencing an unequal share of poverty and poor health outcomes in the US, and with projected growth of the Hispanic population from “12% in 2000 to 17% in 2020” (Schlickau & Wilson, 2005, p.

24), it is relevant to examine a study investigating the Hispanic population in regards to breastfeeding.

One study combined a qualitative inquiry regarding the attitudes and beliefs of a small sample of Hispanic women from multiple Latin American countries with a quantitative study of 30 women in their third trimester that were randomly assigned to three different groups. The control group received usual care including standard-of-care breastfeeding information. The level one intervention group received additional information about health and economic benefits of breastfeeding, along with charts and pictures about supply and demand and breast preparation. A doll was also used for teaching positions and holds for breastfeeding. The level two intervention group received all the education that level one group did along with introducing participants to the idea that nothing except the mothers breast enters the baby's mouth for 40 days. This group was encouraged to sign a breastfeeding commitment. Results showed that with each increased level of intervention breastfeeding duration increased in participants (Schlickau & Wilson, 2005).

Research also showed that women with less education, who are unmarried, and those who have less income are more likely to discontinue breastfeeding (Ruowei et al., 2008). A relevant study that fits these demographic indicators was one that studied 289 teens aged 15 to 18 in a controlled trial of breastfeeding support and education. Participants were from multiple prenatal clinics and schools and the intervention began in the second trimester and continued through four weeks postpartum. Those enrolled in the study were predominately African American, single, and primiparous. An experimental group was formed which received additional education from a certified lactation

consultant and a peer counselor being a teen who had successfully breastfed. This intervention was found to positively impact duration but not initiation or exclusive breastfeeding rates (Wambach et al., 2011).

### **WIC Programs**

Breastfeeding education and support for mothers is the key to improving initiation and continuance of breastfeeding. Almost half of all infants born in the US are born to mothers who are enrolled in WIC, and although WIC has made strides to increase breastfeeding education around 54% of formula sold in the US is sold to WIC participants (Lessen, 2012). Prenatal patients enrolled in the WIC program receive education and counseling on both breast and bottle-feeding with encouragement and emphasis on the benefits of breastfeeding for mother and baby (Rutherford, Polk, McDowell District Health Department, 2009, #RPM-2015.014).

There are many ways that the WIC program encourages and supports breastfeeding. Some of these included creating a breastfeeding-friendly environment, providing extra support through the breastfeeding peer counselor program, minimizing the visibility of formula, creating a breastfeeding area, maintaining a breast pump loan program, providing multiple breastfeeding education opportunities, and by maintaining a breastfeeding education library along with having a community partnership plan (Rutherford, Polk, McDowell District Health Department [RPM DHD], 2010, #RPM-8010.038). The local agency “works to establish and maintain an environment that supports and encourages women to initiate and continue breastfeeding” (RPM DHD, 2010, #RPM-8010.038). By recognizing that breastfeeding is superior to formula feeding, WIC staff sought to provide scientifically-based leadership, and their goal in



breastfeeding promotion was to increase the number of women who initiate breastfeeding and lengthen the amount of time that women breastfeed their infants (RPMDHD, 2010, #RPM-8010.038).

Although WIC has made many strides to promote breastfeeding and fully endorses breast-feeding as the standard for infant feeding, knowledge alone is not the only factor that impacts the choice to breastfeed or not (Hildebrand et al., 2014). One study examined the use of integrating influence strategies and the impact it had on breastfeeding initiation rates. This study followed the social cognitive theory and changed the WIC environment by integrating influence principles to see if these principles and behaviors positively impacted breastfeeding initiation rates (Hildebrand et al., 2014). One hundred and three participants were divided into either the influence model or the traditional model of care. These were assigned by the time frame in which they received WIC care, which represented one of the limitations of this study. Results found that women under the influence model were 1.5 times more likely to initiate breastfeeding. Conclusions indicated that factors such as friendliness of staff, useful information and being able to view breastfeeding as a social norm may increase a mother's likelihood to breastfeed (Hildebrand et al., 2014). The presence of a supportive staff and environment aided in the educational process that mothers need to successfully choose to breastfeed and to actually succeed at performing it.

The WIC food packages are also another great motivator that WIC has developed in order to encourage breastfeeding. There are three WIC food packages options available to moms and babies, which are: fully breastfeeding, partially breastfeeding, and fully formula feeding (North Carolina Department of Health and Human Services Division of

Public Health and Nutrition Services Branch [NCPH & WIC], 2010). Fully breastfeeding moms received considerably larger food vouchers for themselves and their baby. The fully breastfeeding group was the only group that received cheese and fish and also infant meats, as well as larger amounts of eggs, milk, and infant fruits and vegetables (NCPH & WIC, 2010). So although women enrolled in WIC are given adequate support and resources, knowledge alone does not guarantee successful initiation and duration.

Breastfeeding rates among WIC participants were lower than other US mothers. The “WIC Infant Feeding Practices Study” investigated attitudes and problems in a sample of WIC participants (McCann, Baydar, & Williams, 2007). This was a study that utilized 1,095 eligible mothers and performed monthly interviews for the first year of the infant’s life. The study concluded that a mother’s confidence to breastfeed successfully is key to her ability to do so, linking the concept of breastfeeding self-efficacy to this study (McCann et al., 2007).

The WIC program has shifted focus to promote breastfeeding and has seen steady improvements of breastfeeding rates. One WIC Program in NYC was extremely successful in increasing breastfeeding results in WIC participants by having funds for a breastfeeding coordinator, peer counselor program, as well as a breast pump program (Landau, 2011). Keys to success for this program included collaborative work among state and city entities, WIC programs, hospitals, health care centers, private and community organizations and the legislature (Landau, 2011). Although there are breastfeeding studies that have examined specific populations, specific education interventions, and in recent years, breastfeeding self-efficacy, no study was found that looked at breastfeeding self-efficacy specifically in the WIC population of mothers.

### **Breastfeeding Self-Efficacy**

Blyth et al. (2002) conducted a study using the Breastfeeding Self-Efficacy Scale (BSES) to assess breastfeeding confidence among 300 women in their last trimester. Antenatal screening was first conducted while participants waited for clinic appointments by obtaining informed consent and administering the BSES. Participants were then contacted by telephone at one and four weeks postpartum to determine infant feeding practices and breastfeeding confidence using the BSES (Blyth et al., 2002). Most women (91.7%) initiated breastfeeding by four months postpartum almost 40% of mothers stopped breastfeeding with only 28.6 % breastfeeding exclusively (Blyth et al., 2002). Maternal breastfeeding self-efficacy was found to be a significant predictor of breastfeeding duration (Blyth et al., 2002). A limitation of this study was that interventions were not evaluated to see if maternal outcomes could be enhanced to alter breastfeeding outcomes (Blyth et al., 2002).

A study performed by Baghurst et al. (2007) studied the ability of the BSES to predict breastfeeding duration of first-time mothers. Participants (n=317) were recruited from a large teaching hospital in Australia and were interviewed prenatally to sign informed consent and complete demographic information as well as complete a form that assessed intended duration of breastfeeding (Baghurst et al., 2007). After delivery they were seen in the post-partum unit to collect delivery information and then participants were contacted by telephone at one-week postpartum. Further telephone interviews were conducted at six weeks, three months, and six months from birth (Baghurst et al., 2007). Results showed that the BSES score for the first week of the baby's life was a useful predictor of breastfeeding duration. Data suggested that even just a few days of

breastfeeding is still an important factor in overall duration. Findings were limited in that breastfeeding initiation was not examined (Baghurst et al., 2007).

Tokat, Okumus, and Dennis (2010) translated and tested the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) with 144 pregnant women and 150 postpartum women. The pregnant women completed the BSES-SF during the third trimester and postpartum women completed the scale in the hospital (Tokat et al., 2010). All women were telephoned approximately 12 weeks after the birth to determine how they were feeding their babies (Tokat et al., 2010). Results indicated that “antenatal and postnatal BSES-SF scores were significant predictors of breast-feeding duration and exclusivity at 12 weeks after the birth” (Tokat et al., 2010, p. 101).

Pollard and Guill (2009) examined relationships between duration of breastfeeding, socio-demographic variables, and maternal self-efficacy among 62 women who were asked to complete three surveys measuring these variables. The mean length of breastfeeding for mothers enrolled in WIC was 6.7 weeks compared to non-WIC mothers whose mean was 15.95 weeks. Married women breastfed a mean of 14.8 weeks compared to single moms who only breastfed for 8.9 weeks. Also, a statistically significant positive correlation between baseline self-efficacy and breastfeeding duration was noted (Pollard & Guill, 2009). Limitations included a small sample size and the lack of Hispanic participants to accurately represent the reported community population (Pollard & Guill, 2009).

Dennis, Heaman, and Mossman (2011) administered the BSES-SF antenatally and postnatally among adolescents (n=103) in western Canada and studied the relationship between breastfeeding self-efficacy and adolescent demographic variables. The BSES-SF

was administered at 34-weeks gestation and again at one and four weeks postpartum. Results showed that antenatal BSES-SF scores significantly predicted breast-feeding initiation while antenatal and postnatal scores predicted duration and exclusivity to four weeks postpartum (Dennis et al., 2011). Study findings indicated that prenatal classes and professional support can be very good sources of information to increase adolescent breast-feeding self-efficacy (Dennis et al., 2011). Limitations included the single recruitment site and the higher proportion of Native American Indian participants limiting the generalizability of results.

Breastfeeding self-efficacy was tested in a sample of black women in the US and significantly predicted breastfeeding at four and 24 weeks. This was a study performed on 153 women who delivered in a northeastern US hospital. Breastfeeding self-efficacy measured by the BSES-SF was seen as a predictor of breastfeeding duration and also exclusivity in this population (McCarter-Spaulding & Dennis, 2010). Limitations of this study included not being able to analyze each ethnic group individually due to sample size and the inclusion of only women with full-term, healthy, singleton infants (McCarter-Spaulding & Dennis 2010).

McQueen, Dennis, Stremmer, and Norman (2011) conducted a pilot randomized controlled trial of a breastfeeding self-efficacy intervention with primiparous women. A standardized, individualized nursing intervention protocol was designed and administered to improve mothers' breastfeeding self-efficacy. There was an intervention group that received three individualized self-enhancing sessions with the researcher, while the control group received standard in-hospital and community care (McQueen et al., 2011) Study results did not show statistically significant differences in the baseline BSES-SF

scores between the intervention group and control group. Although mothers in the intervention group were breastfeeding at a higher percentage at both the four and eight week follow-up periods, the results were not statistically significant (McQueen et al., 2011) Results indicated statistically significant results supporting previous research showing higher BSES scores resulted in longer duration of breastfeeding (McQueen et al., 2011). A strength of this study was that the intervention was empirically and theoretically derived and was standardized and based on individually determined maternal needs. Limitations included the use of self-report and using a fairly homogeneous group of breastfeeding primiparous mothers with healthy, full-term infants from one geographic location in Northwestern Ontario (McQueen et al., 2011).

A recent study conducted by Wu, Hu, McCoy, and Efir, (2014) showed positive results among participants randomly assigned to an intervention group that received three individualized, self-efficacy-enhancing sessions. Participants in the intervention group showed increased maternal breastfeeding self-efficacy, exclusivity, and duration than participants in the control group (Wu et al., 2014). The use of valid instruments and collection methods to eliminate bias contributed to the rigor of this study. Findings suggested that increasing interventions that promote breastfeeding self-efficacy would improve breastfeeding outcomes. Limitations included the fairly small sample size (n=74), and a large number of mothers (57%) delivered by caesarean section which may represent a slightly higher than average caesarean rate for China (Wu et al., 2014).

## Summary

An abundance of literature exists regarding breastfeeding education and supportive interventions aimed at improving breastfeeding initiation and duration. There are also a growing number of studies that look at breastfeeding self-efficacy related to breastfeeding success. Many variables exist that are not modifiable but breastfeeding self-efficacy is a modifiable variable that health care professionals may be able to influence and thereby impact breastfeeding rates (Dennis & Faux, 1999). More research is needed to investigate if education provided in the WIC programs is improving breastfeeding self-efficacy in the WIC population. Although studies have been conducted on several specific populations, little research has been done specifically in regard to breastfeeding self-efficacy within the WIC population. The goal of this study was to assess breastfeeding self-efficacy and determine if there is a relationship between higher self-efficacy and successful initiation and duration of breastfeeding in the WIC population.

## **CHAPTER III**

### **Methodology**

Breastfeeding has been documented to have physical and psychological benefits for both the infant and mother. Although breastfeeding rates have been increasing slightly they still lag behind the targets set for *Healthy People 2020* (Pinto & Schub, 2014). Lack of self-confidence and self-efficacy contribute to lower rates of initiation and continuation (Pinto & Schub, 2014). Nearly half of all infants born in the US are born to mothers enrolled in the WIC program (Lessen, 2012) and WIC is still one of the largest distributors of infant formula in the world (Perez-Escamilla & Chapman, 2012). The purpose of this study was to determine the breastfeeding self-efficacy scores of a sample of women in the WIC population and to determine if there was a relationship between higher BSE scores and higher rates of initiation and longer duration of breastfeeding.

### **Study Design**

A descriptive, correlation design was used to examine the research questions for this study. Variables and relationships were examined to discover what the accurate picture of breastfeeding was in a sample of postpartum women enrolled in WIC in three rural counties in North Carolina. Higher breastfeeding self-efficacy scores have been shown in previous studies to correlate with increased breastfeeding initiation and longer duration. This study was designed to further investigate what the breastfeeding self-efficacy scores were in a sample of WIC women and to determine if a higher BSE score correlated with higher levels of initiation and duration of breastfeeding. A demographic and breastfeeding information questionnaire was used to describe the study sample and to obtain breastfeeding information. Breastfeeding self-efficacy scores were obtained by



completion of the Breastfeeding Self-Efficacy Score Short-Form (BSES-SF). Data for the statistical analysis came from participant responses on the demographic and breastfeeding information sheet and the BSES-SF. It was hypothesized that mothers who initiated breastfeeding and breastfed for longer durations would have higher BSE scores. Thirty-five women were invited to participate in this study, with a final sample size of 33.

### **Setting and Sample**

The setting for this study was three rural health departments within western NC where mothers who were enrolled in the WIC program received their prenatal and postnatal care. The largest of the three health departments provided postpartum and infant services for approximately 35 deliveries per month (L. Roper, personal communication, June 22, 2015). Selection criteria included postpartum women who were receiving WIC, 18 years old or older, could speak and read English, and had delivered a healthy infant at 37 or more weeks gestation. A sample of 35 women was approached at their six-week post partum check-up regarding participation in the study. Permission to perform this study was obtained from the WIC director.

The sample size for this study included 35 participants. Thirty-three of the participants met the criteria for the study and completed both the demographic sheet and the BSES-SF. The number of participants was limited by the researcher's time constraint of four weeks.

### **Design for Data Collection**

Permission for use of the BSES-SF (Appendix A) was obtained from the author as the first step in the research process (Appendix B). The demographic and breastfeeding sheet was designed to gather further data (Appendix C). Implementation of this study

began with approval from the University's Institutional Review Board and permission from area health departments to collect patient data. The BSES-SF was used as the measurement tool. This process was executed in the health departments during the six-week post-partum checkup. Potential study participants were approached who were enrolled in WIC, were 18 years old or older, able to speak and read English, and had given birth to a healthy infant at 37 weeks gestation or later.

### **Measurement Methods**

The Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) was used as the instrument to measure the breastfeeding self-efficacy among participants in this study. Dr. Cindy-Lee Dennis developed the Breastfeeding Self-Efficacy Scale using her breastfeeding self-efficacy theory as a conceptual framework (Dennis, 2010). The Breastfeeding Self-efficacy Scale-Short Form, refers to the instrument used to measure a mother's breastfeeding self-efficacy in this study. Content validity was judged by a panel of experts and through qualitative interviews that Dr. Dennis completed with experienced breastfeeding moms (Dennis, 2010). The original scale had 33 items, however, Dr. Dennis later revised and developed the "Breastfeeding Self-Efficacy Scale-Short Form" that includes only 14 items. This edited version allowed for even greater clinical utility due to ease of administration (Dennis, 2010).

Following Bandura's recommendations, a scale format was chosen that presented all items positively (Dennis & Faux, 1999). Beginning with the phrase "I can always", the BSES-SF includes a five point Likert scale where 1 = "not at all confident" and ending with 5 = "very confident". Higher scores indicate higher levels of breastfeeding self-efficacy (Dennis, 2010).

Strong reliability and evidence of construct and predictive validity for using the BSES-SF have been reported in several studies (Pollard & Guill, 2009; McCarter-Spaulding & Dennis, 2010). Reliability for the instrument using Cronbach's alpha coefficient for in-hospital BSES-SF was .94 (McCarter-Spaulding & Dennis, 2010; Pollard & Guill, 2009).

A demographic and breastfeeding information form was also administered. Demographic questions included age, race, education level, and number of children. Age had a line that participants filled in, whereas every other question required a check mark on the box that applied. This format allowed for completion time to be minimal. Participants were also asked to identify the county health department in which care was received. Three additional questions related to past experience with breastfeeding and initiation and duration of breastfeeding following the recent delivery.

### **Data Collection Procedure**

Women who were enrolled in the WIC program served as the target population. The data was collected at the participants' six-week post-partum checkup at the area health departments. Due to the geographic distance and time frame for data collection, the decision was made to train the WIC staff to administer the survey in order to effectively reach the desired population. The researcher conducted formal education sessions regarding the study with all WIC team members before the data collection time was to begin. The researcher explained the background of the study and gave an explanation of the consent form, BSES-SF, and the demographic form during each information session. Team members had an opportunity to ask questions of the researcher.

The researcher or WIC trained staff member administered surveys to each participant. Five WIC nutritionists who served the three counties and one peer counselor assisted the researcher in the data collection process. Participation was determined first by the nutritionist, peer counselor, and researcher reviewing the daily appointment schedule and determining eligible participants based on the selection criteria of being 18 years or older, currently enrolled in WIC, ability to speak and read English, and having delivered a healthy infant at 37 or more weeks gestation. Individuals who were scheduled for their six-week postpartum visit were selected. The six-week date was approximate due to cancellation or rescheduling of the scheduled six-week appointment. During their visit, participants were scheduled to meet with multiple members of the health care team such as the doctor, peer counselor, nutritionist and office personal.

The nutritionists and peer counselor who assisted the researcher administered the survey by first explaining the study to eligible women in their office and then asking women if they would be willing to participate. The days that the researcher was present in the health departments, qualifying individuals met with the researcher as one of their many stops throughout the course of their appointment. The researcher was assigned to an available office where the researcher explained the study to eligible individuals and then asked if they would be willing to participate in the voluntary study. No one who was approached refused to participate. Informed consent was obtained by the participant reading the informed consent form (Appendix D) and if they agreed to participate they proceeded to complete the demographic form and BSES-SF. If the participant had a question the individual administering the survey answered it. The demographic sheet and BSES-SF were given as one double sided paper. The forms were completed in an office

setting with the nutritionists, peer counselor, or researcher present. Thirty-five participants completed the questionnaires within the time frame of four weeks allotted for data collection.

### **Protection of Human Subjects**

Privacy and confidentiality of the subjects was maintained throughout this study. No identifying information was recorded other than location of county health department where care was received. No risk was involved for the participant and they could withdraw at any time. Completed surveys were securely stored in marked envelopes at each health department and picked up weekly by the researcher who kept all the completed surveys in a locked file cabinet. All questionnaires were submitted to the University at the conclusion of this study to be stored in a protected area for 10 years.

### **Data Analysis**

Descriptive statistics were used to report participant scores on the BSES-SF and to determine participant level of confidence in relation to breastfeeding. Hypothesis tests and Pearson's correlation were utilized during the statistical analysis of the data to determine if there was a relationship between breastfeeding self-efficacy and breastfeeding initiation and duration. A statistician assisted the researcher with the data analysis.

## **CHAPTER IV**

### **Results**

The purpose of this study was to examine the breastfeeding self-efficacy scores from a sample of postpartum women enrolled in WIC and to determine if there was a relationship between breastfeeding self-efficacy scores and initiation and duration of breastfeeding. Research questions focused on establishing what the breastfeeding self-efficacy score was for the subjects, and looked at the relationship between breastfeeding self-efficacy in regard to initiation and duration of breastfeeding in the named population. Results were collected over a four-week period of time.

A sample of 35 subjects from three rural counties in western North Carolina who were found eligible and consented to participate were included in this study. Selection criteria included postpartum women who were 18 years old or older, enrollment in the WIC program, ability to speak and read English, and delivery of a healthy baby at 37 weeks or later. The survey was administered as close to the six-week post-partum check-up as possible. Two participants were excluded from data analysis because one was below 18 years of age and one did not finish the survey resulting in a total sample size of 33 subjects.

#### **Sample Characteristics**

The sample contained residents from three counties in rural, western North Carolina. The mean age of participants was 26 years old, with a range of 18-36. The majority of participants were married or had a partner (60.6%) while 39.4% reported being single. The population demographics for this study were different from state reported demographics for marital status. County demographics reported households that

were headed by a married couple as 15.8%, 17.4%, and 17.5% each of which is below the state total of 20.1% (McDowell County Community Assessment 2012; Polk County Community Assessment 2012; & Rutherford County Community Assessment, 2012).

Study participants were primarily Caucasian (87.9%) with 12.1% of the sample identifying their race as black. Comparing the racial profile to county demographics showed the sample was somewhat representative of the local population. County demographic information regarding race showed that each of the three counties had the highest concentration of individuals who reported white/Caucasian with 90.8%, 87.4%, and 90.6% respectively (McDowell County Community Assessment 2012; Polk County Community Assessment 2012; & Rutherford County Community Assessment, 2012). Black or African American reported at 4.5%, 10.1%, and 3.8%, which is below the state total percentage of 21.5%. Hispanics account for 8.4% of the state population total whereas the NC counties recorded 5.5%, 3.5%, and 5.3% of county population (McDowell County Community 2012; Polk County Community Assessment 2012; & Rutherford County Community Assessment, 2012).

Education was also a demographic variable of interest. Over 60% of participating individuals reported having more than a high-school education. Those who reported “some college” included 45.5% of participants, while 15.2% reported being a college graduate. This left 39.3% who reported completion of high school or GED. Available county demographics reported county 1 with 30.8% of individuals having completed high school, 20.1% having some college, and 27.2% having a four-year degree. County 2 reported 33.1 % of individuals having completed high school, with 21.9% having some college and 14.6% having completed a four-year degree. County 3 reported 36.7% of

inhabitants having completed high school, 18.3% having some college, and 14.0% having completed a four-year degree (McDowell County Community 2012; Polk County Community Assessment 2012; & Rutherford County Community Assessment, 2012).

The question relating to number of children revealed that only 27.3% of participants reported having one child, with 45.5% reporting two children, 15.1% reporting three children, and 12.1% reporting four or more children. Table 1 provides descriptive statistics for the sample.



Table 1

*Demographics*

Age	Frequency	Percent
18-24	17	51.5%
25-30	9	27.3%
31-46	7	21.2%
Marital Status	Frequency	Percent
Single	13	39.4%
Married/Partner	20	60.6%
Race	Frequency	Percent
Caucasian/White	29	87.9%
Black	4	12.1%
Hispanic	0	0.0%
Education Level	Frequency	Percent
Not a High School Graduate	0	0.0%
High School Graduate/GED	13	39.3%
Some College	15	45.5%
College Graduate	5	15.2%
Number of Children	Frequency	Percent
1	9	27.3%
2	15	45.5%
3	5	15.1%
4 or more	4	12.1%

Those who participated were asked on the demographic sheet if they had ever breastfed in the past and if so, how many children had they breastfed. Responses showed that 45.5% had never breastfed in the past. There were 36.4% of participants who reported having breastfed one child in the past, while 9.1% had breastfed two children, 3.0% had breastfed three children, and 6.1% had breastfed four children. Table 2 provides breastfeeding experience for the sample.

Table 2

*Breastfeeding Experience*

Experience	Frequency	Percent
Never Breastfed	15	45.5%
1 child	12	36.4%
2 children	3	9.1%
3 children	1	3.0%
4 or more children	2	6.1%
Total	33	100%

Results indicated that 81.8% of participants initiated breastfeeding with this delivery while only 18.2% did not. Table 3 provides breastfeeding initiation percentages for the sample.

Table 3

*Breastfeeding Initiation*

Breastfeeding Initiation	Frequency	Percent
Yes	27	81.8%
No	6	18.2%
Total	33	100.0%

Breastfeeding duration was also a demographic variable that was of interest. In regard to duration of breastfeeding, responses varied drastically. A wide range of scores was reported for breastfeeding duration. Options included never attempted (18.2%), less than one week (12.1%), one week (6.1%), two weeks (12.1%), three weeks (12.1%), four weeks (6.1%), five weeks (3.0%), six weeks (9.1%), and more than six weeks (21.2%). Figure 2 represents a bar graph of duration of breastfeeding and Table 4 provides the duration of breastfeeding in percentage form.

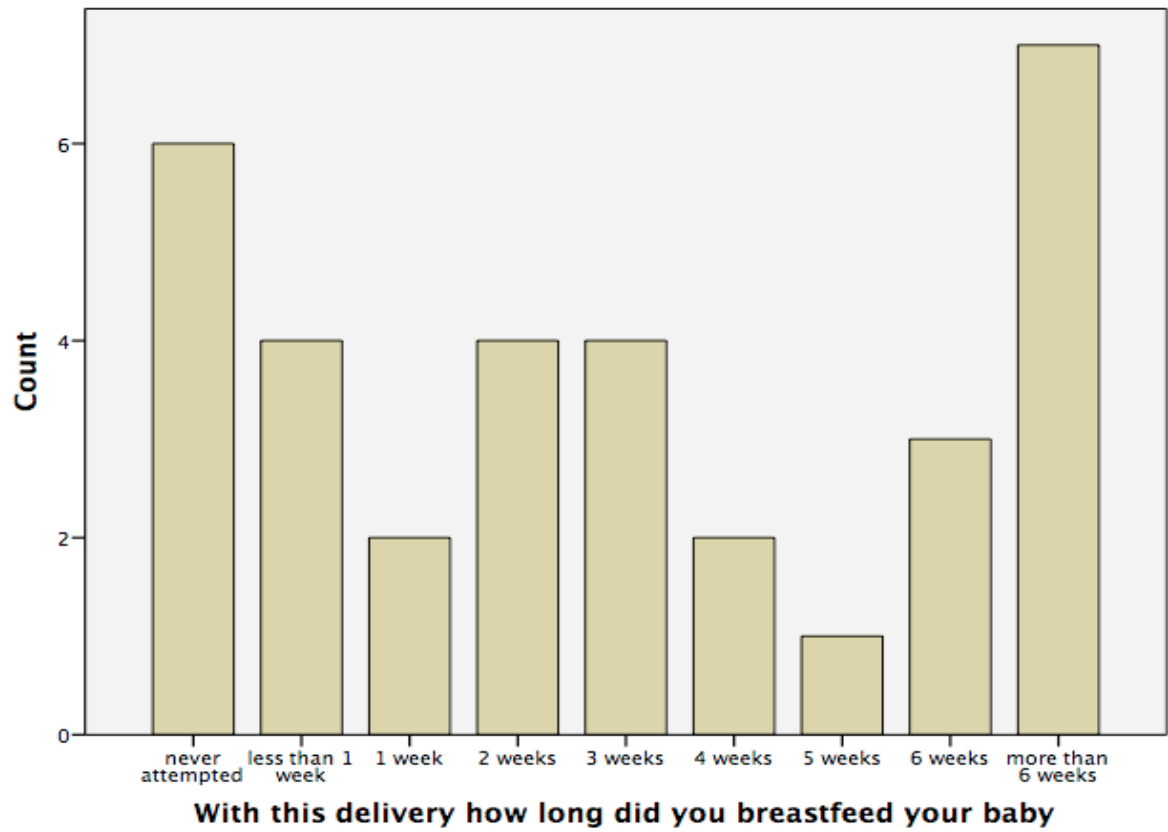


Figure 2: Duration of Breastfeeding

Table 4

*Duration of Breastfeeding*

Breastfeeding Attempts	Frequency	Percent
Never Attempted	6	18.2%
Less than 1 Week	4	12.1%
1 Week	2	6.1%
2 Weeks	4	12.1%
3 Weeks	4	12.1%
4 Weeks	2	6.1%
5 Weeks	1	3.0%
6 Weeks	3	9.1%
More than 6 Weeks	7	21.2%
Total	33	100.0%

## Major Findings

Two statisticians were consulted to perform statistical analysis on the data from this study. Research question one inquired about the Breastfeeding Self-Efficacy of women enrolled in a WIC program at six weeks postpartum. This was measured by using the BSES-SF. The range of scores represented the minimum of 14 to the maximum score of 70, with higher scores indicating higher levels of breastfeeding self-efficacy (Dennis, 1999). Results showed the mean was 52.76, the median was 58.0, and the mode was 66. The distribution was approximately normal. The sample did have a reasonable mean and standard deviation, and the sample demonstrated the empirical rule, which means nearly all the data fell within three standard deviations of the mean (Argyrous, 2011). However, the distribution was considered “left-skewed”, as there were several extremely low values that qualify as outliers causing the mean to be less than the median and the median less than the mode (Argyrous, 2011). Table 5 provides mean, mode, and standard deviation results for each question on the BSES-SF. The BSES-SF Likert scale begins with a score of 1 indicating “not at all confident” and a score of 5 indicating “very confident”.

Table 5

*BSES-SF Results*

Breastfeeding Self-Efficacy Scale Question	Mean	Median	Std.deviation
1. I can always determine that my baby is getting enough milk	4.0	4.0	1.1
2. I can always successfully cope with breastfeeding like I have with other challenging tasks	3.91	4.0	1.2
3. I can always breastfeed my baby without using formula as a supplement	3.21	3.0	1.5
4. I can always ensure that my baby is properly latched on for the whole feeding	3.79	4.0	1.4
5. I can always manage the breastfeeding situation to my satisfaction	3.82	4.0	1.4
6. I can always manage the breastfeed even if my baby is crying	3.85	4.0	1.4
7. I can always keep wanting to breastfeed	3.73	4.0	1.3
8. I can always comfortably breastfeed with my family members present	3.67	5.0	1.6
9. I can always be satisfied with my breastfeeding experience	3.85	4.0	1.3
10. I can always deal with the fact that breastfeeding can be time consuming	4.0	4.0	1.2
11. I can always finish feeding my baby on one breast before switching to the other breast	3.97	4.0	1.2
12. I can always continue to breastfeed my baby for every feeding	3.61	4.0	1.4
13. I can always manage to keep up with my baby's breastfeeding demands	3.52	4.0	1.3
14. I can always tell when my baby is finished breastfeeding	3.85	5.0	1.6

Research question two addressed the relationship between the breastfeeding self-efficacy and the initiation of breastfeeding. Although the results showed that 81.8% of mother initiated breastfeeding while only 18.2 % did not, another step is required in order to understand the relationship between initiation and BSE scores. The relationship between the total BSES-SF score and the initiation of breastfeeding was analyzed using a comparison hypothesis test. This tested the difference between the means of two independent samples by using a t-test (Argyrous, 2011). The claim was tested that those who did initiate breastfeeding will have a higher score than those who did not. The "No" scores were used as sample 1, and the "Yes" scores were used as sample two. Hypothesis Test was  $H_0: \mu_1 = \mu_2$  vs.  $H_1: \mu_1 < \mu_2$  (claiming  $H_1$ )

A critical value of -2.015 was found when tested at the traditional  $\alpha = .05$ , left-tailed. The test value calculated out to be  $t = -1.596$ . Since the test value landed in the noncritical region, the null hypothesis was not rejected (Argyrous, 2011). The claim is rejected because there is not enough evidence to support the claim that those who initiated breastfeeding received a higher score on the breastfeeding self-efficacy scale-short form than those who did not initiate breastfeeding. Table 6 presents breastfeeding initiation results for the hypothesis test, which compared sample 1, which represented ("No" for initiation) and sample 2, which represented ("Yes" for initiation).



Table 6

*Breastfeeding Initiation Results*

	No	Yes	<i>t</i> Test Value
Mean	41.17	55.33	-1.596
Std. Deviation	20.83	13.29	
Size	6	27	

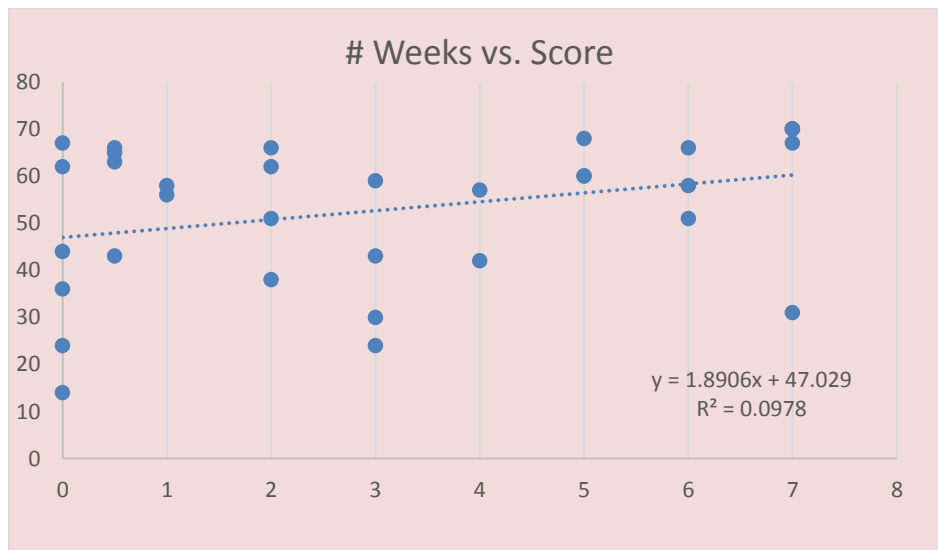
The last research question examined the relationship between breastfeeding self-efficacy scores and breastfeeding duration. Pearson's correlation was utilized first by performing a hypothesis test to determine if there was significant correlation. A direct comparison was performed between the weeks of breastfeeding versus the BSES-SF score to determine if a positive correlation existed between these scores; that is, the more weeks of breastfeeding, the higher the test score.

As a result, a hypothesis test was performed on this correlation. The values were compared  $H_0: p = 0$  vs.  $H_1: p > 0$  (meaning there was no correlation for =, and there was a positive correlation for >). When tested at the traditional  $\alpha = 0.05$ , a critical value of 1.696 was obtained.

The test value was computed and produced a value of  $t = 1.834$ , which is given by the formula:  $r \times \sqrt{((n-2)/(1-r^2))}$ . Since the value was greater than 1.696 (which supported  $p > 0$ ), this indicated that at the  $\alpha = 0.05$  level of significance there was a correlation between the weeks of breastfeeding versus the BSES-SF score. Based on this, there was

enough evidence to support the claim that the more weeks a mother breastfeeds, the higher she will score on the BSES-SF.

Furthermore, as a result of positive correlation, a linear regression analysis was performed on the data. Based on this, a best-fit linear equation of  $y' = 1.8906x + 47.029$  exists. This would predict that, on average, with each progressive week that a mother breastfeeds, her score on the BSES-SF exam will increase by almost two points. Figure 3 shows a scatter plot graph of the relationship between the total score on the BSES-SF and the duration of breastfeeding presented a linear correlation.



*Figure 3: Relationship between BSES-SF Scores and Breastfeeding Duration*

### Summary

The data collected for this study determined: (1) What the BSES-SF scores were for a sample of women enrolled in the WIC program, (2) If there was a relationship between breastfeeding self-efficacy and breastfeeding initiation, and (3) If there was a relationship between breastfeeding self-efficacy and breastfeeding duration. From the data collected, the BSES-SF mean score was 52.76, the median was 58.0, and the mode was 66. This represented a normal left-skewed distribution, with several outliers and the median and mode both being greater than the mean. A hypothesis test for the relationship between BSES-SF scores and breastfeeding initiation presented a noncritical value, which indicated that there was not enough evidence to support the claim that those who initiated breastfeeding had a higher BSES-SF score. Pearson's correlation supported at the  $\alpha = 0.05$  level that there was a correlation between weeks of breastfeeding and BSES-SF scores.

## **CHAPTER V**

### **Discussion**

Breastfeeding is acknowledged universally for its benefits for both mothers and infants (Dykes, 2011). Successful breastfeeding requires knowledge, support, and maternal self-efficacy, which includes a “cognitive process of individuals’ confidence in their perceived ability to regulate their motivation, thought process, emotional states, and social environment in performing a specific behavior” (Dennis, 1999, p. 196). This study was conducted to examine the breastfeeding self-efficacy scores in a sample of women enrolled in the WIC program. The study also sought to understand if there was a link between higher breastfeeding self-efficacy scores and higher initiation rates for breastfeeding and longer breastfeeding duration. A positive relationship between BSE scores and increased rates of initiation and duration of breastfeeding has been established in previous research (Tokat et al., 2010; Baghurst et al., 2007, Blyth et al., 2002). Breastfeeding self-efficacy has not been studied extensively within the WIC population.

### **Implication of Findings**

Mothers enrolled in WIC at six weeks postpartum exhibited moderate self-efficacy as evidenced by BSES-SF scores. The mode of 66 and mean of 52.76 approaches the maximum potential score of 70 indicating some mothers felt confident in their breastfeeding ability. Extreme low scores lowered the mean score making interpretation difficult in this small sample. Forty-five percent of the mothers had never breastfed before, suggesting a lack of confidence could exist due to lack of prior experience. A lack of experience often leads to early discontinuation whereas, confident mothers are more likely to choose breastfeeding, persevere when difficulties arise, have self-encouraging

thoughts, and react in a positive manner to difficulties (Blyth et al., 2002). An examination of specific questions lends more insight into the confidence level of these women. Mothers indicated they could always determine that their baby was getting enough milk and could always deal with the fact that breastfeeding can be time consuming with an average score approaching very confident on these two questions. Mothers also indicated confidence in successfully coping with breastfeeding like they had with other challenging tasks. A specific breastfeeding skill the mothers felt fairly confident with was the ability to finish feeding the baby on one breast before switching to the other breast. Mothers in this sample felt the least confidence in breastfeeding their babies without using formula as a supplement. Responses indicated that mothers may have difficulty knowing when their babies are finished breastfeeding. Breastfeeding comfortably with family members present was also an indicated concern.

Education is well documented as a key factor in breastfeeding initiation and success (Mellin et al., 2011). Mothers enrolled in WIC in the rural county health departments represented in this study received standardized prenatal education in regards to breastfeeding. Breast-feeding peer counselors are individuals who have a passion for breastfeeding and have successfully breastfed themselves. Many WIC departments have found that peer counselors relate well with the demographic population that they serve (Landau, 2011). Counselors received extensive training including completion of the North Carolina lactation educator training and are also required to attend quarterly training sessions with the regional breastfeeding coordinator. Peer counselors along with nutritionists completed a breast pump and equipment training in order to be able to issue equipment to WIC participants (K. Keever, personal communication, June 22, 2015).

Post-delivery WIC participants received an RN home visit, along with two follow-up calls from the peer counselors during the first week after delivery, one of those calls being within 72 hours. Then they receive weekly calls throughout the first month and then every other week as needed over the next several months.

The majority of mothers in this study initiated breastfeeding (81.8%) suggesting the WIC education may have resulted in knowledge that impacted the mother's decision to breastfeed. Mothers at least tried to breastfeed initially. Duration rates however were varied indicating problems may have surfaced that were not successfully addressed. The moderate self-efficacy scores suggested that education may need to be reinforced after delivery or in the hospital to improve maternal confidence in breastfeeding.

Current research supported that higher BSES-SF score correlated with increased initiation rates and longer duration of breastfeeding (Dennis et al., 2011; Blyth et al., 2002; Baghurst et al., 2007; Tokat et al., 2010). Data in this study did not suggest a relationship between breastfeeding self-efficacy as measured by the BSES-SF score and initiation of breastfeeding. Although no relationship was found, the majority of mothers did initiate breastfeeding. At six weeks postpartum, however, confidence could have waned due to common breastfeeding difficulties that may have occurred during the prior six weeks. Timing of administration of the BSES-SF may have impacted self-efficacy scores. Administration of the BSES-SF during the prenatal period has been more predictive of breastfeeding success (Blyth et al., 2002; Dennis et al., 2011; Wu et al., 2014). More than one administration of the BSES-SF was a component in other studies thus impacting interpretation and comparison of results (Blyth et al., 2002; Dennis et al., 2010; Wu et al., 2014).

Consistent with current literature this study indicated a connection between duration of breastfeeding and self-efficacy scores. Data suggested that with each progressive week that mother's breastfed, overall self-efficacy scores improved by almost two points each week. Previous research has shown that even a few days of breastfeeding is an important determinant of overall duration (Baghurst et al., 2007).

### **Application to Theoretical/Conceptual Framework**

Efforts to improve breastfeeding rates and breastfeeding education have increased in recent years with the current knowledge of the benefits of breastfeeding. Self-efficacy is an individual's belief in his or her ability to succeed in a specific situation (Bandura, 1977). Often women who are younger, unmarried, primiparous, less educated, poorer, or a WIC participant are women who fail to successfully breastfeed (Ruowei et al., 2008).

Breastfeeding self-efficacy is a modifiable variable that has been shown to positively impact breastfeeding initiation, duration and exclusivity (Otsuka et al., 2014). "Self-efficacy is a pivotal factor in the performance of a specific behavior since it reflects individuals' perceptions about their abilities" (Dennis, 1999, p. 196). With the amount of support and the availability of resources for women enrolled in WIC, every advantage possible for successful breastfeeding is provided. A majority of women in this study (81.8%) initiated breastfeeding suggesting the prenatal education provided by WIC staff was one variable that may have influenced the mothers' decision to breastfeed. With the given sample size and only six participants not initiating breastfeeding there was not enough evidence to support the claim that those who initiated breastfeeding had a higher BSES-SF score. A positive correlation was established between the duration of breastfeeding and higher BSES-SF scores. Breastfeeding education has been improving

and knowledge has increased regarding the benefits of breastfeeding (Mellin et al. 2011). This has increased breastfeeding initiation rates in the US (Division of Nutrition, Physical Activity, & Obesity, 2013). Higher BSE scores have shown in previous research to be one of modifiable factors that improve breastfeeding duration (Blyth et al., 2002). Further research is required to determine interventions to improve breastfeeding duration (Baghurst et al., 2007).

Very little research exists regarding the WIC population and BSE. The Breastfeeding Self-Efficacy Scale-Short Form was used in this study to determine the breastfeeding self-efficacy of a sample of women in the WIC population. The BSES-SF was an excellent tool for this study because of its simplicity and ease of administration (Dennis, 2010). Recruiting participants was easy when individuals understood that it would only take a short amount of time. “Self-efficacy has been shown repeatedly, through correlational and causal associations, to be predictive of health behaviors” (Dennis, 1999, p. 196).

### **Limitations**

A small sample size and representation from three health departments in one geographic region limits generalizability of study results. Also the Hispanic ethnicity was not represented even though they represent a portion of WIC participants locally and nationally. Data collection was conducted by the researcher, five nutritionists, and one peer-counselor causing there to be a possible variance in presentation of the study. The individual administering the survey was present in the room when the participant completed the survey adding the potential for impacting responses to please the interviewer.



### **Implications and Recommendations for Nursing**

Women enrolled in the WIC program have an abundance of resources at their fingertips. The overall attitude for breastfeeding is a positive one, with no visual representations of formula being present anywhere in the three health departments. The WIC staff is pro-breastfeeding and they provide women with face-to-face individual education on the benefits of breastfeeding, an abundance of handouts and flyers, along with other printed material that promotes the benefits of breastfeeding. Participants have access to peer counselors who are available to help with any breastfeeding questions or concerns that the client has. Women enrolled in WIC also have access to the free breast pump loan program. Use of the BSES-SF for a baseline assessment may be effective in pinpointing mothers who needed additional education or interventions by health care providers.

Nurses working in health departments or maternity clinics have the potential for having a positive impact on breastfeeding success. Nurses can encourage pregnant and breastfeeding mothers, who have questions or concerns, to discuss them with the WIC breastfeeding peer counselors who can offer the proper education and support they need. The nutritionists and peer counselors give excellent prenatal education and support to mothers in the WIC program. Nurses have the opportunity to provide breastfeeding support during their scheduled home visit between the delivery date and the six-week postpartum checkup. Encouraging mothers to ask questions regarding their breastfeeding experience and also directing mothers back to the breastfeeding peer counselors can assist women when difficulties arise. Questions like “I don’t have enough milk, my baby is hungry all the time” can be addressed easily when mothers call the peer counselors and

seek help (L. Roper, personal communication, July 12). The key is for nurses and hospital staff to be supportive of breastfeeding and direct breastfeeding mothers to the individuals that can assist them (L. Roper, personal communication, July 12). WIC participants receive a home visit after delivery by a RN. Simple questions may arise after the RN visit and can be resolved easily if mothers contact the WIC peer counselors. Education and ongoing support are critical for breastfeeding success. Findings of this study supported the following recommendations for nurses involved in caring for maternity clients:

1. Nurses should assist mothers with breastfeeding concerns during the scheduled home visit and encourage communication with WIC peer counselors if difficulties arise before the six-week check up.

2. Nurses in the inpatient setting need to reinforce instruction received in the prenatal setting including how to manage problems that may surface at home before the six-week visit.

3. Nurses should promote breastfeeding as the ultimate nutrition for infants and avoid any promotion, advertisement, or distribution of formula.

4. Nurses should ensure that mothers know how to determine when infants are receiving enough breast milk as evidenced by output.

5. Nurses should work to include family members in education to ensure that mothers are comfortable breastfeeding with family members present.

6. Nurses in the inpatient setting need to encourage exclusive breastfeeding, unless medically indicated, and work to minimize infant and mother separation during the inpatient setting.

The 2013 Breastfeeding Report Card indicated that 74.9% of women in the demographic region that this study was conducted in ever-initiated breastfeeding (Division of Nutrition, Physical Activity, & Obesity, 2013). Results from this study showed that (81.8%) of mothers initiated breastfeeding. This indicates that WIC may have a role in increasing the number of mothers who successfully initiate breastfeeding in the demographic region of this study.

Concern still exists for increasing duration of breastfeeding in order to meet 2020 Healthy People goals (Perez-Escamilla & Chapman, 2011). Further research to learn more about why women discontinue breastfeeding and further interventions may be indicated for WIC mothers to maintain longer breastfeeding duration.

### **Conclusion**

The purpose of this study was to establish the breastfeeding self-efficacy scores and to determine if those scores correlated with higher levels of breastfeeding initiation and duration in a sample of WIC participants. Very little literature is available that looks directly at the relationship of breastfeeding self-efficacy in the WIC population. With the large proportion of US infants being born to mothers who are enrolled in the WIC program, information from this study can add to the current literature and aid in further research studies. The results showed that demographic variables were consistent with the area WIC population. Results lacked evidence to support that those who initiated breastfeeding scored higher on the BSES-SF, than those who did not, whereas this study did support the positive relationship between higher breastfeeding self-efficacy scores and longer duration of breastfeeding. Nurses involved in caring for mothers during the prenatal and postpartal periods are encouraged to be cognizant of the impact maternal

confidence may have on duration of breastfeeding. Efforts to support breastfeeding must be ongoing in order to increase initiation and lengthen duration of breastfeeding.

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Appendix A

BSES-SF

### Breastfeeding Self-Efficacy Scale – Short Form

For each of the following statements, please choose the answer that best describes how confident you are with breastfeeding your new baby. Please mark your answer by circling the number that is closest to how you feel. There is no right or wrong answer.

1 = not at all confident  
 2 = not very confident  
 3 = sometimes confident  
 4 = confident  
 5 = very confident

		Not at all		Very Confident		
1	I can always determine that my baby is getting enough milk	1	2	3	4	5
2	I can always successfully cope with breastfeeding like I have with other challenging tasks	1	2	3	4	5
3	I can always breastfeed my baby without using formula as a supplement	1	2	3	4	5
4	I can always ensure that my baby is properly latched on for the whole feeding	1	2	3	4	5
5	I can always manage the breastfeeding situation to my satisfaction	1	2	3	4	5
6	I can always manage to breastfeed even if my baby is crying	1	2	3	4	5
7	I can always keep wanting to breastfeed	1	2	3	4	5
8	I can always comfortably breastfeed with my family members present	1	2	3	4	5
9	I can always be satisfied with my breastfeeding experience	1	2	3	4	5
10	I can always deal with the fact that breastfeeding can be time consuming	1	2	3	4	5
11	I can always finish feeding my baby on one breast before switching to the other breast	1	2	3	4	5
12	I can always continue to breastfeed my baby for every feeding	1	2	3	4	5
13	I can always manage to keep up with my baby's breastfeeding demands	1	2	3	4	5
14	I can always tell when my baby is finished breastfeeding	1	2	3	4	5

## Appendix B

Permission to use BSES-SF

Hi Sarah,  
I have attached the BSES-SF for your use in your Master's thesis.  
Warm regards,  
Cindy-Lee

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Appendix C

Demographic and Breastfeeding Information Form

**Age:** \_\_\_\_\_

**Marital Status:**

- Single
- Married/Partner

**Race:**

- Caucasian/White
- Hispanic
- Black
- Multiracial
- Other

**Education Level:**

- Not a High School Graduate
- High School Graduate/GED
- Some College
- College Graduate

**Which health department do you receive care at?**

- Polk
- Rutherford
- McDowell

**Number of children, including this delivery?**

- 1
- 2
- 3
- 4 or more

**Have you breastfed in the past?**  
**If yes, how many children have you breastfed?**

- 0 (never breastfed)
- 1
- 2
- 3
- 4
- 5 or more

**Did you initiate breastfeeding with this delivery?**

- Yes
- No

**With this delivery how long did you breastfeed your baby?**

- Never attempted
- Less than 1 week
- 1 Week
- 2 Weeks
- 3 Weeks
- 4 Weeks
- 5 Weeks
- 6 Weeks
- More than 6 weeks

Appendix D  
Informed Consent



## **Informed Consent to Participate in Research**

**Introduction:** The purpose of this form is to provide you as a potential participant with information to help you decide whether or not to participate in this research.

**Invitation/Identification:** Sarah Rowe is a graduate student in the Masters of Science in Nursing Program at Gardner-Webb University and would like to invite you to participate in a research study. She is being guided in this research by Dr. Janet Arthurs.

**Purpose & Description of Research Study:** The purpose of this study is to determine the breastfeeding confidence level for first times moms in the WIC population. The research will attempt to determine if there is a relationship between the confidence level and initiation and duration of breastfeeding. If you decide to participate you will be asked to complete the Breastfeeding Self-Efficacy Scale-Short Form consisting of 14 questions along with a brief demographics sheet. Your participation in this study will take no more than 10-15 minutes.

**Risks and benefits:** There is little to no risk posed for the research subjects. The benefit of this research is that it will assist with identifying information regarding breastfeeding confidence levels.

**Confidentiality:** All information obtained in this study is strictly confidential unless required by law. The results of this research may be used in reports, presentations, and publications, but the researchers will not identify you. Completion of the survey implies your consent for participation in the study; therefore no names will be included. In order to further protect your privacy and identity, all records of your participation will be given a group number that does not allow anyone

(including the researcher) to personally identify you. Following completion of this research study, all data will be turned in to GWU and will be stored in a locked cabinet for 10 years.

**Compensation:** This study does not involve any type of compensation.

**Question/contact information:** Please ask any questions you may have at this time. If you have questions about your rights as a participant in this research, or if you feel you have been placed at risk, please contact Sarah Rowe at 828-817-3315; [srowe@gardner-webb.edu](mailto:srowe@gardner-webb.edu) and/or Dr. Janet Arthurs at 704-406-4384; [jarthurs1@gardner-webb.edu](mailto:jarthurs1@gardner-webb.edu)

**Disclaimer:** Participation in this study is voluntary and participants can quit or withdraw from the study at any time without penalty.