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The Effect of a Breast-Feeding Self-Efficacy Intervention on Breast Feeding Self-Efficacy and Duration

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Abstract

Problem: Breastfeeding has long been recognized as the preferred method of feeding in the first year of life (American Academy of Pediatrics, 1997). Extensive research confirms the nutritional, economic, biomedical, immunological, and psychological advantages of breast milk. Despite the clear benefits of breastfeeding to mother and infant, breastfeeding rates today continue to remain below the recommended levels in the United States (US), most notably among low-income mothers. Research has shown that breastfeeding self-efficacy is one predictive factor affecting breastfeeding duration. Theoretical Framework: Dennis's (1999) Breastfeeding Self-Efficacy Theory, was the basis for this study. Using this theory, the Breastfeeding Self-Efficacy Intervention Program (BSEIP) was developed. The intervention consisted of a one-hour program delivered during the last trimester of pregnancy. The BSEIP consisted of measures to increase breastfeeding self-efficacy, including education, practice, and demonstration of breastfeeding techniques. Social support and practical advice were provided in the first two-weeks of the postpartum period. Methods: A quasi-Experimental design was used to test the effect of the BSEIP on duration of breastfeeding. A convenience sample of 36 low-income predominately non-Hispanic White women was recruited from two prenatal clinics on the outskirts of a large metropolitan area. All women indicated their intent to breastfeed their infant. Women were assigned by prenatal clinic to either receive or not receive the BSEIP. Data were collected using the Breastfeeding Self-Efficacy Scale (BSES) and a demographic profile. Women

were contacted by telephone at two and six weeks postpartum to determine if they were still breastfeeding and to complete the BSES.. Results: Women who received the BSEIP had greater breastfeeding self-efficacy at two and six weeks postpartum than women who did not receive the intervention; women who received the intervention also increased their self-efficacy scores over time. The mean duration of breastfeeding between the two Groups was also statistically significant: Women who received the intervention breastfed for an average of 28.82 days compared to 11.86 days for women who did not receive the intervention. Implications: The results of this study suggest that the one-hour BSEIP during the last trimester of the prenatal period may increase the duration of breastfeeding in low-income women who intend to breastfeed. This study supports the literature which found that prenatal education and postpartum support are important to the outcome of breastfeeding.

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I dedicate this dissertation to my husband and to the joy of my life my children Emran and Hala. I also dedicate this work to my parents for teaching me the values of life, for making it possible to embark on this academic journey.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

Introduction

Breastfeeding has long been recognized as the preferred method of feeding in the first year of life (American Academy of Pediatrics, 1997). Extensive research confirms the nutritional, economic, biomedical, immunological, and psychological advantages of breast milk. In order to improve long term health benefits and to effect savings in health care expenditures, increasing the initiation rate and duration of breastfeeding have become important goals for health care professionals. The Healthy people 2010 objectives for breastfeeding are: (1) 75% of women initiate breastfeeding within early postpartum period, (2) 50% will continue to breastfeed until the infant is six months old, and (3) 25% of women will continue breastfeeding until the infant is one year of age (Centers for Disease Control, 2004). Based on the current trends in breastfeeding, it is unlikely that these objectives will be met.

Despite the clear benefits of breastfeeding to mother and infant, breastfeeding rates today continue to remain below the recommendation levels in the United States (US), most notably among low-income mothers. The breastfeeding initiation rate in the US reached an all time low of 24.7% in 1971, then increased throughout the 1970s and early 1980s to 61.9% in 1982, before declining to 51.5% in 1990. Since 1990, breastfeeding rates have been slowly increasing (Riordan & Auerbach, 2005). In 2003, the breastfeeding rates in the US reached their highest recorded levels; more than 70% of new mothers initiated breastfeeding in the hospital (Abbott Laboratories' Ross Products

Division, 2004). Even though only 33.2% of mothers continue to breastfeed until at least six months, this is an increase of 14.3% from the 1992 rate of 18.9%. The decline of breastfeeding in the United States has been most marked among low-income women. Low-income women are less likely to choose breastfeeding than middle- and high-income women (Libbus, Bush, & Hockman, 1997). It is reported that 38.9% of low-income women initiate breastfeeding in the hospital compared to 66.1% of women from middle- and high-income groups (United States General Accounting Office, 1992).

Even when women initiate breastfeeding, the majority of breastfed infants are weaned before they are three months of age. A number of variables have been associated with this early weaning. Factors include: intent to breastfeed for relatively short periods (Coriel & Murphy, 1988), less favorable attitudes toward breastfeeding (Janke, 1994), perception of lack of support for breastfeeding from significant others (O, Campo et al, 1992), perceived inconvenience of breastfeeding (Janke, 2994), maternal or infant illness (Duckett, 1993), return to work or to school (Duckett, 1992), and problems such as sore nipples (Buxton et al, 1991). Other frequently mentioned reasons for discontinuation of breastfeeding before the infant is six months old are: maternal perception of insufficient milk supply or maternal perception that her baby is hungry (Hill, 1992; Hill, 1993), lack of confidence in the face of adverse circumstance, feelings of embarrassment (O'Campo et al. 1992), and low satisfaction with breastfeeding. Researchers have stated that these problems could be avoided by providing

education and support to the mother during the initial postpartum period (Dennis, 1999; Ellis, 1984; Riordan, 2005).

Many researchers suggest that breastfeeding is a learned behavior, and that women need education and support for a successful experience (Ellis, 1984). Women who initiate breastfeeding but who are at risk to discontinue breastfeeding earlier than desired are candidates for interventions designed to increase the duration of breastfeeding. The purpose of this study is to test an innovative intervention--the Breastfeeding Self-Efficacy Intervention Program (BSEIP), on duration of breastfeeding in a population of low-income women.

Significance

Human survival has been promoted by human lactation (Lawrence, 1994; Riordan & Auerbach, 2005). Breastfeeding babies have nutritional, immunological, cognitive, and psychosocial advantages. Both human milk biochemistry and human biology have produced evidence of the nutritional advantages of breastfeeding. Proteins, fat, carbohydrates, vitamins, and minerals in mother's milk varied from the milk of other mammals and from mother's milk-substitutes. The composition of substitute milk is the same, but the composition of mother's milk changes "over time of day and as time goes by" (Lawrence, 1994, p. 91). These changes match the changing physiology of the growing baby.

Research has demonstrated the nutritional and immunological benefits of breastfeeding for the infant (American Academy of Pediatrics, 2005). The complexity of human milk gives it properties that adapt to the needs of the young,

providing the right nutrients and antibodies (Humenick & Hill, 1994; Lawrence, 1994; Riordan & Auerbach 2005), and the unique protective factors to minimize infections and help infants fight a variety of illnesses (Newman, 1995). Colostrum, transitional milk, and mothers' mature milk contain, "various immunoglobulins, especially IgA, granulocytes, macrophage, and T- and B cell lymphocytes" (Wong, 2000, p. 337). When a mother is exposed to an infectious agent, she gives her baby passive immunity to the infectious agent through breastfeeding Breastfed babies have fewer and less severe infections (Dewey, Heinig, Nommsen-Rivers, 1995; Duncan, 1993).This effect continues even after breastfeeding is discontinued when breastfeeding's duration is several months (Wilson, Forsyth, Greene, Irvine, Hau, & Howie, 1998).

Breastfed babies in day care in the United States are sick less often than other babies (Duffy, Faden, Wasielewski, Wolf, Krystofik, & Williamsville, 1997), and their mothers miss less work (Riordan, 1997). Community interventions to increase breastfeeding reduced infant illness at the community level (Wright, Bauer, Naylor, Sutcliffe, & Clark, 1998). Additional advantages include specific reduction of risk to respiratory illness, otitis media, meningitis and gastrointestinal illness (Ball & Wright, 1999; Silfverdal, Bodin & Olcen, 1999), sudden infant death, neonatal mortality from necrotizing enterocolitis, and protective factors against disease including diabetes mellitus, and lymphomas (AAP, 1997; Mathur, 1993; Mayer, 1988). There is a lower incidence of allergic reactions during breastfeeding and beyond (Goldman, 1993). The increase in childhood allergic

diseases in the industrialized world has been related to the decrease in breastfeeding (Lawrence, 1994; Riordan & Auerbach, 2005).

In addition to the immunological advantages, the babies fed formula were heavier (Dewy, 1995; Fawzi, 1997) and had higher blood pressure as children than breastfed babies (Wilson, Forsyth, Greene, Irvine, Hau & Howie, 1998). Growth and development of the infant, in areas of jaw, teeth, and speech development also benefit as the result of breastfeeding (Riordan & Auerbach, 2005). Specific amino acids and lipids in human milk promote development of the neurological system and cognition of the baby (Lawrence, 1994; Riordan & Auerbach, 2005). Intelligence test results showed that children who were breastfed scored as much as one-half of a standard deviation higher than other children. These influences were found in full-term babies and even more so in preterm babies (Horwood & Fergusson, 1998; Morley, Lucas, 2000; Temporoury, Otero, Polanco, & Arribas, l994).

Breastfeeding also has pronounced maternal health benefits (Lawrence, 1994; Riordan & Auerbach, 2005). Breastfeeding encourages bonding between mother and baby, but the advantages to families surpass mother-baby bonding. The process of breastfeeding helps family members recognize and meet each other's needs (Riordan & Auerbach, 2005). Some of the benefits mothers have mentioned as a reasons for breastfeeding include its' convenience, the economic advantage and its' natural, environmentally safe component (La Leche League International, 1991; Tompson, 1971; Riordan & Auerbach, 2005). Breastfeeding mothers have found physical benefits such as decreased postpartum bleeding

and more rapid uterine involution (Kennedy & Visness, 1992), an earlier return to pre-pregnancy weight (Dewey, Heing, & Nommsen, 1993), decreased risk of breast cancer (Newcom et al., 1994), and ovarian cancer (Siskind et al, 1992), and protection against osteoporosis (Kritz-Silverstein et al., 1992).

Because of these many advantages of breastfeeding, the American Academy of Pediatrics (AAP, 1982) adopted a primary goal of encouraging "optimal infant nutrition through the promotion of breastfeeding by stressing the superiority of breast milk." Unfortunately, because of breastfeeding's decline in the United States, knowledge about its practice has been lost to many women. According Riordan and Auerbach (2005) increased breastfeeding initiation and perseverance both increased public awareness of breastfeeding's benefits and increased social acceptance were necessary.

Despite the wealth of evidence supporting the benefits of breastfeeding in decreasing the infant morbidity and decreasing health care cost, initiation and maintaining breastfeeding is often problematic for new mothers, most notably among low-income women. Learning the art of breastfeeding is not always an easy task. The social climate for breastfeeding has been erratic during the past century and, as a result, many breastfeeding mothers in the United States are being introduced to the breastfeeding experience without the advantage of social support or acceptance.

The reasons for premature termination of breastfeeding are important concerns of health care professionals (Riordan& Auerbach, 2005). Although health care professionals may positively influence breastfeeding women, they

also have been reported as nonsupportive, lacking knowledge, giving inaccurate information and being inconsistent in their interventions and counseling of breastfeeding women (Anderson & Geden, 1991; Hayes, 1981; Humenick et al. 1998). In contrast, nursing support for and teaching about breastfeeding have been reported to enhance breastfeeding success (Houston& Field, 1988; Lindenberg, Artola, & Estrada, 1990).

The importance of breastfeeding education in supporting breastfeeding has not been clearly demonstrated in past research. Some studies identified education as a factor related to breastfeeding success (Gulick, 1982; Houston & Field, 1988), while other studies have reported nonsignificant results of education's effect on breastfeeding success (Hill, 1987; Shand & Kosawa, 1984). Given the research regarding health professional support and breastfeeding education, it is not surprising that there is a large gap between research findings on the care of breastfeeding women and actual nursing practice (Winikoff, Myers, Laukaran, & Stone, 1986). A recent systematic review of interventions to increase breastfeeding initiation found that informal small Group education, individual education in the prenatal period, and peer support before and after birth increased both initiation and duration of breastfeeding among low-income women (Fairbank & Renifrew, 2000). Evidence supports the importance of early initiation of breastfeeding, frequent feedings, and minimum supplementation, all requiring early and frequent mother infant contact (Moon & Humenick, 1989; Richardson & Fairbanks, 2000; Stone, 1986).

Self-efficacy provides a mechanism to explain individual behavior and may be defined as “a person’s perceived capability to perform a behavior”. A high level of personal self-efficacy is associated with a positive self-concept and a self-appraisal of personal Control and arises through experiences of mastery and the anticipation of competent performance. A person with a high self-efficacy expects to succeed and is more likely persevere in an activity until the task is completed. A person with low perception of self-efficacy anticipates failure and is less likely to attempt or persist in challenging activities. A comprehensive nursing intervention based on theoretical framework of self-efficacy had not been studied.

The purpose of the this study is to test the efficacy of the Breastfeeding Self-Efficacy Intervention Program (BSEIP), which is based on Dennis’s (1999) breastfeeding self-efficacy theory, to increase breastfeeding duration. The intervention includes prenatal breastfeeding education, measures to increase breastfeeding self-efficacy, and support and assistance for up to two weeks postpartum to increase duration of breastfeeding in a Midwestern sample of low-income pregnant women. The intervention’s effect on breastfeeding self- efficacy, and breastfeeding duration in pregnant women who are receiving prenatal care at rural prenatal clinics in the Midwest will be investigated. The intervention used in this study encompasses nursing actions during three times periods: prenatally, at one week, and at two weeks postpartum.

The BSEIP targets four sources of information, actual practice of behavior, role modeling of behavior, verbal persuasion about personal efficacy to

accomplish behavior, and physiological status while performing behavior that influence the mother's self- efficacy judgment. This intervention not only provides information to increase knowledge but also focuses on enhancing mother's self-efficacy.

Research Hypothesis

The following hypotheses will be tested:

1. Women who receive the Breastfeeding Self-Efficacy Intervention program (BSEIP) prenatally will report higher breastfeeding self-efficacy on the Breastfeeding Self-Efficacy Scale (BSES) at two and six weeks postpartum than women who do not receive the BSEIP prenatally.
2. Women who received BSEIP prenatally will breastfeed their infants significantly longer than women who do not receive the BSEIP prenatally.

Definitions

Breastfeeding Self- Efficacy

Self-efficacy was conceptually defined as an individual's perceived confidence in their ability to perform a specific behavior (Bandura, 1997). Breastfeeding self-efficacy is a mother's perceived confidence in their ability to breastfeed as measured by the (BSES) (Dennis & Faux, 1999).

Breastfeeding

The study defined breastfeeding as according to the schema described by Labbok and Krasovec (1990), which originated from work done by interagency

Group for action on Breastfeeding in 1988. This schema has been further supported by Armstrong (1991), Burgin (1996), Labbok, and Belsey (1997). In past studies, definitions of breastfeeding have not always been clearly stated. In some studies, women answered “yes” or “no” to the question: “are you still breastfeeding?” Other studies have used strict measures and separated exclusive breastfeeding from partial breastfeeding (Winkoff, 1981). In this study , women will be asked if they are breastfeeding at six weeks, and if so, how many times a day the infant are breastfed. Additional information was obtained about any thing else the infant was receiving, other than breast milk.

The schema divides breastfeeding into two main categories, “full” and “partial”, and also includes a category of “token” breastfeeding. Full breastfeeding is further divided into: (1) Exclusive breastfeeding indicates that the infant receives no other liquid or solid, (2) almost exclusive: indicates that the infant can receive vitamins, minerals, water, juice or “ritualistic feeds” infrequently in addition to breastfeeds. Partial breastfeeding is further subdivided into: “high”, “medium” and “low” breastfeeding depending upon what percentage of the baby’s feeds are breastfeeds. In keeping with suggestions made by Labbok and Krasovec (1990), this study will define these categories as follows: (1) High partial breastfeeding - indicates that the infant receives more than 80% of feeds as breastfeeds, (2) Medium partial breastfeeding - indicates that the infant receives 20-80% of feeds as breastfeeds, (3) Low partial breastfeeding - indicates that the infant receives fewer than 20% of feeds as breastfeeding

CHAPTER TWO

Literature Review

In this chapter, the literature review that is relevant to the research problem and the conceptual frame work is presented. The literature review is divided into the following sections: breastfeeding educations and success, health professional's role, and self-efficacy and breastfeeding. Each of these areas is reviewed as they collectively provide the foundation for the study.

Breastfeeding Interventions and Success

The effect of breastfeeding intervention has led to breastfeeding success and sheds some light on the issue of the breastfeeding process. Attempts to clarify breastfeeding success have focused on many different areas, such as demographic variables of mothers, hospital polices, and/or health professional support. Research results have provided conflicting evidence regarding the role of hospital policies and nursing staff in relationship to breastfeeding success, (Houston & Field, 1988). A meta- analysis of 13 randomized controlled trials of approximately 3,600 women in seven countries was conducted to evaluate the effect of enhanced breastfeeding support interventions on breastfeeding duration (Sikorsk & Renfrew, 1999). The results of this study indicated that additional professional support interventions may provide a small overall beneficial effect on the duration of any breastfeeding (RR = 0.90, 95% CI =0.82-0.97). Specific analysis of the results, at different periods of follow up, showed a clear benefit of distinct forms of support at two months postpartum but there was no clear evidence of the benefit at three months. Analysis of the studies that tested a face

to face intervention demonstrated a benefit on breastfeeding duration; on the other hand studies using mainly telephone contact did not have an effect on breastfeeding duration. Finally sub-analysis involving studies evaluating the effect of professional support on low-income population did not show a significant benefit on breastfeeding duration.

In an experimental study, Gulick (1982) compared duration of breastfeeding in two groups of 44 primigravida women, matched on age and education. Findings demonstrated that those with multiple breastfeeding sources and increased knowledge of the breastfeeding process were "more successful breastfeeders", in that more of them breastfed longer than four weeks. A retrospective study of 34 (77%) breastfeeding mothers found that class preparation for breastfeeding led to a longer duration of breastfeeding (Whitley, 1978). In that study, six (13%) women who had a one-hour breastfeeding class incorporated into their Lamaze class, as well as the series of breastfeeding classes offered, breastfed for more than six months.

Another study used a quasi-experimental design to test the effect of a prenatal breastfeeding class on maternal reports of breastfeeding success (Wiles, 1984). The sample consisted of 40 primiparous women who desired to breastfeed their infants. The intervention consisted of one class, offering information on: mechanics, anatomy/physiology, advantages, resources, and potential problems of breastfeeding. Results revealed that the women who received prenatal breastfeeding education considered themselves more successful at breastfeeding at 1-2 days postpartum, and one month postpartum.

At one month postpartum, 18 of the 20 subjects from the experimental group were still totally breastfeeding compared to only 6 of the 20 control group subjects.

In contrast to the above studies, other studies looking at the effect of breastfeeding intervention in the breastfeeding duration found non-significant results (Hauck & Dimmock, 1994; Hill, 1987; Nikodem, et al. 1993). For example Hauck and Dimmock (1994) evaluated the effect of a breastfeeding information booklet on breastfeeding behavior in a sample of 150 mothers of full term infants who were breastfeeding for the first time. Once discharged from the hospital, a random sample of 75 mothers were sent the booklet and compared to a control group (N = 75) on breastfeeding duration at the end of 52 weeks. Although no significant differences were found between groups in relation to breastfeeding duration, the breastfeeding information was important in increasing mothers' confidence and providing suggestions for breastfeeding practice.

Hill, (1987) evaluated the effect of prenatal breastfeeding education program on breastfeeding success in 64 low-income women. Breastfeeding success was measured by whether the women were still breastfeeding at six weeks after delivery. Pre- and post-tests of breastfeeding knowledge were measured in the experimental group, and woman’s perception of success was measured as the answer to the question: “do you feel you have been successful in breastfeeding?” The results of this study found that an increase in factual knowledge alone was not related to the duration of breastfeeding or to women’s perceptions of themselves as successful at breastfeeding.

Nikodem, et al. (1993) used a randomized control trial to evaluate the effect of an audiovisual breastfeeding program education on breastfeeding practices. One hundred-four women were randomly allocated to view one of two video programs, one of which dealt with breastfeeding, within 72 hours after delivery. No significant differences were noted when mothers were compared on mother-infant relationships and postpartum depression. Analysis was noted that fewer mothers in the Experimental group supplemented with formula feedings. The authors concluded that audiovisual education is limited in effectiveness, and more attention should be directed to personal follow-up and support of breastfeeding mothers (Nikodem et al., 1993).

Reasons for conflicting results in the early studies may be related to; (a) a lack of consistency in measuring breastfeeding duration and success; (b) small sample sizes, convenience sampling, and retrospective studies; (c) the difficulty linking differences in breastfeeding duration and success specifically with breastfeeding education; (d) inadequate education (for example one hour class); and (e) variations in individuals, especially those choosing to attend the lactation classes. Another important area of research has examined more closely the role of health professional in regard to breastfeeding success will be examined next.

Health care Professionals and Breastfeeding Outcome

Descriptive and correlation studies are inconsistent regarding the health care professional's influence on breastfeeding initiation. Research has demonstrated that hospital classes taught by nurses and even private

consultations with health care professionals have resulted in a negative or no correlation with breastfeeding success (Shand & Kosawa, 1984).

Research has shown that breastfeeding women were dissatisfied with the kind and the amount of help received from nurses in regard to breastfeeding. Ellis and Hewat (1984) studied 131 women using hospital records and questionnaires mailed at one, three, and six months postpartum. The subjects were asked about their perceptions of the kind and amount of assistance they received in the hospital with breastfeeding. Although many mothers felt they received the necessary information and assistance, others had negative impressions of assistance, which was consistent with other studies (Whitley, 1998).

In a positive light, some studies have found that nursing support has been important in enhancing breastfeeding success. In a meta-analysis of breastfeeding research conducted by Houston and Field (1988) found that "early and consistent support and teaching from hospital staff" (p. 418), was a helpful factor in the initiation of breastfeeding. Although verbal support and teaching are helpful in the initiation of breastfeeding, the hospitals that continue to "model" infant formula feeding practices exert an influence on the mother that is stronger than the verbal teaching can overcome (Reiff & Essock-Vitale, 1985).

Heath care professional give tacit approval of formula feeding when they give free samples of formula to a breastfeeding mother (Riordan, 2005). Howard, Howard, and Weitzman (1994) found that 90% of 136 women surveyed received free formula from their prenatal caregiver, giving a negative or mixed message

about the importance of breastfeeding. Similarly, health care professionals give open approval and model formula feeding practices when they use supplements in the nursery or suggest to the mother that she offer water or formula after breastfeeding. Howard et al. (200) conducted a trial with 547 pregnant women to compare the effect on breastfeeding initiation and duration of materials about infant feeding produced by formula company with breastfeeding promotion material without formula advertising. They found the formula company material had no effect on breastfeeding initiation (RR =.93, 95% CI= 0.61-1.43). However, women in the formula commercial Group were five time more likely to cease breastfeeding before hospital discharge and almost two times more likely to stop before two weeks postpartum. Research has shown that sending breastfeeding mothers home with formula samples has a negative effect on breastfeeding duration (Bergevin, Dougherty, & Kramer, 1993; Gray-Donald, Kramer, Munday, & Leduc, 1985).

Research has shown that nurses are the largest Group of health care professionals influencing women's breastfeeding experience. A review of the literature suggested that although nurses most often have positive attitudes towards breastfeeding, they lack knowledge about breastfeeding. Freed, Clark, Harris, and Lowdermilk (1996), in their assessment of the breastfeeding instructions provided in five U.S nursing programs , reported that although most of the students attended a breastfeeding lecture, only one- fourth received breastfeeding information during clinical activities and less than 25% had as many as three opportunities to teach breastfeeding techniques or counsel about

lactation problems. Karipis & Spicer (1999) conducted a study with a random sample of 278 Australian nurses, using the Breastfeeding Knowledge Questionaire. These researchers found that the difference in knowledge scores between experienced and novice nurses were small. Further, Patton, Beaman, Csarand Lewinski (1996) studied 230 U.S maternity nurses at 20 Midwestern hospitals and found that only 65% of nurses indicated they would actively encourage breastfeeding. Barriers to nursing assistance included a lack of knowledge, and a perception that providing breastfeeding support was too time consuming, especially with introduction of shortened hospital stays. Anderson and Gaden (1991) surveyed 293 maternal/neonatal registered and licensed practical nurses to assess their knowledge of breastfeeding and whether their education, clinical experience, or personal experience predicted that knowledge. The total mean score on breastfeeding knowledge was very low (M = 7.4, 53%, highest possible score = 14), suggesting that nurses' knowledge of breastfeeding has not increased in the ten years since Crowder (1981) and Hayes (1981) reported their similar findings. Research also has shown that clients were dissatisfied with the kind and amount of help they received from nurses in regard to breastfeeding

In summary, previous studies of the health professionals' role in promoting breastfeeding have provided conflicting results. The studies have focused on interventions that have no specific intervention periods (e.g., strictly the prenatal or postpartum periods). The type and amount of intervention necessary has not been related to theory for added information about the process of breastfeeding.

The gap between research and hospital practice is evident, and the harm done to breastfeeding mothers by prenatal care providers and hospitals supporting formula feeding has not been fully studied.

Breastfeeding and Self-Efficacy

Self- efficacy is defined as a cognitive process of individuals' confidence in their perceived ability to regulate their motivation, thought processes, emotional states, and social environment in performing a specific behavior (Bandura, 1997). Breastfeeding self-efficacy is defined as a mother's perceived confidence in their ability to breastfeed as measured on Breastfeeding Self -Efficacy Scale (BSES) (Dennis& Faux, 1999).

Self-efficacy has predicted the initiation and perseverance of many health promoting behaviors (Bandura, 1995, 1997; Pender, 2002, Schwarzer, 1992). Pender (1996) defined health promotion as approach behavior that increased overall well being. Breastfeeding in this study has been described as a health behavior. Although the direct measurement of maternal breastfeeding self-efficacy has not been the major focus of the most breastfeeding studies, several studies have suggested the importance of confidence (Buxton et al., 1991; Coreil, & Murphy, 1988; Hill, 1991; Ertem, Votto, & Leventhal (2001); Pollard, 1998). In particular Coreil and Murphy (1988) measured women's confidence in breastfeeding and found that intended duration of breastfeeding was related to breastfeeding self-efficacy and was a strong predicator of actual duration. Buxton, Gielen, Faden, (1991) reported that among women (n=27) who initiated breastfeeding, 27% of women with low maternal confidence in the prenatal

period discontinued breastfeeding within the first postpartum week compared with five percent of highly confident mother ($p < 0.001$). They established that the probability of failure was approximately four to five times more likely among less confident mothers. Similar findings were reported by Ertem, et al. (2001), in their longitudinal study of 64 minorities eligible for enrollment in the women, infants, and children's program in the United States. These researchers interviewed mothers within 48 hours after delivery, about their confidence to continue breastfeeding until the infant was two months of age. Those women who had lacked in their ability to breastfeed were significantly more likely to stop breastfeeding before two weeks postpartum (CI = 1.82-6.18).

O'Campo, Faden, Gielen & Wang (1992) examined 11 psychosocial and demographic variables and found breastfeeding self-efficacy to be one of the most significant variables affecting the duration. Women with low confidence in their ability to breastfeed were 3.1 times (95% CI= 1.39-6.76) more likely than very confident breastfeeding mothers to prematurely stop breastfeeding. Loughlin et al., (1985) found that maternal confidence and lack of confidence to be impeding factors associated with the development of sore nipples and insufficient milk supply. Similar to this, McCarter & Kearney (2001) conducted a cross sectional descriptive correlation study with 60 breastfeeding mothers of infants ages one month to eleven months to explore the relation between parenting self-efficacy and insufficient breast milk, found there was a significant correlation ($r=.487$, $p< 0.1$) between self-efficacy and perceived insufficient milk scores.

A study by Dennis and Faux (1999) during psychometric testing of the Breastfeeding Self-efficacy Scale, revealed that the higher the mothers score's of breastfeeding self-efficacy, the more likely she was able to be exclusively breastfeeding at six weeks postpartum ($P < 0.001$). Dennis (1999) incorporated Bandura's social cognitive theory (1986) and developed breastfeeding self-efficacy theory. She described four antecedents of breastfeeding confidence. The self-efficacy antecedents were performance accomplishments, vicarious experience, verbal persuasion, and physiological and affective states. Consequences were personal choice of behavior, effort and persistence, thought patterns, and emotional reactions. Finally, consequences resulted in activity. The types of activity were behavior initiation, performance and maintenance. Dennis reported that no studies describing personal efficacy beliefs about breastfeeding were available. In addition, Dennis could not find any studies "that specifically investigated the development of women's confidence in their ability to breastfeed" (1999, p. 195).Using the theoretical frame work of breastfeeding self-efficacy (Dennis, 1999), Blyth et al. (2002) conducted a study to determine the relationship between breastfeeding self-efficacy and duration of breastfeeding. Using the Breastfeeding Self-Efficacy Scale (BSES) (Dennis& Faux, 1999), the investigators surveyed 300 Australian women in the last trimester of pregnancy and one week to four months postpartum to assess the effect of maternal confidence on breast feeding duration. The researcher found that breastfeeding at four months postpartum was significantly affected by breastfeeding self-efficacy prenatally and at one week postpartum. Ninety-one percent (253) of the

women in this sample initiated breastfeeding at one week postpartum, 60% (153) were still breastfeeding at four months. Women with higher breastfeeding self-efficacy were significantly more likely to report breastfeeding their infant at four months postpartum. A longitudinal study was conducted with 300 Australian pregnant women in the third trimester, to assess the effect of modifiable antenatal variables on breastfeeding outcomes. The researchers found that intended breastfeeding duration and breastfeeding self-efficacy was identified as the most significant modifiable variables predictive of breastfeeding outcomes. Women with high self-efficacy were more likely to be breastfeeding compared with women with low self-efficacy (79.3% vs. 50.0%) (Blyth, et al., 2004).

Only one unpublished study (n=86) used a quasi-experimental design to test the effect of culturally appropriate intervention on breastfeeding self-efficacy and initiation, and duration on primapara Hispanic women. The intervention consisted of one-to-one prenatal teaching based on Bandura's (1986) sources of self-efficacy. Results revealed that women receiving the prenatal breastfeeding education have a significant increase at breastfeeding self-efficacy score using Breastfeeding Self-Efficacy Scale Short Form (BSES-SF) developed by Dennis (2003) at two weeks post enrolment 6.27 points higher than the Control Group(t= 4.07), P= .000). At two weeks postpartum, the BSES-SF were 11.49 points higher than those in the control group (t=5.84). Mean time to cessation of breastfeeding was significant for those in the intervention group which were 32 days as compared to 12 days for those in the control group. Women who still were breastfeeding at six weeks were significantly higher in the intervention

Group (n=28) than Control Group (n=5). The results of this study provides evidence that self-efficacy can influence the health promoting behavior of breastfeeding.

Other studies have reported how maternal breastfeeding confidence increases over time. A study by Locklin (1995), conducted with low-income women (n=17) about their breastfeeding experiences, described how mother's breastfeeding confidence rose with each new assessment of their situation. They concluded that the longer a women breastfeeds, the more confidence she develops. The limitations of this study included threats to reliability based on participants' recollection of breastfeeding events, and possible barriers to understanding participants' stories due to lack of shared cultural norms.

In summary, past studies suggest that maternal confidence in breastfeeding affects intended duration of breastfeeding and that both are predictor of breastfeeding success. Self-efficacy concept allows precise measurement of task and action-specific behaviors, and it has the advantage of being a manipulated factor. Women who have low confidence in their ability to breastfeed are at risk to prematurely discontinue breastfeeding. Although past studies provide initial evidence that breastfeeding confidence is an important variable in continuation of breastfeeding few have focused their research on breast feeding self-efficacy. Dennis (1999) incorporated Bandura's Social Cognitive Theory and developed the Bbreastfeeding Self-Efficacy Theory to promote the conceptual development of breastfeeding confidence. Only Blyth et al. (2004) specifically investigated the development of women's confidence in

their ability to breastfeed. In the next section Breastfeeding Self-Efficacy Therory developed by Dennis (2000) will be discussed..

Theoretical Model

Breastfeeding Self-Efficacy Theory will be used as a theoretical framework for this study. A review of 21 studies related to health behavior and self-efficacy was done by Stretcher et al. (1986). An in depth evaluation of health education programs was reviewed. These programs covered a variety of behaviors including smoking, weight control, contraceptive behavior, alcohol abuse and exercise. The results of these studies suggested that self-efficacy was a predictor of both short term and long term success. The experimental studies reviewed also demonstrated that manipulating self-efficacy had a powerful effect on the initiation and maintaining health behavior change.

Within Social Cognitive Theory the term “triadic reciprocal causation” is used to explain psychological functioning which is the result of the interactions among behavior, cognitive factors, and environmental events. Bandura (1997) postulated that within the dynamic of the triadic reciprocal causation, cognitive processes significantly influence the development of behavior. Self- efficacy is defined as a cognitive process of individuals’ confidence in their perceived ability to regulate their motivation, thought processes, emotional states, and social environment in performing a specific behavior (Bandura, 1997).

According to Dennis (1999) breastfeeding self-efficacy refers to a mother’s perceived ability to breastfeed her newborn, and is a salient variable in predicting breastfeeding outcome as determined by “(1) whether a mother chooses to

initiate breastfeeding or not, (2) how much effort she will expend, (3) whether she will have self-enhancing or self-defeating thought patterns, and (4) how she will respond emotionally to breastfeeding difficulties" (Dennis, 1999, p.197)..Mothers with high self-efficacy are more likely to choose breastfeeding, persist when confronted with difficulties, use self-encouraging thoughts, and react positively to perceived difficulties (Dennis, 1999).

According to Bandura (1986), self-efficacy is composed of two parts: (1) outcome expectations, the belief that certain behavior will lead to a specific outcome regardless of whether or not one perceives oneself as being capable of performing that behavior, and (2) efficacy expectations, the assessment of one's ability to perform a given behavior. Self-efficacy is not a personality characteristic or global trait, rather it is task and situation specific (Bandura, 1986).

According to Breastfeeding Self -Efficacy Theory, personal efficacy beliefs about a behavior such as breastfeeding are likely to be critical to the performance of that behavior. Breastfeeding mothers who have high self-efficacy will likely believe that they can be successful at breastfeeding, will set breastfeeding goals, will be able to think rationally through breastfeeding problems, and will be motivated to find solutions to these problems. They will see the outcome of accomplishments of their breastfeeding endeavors, regardless of any personal discomforts or inconveniences (Dennis, 1999).

These mothers will probably expend large amounts of energy to establish and maintain breastfeeding, and will likely prevail at breastfeeding despite setbacks. Mothers with high self-efficacy will be more likely to be able to relax

while breastfeeding, thus promoting the let down reflex and increasing milk production. They will respond calmly to problems that arise, and use appropriate resources when they need assistance beyond their capabilities (Dennis, 1999, Bandura, 1997).

On the other hand mother with low self-efficacy will likely have low aspirations regarding their breastfeeding success. They will attempt breastfeeding, because they know that breastfeeding is the best choice for infant feeding. However, they are more likely to have an attitude of “I’ll try” instead of with the conviction that “I will succeed”. They will probably have weak commitment to breastfeed and will focus on doubts instead of thinking about actions necessary to succeed. When problems arise they will probably lose faith in their abilities and will likely not attempt to get help with their problems. They will probably choose to discontinue breastfeeding in the face of difficulties.

Breastfeeding self-efficacy expectancy is influenced by four sources of information: (1) performance accomplishments; (2) vicarious experiences; (3) verbal persuasion; and (4) physiological responses (Bandura, 1997 & Dennis, 1999).

Performance accomplishment

Performance accomplishment involves the learning or successful mastery that results from personal experience. It is considered the most successful form of information for enhancing self-efficacy expectations. Reasons for this include the fact that performance accomplishments offer a form of self-directed mastery that allows perfecting of coping skills, decreased emotional arousal and

perception of personal vulnerability to stress, and a success experience which reinforces individual expectation of self competence (Bandura, 1997). With breastfeeding, actual practice usually occurs after childbirth. Because of breastfeeding's hormonal Control, once weaning occurs, substantial effort is required to reestablish breastfeeding.

Vicarious experience

Vicarious experience involves observing others performing activities and comparing one self to them. This source of information can have a powerful impact on perceived self-efficacy especially in the absence of previous experience (Dennis, 1999). "The effect of observational learning is contingent on the attributes of the role models, as well as the manner in which the demonstrations are performed" (Dennis, 1999, p. 196). Role modeling occurs when a woman watches breastfeeding or reads or hears about it (Dennis, 1999). For example, if the mother is watching great numbers of women successfully breastfeed their children in public places is role modeling and habituation that increases emotional comfort and more likely to choose and succeed at breastfeeding (Friedman, 1998). This source of information usually provides weaker efficacy judgments than performance accomplishments, yet has the potential to provide important information (Bandura, 1986, 1997).

Verbal persuasion

Through verbal persuasion, one is led through suggestion into increasing one's beliefs in one's capability. Bandura (1986) discussed that verbal persuasion must be realistic to contribute to one's beliefs about successful

performance, and is only influential as the recipient's confidence in the person issuing the information. Encouragements and evaluations from influential others such as lactation consultants, health professionals, peer counselors, and family members can be particularly beneficial to breastfeeding women (Loklin, 1995; Krishna, 1998). Attention to the successful or improved aspects of breastfeeding performances a woman's self-efficacy is bolstered (Dennis, 1999).

Physiological responses

Physiological status involves one's interpretation of physical signs of arousal. Arousal is a result of the degree of perceived match between coping capabilities and task demands (Bandura, 1986). So, how one perceives these signs of arousal determines the effect on performance and is affected by one's efficacy judgment. Emotional comfort is necessary for learning to take place. This area for breastfeeding mothers is of importance because increased anxiety has a direct effect on the milk ejection reflex and can decrease maternal milk supply (Lincoln & Paisley, 1982, Jelliffe& Jellife, 1978).

The four major sources of information described above work together to develop and influence individual's personal judgment of efficacy with regard to a specific task, behavior, or performance. Figure one provides a diagram of Dennis's interpretation of the structural relationships of self-efficacy and related concepts.

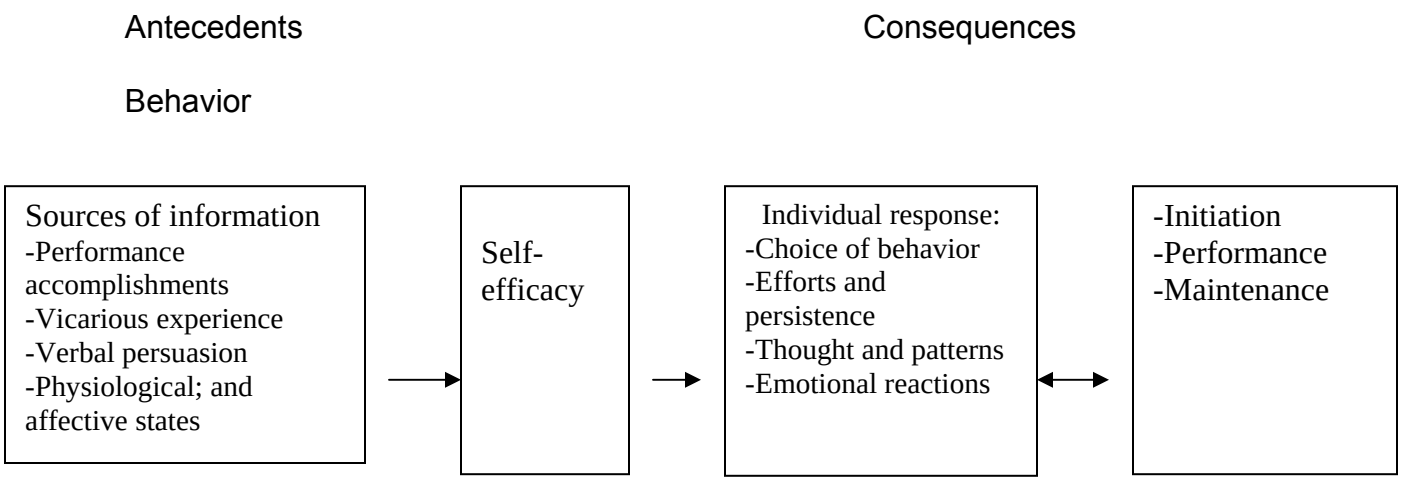

Figure 1. Self-Efficacy Framework (Dennis, 1999, p. 197).

Theoretically, personal efficacy beliefs about health promotion behavior are central to the initiation and preservation of that behavior. Breastfeeding represents a health behavior with the potential to have a positive impact on the physical and emotional health of the mother and infant.

In summary, self-efficacy has been used as a theoretical framework to explore, explain, and predict health behavior in a variety of areas. Self-efficacy may be a consistent predictor of short term and long term behavior change and maintenance, thus breastfeeding self-efficacy theory provides a useful framework for studying mother's confidence in breastfeeding. A breastfeeding mother's efficacy perceptions reduce anticipatory fears, anxiety, and inhibitions and affects efforts to cope with breastfeeding (Bandura, 1977). It follows then that women who possess strong efficacy and mastery expectations will put forth a strong

effort and persists in breastfeeding and subsequently will develop enhanced coping, mastery, and heightened self-efficacy expectations (Dennis, 1999). Those mothers who have low self-efficacy may not preserve with breastfeeding and early discontinue breastfeeding. The breastfeeding cycle begins and proceeds in either a positive or negative fashion due to breastfeeding knowledge, feedback, and support (Figure 2). Figure two provides a diagram of investigator interpretation of the structural relationships of self-efficacy and related concepts derived from Dennis's (1999) model. Testing the entire concepts in Dennis's theoretical model is beyond the scope of the study, so the investigator tested only the model in figure two.

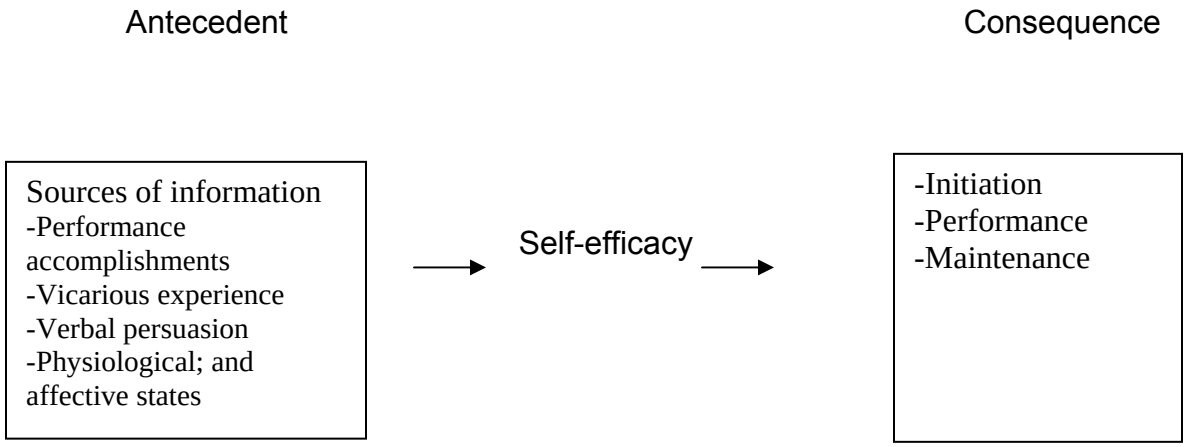

Figure 2. Model of Breastfeeding Self-Efficacy derived from Dennis (1999).

Conclusion

In conclusion, breastfeeding offers the optimal nutrition for all infants and provides immunological, developmental, psychological economic and practical advantages when compared to formula feeding. Explanations of breastfeeding success have been attempted by looking at breastfeeding education and role of health care professionals, but the research results have been confusing and conflicting. Past studies have focused on non-modifiable factors such as demographic characteristics, intentions and attitudes about breastfeeding, but these factors are not manipulable. The majority of current research indicates that maternal breastfeeding confidence is positively associated with breastfeeding duration. The author suggests that maternal breastfeeding confidence plays a major role in helping mothers have a successful breastfeeding experience, leading to breastfeeding satisfaction and increase breastfeeding duration. Studies on prenatal support and education are often lacking in the provision of consistent information and technique demonstration and practice. In the hospital nurses tend to focus their effort on providing mothers with written and verbal information about breastfeeding. Nurses can consider using other sources of information, like attention to breastfeeding success or improved aspects of breastfeeding performance, reinforcement advice on how to improve future breastfeeding performance, encouragement to recall the positive aspects of breastfeeding performance, provision of anticipatory guidance to acknowledge and normalize maternal anxiety pain, and fatigue, and finally proactive attention to make the unobservable breastfeeding skills, such as thinking analytically to

solve the problems, managing self defeating thoughts, and preservation through difficulties, apparent to the mother has not been studied (Dennis, 1999).

The nursing intervention that was used in this study is flexible enough to meet the mother needs. It includes prenatal preparation and used all four sources of information to enhance women's self-efficacy judgment. Considering women's early discharge from the hospital, the first two weeks after delivery are the time of professional unavailability, and many breastfeeding women are left without assistance. This intervention continued to follow the women up to six weeks postpartum to provide consistent, structured information, techniques demonstration, practice and caring supportive attitude. Self-efficacy was defined as an individual's perceived confidence in their ability to perform a specific behavior (Bandura, 1977). Self-efficacy's focus is on the cognitive processing of information from different sources, including that obtained from role models that allow an individual to make judgment about her ability to perform a specific behavior. This judgment affects the intensity and persistence of effort given to behavior and the arousal experienced prior to and during the performance of the behavior. Education aimed to increase a women's self-efficacy will provide more theoretically sound and empirically verifiable information on self-efficacy effect on breastfeeding behavior. This chapter has outlined the literature and reviewed the research on: breastfeeding benefits, breastfeeding education, health professional's role, self-efficacy and breastfeeding and breastfeeding self-efficacy. The next chapter discusses the research method that will be used to test the hypothesis.

CHAPTER THREE

Method

The research design chosen for this study is a quasi-experimental with repeated measures to test the effect of a breastfeeding self-efficacy intervention program (BSEIP) on breastfeeding self-efficacy and duration. The design was selected to estimate a treatment effect by comparing two groups of individuals, one group that receives the treatment (Experimental Group), and the second group does not receive the treatment (Control Group).

Setting and Population

The target population consisted of pregnant women who had not previously breastfed a child longer than two weeks, and were between 28 and 38 weeks of pregnancy at the time of enrollment. The women received their prenatal care either at the Warren County Health Clinic (Clinic A) or at the Middletown Regional Hospital prenatal clinic (Clinic B). Women who attended the Warren County Health Clinic gave birth at Bethesda North Community Hospital (Hospital A); women who attended the Middletown Regional Hospital clinic gave birth at that hospital (Hospital B). Both prenatal clinics are located in the same geographic area outside a large metropolitan area in the state of Ohio, and each serves predominately low-income, non-Hispanic White women (90% White, 5% African American, 3% Hispanic, and 2% others). The majority of women served by these clinics are low-income: 75% are eligible for Medicaid. Currently, there is no breastfeeding intervention program available at either of the two clinics. Clinic A is open two days per week, servesg 5-20 prenatal patients per day, and is

staffed by one obstetrician and one registered nurse each day. Clinic B is open four days per week, serves up to 20 pregnant women per day, and is staffed by three obstetricians and three nursing aides each day. The two hospitals that these women delivered at offer postpartum experiences regarding breastfeeding help. All the women in the control group (Clinic A) delivered at Hospital A and received a visit from the lactation consultant, while the women in the experimental group (Clinic B) delivered at Hospital B and did not , because there were no lactation consultants available at Hospital B.

Recruitment

All women were recruited for the study by either the principal investigator (PI) or the research assistant (RA). The Control Group consisted of 17 women who were recruited from Clinic A between November 11, 2005 and January, 19, 2006 by either the PI or the RA. The Experimental Group consisted of 19 women who were recruited by the PI only between May 12, 2006 and July 20, 2006. A total of 36 subjects were recruited to take part in this study. Approximately 10% of the women in these clinics indicated that they were planning on initiating breastfeeding.

Inclusion Criteria. Women were included if they met the following criteria:

1. 18 years of age or older. Rationale: women ages less than 18 are considered to be high risk group for prenatal complication, with a very low intent to breastfeed,. The data were also indicated that the younger the mother when her first baby is born, the more likely she is to encounter problems that will impede her ability to care for her self or her baby

(Riordan, 2005)

2. Able to speak, read and write English. Rational: the subjects will attend one hour of an educational program in English, and will receive handouts written in English language.
3. State that they intend to breastfeed. Rational: experienced a normal prenatal course, intend to breastfeed. Literature has shown that the earlier the decision is made, the more likely the mother is to continue breastfeeding (Locklin, 1995)
4. Are currently in the third trimester of pregnancy (28 to 38 weeks of pregnancy). Rationale: breastfeeding behaviors are strongly associated with the timing of the decision to breastfeed, by the third trimester women already made their decision weather to breastfeed or not.
5. Have not previously breastfeed longer than two weeks. Rationale: past breastfeeding experience (more than two weeks) can have significant effect on breastfeeding self-efficacy and duration.
6. Experience a birth of single healthy infant. Rationale: when a baby is born with problems that may cause breastfeeding to be very difficult or impossible; mothers with multiple infants are more likely to be affected by complications or other factors that may interfere with effective early breastfeeding and milk production (Riordan, 2005)

Instruments

Demographic data was collected using a tool developed for this study by the investigator (Appendix A). Subjects were asked to give information on

income, education, number of children, marital status, race, employment, intention to breastfeed, and pregnancy history.

Breastfeeding Self-Efficacy was measured using the Breastfeeding Self-Efficacy Scale (BSES) (Dennis & Faux, 1999; Appendix B). The BSES is a 33-item self-report instrument that assesses breastfeeding self-efficacy expectancies in new mothers (Dennis& Faux, 1999). Items generated for the BSES were directed by extensive literature reviews focusing on the concept of self-efficacy as well as breastfeeding problems and factors related to breastfeeding duration. Content was validated by expert panel, pilot tested (n=23), and revisions made. The instrument was then assessed for psychometric properties, factor composition, and predictive and constructive validity with a convenience sample of 130 Canadian breastfeeding women. The initial Cronbach's Alpha coefficient for BSES was .96 with 73% of all corrected items total correlations ranging from 0.30 to 0.70. Responses were subjected to principle components analysis with varimax rotation, yielding the theorized subscales. Principle components factor analysis suggested the instrument is bidimensional, having both technical and intrapersonal subscales (Dennis & Faux, 1999). The "techniques" subscale was defined as "physical action a mother should perform and represents certain tasks necessary for successful breastfeeding," while the intra personal thoughts subscale was defined as "a mother's perceptions of breastfeeding experience" (Dennis& Faux, 199, p. 401). The BSES scores predicted which women would still be breastfeeding at six weeks postpartum ($f = 9.89$, $P < .001$). All items are preceded by the phrase "I

can always" and anchored with a 5- point likert scale, where 1 = not at all confident and 5 = very confident. The use of a five-point likert-type scale response format renders the scale easy to administer and summing of item scores produces a possible range from 33 to 165, with higher scores indicating higher levels of breastfeeding self-efficacy. As recommended by Bandura (1986), all items are presented positively.

The BFSE scale was tested by Creedy, Dennis, Blyth, Moyle, Pratt, and De Vries (2003) with an Australian sample of 300 pregnant women who intended to breastfeed and who were at least 36 weeks pregnant. The psychometric assessment of the original BSES study was replicated, including internal consistency, principle components factor analysis, comparison of contrasted groups, and correlations with a similar construct. Support for predictive validity was demonstrated through positive correlations and significant mean differences between antenatal BSES scores and infant feeding methods at one week and four months postpartum. The Cronbach's Alpha coefficient for the antenatal BSES was 0.97. Similarly, the Cronbach's Alpha coefficient was 0.96 at one week and at four months postpartum.

Breastfeeding duration was measured as the number of days from the first to last breastfeeding through the final data collection on the 42nd day. Because the six week postpartum follow-up call took place within two weeks of this time, duration of breastfeeding could be reported from 0 to more than 42 days. For the purposes of this study, the maximum breastfeeding duration was cut off at 42 days. For mothers who were still breastfeeding; the extent of breastfeeding was

determined according to the breastfeeding schema by Labbok and Krasovec (1990) (described earlier, see Appendix C). In order to assess breastfeeding status, a specific script was designed by White (2002) to collect data during the follow–up telephone calls (Appendix D). Mothers were asked if they were still breastfeeding and depending on their answers, specific questions were asked.

Procedure

A letter was sent to Director of Nursing informing her of the beginning of the study and asking her assistance in informing her staff about the study. Women who met the study criteria at the prenatal clinic waiting area were invited to participate in the study. At that time, the principle investigator or research assistant provided an overview of the study. Women who agreed to participate were asked to sign the consent form, complete the demographic prenatal form (Appendix A) and complete the BSES (Appendix B). The researcher maintained contact with all participants at their respective institution as their due dates drew near. All participants were contacted at two weeks following the birth of their infant by telephone or in person to determine breastfeeding status and to complete the BSES. If the mothers were still breastfeeding at two weeks postpartum, they were contacted again by telephone or in person at six weeks postpartum to determine if they were still breastfeeding, and, if not, when they stopped breastfeeding. Rationale for contacting participants at six weeks is based on research results that reported the critical establishment of breastfeeding by six weeks postpartum (Hall, 1978; Houston, 1981; west, 1980), studies reporting highest rates of discontinuation of breastfeeding within 6-8

weeks of breastfeeding (Hill, 1987). Women who participated in the study received by mail a $10 gift certificate card from Target at the end of their participation in the study.

Group Assignment

It was decided that randomization within clinics to control and experimental groups could not be done without contamination across groups. Therefore, women recruited from Clinic A served as the Control Group, while women recruited from Clinic B served as the Experimental Group. Subjects assigned to the Experimental Group were asked to meet the researcher two hours prior to their next prenatal appointment (after recruitment) to take part in the prenatal breastfeeding class. The BSEIP occurred during several time periods: the prenatal class and at two follow-up telephone calls—at one week and at two weeks postpartum. The nursing actions for the BSEIP included: education, assessment, encouragement/support, referral, physical assistance, and availability (by telephone or in person). Participants in the Experimental Group watched a 15-minute video about breastfeeding during the prenatal class, discussed normal physiological changes that occur during the postpartum period, and received explanations of how to evaluate milk supply and interpret infant cues.

Subjects were sent home with a written copy of the BSEIP that discussed the four steps of breastfeeding: positioning, offering the breast, effective sucking, and breaking suction (Appendix E). Research has demonstrated that these behaviors are important to the success and duration of breastfeeding (Victora,

Tomasia, Olinto, & Barros, 1993). The written material also included other information about breastfeeding and their own book copy of the New Mother's Guide to Breastfeeding book, a gift from Ross (American Academy of Pediatrics, 2002).

The actions discussed above provided the subjects with enactive attainment, actual physical performance of the behavior, and the vicarious experiences of observing the researcher. Verbal persuasion and realistic feedback on one's performance occurred during practice sessions, and over the telephone. The last source of information involved one's interpretation of physical signs of arousal. Coping strategies to decrease anxiety reviewed; and the researcher and the research assistant confirmed the mother's interpretation of physical signs and infant cues. The telephone contacts at Week 1 and 2 postpartum involved extensive evaluation of the mother-infant breastfeeding situation. Mother's description of positioning, pain, infant cues of hunger, and her general level of anxiety were evaluated by the researcher (see Table1).

Breastfeeding Self-efficacy Intervention Program (BSEIP)

The intervention program for this study was based on the four major sources of information that provide information for cognitive processing in the development of a self-efficacy judgment, namely, performance accomplishments; vicarious experiences; verbal persuasion; and physiological responses. Nursing intervention developed to manipulate these sources of information to enhance self-efficacy judgments of women who intended to breastfeed and to promote successful breastfeeding.

Performance accomplishments involved actual performance of the desired behavior. Performance is considered the most immediate and powerful source of self-efficacy information (Bandura, 1986). Performance accomplishments offer a form of self-directed mastery that allowed perfecting of coping skills, decreased emotional arousal and perception of personal vulnerability to stress, and a success experience which reinforces individual expectation of self competence (Bandura, 1997). Thus, mothers analyze and evaluate breastfeeding behavior in regard to how adequate her knowledge, thinking skills, and action strategies were to meet her needs and the needs for her infant. The effect of the actual experience on self-efficacy is modified by individual interpretations of their performance and the desired outcome (Dennis, 1999). Attention to successful performance or outcome will increase the perception of self-efficacy, on the other hand, attention to unsuccessful performance or outcome will decrease the perception of self-efficacy (Dennis, 1999, Bandura, 1986). Performance accomplishments were acquired prenatally by practicing four mechanics of breastfeeding: positioning, breaking sucking, offering the breast, and evaluating effective sucking. These were done with a doll in the prenatal education class. During the first two weeks postpartum, the researcher continued to discuss and assess problems with mechanics of breastfeeding through telephone consultations.

Vicarious experience in the intervention involved observing others performing activities. While the first time mother has not breastfed, she may perceive the benefits of breastfeeding as demonstrated by others (Dennis, 1999).

Few women in western culture have the benefit of observing other women breastfeed, many women who are preparing for breastfeeding seek vicarious experience through books or videos about breastfeeding, or they hear other women recount their experiences. This experience was provided to the mothers in the prenatal class by the researcher demonstrating the mechanics with a doll, and with a video. Wiles (1984) demonstrated the benefits of vicarious experience in a study of the effect of prenatal breastfeeding classes on breastfeeding duration. The primiparous women in her sample (n=40) were all in childbirth classes and half were randomly assigned to receive a prenatal breastfeeding education class. Ninety percent of the mothers who received the breastfeeding class remained breastfeeding at one month compared to 30% of the mothers who did not receive the class. The results of this study were congruent with Bandura's theory.

Verbal persuasion involved realistic feedback on performance of the behavior. Women may be verbally persuaded by lactation consultant or educator whose attempts to infuse women with confidence in their abilities to breastfeed have been shown to significantly prolong breastfeeding duration (Dennis, 1999; Auerbach, 1988; Johnson, 1984). Jones and West (1986) conducted a randomized controlled trial to determine the effect of a lactation nurse on the success of breastfeeding in England. There were 228 breastfeeding mothers in the Experimental Group, attended by the lactation nurse in the hospital and postpartum period, and 355 breastfeeding mothers in the Control Group. There were significant differences between the Experimental and Control Groups in the

proportion of women who were breastfeeding at each point in time: 84% of the Experimental Group and 72% of the Control Group were breastfeeding at four weeks ($p < .005$). Consequently through verbal persuasion in the form of encouragement and support, the nurse reduced the proportion of mothers who ended breastfeeding prematurely. In the prenatal class this occurred while women practice the mechanics of breastfeeding. Researcher discussed the benefits and the barriers of the breastfeeding. The researcher also provided verbal feedback through telephone consultations.

Finally, physiological status involved women's interpretations of physical signs of arousal. For breastfeeding mothers this area is important because increased anxiety has a direct effect on milk ejection reflex and can decrease milk supply (Lincoln& paisley, 1982). Situations that involve pain, anxiety and stress inhibit the hormone oxytocin and may lead to poor letdown reflex and the insufficient milk syndrome (Hillervik-lindquist, 1991). The researcher provided the mothers with information prenatally regarding normal physiological changes in breastfeeding women and how to interpret infant cues and signals. Because the intervention sessions were provided in the prenatal period, anticipatory guidance and informational handouts assisted the mother in knowing what to expect (see Table 2).

Data analysis

Descriptive analysis was conducted for each demographic characteristic of the subjects. Independent t-tests and chi-squares were to determine if significant differences existed between the Experimental and Control groups on

the following demographic variables: (a) age, (b) gender, (c) ethnicity, (d) educational level, (e) number of children, and (f) income. In addition, an independent t-test using Levine's test for equality of variance was performed to determine if there was any statistical difference between the Experimental and Control groups on reported breastfeeding self-efficacy during the prenatal period (Stevens, 1996). To test the hypotheses, independent sample t-tests were conducted to determine if there were significant differences between the Experimental and Control Groups on breastfeeding self-efficacy at Time 2 and Time 3, and breastfeeding duration.

Table 1: Study Procedure Summary

Experimental Group	Both Groups(Experimental and Control)
Subjects were asked to meet the researcher two hours prior to the next prenatal appointment, and will receive a prenatal breastfeeding class	Prenatal period: - Participants recruited for the study, by the investigator and the research assistant , at the prenatal clinic waiting area during the time that they were waiting to see the physician for routine third trimester prenatal care. -At that time, the investigator or the research assistant provided an overview of the study. -Subject who agreed to participate: 1. signed the consent form, 2. completed the demographic prenatal form (see Appendix A) and 3. Completed a breastfeeding self-efficacy scale (see Appendix B).
Postpartum At one and two weeks: telephone contact with the Experimental Group subjects in the first and second weeks after delivery, involved extensive evaluation of the mother-infant breastfeeding situation. Also, mother's description of positioning, pain, infant cues of hunger, and her general level of anxiety was evaluated by the researcher	Postpartum: Two and six weeks: all participants were contacted at two and six weeks following the birth of their babies by telephone to determine breastfeeding status and to complete the BSES. Subjects who participated in the study received by mail a $10 gift certificate card from Target at the end of their participation in the study

Table 2: SEIP Content, Source of Self-Efficacy Information

BSEIP Content	Source of Self-Efficacy Information
Performance Accomplishment: Social cognitive theory (Dennis, 1999)) is concerned with the acquisition of cognitive and behavioral skills as well as with knowledge of what leads to what. Mastery of a task conveys new efficacy information, thus raising one=s efficacy appraisal (Bandura).	Holding and positioning infant for breast-feeding, qualities and appearance of breast-milk, how to pump and store milk. Specific techniques practiced (using a doll) were: 1. positioning 2. offering the breast 3. evaluating effective sucking breaking suction Avoiding embarrassment, breast-feeding discreetly, practice will take place using a doll. After delivery the researcher continued to discuss and assess problems with mechanics of breastfeeding through telephone consultations at two weeks post delivery.
Vicarious experience: Modeled success by similar others raises self-efficacy while modeled failures lower self-efficacy (Bandura, 1986).	Assessment of previous experience or knowledge about breastfeeding (role models) will provide information upon which the learning sessions will build. Many women who are preparing for breastfeeding seek vicarious experience through books or videos about breastfeeding, or they hear other women recount their

	experience. This experience were provided to the mothers in the prenatal class by the researcher demonstrating the mechanics with a doll, and with a video
Verbal persuasion: involves realistic feedback on performance of the behavior. Women may be verbally persuaded by lactation consultant or educator whose attempts to infuse women with confidence in their abilities to breastfeed have been shown to significantly prolong breastfeeding duration (Dennis, 1999)	In the prenatal class this was occurred while women practice the mechanics of breastfeeding. Researcher discussed the benefits and the barriers of the breastfeeding. The researcher was also provided verbal feedback through telephone consultations. Advice to breast-feed based upon health promotion of mother, infant, and family economics charts illustrating nutritional qualities of breast-milk as compared to formula will be used; convenience of breast-feeding, handouts were given. Throughout the intervention, participants were encouraged to breastfeed “early and often” and to avoid the use of formula supplementation in order to facilitate establishment of breast milk.
Physiological status: involves women’s’ interpretations of physical signs of arousal. This area for breastfeeding mothers is important because increased anxiety has a direct effect on milk ejection reflex and can decrease milk supply (Lincoln& paisley, 1982). Situations that involve pain, anxiety and stress	The researcher was provided the mother with information prenatally regarding normal physiological changes in breastfeeding women, how to interpret infant cues and signals. Because the intervention session will be provided in the prenatal period, anticipatory guidance and informational handouts will assist

inhibit the hormone oxytocin and may lead to poor letdown reflex and the insufficient milk syndrome (Hillervik-lindquist, 1991).	the mother in knowing what to expect.

Protection of Human Participants

This study was approved by the Institutional Review Board (IRB) of the University of Cincinnati, as well as the IRB from Clinic B/Hospital B. Independent IRB approval was not required from Clinic A. Informed Consent was obtained from all women by either the principal investigator (PI) or the research assistant. The participants were informed about the nature of the study, potential risks and benefits, and the extent of their involvement. Written consent forms were obtained.

Participants were informed that their participation is voluntary and they could terminate their involvement at any time without any penalty. Confidentiality of the participants was maintained throughout of the study. Participants were not identified by their name; each participant was given an identification number; only the ID number appeared on any study documentation (except for the informed consent document). Participants demographic data were kept separate from the questionnaires data and kept locked in a file cabinet. Only the investigator and the committee chair (Dr. Susan Elek) had the access to this information.

Data management and quality Control

The researcher entered the data into the computer twice. Then the researcher compared both files of data to check for any errors, which was then corrected

and analyzed.

Chapter Four

Results

In this chapter, the results of the analyses related to sample characteristics and hypotheses testing are presented.

Sample

Power Analysis: No previous published studies were found using a breastfeeding self-efficacy intervention to increase breast feeding duration. Therefore, this study was considered a pilot study to determine the effect size of the BSEIP. For this purpose, a sample size of 20 women per Group was deemed appropriate.

A convenience sample of 37 women from two prenatal clinics was recruited to take part in this study. Both clinics were located in the same geographic area outside a large metropolitan area, and each served predominately low-income non-Hispanic White women. Because of the organization of each clinic, it was decided that randomization within clinics to Control and Experimental Groups could not be done without contamination across Groups. Therefore, women recruited from Clinic A served in the Control Group, while women recruited from Clinic B served in the Experimental Group. Seventeen women attending Clinic A (Control Group) and 19 women attending Clinic B (Experimental Group) agreed to participate in this study. Informed Consent was obtained from all women by either the principal investigator (PI) or the research assistant. All women who gave informed consent completed the pre-delivery data collection and received the intervention (Experimental Group).

Two women in the Experimental Group did not complete the postpartum data collection, two women in the Control Group did not complete any data collection postpartum. Therefore, complete data was obtained on 15 women in the Control Group and 17 women in the Experimental Group. Demographic characteristics and prenatal self-efficacy scores did not differ between women who completed the study and women who did not.

Demographics Characteristics

The demographic characteristics of each Group are reported in Table 3. see Appendix F. Chi-Square analyses determined that there were no statistically significant differences between the Experimental and Control Group on education level, employment, age category, race/ethnicity, amount of time planning to breastfeed, or income (Table 1). Mean age was 22.26 years (SD = 3.59 years) and 25 years (SD = 4.43 years) for the Control and Experimental Groups, respectively ($t(30) = -1.9$, $p = 0.067$). All of the women in the Control Group and 13 of the 18 (72%) women in the Experimental Group were non-Hispanic White. Two women in the Experimental Group were non-Hispanic Black, one woman was Asian, and one woman was Hispanic. Although not statistically significant, more women in the Control Group than in the Experimental Group were primapara (80% versus 53.7%, respectively; $t(30) = -2.345$, $p=.026$); women in the Experimental Group tended to have higher incomes than women in the Control Group (see Table3).

Table 3: Sociodemographic characteristics of subjects by Group

Variable		Control N=15 N (%)	Experimental N=17 N (%)	Significance χ2
Plan to Breastfeed	< six weeks	7 (46.7%)	6 (40.6%)	.513
	> six weeks	8 (53.3%)	11 (59.4%)	
Level of Education	< high School	3 (20.0%)	4(23.5%)	.522
	Some college	7/ (46.7%)	6/ (35.3%)	
	Associated degree	4 (2.7%)	5 (29.4%)	
	Bachelor degree	1 (6.7%)	0 (0%)	
		0 (0%)	2 (1 1.8%)	
Race	Non-Hispanic White	15 (100%)	13 (76.5%)	.497
	Non-Hispanic Black		2 (11.8%)	
	Hispanic		1 (5.9%)	
	Asian		1 (5.9%)	
Income	Less than 10,000	9 (60.0%)	5 (29.4%)	.093
	Less than 20,000			
	Less than 30,000	2 (13.3%)	7 (41.2%)	
	Less Than 40,000	1 (6.7%)	1 (5.9%)	
	More than40,000			
	missing	1(6.7%)	3(17.6%)	

		0 (0%)	1 (5.9%)	
		1 (6.7%)		
Work	Full time	5 (33.3%)	3(17.6%)	.497
	Part time	1 (6.7%)	3 (17.6%)	
	Not employed	8 (53.3%)	8 (47.1%)	
	student	1(6.7%)	3 (17.6%)	
				t(30) =-2.345
Number of children	No children	12 (80%)	6 (53.7%)	p=0.026
	1 or more	3 (20%)	11(56 .3%)	
age	<20	2 (13.3%)	1 (5.9%)	.468
	20-24	11 (73.5%)	9 (47.1%)	(30)t = -1.900
	25-29	1 (6.7%)	5 (29.5%)	p = .067
	30-35	1 (6.7%)	2 (11.8%)	
	Mean	22.26	25.00	
Pr- treatment BSES	Mean	107.2	108.5	t (30)= -109 p = .985

Breastfeeding Self-Efficacy Reliability

Breastfeeding self-efficacy was measured using the BSES, 33-items presented on a 5-point Likert scale. Chronbach's alpha internal reliability of the instrument was 0.97 in this study

Hypotheses Testing

The purpose of this study was to determine if the BSEIP was effective in (1) increasing breastfeeding self-efficacy (BFSE) at 2- and 6- weeks postpartum,

and (2) increasing duration of breastfeeding. In order to test the effectiveness of the intervention, the Control and Experimental Group must not differ in breast feeding self-efficacy pre-intervention. Prior to testing the hypothesis, an independent t-test using Levine's for equality of variance was performed to determine if Experimental and Control Groups differed in BSES scores at Time 1 (before the treatment).The mean BFSE score was 108.33 (SD = 30.29) and 108.52 (SD = 28.27) for the Control and Experimental Group, respectively [t(30) = -1.09, p =. 95] (see Figure 3).

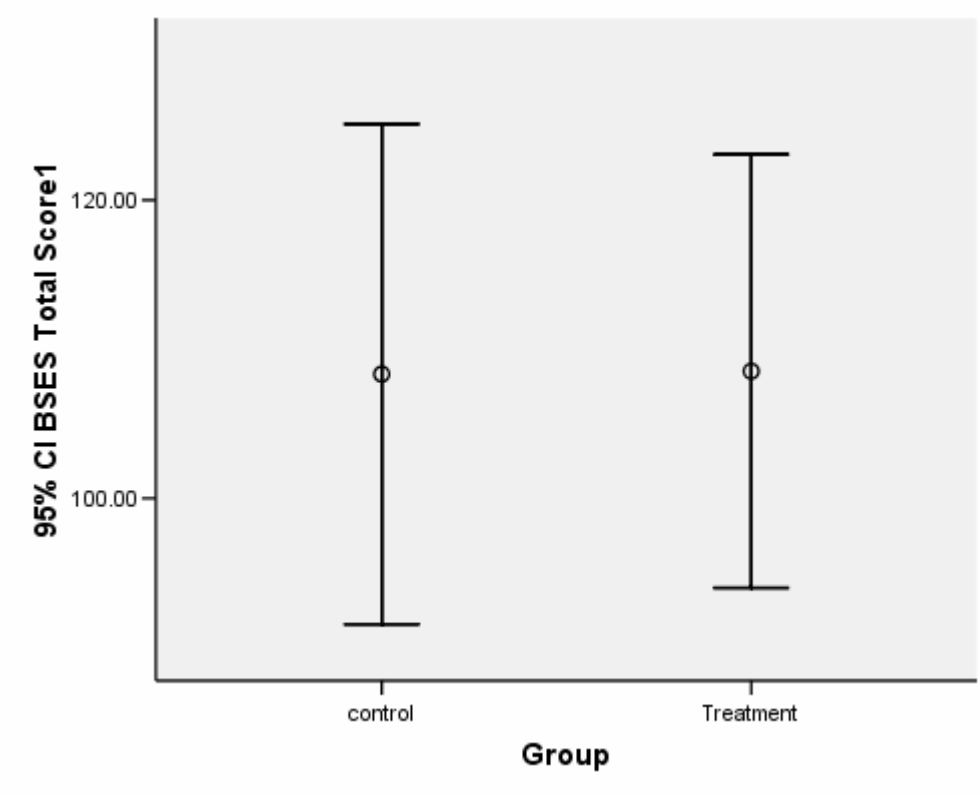

Figure 3. Mean BSES Scores by Group at Time 1

Hypothesis 1: Pregnant women who received the breastfeeding self-efficacy intervention program (BSEIP) will report higher breastfeeding self-efficacy on the breastfeeding self-efficacy scale (BSES) than pregnant women who did not receive BSEIP at 2- and 6-weeks postpartum. Independent t-tests revealed that women who received the intervention reported a significantly higher BSES score at Time 2 and Time 3 than women who did not receive the intervention; $t(30) = -2.33$ ($p = 0.026$) and $t(30) = -3.97$ ($p = 0.00$) at Time 2 and Time 3, respectively. Table 2 provides the means, ranges, and standard deviations for BSES scores at Time 1, Time 2, and Time 3. As noted in Table 4, there was also a positive significant improvement in the BSES score of the women in the Experimental Group from Time 1 ($M = 108.3$) to Time 2 ($M = 135.9$) and Time 3 ($M = 143.7$).

Table 4: Mean BSES score by Time and Group and mean breastfeeding duration by Group at Time 3

Variable	Control (n=15)	Experimental (n=17)	p
BSES Time 1	108.33	108.52	0.985
Range	33-143	71-155	
Std.	30.29	28.26	
BSES Time 2	107.20	135.9	0.026
Range	48-150	52-162	
Std.	27.88	31.06	
BSES Time 3	107.20	143.76	0.000
Range	41-163	45-164	
Std.	32.09	37.98	
Breastfeeding duration in days at 6 weeks	11.86	28.82	0.003
Range	0-42	10-42	
Std.	15.63	13.48	

Hypothesis 2: Pregnant women who received BSEIP will continue to breastfeed significantly longer than women who do not receive the intervention. Breastfeeding duration was determined by follow up telephone calls at six week postpartum. A designated script was followed for each call in order to assess breastfeeding status. When asked at the prenatal visit, all mothers (in both experimental and control groups) intended to at least initiate breastfeeding in the postpartum period; 64% of the women in the Experimental Group and 53% of women in the Control Group intended to breastfeed more than six weeks.

The analysis revealed a statistically difference between the Control and Experimental Group ($t(30) = -3.02$, $p = .003$) on number of days the women breastfed. The mean duration of breastfeeding in the Experimental Group was 28.82 days, while those in the Control Group breastfed a mean of 11.86 days. As noted Figure 4, women in the Experimental Group demonstrated a significant increase in the breastfeeding duration than did women in the Control Group.

Table 5: Status of breastfeeding for mothers at six weeks postpartum

	Control (N=15)	Experimental (N=17)
Breast milk only	2 (13.3%)	6 (35.3%)
Formula supplement	1 (6.7%)	2 (11.7%)
Other supplement	-	1 (5.9%)
Not breastfeeding	12 (80.0%)	8 (47.1%)

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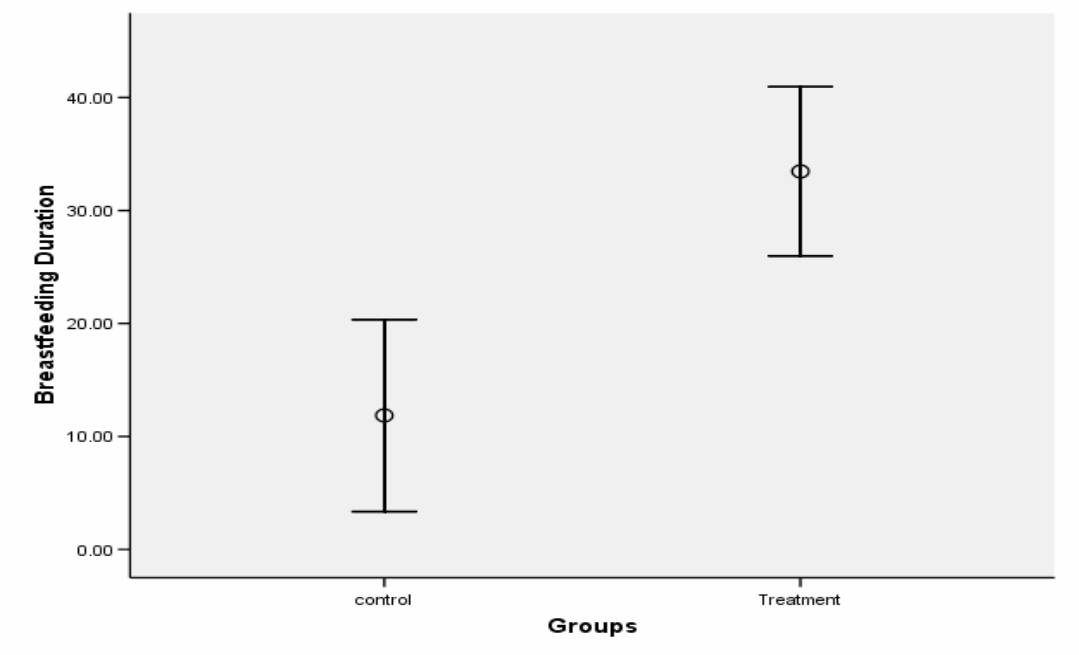

Figure 4: Mean breastfeeding duration in days by Group

CHAPTER FIVE

Discussion

The purpose of this study was to test the efficacy of the BSEIP, which is based on Dennis's (1999) breastfeeding self-efficacy theory, to increase breastfeeding duration in women who intend to breastfeed. Previous research studies that were designed to promote successful breastfeeding have been atheoretical and have failed to provide consistent findings. This study used Dennis's Breastfeeding Self-Efficacy Theory as a framework to design an intervention to enhance participants' breastfeeding self-efficacy and increase breastfeeding duration. This chapter will provide a discussion related to the research hypotheses, results of the study, conclusion, and implications for nursing and recommendations for future study

Discussion

Self-efficacy has been used to successfully explain behavior change, especially when the change is difficult to make. In this study, an intervention to promote breastfeeding duration by enhancing the participants' breastfeeding self-efficacy was developed and tested. The intervention for this study targeted four sources of information in the following ways. Enactive attainment (actual practice of behavior) was enhanced by practicing breastfeeding in the prenatal class with a doll. Vicarious experiences (role modeling of behavior) were provided by watching a 15-minute video, a demonstration of breastfeeding, literature that was provided in book and handout form with pictures and accurate information about breastfeeding. In addition, mothers were encouraged to attend the La Leche

League mother and baby support group meetings and counseling and to watch other mothers breastfeed whenever possible. Verbal persuasion was provided during the prenatal period by the researcher as women practiced the mechanics of breastfeeding with a doll. During the postpartum period, verbal persuasion was provided during telephone consultations during the six week postpartum period. Physiological status was enhanced prenatally by providing the mothers with the following information: normal physiological changes to expect in themselves, how to interpret infant cues, coping strategies to decrease anxiety. The multidimensional aspects of the intervention program, including the prenatal education, the extended period for support, and the availability of the researcher through telephone contact, was meant to encompass the multidimensionality of breastfeeding to increase women's breastfeeding self-efficacy. The literature on breastfeeding provides strong support for the development of the intervention, and the results of this study were congruent with findings of earlier studies (Coreil & Murphy, 1988; Houston & Field, 1988) encouraging early and frequent mother contact for breastfeeding (Lindenberg, Artola& Jimenez, 1990;Hill, 1991), and support through telephone contact in the early postnatal period (Bloom et al., 1982, Dennis, 1999).

Both hypotheses in this study were supported. Mothers who received the intervention had higher BFSE scores postpartum and breastfed for significantly longer than mothers who did not receive the intervention. These results support Dennis' (1999) BFSE Theory and provide empirical support for the manipulation of self-efficacy to affect breastfeeding behavior. The results examined from the

Experimental Group supported the BFSE Theory in a number of ways. First, high self-efficacy scores predicted the continuation and maintenance of breastfeeding behavior regardless of obstacles (Bandura, 1986, Dennis, 1999); in this case the obstacle was defined by the fact that all women received formula samples in the hospital and no women in the Experimental Group received lactation consultation. Second, the high breastfeeding duration rate demonstrated by the Experimental Group, as compared to the Control Group, suggests that the intervention, including prenatal information and postpartum follow-up, enhanced breastfeeding self-efficacy and duration in a group of low-income women. Third, BFSE Theory states that the enactive attainment and verbal persuasion will enhance self-efficacy (Dennis, 1999). Verbal persuasion was evident in the actual practice of the breastfeeding and support from the researcher and research assistant. Results showed an increase of breastfeeding self-efficacy score from pre-test (before the treatment) to post-test (2 weeks postpartum).

The sample in this study was composed of mainly non-Hispanic White, low income women, a group that has a historically low rate of breastfeeding. The 6-week continuation rate was 43.81 % for our sample, compared to the national 6-week continuation rate of 32.2 (Abbott Laboratories' Ross Products Division, 2004). Of the 36 participants who enrolled in the study, one infant developed a medical condition and was unable to continue, three women were lost to follow-up at 2- or 6-weeks postpartum. The strong support provided to the women in both groups may have made them feel more committed to continuing participating in the study. Another factor that might have contributed to the

continuation of breastfeeding in this sample was the women's prenatal intention to breastfeed. Literature has shown that the earlier the decision to breastfeed is made, the more likely is the continuation of breastfeeding (Gulick, 1982, O, Campo et al., 1992). The recruitment for the participants in this study occurred in the last trimester of pregnancy, most of the mothers had decided to breastfeed by then, which would favor the continuation of breastfeeding. The sample for this study was chosen from multiracial/ multicultural population, the volunteer status of the study and criteria" intend to breastfeed" led to the selection of homogenous Group of participants with a high likelihood for succeeding at breastfeeding

The findings contribute to the empirical support for the effect of an efficacy enhancing intervention on the outcome of breastfeeding success. The results of this study are consistent with the research which has documented the effects of follow up and support on breastfeeding outcomes and has found that nursing support during the first two weeks postpartum period can have the greatest positive effect on the breastfeeding outcome (Bernard- Bonnin et al., 1995, Jones & west, 1985, Kaufman & hall, 1989). Fewer women Experimental Group were primaparous (43.7%) as compared to women in the Control Group (80%). This may have contributed to the higher BFSE scores reported by the Experimental Group at Time 2 and 3. In fact, BFSE scores for the first-time mothers were significantly lower than the BFSE scores for non first-time mothers, both at two and six weeks postpartum. According to BFSE Theory, pervious performance accomplishments and vicarious experience leads to a higher level of breastfeeding self-efficacy (Dennis, 1999. Although we attempted to control for

experience by excluding mothers who previously had successfully breastfed for more than two weeks, the primipara mothers may still have felt less prepared for motherhood, particularly in areas such as breastfeeding. Only one previous study was found that corroborated this finding. Dennis and Faux (1999 found that first time mothers had lower BFSE scores than experienced mothers ($t = 4.9$, $p < .001$).

The women in the Control Group had more institutional support for breastfeeding from the lactation consultant and presence of the RN in the prenatal clinic than did women in the Experimental Group. This demonstrates the strengths of the BSEIP. The unique contribution of this study is the strength of the intervention provided, which was theoretically based and involved prenatal, postpartum support. The high continuation rate of breastfeeding in this study, as compared to the general population, and the statistically significant difference between groups suggest that a one-hour intervention prenatally, including components to enhance mothers' self-efficacy, and support postaprtally by the phone, may make affect breastfeeding duration in low-income women.

Relationship between BSES and Breastfeeding Duration

Looking at the study data the researcher decided to run another analysis to find the relationship between maternal breastfeeding self-efficacy at three points in time and duration. The Spearman rank-order correlation coefficient was used to test the most powerful relationships.

The relationship between breastfeeding self-efficacy at Time 1 for the total sample was found to be positive and not significant ($r = -.054$). There was, a

significant relationship between breastfeeding self-efficacy and breastfeeding duration ($r = .531$, $p = .01$; and, $r = .370$, $p = 0.05$) at Time 2 and Time 3, respectively. Maternal breastfeeding self-efficacy during the prenatal period (BSES Time 1) was not related to breastfeeding duration in this study. In contrast, however, breastfeeding self-efficacy at 2- and 6-weeks postpartum was significantly related to breastfeeding duration.

Conclusion

The results of this study suggest that the BSEIP, which incorporated the four principle sources of information from the Breastfeeding Self-Efficacy Theory, contributed to an increase in the mothers' breastfeeding self-efficacy that was sustained over time, and increased breastfeeding duration. Breastfeeding mothers who received the intervention felt more confident in their ability to breastfeed than mothers who did not receive the intervention program. The intervention provided in this study was different from other interventions reported in the literature in that it used specific and consistent information on technique and physical practice of breastfeeding skills.

Breastfeeding self-efficacy was significantly related to breastfeeding duration. There was a positive relationship between self-efficacy and health behavior maintenance, as evidenced by high breastfeeding self-efficacy posttest scores and high breastfeeding continuation rate, which in turn supports the usefulness of breastfeeding self-efficacy as a manipulatable factor, which can be precisely measured in task and action.

Findings suggest that a one-hour intervention during the prenatal period, including all the components to enhance mother's self-efficacy, and support from the researcher during the postpartum period, may make a difference in a sample of low income women who intend to breastfeed. This study supports literature findings that prenatal education and postpartum support are important to the outcome of breastfeeding.

Implication

Practice. Two major goals of nursing are health promotion and prevention of illness; both can be accomplished through successful breastfeeding. The results of this study demonstrate the effectiveness of the BSEIP intervention in increasing women's breastfeeding self-efficacy. The following implications can be derived from the study and the literature. First, the provision of accurate information on specific techniques of breastfeeding demonstration of breastfeeding during the postpartum and prenatal period (Bear & Tigges, 1993) is critical. Second, it is important to assist the mother in breastfeeding as soon after delivery as possible (Hill, 1991). Third, encouraging the mother to supplement breastfeeding with water or formula is contraindicated (Howard et al., 1994; Walker, 1993, Cohen., Brown., Rivera, Dewey, 1999, Hill, Humenick, Brennan, Woolley, 1997; American Academy of Pediatrics, 2005). Fourth, initiating early postpartum contact with women to evaluate breastfeeding changes and make appropriate recommendations and referrals can prolong breastfeeding duration (Buckner & Matsubara, 1993, De Bocanegra, 1998). Finally, providing mothers with resources of community breastfeeding support

system and encouraging her to seek help and advice from experienced breastfeeders among family and friends is an important component of a successful intervention (Langer, Campero,., Garcia, Reynoso, 1998; Buckner & Matsubara, 1993).

The self-efficacy scale used in this study would be a beneficial tool for the prenatal nurse. Prenatally, the nurse could use this tool to identify high risk mothers with low breastfeeding self-efficacy and as an important assessment tool to help individual health care professionals meet the special needs of breastfeeding clients (Creedy et al., 2002). The BSES may also be useful in measuring increases in self-efficacy following educational and supportive interventions. Thus the BSES may be used for evaluating nursing actions and increase the quality of service offered to breastfeeding mothers.

It is important that all breastfeeding mothers be followed up after delivery. With shorter hospital stays becoming the norm, mothers often do not have the time to learn all they needed to know about breastfeeding while in hospital. They often feel overwhelmed with the amount of material they are presented with, and may feel tired or uncomfortable to comprehend what they have been taught. They often leave the hospital not feeling confident in their abilities to breastfeed. The health care professional could continue to assess the mothers' self-efficacy, especially as they enact the behavior for the first time. Verbal persuasion could be provided in the hospital as well as by follow up telephone call after discharge. Also postpartum results of BSES could be used in this follow-up to target areas of low self-efficacy.

Education. The success of mothers' breastfeeding experiences can be influenced by nursing personal. In order to assist mothers with breastfeeding, nurses must be knowledgeable about the breastfeeding process. Basic nursing education programs must ensure that learning about breastfeeding is a major topic included in the curriculum related to maternal child health.

Findings from this study suggest that nurses need to focus on theoretically-based interventions to promote maternal; breastfeeding confidence. These finding have implications for nursing education. Students need to learn about factors which undermine breastfeeding confidence and what interventions can be used to promote women's confidence in breastfeeding. Students need to learn to base interventions related to confidence on current research findings, so that their practices are evidence-based. Mothers can be better supported in their breastfeeding endeavors if nurses have the knowledge and ability to do so.

Limitations

This study, as a pilot study, has a number of limitations. The use of a non-probability convenience sample did not reflect a diverse population, limiting the extent of generalizeability of the findings to other breastfeeding mothers of different backgrounds. This study also used a small sample. It was difficult to recruit subjects to this study; most of the women in the two clinics did not intend to breastfeed and therefore, did not meet the inclusion criteria. The possibility of the response bias was considered as participants completed questionnaires related to their caregiving abilities in relation to infant breastfeeding. It was recognized that participants may tend to give favorable responses so that they

will be perceived as competent mothers. The intervention in this study was done individually for each woman, a technique that is probably not feasible in a busy clinical setting for staff nurses.

Recommendations for Future Research

There are several recommendations for future research. In this study, the sample and setting were confined to public prenatal clinics and their clients. Researchers should undertake replication studies other, more heterogeneous, samples. Other settings such as private prenatal clinics, Women Infant and Children (WIC) clinics, Planned Parenthood prenatal clinics, and others should be used.

A replication of the study with a more heterogeneous sample should be undertaken. Random sampling of the population of all women planning to breastfeed would better substantiate findings relative to the hypothesis tested in this study. Also there should be three groups: Group One receiving BSEIP, Group Two receiving the BSEIP followed by telephone call, and Group Three receiving routine care. This design would be better Control the critical “support” period postpartally. A replication of this study using a longitudinal design that continues beyond six weeks postpartum and collects more information regarding; supplementation, pacifier use, and mate support would be useful.

With the advent of the lactation consultants, the role of prenatal nurse in encouraging of breastfeeding should be further examined. Nurses can use lactation consultants as resources for their own education and refer clients with more complex breastfeeding situations. Research could compare breastfeeding

success in women whose nurses have an access to lactation consultants and those who do not. Last, but not least, the use of an intervention like the BSEIP should be tested on women who do not intend to breastfeed. Because approximately 70% of women in these clinics did not intend to breastfeed, increasing initiation rates for low-income women is a major goal for health care providers.

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Appendix A

Demographic Information Prenatal Form

Today's Date: _____

Name: _____

Address: _____

Phone: _____

Please complete the following information by filling in the blanks with the appropriate numbers:

a. Age years____
b. 2. Weeks pregnant now_____
c. 3. Due Date_____
d. 4. Education: Years of school completed_____
e. Did you breastfeed before: Yes No . If yes, how many weeks
f. I plan on breastfeeding this baby # __ weeks Or # months___

Please complete the following information by checking the appropriate answer:

7 Marital status: _____single (never married)

_____widowed

_____divorced or separated _____married

_____partnered (not married)

8 Household income:$10,000 or less_____

$10,001- $29,999_____

$30,000 - $49,999_____

$50,000 or more_____

9 Race: ___Asian ___Native American

___African American ___White

___Black ___Other

___Hispanic ___No answer

10 Employment:

___Employed (full-time) ___Retired

___Employed (part-time) ___Student

___Unemployed ___Homemaker

Appendix B

Dennis and Faux

Breastfeeding self-efficacy Scale

Date_____ ID #_____

The following are items describing various activities of breastfeeding. Please read each statement and circle the number that best describes how confident you are about each of the activities. There are no right or wrong answers. Please answer every item

1 = not confident at all

2 = not very confident

3 = half the time confident

4 = usually confident

5 = always confident

#	Item	Not Confident				Very Confident
1	I can always take my baby off the breast without pain to myself	1	2	3	4	5
2	I can always monitor how much breast milk	1	2	3	4	5

	my baby is getting by keeping track of my baby's urine and bowel movement					
3	I can always keep wanting to breastfeed	1	2	3	4	5
4	I can always breastfeed my baby without using formula as a supplement	1	2	3	4	5
5	I can always motivate myself to breastfeed successfully	1	2	3	4	5
6	I can always feed my baby with breast milk only	1	2	3	4	5
7	I can always continue to breastfeed my baby for every feeding	1	2	3	4	5
8	I can always depend on my family to support my decision to breastfeed	1	2	3	4	5
9	I can always retrain from bottle-feeding for the first 4 weeks	1	2	3	4	5
10	I can always successfully cope with breastfeeding like I have with other challenging tasks	1	2	3	4	5
11	I can always keep feeling that I really want to breastfeed my baby for at least 6 weeks	1	2	3	4	5
12	I can always focus on getting through one feed at a time	1	2	3	4	5

13	I can always feed my baby every 2-3 hours	1	2	3	4	5
14	I can always comfortably breastfeed in public places	1	2	3	4	5
15	I can always be satisfied with my breastfeeding experience	1	2	3	4	5
16	I can always deal with the fact that breastfeeding can be time consuming	1	2	3	4	5
17	I can always accept the fact that breastfeeding may temporarily limit my freedom	1	2	3	4	5
18	I can always count on my friends to support my decision to breastfeed	1	2	3	4	5
19	I can always manage to breastfeed even if my baby is crying	1	2	3	4	5
20	I can always keep my baby awake at my breast during a feeding	1	2	3	4	5
21	Hold my baby comfortably during breastfeeding	1	2	3	4	5
22	I can always manage to keep up with my baby's breastfeeding demands	1	2	3	4	5
23	I can always position my baby correctly at	1	2	3	4	5

	my breast					
24	I can always finish feeding my baby on one breast before switching to the other breast	1	2	3	4	5
25	I can always maintain my milk supply by using the "supply and demand" rule	1	2	3	4	5
26	I can always feel if my baby is sucking properly at my breast	1	2	3	4	5
27	I can always recognize the signs of a good latch	1	2	3	4	5
28	I can always determine that my baby is getting enough milk	1	2	3	4	5
29	I can always manage the breastfeeding situation to my satisfaction	1	2	3	4	5
30	I can always recognize when my baby is finished breastfeeding	1	2	3	4	5
31	I can always ensure that my baby is properly latched on for the whole feeding	1	2	3	4	5
32	I can always stay motivated to breastfeed my baby	1	2	3	4	5
33	I can always comfortably breastfeed with my family members present	1	2	3	4	5

Appendix C

Breastfeeding Schema (Labbok & Krasovec, 1990)

The schema divides breastfeeding into two main categories, “full” and “partial”, and also includes a category of “token” breastfeeding.

Full breastfeeding- is further divided into exclusive and almost exclusive breastfeeding.

Exclusive breastfeeding- indicated that the infant receives no other liquid or solid

Almost exclusive- indicates that the infant can receive vitamins, minerals, water, juice or “ritualistic feeds” infrequently in addition to breastfeeds.

Partial breastfeeding- is further subdivided into “high”, “medium” and “low” breastfeeding depending upon what percentage of the baby’s feeds are breastfeeds. In keeping with suggestion made by Labbok and Krasovec (1990), this study will define these categories follows:

High partial breastfeeding- indicated that the infant receives more than 80% of feeds as breastfeeds.

Medium partial breastfeeding- indicates that the infant receives 20-80% of feeds as breastfeeds.

Low partial breastfeeding- indicates that the infant receives less than 20% of feeds as breastfeeds.

Token breastfeeding- indicates to breastfeed which is given primarily for infant or child comfort and consolation, and not for nutritive purpose.

Appendix D

Duration and Breastfeeding Status Questionnaire

Today's Date: _____

I D. #_____

Please answer the following questions as completely as possible:

Are you still breastfeeding? Yes____ No___

If no, how many days did you breastfeed? ____

Yes answer

How many times per day do you breastfeed? _____

How many days have you breastfed counting today? ____

How long (approximately) do you plan on continuing to breastfeed?____

What other fluid or food is your baby receiving? _____

If the baby is receiving other fluids or food then ask: What is your baby receiving and how often? Formula_____ Water_____ Other_____

If the baby is receiving one bottle or more then ask: Do you give the breast only for baby's comfort?

How satisfied are you with your breastfeeding experience? Please (circle the number which best corresponds to your satisfaction with breastfeeding).

Appendix E

Breastfeeding Efficacy Intervention

Breastfeeding self-efficacy intervention consists of 4 parts. The participants were:

the participants watch a 15 minutes video about the breastfeeding

1. Watch behavior performed. This took approximately 10 minutes; the skills discussed and modeled by the researcher with a doll. This intervention involves observational learning.
2. Watch self perform the behavior (breastfeeding). This took about 10 minutes, the skills again described and modeled by the researcher with a doll, but this time mothers participated and practiced breastfeeding using a doll. This intervention involves physical practice.
3. Lastly, the mothers performed the breastfeeding again, using pillows to position and the doll in place of a real infant. This will take about 10 minutes. It is expected that the mothers will enhance the performance after having practiced it and visualized. This intervention involves enactive attainment.

Steps to be practiced and modeled are:

1. Positioning
    - Cross cradle, football hold position, cradle position, and side lying position

2. Offering Breast

    - Mother should hold the breast as a sandwich by placing her thumb by the baby’s nose her fingers under her breast near the baby’s chin.
    - Tickle the baby's lips with the nipple
    - When baby open's mouth wide and begins to root, quickly center nipple in baby's mouth. The baby's chin indents the breast and the nose touches the breast.

3. Effective Sucking

    - Baby's mouth should cover most of the areola.
    - Look for infant's jaw movement (simple, gliding motion).
    - Listen for swallowing, no clicking sounds while sucking.

4. A sign of the baby getting enough milk supply:

    - The baby’s wet diaper count should increase each day.
        1. Day 1-2 has 1-2 wet and stools
        2. Day 3-4 : 3-4 wet and stool
        3. After day 5 : 6 to 8 wet and 2-8 stools
    - More swallowing will be heard
    - The stool should look yellow, loose and seedy by day 4-5.
    - Watch the baby, not the clock, to see when infant is done.

- Signs of being done: baby is more relaxed, less vigorous sucking, and sleepy.

5. Taking the baby off the breast:
    - Place finger inside the corner of the baby’s mouth between the jaws.
    - Gently press on breast or gently pull on baby's cheek.
    - Burp the baby and offer the other breast.

APPENDIX F

Study Raw Data

ID	Age	children	Education	Income	Race	Employment	Group	BSES1	BSES2	BSES3	Duration
1	22	0	some college	less than 10,000	Non Hispanic	full time	control	103	150	146	42
2	22	2	less than high school	less than 10,000	Non Hispanic	full time	control	143	93	89	3
3	23	3	less than high school	less than 40,000	Non Hispanic	not employed	control	113	119	131	17
4	20	0	some college	less than 15,000	Non Hispanic	full time	control	33	92	107	1
5	21	0	associated degree	less than 10,000	Non Hispanic	not employed	control	129	89	137	36
6	21	0	Graduated from hogh school	99	Non Hispanic	not employed	control	102	113	99	7
7	24	0	Graduated from hogh school	less than 30,000	Non Hispanic	full time	control	129	89	81	5
8	21	0	some college	less than 10,000	Non Hispanic	student	control	102	88	100	1
9	18	1	Graduated from hogh school	less than 10,000	Non Hispanic	full time	control	122	144	110	7
10	21	0	Graduated from hogh school	less than 10,000	Non Hispanic	not employed	control	100	129	137	0
11	18	0	less than high school	less than 10,000	Non Hispanic	not employed	control	134	123	113	0
12	22	0	Graduated from hogh school	less than 20,000	Non Hispanic	not employed	control	130	48	163	1
13	33	0	Graduated from hogh school	less than 10,000	Non Hispanic	Part time	control	99	145	83	42
14	26	0	Graduated from hogh school	less than 15,000	Non Hispanic	not employed	control	54	94	41	3
16	22	0	some college	less than 10,000	Non Hispanic	not employed	control	132	92	71	1
31	31	3	Graduated from hogh school	less than 20,000	Non Hispanic	not employed	Treatment	155	157	164	42
32	25	2	some college	less than 40,000	Non Hispanic	full time	Treatment	97	120	.	42
33	22	1	less than high school	less than 20,000	Non Hispanic	not employed	Treatment	102	159	.	.
34	23	1	Graduated from hogh school	more than 40,000	Non Hispanic	not employed	Treatment	147	162	146	42
35	26	1	Graduated from hogh school	less than 20,000	Non Hispanic	student	Treatment	107	134	45	42
36	26	1	some college	less than 20,000	Asian	Part time	Treatment	104	52	162	42
37	34	4	some college	less than 10,000	Non Hispanic	full time	Treatment	154	162	159	12
38	20	0	less than high school	less than 10,000	Non Hispanic	not employed	Treatment	93	159	159	42
39	21	0	some college	less than 10,000	Non Hispanic	student	Treatment	75	.	.	42
40	23	0	Graduated from hogh school	less than 10,000	Non Hispanic	Part time	Treatment	94	107	102	10
41	21	0	Graduated from hogh school	less than 20,000	Non Hispanic	not employed	Treatment	71	99	.	19
42	24	0	some college	less than 10,000	Non Hispanic	student	Treatment	126	150	.	.
43	19	0	less than high school	less than 20,000	Non Hispanic	full time	Treatment	77	.	.	.
44	25	3	Graduated from hogh school	less than 20,000	Hispanic	Part time	Treatment	97	133	108	16
45	33	2	bachelor degree	less than 30,000	Non Hispanic	not employed	Treatment	76	142	150	42
46	23	2	less than high school	less than 40,000	Non Hispanic	not employed	Treatment	134	.	.	.
47	29	3	bachelor degree	less than 40,000	Non Hispanic	not employed	Treatment	136	136	140	42

APPENDIX G

September 16, 2005

Wajed Hatamleh, MSN, RN
Doctoral Candidate, College of Nursing
University of Cincinnati
Cincinnati, OH 45221-0038

Dear Wajed,

The Warren County Combined Health District, Prenatal Clinic would be pleased to provide a site to gather data about pregnant women's breast-feeding self-efficacy, and the duration of breast-feeding by our clients. I understand that Dr. Susan Elek, an Associate Professor at the College of Nursing at the University of Cincinnati will be supervising this descriptive study. The study will consist of you recruiting pregnant women from the prenatal clinic and obtaining their informed consent to complete the Breast-Feeding Self-Efficacy Scale during their last trimester of pregnancy and at two weeks following the birth of their child. I further understand that you will contact these women by phone or person at two weeks and at six weeks following the birth of their child to ask if they are still breastfeeding, or when they stopped breastfeeding. The Institutional Review Board at the University of Cincinnati will approve this study prior to your recruiting subjects or obtaining informed consent. I understand that the staff of the clinic will indicate women who fit your inclusion and exclusion criteria, and may give women your invitation to participate in the study, but will not be involved in recruiting subjects or in data collection.

As you might imagine, helping women to initiate and continue breastfeeding until the baby is at least 6 weeks of age is a very important goal for our clinic. I believe that the information you gather will help you to design and test an intervention to increase breastfeeding duration among our clients. This is an important area of research and we are very willing to assist you by providing our site.

Sincerely,

Lori Smyth, RN
Director of Nursing
Warren County Combined Health District

APPENDIX H

To:
Chairperson, Institutional Review Board
Middletown Regional Hospital
105 Mcknight Drive
Middletown, Ohio 45044

Re:

Dear IRB Chairman,

Enclosed you will find the protocol for "Effect of Maternal Self-efficacy on Breastfeeding Duration" study. The purpose of the current study is to test the efficacy of the Breastfeeding Self-Efficacy Intervention Program (BSEIP), which is based on Dennis's (1999) breastfeeding self-efficacy theory, to increase breastfeeding duration. The intervention will include prenatal breastfeeding education, measures to increase breastfeeding self-efficacy, and support and assistance for up to two weeks postpartum to increase duration of breastfeeding in a Midwestern sample of low-income pregnant women. The intervention's effect on a combination of variables including breastfeeding self- efficacy, and breastfeeding duration, in pregnant women who are receiving prenatal care at rural prenatal clinics in the Midwest will be investigated.
Attached you will find a copy of the informed consent specific to Middletown Regional Hospital and their patients and a copy of the HIPPA consent.

You may contact, Sandy Fletcher, about any questions or concerns you have about this study. If you have any questions regarding this study, please contact the Research Office at (513) 420-5674.
Thank you in advance for your efforts,

Sincerely,

Research Office
(513) 420-5674
Middletown Regional Hospital

APPENDIX I
Control Group Consent Form

Study Title: Effect of Maternal Self-efficacy on Breastfeeding Duration

IRB Study #:_____

Investigator information: Wajed Hatamleh, R.N., M.S.N.
Home phone number: (513) 459-5440
Cell phone number: (513) 478-7767

Introduction:
Before you agree to participate in this research study, it is important that you be told the purpose, procedures, benefits, risks, discomforts and precautions of the research. You should also be told what alternative procedures are available to you if you do not participate in the research study.

Your participation in this research study is entirely voluntary. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without unfairness to you or your medical care. The study investigator does not promise that you will receive any benefits from this study. This informed consent document is a brief written summary of what you study investigator is telling you. Be sure to ask questions while you read this if there is anything that is not clear.

Why are you being asked to participate?
You are being asked to take part in this research study because you are expecting the birth of single healthy baby, are in the third trimester of pregnancy, and are at least 18 years of age.

Purpose of the study
The purpose of this study is to determine the effect of your confidence in your ability to breastfeed (breastfeeding self-efficacy) on the length of time (months) that you continue to breastfeed your baby. It is hoped that the finding of the study will help nurses develop programs and supportive services that will increase a mother's breastfeeding self-efficacy and duration of breastfeeding.

How long will you be in the study?
You will be in the research study for approximately 10 weeks.

Who is conducting this study?
This study is being conducting by Wajed Hatamleh, MSN, RN, a doctoral student at the University of Cincinnati, College of Nursing. Dr. Susan Elek will supervise the conduct of this study.

How many People are involved in the study?

Approximately 60 women who are receiving pre-natal care at the Middletown Regional Hospital prenatal clinic into Middletown, Ohio will take part in this study.

What is involved in the study?
You will be asked to sign this informed consent document if you agree to be in the study. After you sign the consent, you will be asked to complete two questionnaires. The first questionnaire will have questions about your age, education, income, if you work outside the home, marital status, how many children you have living with you, and the estimated date of the baby's birth. The second questionnaire is called the Breast-feeding Self-efficacy Scale, and asks questions about how confident you are about breastfeeding.

At two weeks after you deliver your baby, the researcher will contact you by the phone or in person to ask if you started to breastfeed, and if you are still breastfeeding. At this time, you will complete the Breast-feeding Self-efficacy Scale again. At six weeks after delivery, the investigator will contact you to ask if you are still breastfeeding or when you stopped breastfeeding.

What are the Risks and benefits of participating in this study?
There are no known risks or discomforts involved in your participation. The researcher is not using any thing will endanger your life.

Are There Benefits to Taking Part in the Research Study?
There are no immediate benefits for the participants. However, care professionals may use the study results to plan supportive services for future breastfeeding mothers.

What Other Choices are There?
Instead of being in this research study, you have the option not to participate.

Confidentiality
The investigator will make every effort to keep your information confidential. Only code numbers will be used on questionnaires. Your name will not appear on any study documents except the signed consent form. Only agents of the University of Cincinnati as well as the investigator and the committee chair (Dr. Susan Elek) will have access to study records.

Will you be paid to participate?
If you agree to participate in this study you will receive by mail a $10 gift certificate card from Target when you have completed the study (even if you dropped out of the study).

What Are Your Costs to be in this Study?
There is no anticipated cost to you to be in this research study.

What are your rights as a participant?

You may choose either to take part in this study or not to take part. If you decide to take a part, you may decide to leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to you. The investigator will tell you about new information that may affect your willingness to take part in the study. If you have question about the study, you will have a chance to ask the investigator. Do not sign this form unless you had the chance to ask questions and have received satisfactory answers.

Nothing in this consent form waives any legal rights you may have nor does it release the investigator or the institution from liability for negligence.

If you have any question about the research study, you can contact the researcher Wajed Hatamleh at (513) 459-5440 or (513) 478-7767. If you have general questions about giving consent or you rights as a research participant in this study, you can call university of Cincinnati Medical Institutional Review board at 513-558-5259.

University of Cincinnati Consent to Participate in a Research Study

Study Title: Effect of Maternal Self-efficacy on Breastfeeding Duration

UC IRB Study #:_____

Investigator information: Wajed Hatamleh, R.N., M.S.N.
Home phone number: (513) 459-5440
Cell phone number: (513) 478-7767

I have read or some one read to me, this informed consent document which describe the purpose and nature of this research. I have had time to review this information and have been encouraged to ask questions. I have received answers to my questions. If I do not participate or if I discontinue my participation, I will not lose any benefits. I will not lose any legal rights if I discontinue. My participation in this research is completely voluntary. I give my consent to participate in this study. I have received (or will receive) a copy of this form for my records and future reference.

_____ _____
Signature of participant Date

_____ _____
Signature of Researcher Date

APPENDIX J
Experimental Group Consent Form

University of Cincinnati Consent to Participate in a Research Study

Study Title: Effect of Maternal Self-efficacy on Breastfeeding Duration

UC IRB Study #:_____

Investigator information: Wajed Hatamleh, R.N., M.S.N.
Home phone number: (513) 459-5440
Cell phone number: (513) 478-7767

Introduction:
Before you agree to participate in this research study, it is important that you be told the purpose, procedures, benefits, risks, discomforts and precautions of the research. You should also be told what alternative procedures are available to you if you do not participate in the research study.

Your participation in this research study is entirely voluntary. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without unfairness to you or your medical care. The study investigator does not promise that you will receive any benefits from this study. This informed consent document is a brief written summary of what you study investigator is telling you. Be sure to ask questions while you read this if there is anything that is not clear.

Why are you being asked to participate?
You are being asked to take part in this research study because you are expecting the birth of single healthy baby, are in the third trimester of pregnancy, and are at least 18 years of age.

Purpose of the study
The purpose of this study is to determine the effect of your confidence in your ability to breastfeed (breastfeeding self-efficacy) on the length of time (months) that you continue to breastfeed your baby. It is hoped that the finding of the study will help nurses develop programs and supportive services that will increase a mother's breastfeeding self-efficacy and duration of breastfeeding.

How long will you be in the study?
You will be in the research study for approximately 10 weeks.

Who is conducting this study?
This study is being conducting by Wajed Hatamleh, MSN, RN, a doctoral student at the University of Cincinnati, College of Nursing. Dr. Susan Elek will supervise the conduct of this study.

How many People are involved in the study?
Approximately 30 women who are receiving pre-natal and post-partum care at the Warren County Combined Health District prenatal clinic into Lebanon, Ohio will take part in this study.

What is involved in the study?
You will be asked to sign this informed consent document if you agree to be in the study. After you sign the consent, you will be asked to complete two questionnaires. The first questionnaire will have questions about your age, education, income, if you work outside the home, marital status, how many children you have living with you, and the estimated date of the baby's birth. The second questionnaire is called the Breast-feeding Self-efficacy Scale, and asks questions about how confident you are about breastfeeding.

You will be asked to meet the researcher two hours prior to the next prenatal appointment, to receive a prenatal breastfeeding class in your clinic. The class will discuss normal physiological changes that occur after deliver your baby, explain how to evaluate milk supply and interpret infant cues, positioning, offering the breast, effective sucking, and breaking suction. You will be sent home with a written copy of the class that discusses the four steps: positioning, offering the breast, effective sucking, and breaking suction.
At one week of deliver your baby, the researcher will contact you telephone to evaluate your infant breastfeeding situation. Also, your description of positioning, pain, infant cues of hunger, and your general level of anxiety will be evaluated by the researcher.
At two weeks after you deliver your baby, the researcher will contact you by the phone or in person to ask if you started to breastfeed, and if you are still breastfeeding. At this time, you will complete the Breast-feeding Self-efficacy Scale again. At six weeks after delivery, the investigator will contact you to ask if you are still breastfeeding or when you stopped breastfeeding.

What are the Risks and benefits of participating in this study?
There are no known risks or discomforts involved in your participation. The researcher is not using any thing will endanger your life.

Are There Benefits to Taking Part in the Research Study?
There are no immediate benefits for the participants. However, care professionals may use the study results to plan supportive services for future breastfeeding mothers.

What Other Choices are there?
Instead of being in this research study, you have the option not to participate.

Confidentiality
The investigator will make every effort to keep your information confidential. Only code numbers will be used on questionnaires. Your name will not appear on any study documents except the signed consent form. Only agents of the University of Cincinnati as well as the investigator and the committee chair (Dr. Susan Elek) will have access to study records.

Will you be paid to participate?
If you agree to participate in this study you will receive by mail a $10 gift certificate card from Target when you have completed the study (even if you dropped out of the study).

What Are Your Costs to be in this Study?
There is no anticipated cost to you to be in this research study.

What are your rights as a participant?
You may choose either to take part in this study or not to take part. If you decide to take a part, you may decide to leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to you. The investigator will tell you about new information that may affect your willingness to take part in the study. If you have question about the study, you will have a chance to ask the investigator. Do not sign this form unless you had the chance to ask questions and have received satisfactory answers.

Nothing in this consent form waives any legal rights you may have nor does it release the investigator or the institution from liability for negligence.

If you have any question about the research study, you can contact the researcher Wajed Hatamleh at (513) 459-5440 or (513) 478-7767. If you have general questions about giving consent or you rights as a research participant in this study, you can call university of Cincinnati Medical Institutional Review board at 513-558-5259.

University of Cincinnati Consent to Participate in a Research Study

Study Title: Effect of Maternal Self-efficacy on Breastfeeding Duration

UC IRB Study #:_____

Investigator information: Wajed Hatamleh, R.N., M.S.N.
Home phone number: (513) 459-5440
Cell phone number: (513) 478-7767

I have read or some one read to me, this informed consent document which describe the purpose and nature of this research. I have had time to review this information and have been encouraged to ask questions. I have received answers to my questions. If I do not participate or if I discontinue my participation, I will not lose any benefits. I will not lose any legal rights if I discontinue. My participation in this research is completely voluntary. I give my consent to participate in this study. I have received (or will receive) a copy of this form for my records and future reference.

_____ _____
Signature of participant Date

_____ _____
Signature of Researcher Date

APPENDIX K

September 16, 2005

Wajed Hatamleh, MSN, RN
Doctoral Candidate, College of Nursing
University of Cincinnati
Cincinnati, OH 45221-0038

Dear Wajed,

The Warren County Combined Health District, Prenatal Clinic would be pleased to provide a site to gather data about pregnant women's breast-feeding self-efficacy, and the duration of breast-feeding by our clients. I understand that Dr. Susan Elek, an Associate Professor at the College of Nursing at the University of Cincinnati will be supervising this descriptive study. The study will consist of you recruiting pregnant women from the prenatal clinic and obtaining their informed consent to complete the Breast-Feeding Self-Efficacy Scale during their last trimester of pregnancy and at two weeks following the birth of their child. I further understand that you will contact these women by phone or person at two weeks and at six weeks following the birth of their child to ask if they are still breastfeeding, or when they stopped breastfeeding. The Institutional Review Board at the University of Cincinnati will approve this study prior to your recruiting subjects or obtaining informed consent. I understand that the staff of the clinic will indicate women who fit your inclusion and exclusion criteria, and may give women your invitation to participate in the study, but will not be involved in recruiting subjects or in data collection.

As you might imagine, helping women to initiate and continue breastfeeding until the baby is at least 6 weeks of age is a very important goal for our clinic. I believe that the information you gather will help you to design and test an intervention to increase breastfeeding duration among our clients. This is an important area of research and we are very willing to assist you by providing our site.

Sincerely,

Lori Smyth, RN
Director of Nursing
Warren County Combined Health District