THE EFFECTS OF BREASTFEEDING-PROMOTING PROGRAM ON THE RATE AND DURATION OF EXCLUSIVE BREASTFEEDING IN WORKING MOTHERS

PRAPAPORN WISARAPUN

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Prapaporn Wisarapun
.....
Miss Prapaporn Wisarapun
Candidate

Nittaya Sinsuksai
.....
Assist. Prof. Nittaya Sinsuksai,
Ph.D. (Nursing)
Major-Advisor

Yaowalak Serisathien
.....
Assist. Prof. Yaowalak Serisathien,
D.N.S.
Co-Advisor

Kannikar Vichitsukon
.....
Assoc. Prof. Kannikar Vichitsukon,
M.Sc.(Public Health)
Co-Advisor

A. Mutchimwong
.....
Asst. Prof. Auemphorn Mutchimwong,
Ph.D.
Acting Dean
Faculty of Graduate Studies

Yajai Sitthimongkol
.....
Assoc. Prof. Yajai Sitthimongkol,
Ph.D. (Nursing)
Chair
Master of Nursing Science
Faculty of Nursing

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on
3 October, 2008

Prapaporn Wisarapun
.....
Miss Prapaporn Wisarapun
Candidate

Pornsri Sriussadaporn.
.....
Assoc. Prof. Pornsri Sriussadaporn,
M.Ed. (Ed.Research)
Chair

Nittaya Sinsuksai
.....
Assist. Prof. Nittaya Sinsuksai,
Ph.D. (Nursing)
Member

Suaree Ontrakarn
.....
Assoc. Prof. Suaree Ontrakarn,
M.D., Dip. (Obstetric)
Member

Yaowalak Serisathien
.....
Assist. Prof. Yaowalak Serisathien,
D.N.S.
Member

Kannikar Vichitsukon
.....
Assoc. Prof. Kannikar Vichitsukon,
M.Sc. (Public Health)
Member

A. Mutchimwong
.....
Asst. Prof. Auemphorn Mutchimwong,
Ph.D.
Acting Dean
Faculty of Graduate Studies
Mahidol University

Fongcum Tilokskulchai
.....
Assoc. Prof. Fongcum Tilokskulchai,
Ph.D. (Nursing)
Dean
Faculty of Nursing
Mahidol University

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Prapaporn Wisarapun

THE EFFECTS OF BREASTFEEDING-PROMOTING PROGRAM ON THE RATE AND DURATION OF EXCLUSIVE BREASTFEEDING IN WORKING MOTHERS

PRAPAPORN WISARAPUN 4737879 NSMW/M

M.N.S. (MATERNAL-NEWBORN AND WOMEN' S HEALTH NURSING)

THESIS ADVISORS: NITTAYA SINSUKSAI, Ph.D.,
YAOWALAK SERISATHIEN, D.N.S., KANNIKAR VICHITSUKON, M.Sc.

ABSTRACT

This research was a quasi-experimental study aimed at investigating the effects of a breastfeeding-promoting program on the rate and duration of exclusive breastfeeding in working mothers. The sample was composed of 60 working pregnant women expecting their first child with gestational age between 37-40 weeks, who received antenatal care and gave birth at Pranungklao Hospital, Thailand. The sample was selected by the purposive sampling method and divided into experimental and control groups, with 30 women in each group. The sample in the control group received routine nursing care, whereas those in the experimental group participated in the breastfeeding promoting-program together with routine nursing care. The breastfeeding promoting-program consists of dissemination of knowledge, demonstration and practice of skills, support and assistance to postpartum mothers, and telephone follow-ups. Data were collected by the Demographic Characteristics Questionnaire, the Breastfeeding Efficacy Assessment Form (LATCH), the Feeding Monitoring Form, and the Problem Related to Breastfeeding Record Form. The data were then analyzed with Fisher's Exact test and the t-test.

The findings showed that 26.67 percent of the mothers in the experimental group achieved 4-month exclusive breastfeeding compared to 0 percent in the control group. The Rate of 4-month exclusive breastfeeding in the experimental and the control groups were significantly and statistically different ($P<.001$). Furthermore, mothers in the experimental group achieved longer average duration of exclusive breastfeeding than those in the control group (69.5 days and 4.66 days, respectively) at a statistically significant level ($P<.001$).

The results suggest that this program was effective. Nurses who involve in maternal-child care should apply this program to continuously promote breastfeeding to mothers during pregnancy, through the postpartum period and after hospital discharge.

KEY WORDS: BREASTFEEDING-PROMOTING PROGRAM / EXCLUSIVE BREASTFEEDING / WORKING MOTHER

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ผลของโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ต่ออัตราและระยะเวลาการเลี้ยงลูกด้วยนมแม่อย่างเดียวในมารดาที่ทำงานนอกบ้าน
(THE EFFECTS OF BREASTFEEDING-PROMOTING PROGRAM ON THE RATE AND DURATION OF EXCLUSIVE BREASTFEEDING IN WORKING MOTHERS)

ประภาพร วิสารพันธ์ 4737879 NSMW/M

พย.ม. (การพยาบาลมารดา-ทารกแรกเกิดและสุขภาพสตรี)

คณะกรรมการควบคุมวิทยานิพนธ์ : นิตยา สินสุกใส, Ph.D., เยาวลักษณ์ เสรีเสถียร, D.N.S., กรรณิการ์ วิจิตรสุคนธ์ , M.Sc.

บทคัดย่อ

การวิจัยครั้งนี้เป็นการวิจัยกึ่งทดลอง เพื่อศึกษาผลของโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ ต่ออัตราและระยะเวลาการเลี้ยงลูกด้วยนมแม่อย่างเดียวในมารดาที่ทำงานนอกบ้าน กลุ่มตัวอย่างเป็นสตรีตั้งครรภ์ที่ทำงานนอกบ้านและกำลังจะให้กำเนิดบุตรคนแรก อายุครรภ์ 37-40 สัปดาห์ มาฝากครรภ์และคลอดที่โรงพยาบาลพระนั่งเกล้า ประเทศไทย จำนวน 60 ราย แบ่งเป็นกลุ่มควบคุม 30 ราย กลุ่มทดลอง 30 ราย เลือกกลุ่มตัวอย่างตามเกณฑ์ที่กำหนด กลุ่มควบคุมได้รับการพยาบาลตามปกติ กลุ่มทดลองได้รับการเข้าร่วมโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ในมารดาที่ทำงานนอกบ้านร่วมกับการพยาบาลตามปกติ โปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ประกอบด้วย การให้ความรู้ การสาธิตและฝึกทักษะการเลี้ยงลูกด้วยนมแม่ การสนับสนุนและช่วยเหลือมารดาในระยะหลังคลอด และการโทรศัพท์ติดตาม เก็บรวบรวมข้อมูลโดยใช้ แบบสัมภาษณ์ข้อมูลส่วนบุคคล แบบประเมินประสิทธิภาพการให้นมบุตร (LATCH) แบบติดตามการให้อาหารทารก แบบประเมินปัญหาที่เกี่ยวข้องกับการเลี้ยงลูกด้วยนมแม่ วิเคราะห์ข้อมูลโดยใช้การทดสอบฟิชเชอร์เอกซ์แซกท์ และทดสอบค่าที

ผลการศึกษาพบว่า มารดากลุ่มทดลองมีอัตราการเลี้ยงลูกด้วยนมแม่อย่างเดียว 4 เดือน คิดเป็นร้อยละ 26.67 ขณะที่กลุ่มควบคุมมีอัตราการเลี้ยงลูกด้วยนมแม่อย่างเดียว 4 เดือน คิดเป็นร้อยละ 0 ซึ่งแตกต่างกันอย่างมีนัยสำคัญทางสถิติ (P<.001) มารดากลุ่มทดลองมีระยะเวลาเฉลี่ย ในการเลี้ยงลูกด้วยนมแม่อย่างเดียวนานกว่ากลุ่มควบคุม (69.5 วันและ 4.46 วันตามลำดับ) ซึ่งแตกต่างกันอย่างมีนัยสำคัญทางสถิติ (P<.001)

จากผลการวิจัยครั้งนี้มีข้อเสนอแนะว่าโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่มีประสิทธิภาพ ที่พยาบาลสามารถนำไปใช้ส่งเสริมการเลี้ยงลูกด้วยนมแม่ในมารดาที่ทำงานนอกบ้านได้อย่างต่อเนื่อง ตั้งแต่ในระยะตั้งครรภ์ จนถึงหลังคลอด และหลังจากจำหน่ายออกจากโรงพยาบาล

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CHAPTER I
INTRODUCTION

Background and Significance of the study

Breastfeeding is considered the best form of feeding. Nature has created breast milk to contain the nutrients that suit the infant's growth, especially during the first year of life. Breast milk contains more than 200 nutrients that suit the infant's physiological, intellectual, emotional, and social growth and development It also contains immunity which helps protect the infant from diseases and infections, especially digestive tract and respiratory infections, fungi in the oral cavity, and allergy, which are most commonly found health problems among infants (Dick & Benzek, 1997; Riodan & Auerbach, 1990). Furthermore, breast milk is clean, and it is easy to digest and absorb. It can prevent diarrhea and constipation in infants as well. Besides, breastfeeding helps establish love, attachment, and bonding between the mother and her infant. When the mother holds her infant and responds to the infant's needs with love and tenderness, the infant will feel warmth and security, and it can develop the sense of trust which is the basis for self-esteem. The mother and her infant also learn to respond to each other. While suckling, the infant can look at the mother's face and into the mother's eyes, and naturally, the mother tends to be in a good mood when she is with her infant, so this is an opportunity for her to transfer a positive emotion to her infant and teach the infant how to develop interpersonal relationship with its mother, all of which enable them to adjust themselves well, know how to wait, and know how to share when the infant grows up.

In addition to benefits for the infant, breastfeeding also has positive effects on the mother's health. While the infant is sucking its mothers' breasts, the brain is stimulated and secretes the oxytocin hormone, which makes the uterus contract and prevents postpartum hemorrhage. Furthermore, the body will use the fat stored during pregnancy to produce breast milk, so the mother returns to her pre-pregnancy figure faster (Dewey, Heining, & Nommsen, 1993). Breastfeeding helps reduce the risk of

breast cancer and ovarian cancer after menopause (Jittinan, Chatranon, & Sawaddiworn, 2003; Layde, 1989; Newcomb, 1994). Moreover, exclusive breastfeeding is a natural birth control technique, as it prolongs the recurrence of menstruation, hence a lactation amenorrhea method. In addition, breastfeeding helps both the family and the country save cost. The family does not have to pay for expensive infant formula and bottles, while the country does not have to buy formula from other countries and also cuts down on medical expenses for sick infants (Montgomery & Splett, 1997). In the United States, it has been found that exclusive breastfeeding can reduce medical expenses for diarrhea, respiratory tract infection, and otitis media by 331 to 474 dollars per infant (Ball & Wright, 1999). Finally, breastfeeding is very convenient, as it can be done anytime and anywhere without any preparation required for formula feeding (Sawaddiworn, 2003).

As previously discussed, it can be seen that breastfeeding benefits the infant, the mother, society, and the country. For this reason, other countries all around the world have tried to promote and ensure successful breastfeeding. The World Health Organization and UNICEF have realized the significance of breastfeeding and have devised a guideline to promote breastfeeding in 1981, stating that infants should be exclusively breastfed for at least four to six months and breastfeeding combined with appropriate diet until they are two years old or beyond In 1989, the Baby-Friendly Hospital Project was established, and the Ten Steps to Successful Breastfeeding Guideline was devised for different countries to follow (WHO/UNICEF, 2003).

A study conducted in 2000 showed that the mothers who were able to exclusively breastfeed their infants during hospital stay, six months after delivery, and one year after delivery accounted for 68%, 31%, and 17%, respectively. Thus, the United States has formulated the objective of exclusive breastfeeding in the Healthy People Plan in the year 2010 with the aim to increase the number of mothers who exclusively breastfeed their infants during hospitalization, six months postpartum, and one year postpartum to 75%, 50%, and 25%, respectively. In 2001, WHO has recommended that exclusive breastfeeding should be extended from four months after birth to six months after birth. This is because research findings have revealed that exclusive breastfeeding without giving the infants any other food including water for

six months is more beneficial to health than exclusive breastfeeding that lasts only four months.

In Thailand, promotion of breastfeeding has been carried out since the Fourth National Economic and Social Development Plan (1977-1921) up until the Ninth National Economic and Social Development Plan (2002-2006) with the aim to ensure that at least 30% of the mothers breastfeed their infants for four to six months after birth. However, a survey conducted in 1993, 1996, and 2002 indicated that the rate of exclusive breastfeeding during the first four to six months was equal to 1.3%, 3.6%, and 16.3% in 1993, 1996, and 2002, respectively (Jittinan, Chatranon, & Sawaddiworn, 2003). In the present Tenth National Economic and Social Development Plan (2007-2011), the policy to promote exclusive breastfeeding has been changed from four months to six months, with water and solid food given as appropriate to the infants' age until they are two years old (Sawadiworn, 2005). However, a survey conducted by the Department of Health, Ministry of Public Health in 2005 has revealed that the rate of exclusive breastfeeding within the first six months is only 14.6%. Thus, it can be seen that even though campaigns to promote exclusive breastfeeding have been continuously carried out in the country, the rate of exclusive breastfeeding is rather low and has not yet reached the target, especially among the working mothers.

Due to changes in economic and social structures of Thailand, from an agricultural to industrialize nation, more mothers have to work outside home to earn their living. A labor survey carried out by the National Statistics Office has shown that the number of female laborers in the agricultural and industrial sectors is 15,037,000 and 15,390,000 in 2003 and 2004, respectively. These laborers are reproductive females, and most of them have to return to work soon after giving birth. Some migrated from a rural area to work in large cities, especially Bangkok. Many of them have to send their infants back to their hometown to be cared for by the grandmothers or baby sitters. As a result, the duration of breastfeeding is cut short, lacks continuity, and is unsuccessful (Yimyam, 2000). In particular, mothers who work in an industrial factory or a government or public enterprise office tend to breastfeed their infants less than those who take a maternity leave and care for their infants at home by themselves. When comparing the rates of breastfeeding between these two groups of mothers, it

has been found that the rates of breastfeeding among stay-at-home mothers during the first month and fourth month after giving birth were 100% and 91%, respectively, while those of the working mothers were 100% and 61% in the first and fourth months, respectively. Likewise, Suthiprapa (2001) found that the rates of exclusive breastfeeding among working mothers tend to decrease from the first month to the fourth month, accounting for 49.5%, 36%, 18%, and 6.5%, respectively.

It can be seen that one factor which hinders the success of breastfeeding is the mothers' career outside the house. Breastfeeding and working outside the house are a combination of different roles which may make mothers experience difficulties and obstacles, especially when breastfeeding requires determination, time, and closeness between mothers and infants. When the mothers feel that the obstacles are overwhelming, they tend to stop breastfeeding and turn to rely on formula. Other factors that hinder mothers' efforts to breastfeed their infants include lack of knowledge about expressing and pumping breast milk and lack of support from family and work. Moreover, despite the extension of maternity leave from 60 days to 90 days (Thanachaisethawut, 1994), some mothers take only a 45-day leave to receive social security benefits and salary, so the actual maternity leave is less than 90 days. Most of the offices have no place for pumping or no refrigerator, mothers are afraid that leaking will stain their clothes and affect their appearance (Bowornkeeratikajorn & Vichitsukon, 2005), some mothers work far away from home and are unable to come back home to breastfeed their infants during the day, some types of work are inflexible and make it impossible for the mothers to pump, and mothers can suffer from work-related exhaustion and stress. All of these factors adversely affect the production and expression of breast milk. Other factors include lack of advice or guidance on breastfeeding during pregnancy, social influence on beliefs about benefits of formula feeding, and exaggeration of formula commercials, which results in misconception that formula is as good as breast milk. Therefore, working mothers tend to feed their infants with formula, thinking that it is convenient and that they earn enough income to buy formula for their infants. All of the aforementioned factors make breastfeeding unsuccessful.

According to Pender, Murdaugh, & Parsons (2002), individuals' health-promoting behaviors result from two main factors. The first factor is individual

characteristics and experiences which involves prior related experiences and personal factors of biological factor, psychological factor, and sociocultural factor. The second factor is behavior-specific cognition and affect which includes perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity-related affect, interpersonal influence, and situational influence.

These two major factors have both direct and indirect effects on health-promoting behaviors of individuals. The direct effect is usual practice that eventually becomes health-promoting behaviors, while the indirect effect is the commitment to a plan of action. However, whether the behavior will actually take place or not depends on other factors depends on immediate competing demand and preference which may necessitate or deviate individuals' commitment to a plan of action.

Based on the aforementioned concept of health-promoting behavior, even though there are various obstacles to breastfeeding, mothers are still able to successfully breastfeed their infants if they have perceived benefits of breastfeeding; receive support from medical team members, family, and workplace; receive teaching and training on breastfeeding skills to ensure their confidence to plan for breastfeeding in advance (Sirithanarattanakul, 2003). including pumping techniques; and receive support and encouragement from family members. A study of Nantaporn Puangkaew (2005) has revealed that working mothers who have perceived self-efficacy to breastfeed and who receive social support from family tend to breastfeed longer that those who do not. Similar findings are reported by Orathai Buakam (2006) who found that increasing first-time mothers' understanding of perceived benefits of breastfeeding, increasing their perceived self-efficacy, and ensuring support from significant others, while reducing their perceived barriers to breastfeeding enable them to succeed in exclusive breastfeeding.

The researcher developed a breastfeeding promotion program among working mothers based on Pender's Health Promotion Model including dissemination of knowledge, demonstration and training on breastfeeding and pumping techniques, provision of a breastfeeding manual for working mothers, and telephone follow-ups to promote successful exclusive breastfeeding among working mothers. It is anticipated that the findings of the present study can be used to further promote exclusive breastfeeding among working mothers.

Research Question

Dose the breastfeeding-promoting program affect the rate and duration of exclusive breastfeeding in working mothers?

Research Objective

The present study aimed at investigating the effect of a breastfeeding-promotion program on the rate and duration of exclusive breastfeeding in working mothers by comparing the rate of exclusive breastfeeding at four months and average duration of exclusive breastfeeding between the experimental group who received the breastfeeding- promoting program together with routine nursing care and those who received only routine nursing care from the hospital.

Research Hypothesis

1. The rate of exclusive breastfeeding at four months after child delivery the experimental group who received the breastfeeding-promoting program is higher than that of the control group who received only routine nursing care from the hospital.

2. The duration of exclusive breastfeeding of working mothers who received the breastfeeding-promoting program is longer than that of the mothers who received only routine nursing care from the hospital.

Conceptual Framework of the Study

The Health Promotion Model of Pender, Murdaugh, & Parsons (2002) was employed as the conceptual framework of this study. According to them, individuals' health-promoting behavior results from two major factors—individual characteristic and experience and behavior-specific cognition and affect, which can be explained as follows:

1. Individual characteristics and experiences consists of the following:
    1.1 Prior related experience
    1.2 Personal factors, which can further be divided into the following:
        1.2.1 Biological factor
        1.2.2 Psychological factor
        1.2.3 Sociocultural factor
2. Behavior-specific cognition and affect consists of the following:

2.1 Perceived benefits of action refer to perception of benefits or positive outcomes of a particular behavior. For instance, when pregnant women perceive that exclusive breastfeeding benefits the infants, mothers, family, society, and the nation, they should be more determined to successfully perform exclusive breastfeeding.

2.2 Perceived barriers to action refer to perception of obstacles or difficulties in performing a health-promoting behavior, and these barriers can be actual or expected. For example, if pregnant women lack knowledge about breastfeeding or they work outside the house and do not have time to breastfeed their infants or pump, and they perceive that they are unable to overcome such problems or obstacles or feel that the problems or obstacles are overwhelming, their breastfeeding will become unsuccessful.

2.3 Perceived self-efficacy refers to individuals' perception or confidence in their own ability to do things such as breastfeeding their infants. If mothers feel that they are capable of breastfeeding their infants, the breastfeeding behavior will take place.

2.4 Activity-related affect refers to individuals' feeling toward a certain behavior, which may take place before, during, or after such behavior. The feelings toward certain behaviors may vary in terms of extent and intensity. Activity-related affect enables individuals to repeat the behavior or retain the behavior in a long run. As a result, in order for mothers to successfully and continuously breastfeed their infants, they need to have a positive feeling toward breastfeeding before, during, and after breastfeeding. In short, mothers need to feel happy to breastfeed their infants.

2.5 Interpersonal influence refers to receipt of social support in terms of social expectation, material support, and emotional and mental support. Influential sources of social support are family, parents, relatives, friends, and healthcare team members. If mothers are to be successful at breastfeeding, they need to receive social support from these individuals.

2.6 Situational influence refers to individuals' perception of related situations or contexts including availability and access to services, desirable environments, etc. In general, individuals will be successful when they perform a certain behavior in a facilitating environment. For mothers who have to work outside

their house, situational influences include length of maternity leave, number of office hours, type of work, etc.

Both of the two factors—individual characteristic and experience and behavior-specific cognition and affect—have direct and indirect effects on health-promoting behaviors. The direct effect is health-promoting behavior, and the indirect effect is commitment to a plan of action. Whether the health-promoting behavior will take place or not depends on the immediate competing demand and preference which may necessitate or deviate actual practice of health-promoting behavior are shown in figure 1 below.

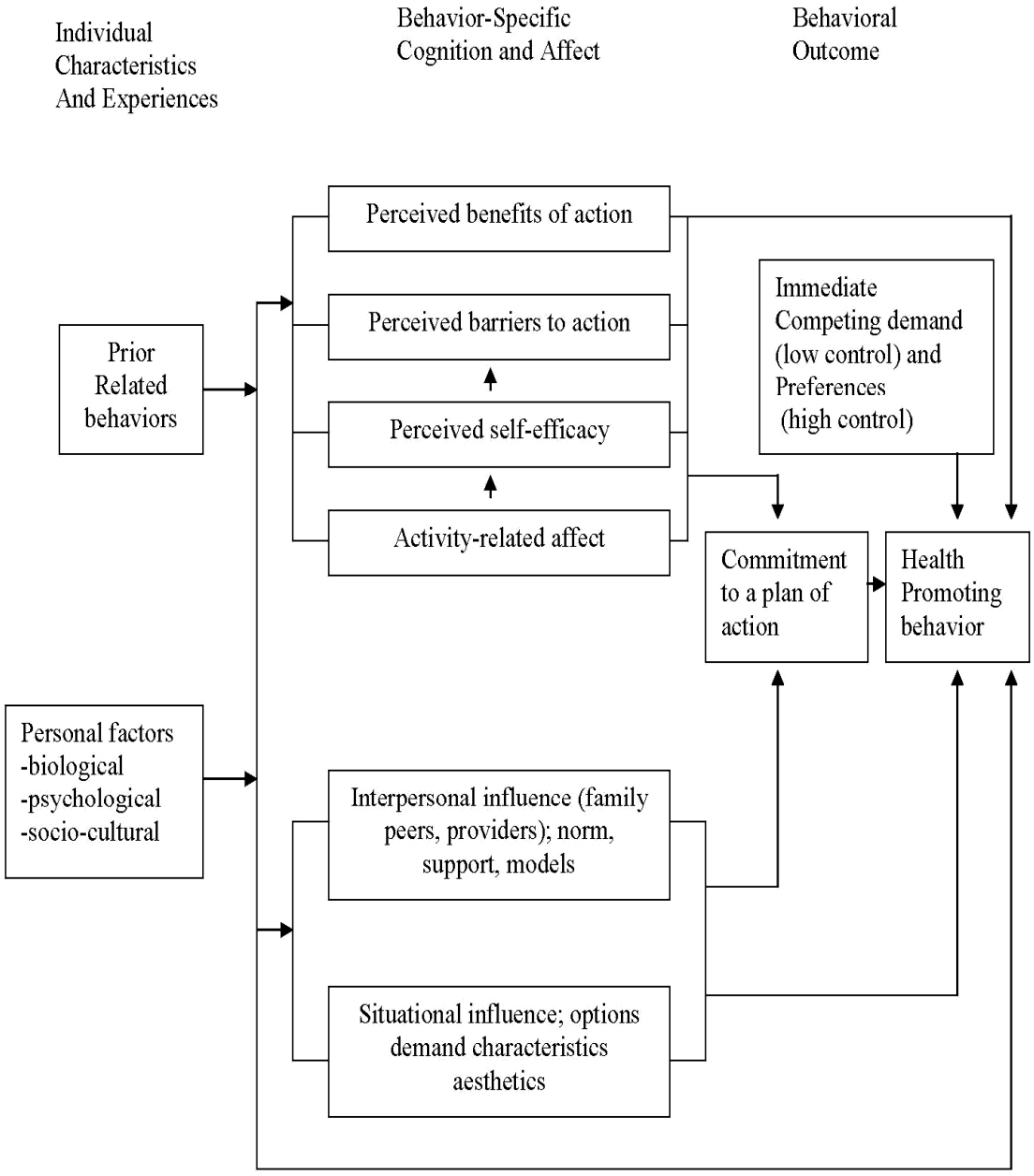

Figure 1: Pender's Health Promotion Model, (2002)

Based on the aforementioned concept, the researcher developed a breastfeeding promotion program for working mothers with its focus on five behavior-specific cognition and affect factors including 1) perceived benefits of health-promoting behavior, 2) perceived barriers to health-promoting behavior, 3) perceived self-efficacy, 4) activity-related affect, and 5) interpersonal influence. It is worth noting here that interpersonal influence was not examined in this study because it was beyond the researcher's control depending on each mother's working context. The activities included in the breastfeeding promotion program are as follows:

1. Dissemination of knowledge: The activities included letting pregnant women exchange knowledge and experience related to breastfeeding and watch VCD on breastfeeding. The content of the VCD consisted of benefits of breastfeeding, exclusive breastfeeding, breastfeeding when mothers have to work outside, and expressing and feeding breast milk from a cup. The VCD, which was produced by the Breast Milk Group.

The teaching points were summarized by the researcher using the PowerPoint Program. Also, a breastfeeding manual for working mothers was distributed for a review at home. The objective of the dissemination of knowledge was to increase pregnant women's knowledge about benefits of breastfeeding and positive attitudes toward breastfeeding while reducing their perception of barriers to breastfeeding. It was believed that when pregnant women learned that breastfeeding benefited themselves, their infants, their family, society, and the nation, those who had not made decision about breastfeeding may have become more interested in breastfeeding and determined to breastfeed their infants. For those who had already decided to breastfeed their infants, the duration of breastfeeding may have been extended. On the other hand, when pregnant women had a chance to learn about possible obstacles in breastfeeding, they would become better prepared to face such problems. Furthermore, the dissemination of knowledge and the group process enabled these women to develop positive feelings toward breastfeeding, which was a good starting point to increase the likelihood of continuous breastfeeding.

2. Demonstration and practice of skills: Different skills that would benefit breastfeeding were demonstrated by the researcher and practiced by pregnant women before they had to face an actual situation after child delivery. These skills included

different ways to carry the infants, burping the infants, expressing breast milk, etc. When pregnant women had a chance to learn and practice these skills before they had to face an actual situation, they would be more confident in their capability to successfully perform exclusive breastfeeding.

3. Provision of support and assistance to postpartum mothers: The researcher enabled postpartum mothers to successfully breastfeed their infants by letting the infants suck the mothers' breasts within one hour after birth to stimulate lactation. The infants were allowed to suck their mothers' breasts as frequently as every few hours to ensure sufficient and consistent lactation. In addition, the researcher helped the mothers to correctly breastfeed the infants until they were confident in their ability to breastfeed their infants. The researcher also provided the opportunity to significant or influential persons in the mothers' life such as the husband, grandmother, or nanny to learn about benefits of breastfeeding and develop positive attitudes toward breastfeeding. Moreover, the researcher encouraged them to support the mothers in different aspects including showering the mothers with moral support and encouragement and helping take care of the infants. Sufficient support from the researcher as well as family members enabled the postpartum mothers to successfully perform and continue breastfeeding.

4. Telephone follow-ups: The researcher offered continuous support and assistance by conducting periodical telephone follow-ups to monitor and solve the mothers' problems with breastfeeding. Appointments were also made with the mothers for follow-ups at the hospital, especially during the initial period after hospital discharge when mothers had to deal with various problems by themselves. Providing assistance to help them solve problems enabled them to continue breastfeeding, especially after they first returned to work which was considered a critical period. If mothers received sufficient assistance, guidance, and support, it was more likely that they would be able to exclusively breastfeed their infants during the first four months. Even after the research ended, they could continue breastfeeding until the sixth month as desired.

The conceptual framework of the present study was as follows:

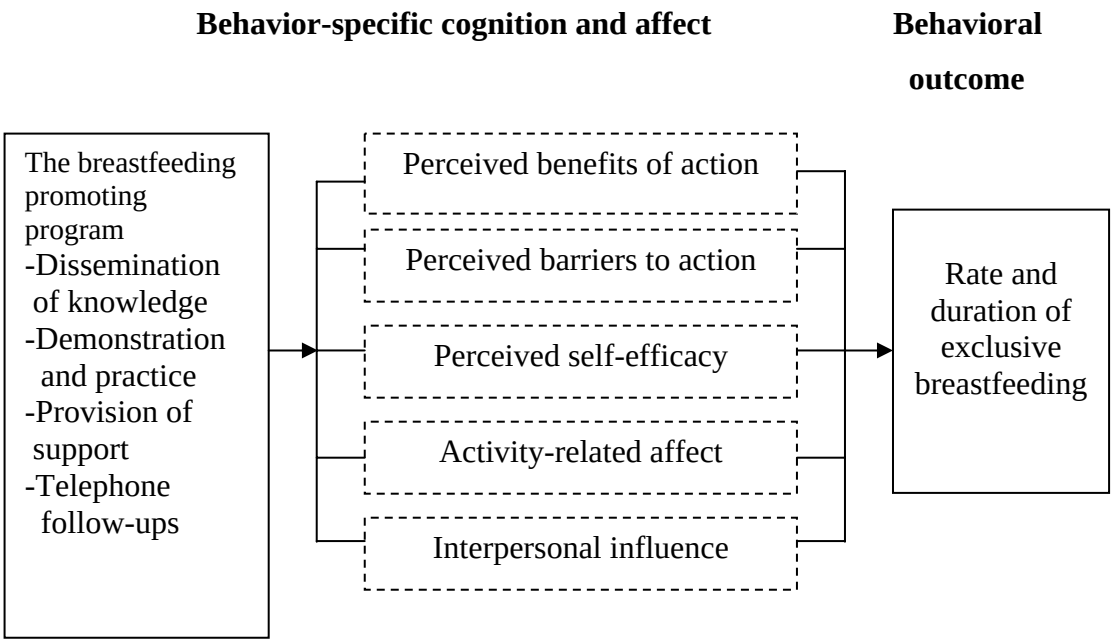

Figure 2: Conceptual Framework of the Study

Scope of the Study

The present study investigated the effects of a breastfeeding-promoting program on the rate and duration of exclusive breastfeeding among 30 working mothers in the experimental group comparing with 30 mothers in the control group who received routine nursing care sought prenatal care and delivery services at Pranangklao Hospital. The study commenced when the mothers' gestational age was 37-40 weeks and continued until the infants were four months old. Data collection took place from May 1 to December 31, 2007.

Definition of Terms

Working mothers referred to mothers who had to work outside their home to earn their living, with are average of more than 20 hours of work per week.

Exclusive breastfeeding referred to breastfeeding infant without giving them other food, except for giving the infants water after administering medicines as prescribed by the pediatrician.

The rate of exclusive breastfeeding within the first four months referred to the number of mothers who provide exclusive breast feeding without water, juice, formula or other food of infants with the exception of water following medication or vitamins as directed by the physician for four months as compared to the total numbers of mothers in the same sample group.

The duration of exclusive breastfeeding referred to the number of days of exclusive breastfeeding without water, juice, formula or other food of infants with the exception of water following medication or vitamins as directed by the physician

Routine nursing care referred to nursing activities the nurses in the prenatal ward, delivery room, and postpartum ward carried out to care for pregnant women who sought prenatal care and delivery services at Pranangklao Hospital.

A breastfeeding promoting program referred to the activities designed by the researcher with an objective to increase working mothers' knowledge of breastfeeding, decrease their barriers to breastfeeding, and increase their perceived self-efficacy and confidence to perform exclusive breastfeeding. The program also involved the mothers' significant or influential persons to support and encourage the mothers to continue exclusive breastfeeding. The activities in the program consisted of the following:

1. Dissemination of knowledge of breastfeeding, exchange of experiences, watching VCD on breastfeeding, and distribution of a breastfeeding manual for working mothers for a review at home.

2. Demonstration and practice of breastfeeding and expressing breast milk.

3. Provision of support and assistance to postpartum mothers with the involvement from the husbands and family members to promote breastfeeding.

4. Telephone follow-ups to assess and help mothers solve problems related to breastfeeding including follow-up appointments at the hospital to ensure successful exclusive breastfeeding among working mothers.

Expected Outcomes and Benefits

1. For nursing practice, nursing personnel would be provided with a guideline to promote exclusive breastfeeding among working mothers.

2. For nursing education, the breastfeeding promotion program could be included in the nursing curriculum to equip nursing students with knowledge and skills necessary to promote breastfeeding.

3. For nursing research, further research could be conducted to investigate other issues related to promotion of breastfeeding.

CHARPTER II
LITERATURE REVIEW

The present study was quasi-experimental research which aimed at investigating the effects of a breastfeeding promoting program on the rate and duration of exclusive breastfeeding in working mothers. In this study, related literature and researches are reviewed in the following topics:

1. Breast anatomy and composition
2. Lactation mechanisms
3. Significance and benefits of breastfeeding
4. Breastfeeding promotion policy
5. Breastfeeding promotion principles
6. Factors enabling successful breastfeeding
7. Breastfeeding in working mothers
8. Problems and solutions of breastfeeding in working mothers

Breast Anatomy and Composition

The breast is a mass of glandular, fatty, and fibrous tissues positioned over the pectoral muscles of the chest wall. It begins to develop when the fetus is about four to six weeks old. Female breasts do not being growing until puberty, when the girls reach the age of 10 to 12 years, during which the production of the estrogen hormone signals the development of the glandular breast tissue to prepare for reproduction. When the females are pregnant, the ovaries and placenta produce and secrete estrogen, progesterone, humanplacentalactogen, and prolactin hormones, which stimulate enlargement of the breasts. In general, each breast weighs about 200 grams, and the weight can increase to approximately 400 to 600 grams when the pregnancy is reaching its full term and to 600-800 grams after child delivery. The three major components of the breast are as follows:

1. Corpus mamma, which is further composed of the following:
   -Tubuloalveolar gland
   -Supporting connective tissue
   -Protective fatty tissue
2. Skin
3. Subcutaneous tissue

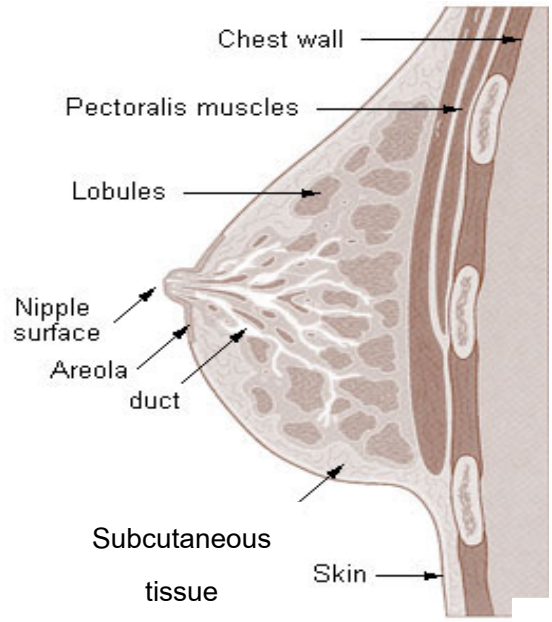

Figure 3: Anatomy and Components of the Breast

From http://training.seer.cancer.gov/ss_module01_breast/images/ illu_breast_anatomy.jpg

Lactation Mechanisms

Lactation results from the functioning of the neurohormonal reflex. During pregnancy, there are significant changes of the prolactin and oxcytocin hormones to prepare the breasts for lactation. These two hormones will not function, due to the inhibition of the estrogen and progesterone hormones, until after childbirth and removal of the placenta (King, 1995; Riordan & Auerbach, 1998; Ontrakarn, 2005). The lactation mechanisms can be described as follows:

1. Prolactin hormone

When the infants suck the mother's nipple, the nerve endings around the nipple area will be stimulated. Neurotransmitters will stimulate the anterior pituitary gland to secrete the prolactin hormone into the bloodstream, and the lactation begins. This mechanism is called the prolactin reflex. The level of prolactin hormones will rapidly increase, and it will reach its peak after the infants have stopped sucking for 30 minutes before beginning to reduce after the breastfeeding has stopped for two hours. Therefore, to maintain a high level of the prolactin hormone in the bloodstream, the mothers need to breastfeed the infants every two to three hours from both breasts, especially during nighttime when the production of the prolactin hormone is high.

2. Oxcytocin hormone

The function of the oxcytocin hormone is similar to the function of the prolactin hormone. When the infants suck their mother's nipple, the nerve endings around the nipple area will be stimulated. Neurotransmitters will stimulate the posterior pituitary gland to secrete the oxcytocin hormone into the bloodstream to the muscles around the lactiferous ducts to squeeze the ducts and secrete the breast milk stored in the ampullas. This mechanism is called the oxcytocin reflex. The secretion of the oxcytocin hormone is related to the sensory perceptions of the mothers. If the mothers are happy when they are breastfeeding or when they hear their baby cries, the lactation and secretion of breast milk will be smooth. On the other hand, if the mothers are stressed, anxious, painful, or unconfident in breastfeeding, the secretion of the oxcytocin hormone will be reduced, hence a low quantity of breast milk.

Significance and Benefits of Breastfeeding

Breast milk is the best source of nutrition for infants, especially during the first year of life. Breast milk best suits infants' brain growth and physical and intellectual development. It also contains immune for various diseases including the digestive tract and respiratory tract infections. Also, there is no substance that stimulates allergic reactions in breast milk. Besides, breastfeeding is safe, convenient, and inexpensive. In addition to benefits for infants, breastfeeding benefits the mothers' health and is good for society and the nation. The significance and benefits of breastfeeding are described below.

Benefits of breastfeeding for infants

1. Breast milk contains all necessary nutrition the infants need. Breast milk is highly nutritious. It contains all types of nutrition including carbohydrates, protein, lipid, vitamins, and minerals, in the proportion that best suits infants. The breast milk produced at different times have different components which are changed to suit the growth and development of the infants who are fed with each particular mother's breast milk. Breast milk can be divided into three types as follows (Burns et al., 2000; Chatranon, 1993):

- Colostrums come within three to four days after childbirth. It is dark yellow in color because of beta-carotene, which can be changed into vitamin A. It is rich in immunity, particularly immunoglobins A, and it contains fat-soluble minerals and vitamins. Colostrums yield approximately 67 to 75 kilocalories per 100 milliliters. When newborn infants are fed with the colostrums, they directly receive immunity contained in their mother's milk. It also helps stimulate the functioning of the infants' colons, hence the secretion of bilirubin and prevention of jaundice.

- Transitional milk generally comes seven to ten days after birth. There are less immunoglobin and fat-soluble proteins and vitamins in its content, but there are more lactose, lipid, water-soluble vitamins, and energy.

- Mature milk begins to come within two weeks after childbirth. It yields about 20 kilocalories per ounce. It contains two types of milk, foremilk which is clear and comes in the initial period than hind milk which is thicker and contains

more lipid than foremilk. Infants should receive both types of milk to ensure sufficient intake of nutrition and energy.

The nutrition contained in breast milk is as follows:

1. Water accounts for 87-90% of breast milk, which is enough for the infants' needs. For this reason, newborn infants do not need water during the first six months of life. This is because there is no nutrition in water, and water occupies the infants' stomach, hence a lower ability to consume breast milk.

2. Protein accounts for 0.9% of the content of the breast milk. About 60-70% of the protein is whey which is water soluble, and 30-40% is casein. The larger proportion of whey turns breast milk into curd which is easy to digest and absorb. Thus, infants who are breastfed have frequent bowel movements and do not suffer from constipation. If there is more casein than whey, the milk will be difficult to digest. For this reason, infants who are fed with formula may suffer from frequent constipation. Moreover, breast milk contains a significant protein which promotes the growth and development of the brain and the retinas, taurine which is an amino acid synthesized from methionine and cysteine. There is no taurine in cow's milk.

3. Lipid is the source of more than 50% of energy. Most of the lipid contained in breast milk is saturated fats, especially Docosahexaenoic Acids (DHA) and Arachidonic Acid (AA) which promote the functioning of the brain and the retinas. At present, manufacturers of infants' formulas are trying to mix these substances into formulas to make them resemble breast milk as much as possible.

4. Carbohydrate is the source of energy. An important carbohydrate which is found only in breast milk is lactose which assists the digestion and absorption of calcium and iron as well as promotes the growth of the bacteria called Lactobacillus Bifidus in the intestine which make the intestine acidy. Lactose also inhibits the growth of germs and prevents diarrhea in infants. Infants who are breastfed have regular bowel movement, and the stool is yellowish and acidy, which is different from that of infants who are formula-fed whose stool is pale, hard, and smelly.

5. Vitamins that are found in breast milk are the following:

5.1 Vitamin A is a major component of the pigments in the retinas. It also promotes the growth of skin tissues, teeth, and bones. There are

approximately 280 International units of Vitamin A in breast milk, while there is only 180 International units in cow's milk.

5.2 Vitamin D is sufficiently contained in breast milk for the infants' needs. It can also be synthesized by ultraviolet rays which change cholesterol into Vitamin D.

5.3 Vitamin E is rich in breast milk. There is about 1.5 milligrams of Vitamin E in 100 milliliters of colostrums, 0.25 milligram in 100 milliliters of mature milk. There is only 0.07 milligram of Vitamin E in 100 milliliters of cow's milk.

5.4 Vitamin K facilitates the synthesis of a substance which coagulates blood. There is about 15 micrograms of Vitamin K in 100 milliliters of breast milk. As the bacteria in the infants' intestine cannot produce much Vitamin K, all newborn infants need to receive an intramuscular injection of one milligram of Vitamin K to prevent hemorrhage.

5.5 Vitamin C is important for the synthesis of collagen. There is approximately 43 milligrams of Vitamin C in 100 milliliters of breast milk, while there is only 21 milligrams in cow's milk.

6. Minerals that are important for the infants' growth and development and that are found in a large quantity in breast milk are as follows:

6.1 Zinc is important for the growth of cellular immunity. Infants who have zinc insufficiency will not grow. Although there is not much zinc content in breast milk, it is sufficient for the infants' need.

6.2 Iron is crucial for the production of red blood cells. Infants who are breastfed have better iron absorption than those who are fed with a formula. This is because there is lactoferin in breast milk which can attach itself to iron and prevent bacteria in the intestine from using the iron, so the infants can have maximum iron absorption for their growth and development.

6.3 Calcium is vital for the growth of infants' teeth and bones. There is about 20-34 milligrams of calcium in one milliliter of breast milk. Calcium that is contained in breast milk will attach itself to phosphorus in the proportion of 1.2: 1. The intestine of infants who are breastfed can absorb about 67% of calcium from

breast milk, while that of infants who are formula-fed can absorb only 25% of calcium in the baby formula.

7. Hormones can also be found in breast milk, and a large number of them are important for the infants' growth including Gonadotrophin releasing hormone, growth hormone releasing factor, relaxin, insulin, calcitonin, and prostaglandin.

8. Enzymes found in breast milk can digest nutrition contained in breast milk such as protease and lipase. There is also the lysozyme enzyme which destroys germs and prevents infections and inflammations, particularly those of the digestive and respiratory tracts.

9. Growth factor that is important is the epidermal growth factor which controls and maintains normal growth of the body. It also enables the digestive tract of the infants to grow and function sooner and ensure effective nutrition absorption and bowel movement.

2. Breast milk promotes brain and intellectual development. Horwood, Darlow, and Morgridge (2001) investigated the relationship between duration of breastfeeding and IQ of children aged seven to eight years old who were infants with low birth weight in New Zealand and found that children who were breastfed for longer than eight months had verbal IQ scores higher than those of children who were not breastfed by 10.2 points and their performance IQ scores were also higher than those of the children who were not breastfed by 6.2 points. Likewise, Angelsen, Vik, Jacobsen, and Bakketeig (2001) found that 13-month-old infants who were breastfed for longer than six months had mental and psychomotor scores higher than those of the infants who were breastfed less than three months. In addition, carrying, holding, touching, and interaction between mothers and infants during breastfeeding stimulated the functioning of all sensory perceptions as well as the infants' brain. When the brain is frequently stimulated, the neurons will grow at a faster rate, hence a higher level of intelligence (Chusilp, 2005).

3. Breast milk is a good source of immunity. Infants who are exclusively breastfed receive maximum immunity. In breast milk, there is secretary immunoglobulin A which can inhibit the growth of various types of germs such as staphylococcus, E.coli, candida albicans, etc. Immunes in breast milk can also prevent

infections of the digestive tract, respiratory tract, and the middle ear. Even when the infants suffer from these infections, the rate of mortality is lower in infants who are breastfed when compared to infected infants who are not breastfed (Beaudry, Dufour, & Marcoux, 1995; King, 1995; Riordan & Auerbach, 1998).

4. Breast milk reduces the onset of allergy. Allergy is a major health problem in infants and children. Allergy results when the body is stimulated by the allergens such as protein. The very first type of protein newborn infants receive is protein from cow's milk, whose molecules are large-sized and cannot be fully digested and absorbed in the stomach and intestine, hence a likelihood for allergic reactions. Breastfeeding can prevent allergy because the protein in breast milk has small molecules and can be easily absorbed in the infants' digestive tract. It is not considered a foreign substance which can stimulate allergic reaction. Also, there are immunoglobulins in breast milk which can reduce the chance of developing allergy in the first three months of life. In particular, infants with family history of allergy or have a high risk of developing allergy should be breastfed.

5. Breast milk prevents infantile obesity. Obesity is a health problem that affects infants physically and psychologically. As regards its physical effects, it leads to a number of medical problems including diabetes mellitus, hypertension, heart disease, etc. In terms of its psychological effects, obesity results in loss of body image, lack of self-confidence, and possibly social isolation (Vajarasindhu, 2003). Most of obese adults also have problems with childhood obesity. Kries et al. (1999) conducted a study and found that children who were breastfed had less chance to become obese than those who were formula-fed. This is because the infants who are breastfed can control their own feeding. They can stop suckling whenever they feel full, so they receive a suitable amount of breast milk. On the other hand, infants who are fed with a baby formula cannot control their own feeding. They are fed in the amount their mothers or caregivers deed appropriate, so they may receive more milk than they need, which can accumulate in different body parts. Thus, breastfeeding should be promoted to reduce the incidence of childhood obesity and reduce the complications from obesity in adulthood.

6. Breast milk promotes strength of jaws and development of teeth. Breastfeeding promotes the strength of jaws, and it also helps make the milk teeth

grow in order while preventing tooth cavity (Matee et al., 1992 cited in Riordan & Auerbach, 1998: 621). When suckling the mothers' breast, the milk teeth do not touch anything much because the nipple protrudes into the infants' mouth between the hard and soft palates. Moreover, in breast milk there is a substance which prevents the growth of bacteria in the mouth cavity. In contrast, formulas tend to have high sugar content. When the infants fall asleep after feeding, sugar will accumulate in the mouth and promote the growth of lactobacillus bacteria leading to a tooth cavity.

7. Breast milk promotes emotional and mental development. Studies have shown that IQ and EQ play a major role in success in life. In particular, EQ is a skill that needs to be developed since childhood. Breastfeeding promotes infants' EQ because when the infants are hungry and are breastfed, their basic need is responded to and satisfied. Thus, they experience the feelings of love, warmth, trust, and security, and this leads to the development of sense of self-worth, which can be a powerful foundation for self-adjustment, self-understanding, and understanding of others when the infants grow up and become adults (Boonprakob, 1997).

Benefits of breastfeeding for mothers

In addition to benefits for infants, breastfeeding also benefits mothers physically and psychologically, which can be described as follows:

1. Breastfeeding stimulates the uterine contraction and return to its normal position. When infants are suckling, the secretion of the oxytocin hormone will be stimulated from the posteriorpituiatry gland. The presence of oxytocin hormone in the bloodstream stimulates the lactation and expression of breast milk while simultaneously stimulating smooth muscles, hence the shrinkage of the uterus which also prevents postpartum hemorrhage.

2. Breastfeeding reduces the risk of breast and ovarian cancer. Newcome (1994) conducted a study on breastfeeding and menopausal breast cancer and reported that mothers who breastfed their infants had 11-25% lower chances of developing breast cancer when compared to those who did not breastfeed their infants. Furthermore, it has been found that long-term breastfeeding can reduce the chance of epithelial ovarian cancer.

3. Breastfeeding helps mothers control their weight and return to their pre-pregnancy shape faster. Lactation requires the use of body fat stored during pregnancy. Dewey, Heinig, and Nommsen (1993) found that mothers who breastfed their infants for three to six months were able to lose weight faster than those who used a baby formula to feed their infants, especially during the first 12 months after childbirth.

4. Breastfeeding prevents osteoporosis. The chance of developing osteoporosis is lowest in mothers who breastfeed their infants when compared to those who have children but do not breastfeed them and those who have never had a child. Breastfeeding stimulates the absorption of calcium because after breastfeeding, the levels of parathyroid hormone and Vitamin D in the bloodstream will increase, which can lower the onset of osteoporosis in the long run (Suthatworawut, 2003).

5. Breastfeeding is a natural contraception. When mothers breastfeed their infants, the hypothalamus in the brain will be stimulated, which in turn, inhibits the secretion of prolactin inhibiting factor. Thus, the level of prolactin hormone in the mothers' bloodstream will be continuously high, hence prevention of ovulation and menstruation. A study has shown that mothers who breastfeed their infants for at least 65 minutes a day will not menstruate, and the period will return approximately 183.5 days after childbirth (Tommaselli, Guida, Palomba, Barbato, & Nappi, 2000). Moreover, breastfeeding helps reduce the risk of anemia as the mothers do not have to lose blood during breastfeeding.

6. Breastfeeding is convenient, and it can be done anywhere and anytime. Mothers who are in good health and intend to breastfeed their infants can do so whenever the infants need to be fed, in or out of the house, with no preparation required.

7. Breastfeeding promotes attachment and bonding between mothers and infants. During breastfeeding, the oxytocin hormone will be secreted, which stimulates maternal behaviors, which in turn, reduces the chance of child neglect. Mothers also have a chance to learn about their infants' needs when they are hungry, full, or crying.

Benefits of breastfeeding for society and the nation

Breastfeeding helps the country save both directly and indirectly. As for direct effects, the budget for baby formulas and supplementary diets can be reduced. Each year, Thailand spends a large sum of money on imports of baby formulas and supplementary diets. Breastfeeding also reduces the budget for equipment needed for formula feeding such as bottles, teats, sterilizers, etc., and breastfeeding helps save time required for formula feeding. As regards indirect effects, breast milk contains immunity which prevents sickness and infections, especially digestive and respiratory tract infections; thus, the budget spent on caring for sick infants can be cut down. According to Ball and Wright (1999), the budget for treatment of sick infants who have never been breastfed by their mothers within the first year of life is as high as 331 to 475 US dollars per case.

Breastfeeding Promotion policy.

As previously discussed, it can be seen that breastfeeding has tremendous benefits for infants, mothers, society, and the nation. At present, different countries have devised policies to promote exclusive breastfeeding. World Health Organization (WHO) and UNICEF have realized the significance of breastfeeding and have imposed ways to promote breastfeeding in 1981, specifying that infants need to be exclusively breastfed for at least four to six months and receive water and supplementary diets as appropriate to age until they are two years old. In 1989, the Baby-Friendly Hospital initiative was first established with the Ten Steps to Successful Breastfeeding as the practice guideline for different countries to adhere to as follows (WHO/UNICEF, 2002):

1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff: A clearly written policy of the hospital stimulates healthcare staff to continuously adhere to the breastfeeding policy.

2. Train all healthcare staff in skill necessary to implement this policy: Healthcare staff involved need to be knowledgeable and skillful so as to be able to help mothers and promote breastfeeding.

3. Inform all pregnant women about the benefits and management of breastfeeding: Dissemination of knowledge on breastfeeding should begin since the

prenatal period. Husbands and other family members should also be equipped with knowledge about breastfeeding so as to be able to provide needed assistance to breastfeeding mothers.

4. Help mothers initiate breastfeeding within a half-hour of birth: Initiating breastfeeding as soon as 30 minutes after birth stimulates lactation and promote development of attachment and bonding between the mothers and the infants.

5. Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants: Teaching mothers how to correctly breastfeed their infants ensures that the infants will receive sufficient breast milk and that lactation will continue to prevent problems caused by incorrect feeding such as cracked nipples, engorged breasts, etc.

6. Give newborn infants no food or drink other than breast milk, unless medically indicated: Feeding newborn infants with a baby formula using a teat may confuse them and make them reject their mother's nipples.

7. Practice rooming-in and allow mothers and infants to remain together 24 hours a day: Allowing mothers and infants to be together all the time enables the mothers to timely respond to their infants' needs, especially when they need to be breastfed every two to three hours.

8. Encourage breastfeeding on demand: Breast milk is easy to digest, and it allows breastfed infants to have frequent bowel movements, which in turn results in more frequent feedings. Mothers should breastfeed their infants when they are hungry, every two to three hours.

9. Give no artificial teats or pacifiers to breastfeeding infants: Using a rubber teat may confuse the infants and make them reject their mother's breasts.

10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic: Establishment of support groups enables mothers to continuously breastfeed their infants after they are discharged from the hospital or after they return to work.

In Thailand, the Ten Steps to Successful Breastfeeding principles have been employed at Baby-Friendly Hospitals. Thailand is one among 12 countries where the policy was first initiated and continued. Policies to promote breastfeeding have been included since the fourth National Economic and Social Development Plan (1977-

1981) up until the current the tenth National Economic and Social Development Plan (2007-2011). The aim is to make at least 30% of mothers to exclusively breastfeed their infants, with the dissemination of knowledge on breastfeeding provided to them during pregnancy so as to equip them with knowledge and motivation to breastfeed their infants. As for working mothers who work as government officials, permanent employees, or temporary employees, the maternity leave with pay has been extended from 60 days to 90 days (Thanachaisethawut, 1999), and they are able to ask for another 150 days of leave without pay. For mothers who have social security, they are able to take a 90-day maternity leave with 45 days of pay covered by the Office of the Social Security and another 45 days covered by their employers.

The Ministry of Public Health conducted surveys and found that the rates of exclusive breastfeeding were 1.3%, 3.6%, and 16.3% in 1993, 1996, and 2002, respectively. Therefore, it can be seen that even though a breastfeeding promotion campaign has rigorously and continuously carried out in Thailand, the rate of exclusive breastfeeding is still rather low and the goal of the breastfeeding promotion campaign has not yet been achieved.

Breastfeeding Promotion Principles

To ensure successful breastfeeding, the following principles should be adhered to:

1. Early suckling means infants should begin suckling their mother's breasts immediately in the delivery room or within 30 to 60 minutes after birth. This is because it is the period when infants are sensitive to sucking stimulation and mothers' attention is fully focused on infants. Initiating breastfeeding at this time stimulates bonding and attachment between mothers and infants, and it also stimulates the production and secretion of prolactin and oxytocin hormones, the first of which stimulates lactation while the second of which stimulates expression of breast milk.

2. Frequent suckling means infants are allowed to suckle their mother's breast as much and as often as they want, day and night. Initially, infants should be breastfed every two to three hours to ensure consistency of the production and secretion of prolactin and oxytocin hormones. The more the infants suck their mother's breast, the more lactation. If infants do not have a chance to be breastfed, lactation will decline until there is none.

3. Correct suckling means infants correctly suck their mother's nipples, which ensures sufficient intake of breast milk, prevents nipple sores, and maintain consistent lactation.

If infants have a chance to be breastfed with adherence to the three aforementioned principles, they will receive enough breast milk for their age-appropriate growth. Assessment whether infants are sufficiently breastfed during the exclusive breastfeeding period can be done as follows (Kelling, 2000; Bangsainoi & Chotekiat, 2003).

From birth to six weeks

When infants receive sufficient breast milk, they can sleep for two to three hours without crying. They will frequently urinate, about six to eight times per day, and have three to four bowel movements per day. The stool is yellowish in color and soft. The meconium should be gone within three days. The body weight of newborn infants reduces during the first seven to ten days after birth, but it should not be more than 10% of the birth weight. After that, the weight should begin to increase by 18 to 30 grams per day.

From six weeks to six months

Assessment can be done from infants' urine which should be clear and light yellow. They should have two to three bowel movements per day, and the stool should be soft and yellowish. Their body weight should rise by 0.5 to one kilogram per month.

Factors Enabling Successful Breastfeeding

There are a number of factors that positively affect breastfeeding including mothers' factors, hospital's factors, and source of support's factors, which can be summarized as follows:

1. Mothers' factors

Age: Studies have indicated that age is associated with breastfeeding. For instance, Nolan and Goel (1995) found that mothers who are older than 25 years old are more successful with breastfeeding when compared to those who are younger.

Socioeconomic status: Educational background, occupation, and income are positively associated with initiation and duration of breastfeeding, especially in developed countries (Barber et al., 1997).

Working outside the house: Numerous studies have been carried out to determine the effects of working on breastfeeding, both in and outside Thailand. For example, Visness and Kennedy (1997) have reported that working outside the house is not related to initiation of breastfeeding, but it is negatively related to duration of breastfeeding. Mothers who work outside the house have to separate from their infants and encounter with a number of problems such as lack of a place to pump or refrigerator to store expressed milk, lack of support from coworkers and employers, inflexible working nature, and exhaustion from work, etc. These factors make working mothers less successful than mothers who work part-time or full-time mothers when it comes to breastfeeding (Fein & Roe, 1998).

Duration of maternity leave: According to Fein and Roe (1998), duration of maternity leave is associated with breastfeeding. Roongtip Samritsopak (1998) found that mothers who had actual maternity leave longer than 90 days breastfed their infants for three months longer than those whose maternity leave was shorter than 90 days, accounting for 36.2% and 13.8%, respectively.

Personal attitudes and characteristics: Mothers who are successful with breastfeeding are those who have positive attitudes and determination to breastfeed their infants before and during the initial period of pregnancy (Losch, Dungy, Russell, & Dusdieker, 1995). Mothers who believe that breastfeeding benefits both their infants and themselves, those who think that breastfeeding is easy and convenient, and those who are confident that they can solve problems related to breastfeeding are more likely to succeed in breastfeeding than those who lack self-confidence or have a negative attitude toward breastfeeding (Libbus & Kolostov, 1994).

Smoking: A study conducted abroad has shown that mothers who do not smoke have a longer duration of breastfeeding than those who smoke (Haug et al., 1998). However, there is no such study in Thailand. This may be because Thai women generally do not smoke.

2. Hospital's factors

After WHO and UNICEF specified the criteria for Baby-Friendly Hospitals initiatives, more mothers have become successful with breastfeeding.

Rooming in: Some hospitals have a policy that does not encourage rooming in because they want the mothers to rest, especially private hospitals.For this reason, breastfeeding is not continuous (Buxton et al., 1991). Rooming in enables the mothers to breastfeed their infants as often as they need, at least every two to three hours, and this stimulates continuous and consistent lactation (Clements et al., 1997).

Feeding: When infants receive food other than breast milk such as formula or water without any medical indication, mothers' lactation may be slowed down due to lack of consistent stimulation. Also, if infants are fed with a rubber teat, they may be confused and reject their mother's nipples, hence unsuccessful breastfeeding.

Provision of baby formula: When free baby formula is given to mothers before hospital discharge, mothers may feel that the hospital and healthcare staff encourage formula feeding. Thus, they may not be consistent with their breastfeeding, especially when compared to those who do not receive free baby formula (Donnelly, Renfrew, Woolridge, Martin, & Snowden, 2001).

Early hospital discharge: In abroad, it is believed that early hospital discharge of mothers and infants can reduce hospitals' expenses (Janson & Rydberg, 1998). However, it may result in unsuccessful breastfeeding. In Thailand, most of the hospitals discharge mothers and infants within 48 hours, if not 72 hours. It has been found that mothers may still have problems with breastfeeding at the time of discharge, and if they do not receive continuous support or assistance, their attempt to breastfeed their infants may be affected.

Type of delivery: A study has been conducted to determine the effects of a vaginal delivery and a cesarean section on breastfeeding and reported that a cesarean section has a negative effect on initiation of breastfeeding. This is because when mothers are anesthetized, infants do not have a chance to suck their mother's breasts soon after birth. Also, sometimes anesthetics may also affect the neurological system of infants, making them drowsy and lose interest in sucking in the initial phase (Wittels et al., 1997).

3. Sources of support's factors

Official source of support refers to healthcare staff members who have both positive and negative influences on mothers' breastfeeding. Staff members who provide assistance to mothers need to be knowledgeable and skillful so that they can appropriately and effectively respond to mothers' needs. If healthcare team members lack knowledge and expertise, mothers may lose confidence in their ability.

Unofficial source of support involves the husband and relatives of mothers as well as groups of experienced mothers. In particular, the husband have to help mothers in different aspects including giving moral support and encouragement, helping with childcare and household chores, earning income to support the family, spending quality time with mothers and infants, and searching for knowledge so as to be of assistance when mothers have problems with breastfeeding. Bar-yam and Darby (1997) conducted a study and found that mothers who received spousal support were more successful with breastfeeding than those who did not have such support.

Breastfeeding in Working Mothers

At present, economic and social conditions of the country have changed drastically. Mothers have to work outside the house to help support the family, so they have to play a variety of roles. Having to separate from infants makes mothers unable to provide continuous care to their infants. Some mothers cannot take a long maternity leave, and others may have inflexible working schedules or work at a place where there is no privacy to pump breast milk. Mothers may become more exhausted after having to work and take care of the infants as well. All these reasons lead mothers to stop breastfeeding their infants and turn to a baby formula instead. Thus, it can be seen that working mothers have to face with difficulty breastfeeding their infants. However, if they realize the significance of breastfeeding and have determination and confidence to breastfeed their infants, and if they receive sufficient support from healthcare team members, family members, and workplace to breastfeed since pregnancy, during maternity leave, and after return to work, they should be able to exclusively breastfeed their infants for six months before infants need supplementary diets or solid foods. Preparation for breastfeeding for working mothers in different stages is as follows:

During pregnancy

Dissemination of information on benefits of breast milk which far exceeds those of baby formulas may be one way to stimulate mothers to become interested in breastfeeding. In addition, systematic and rational provision of advice and guidance on possible problems and obstacles in breastfeeding may help mothers better plan for breastfeeding.

After childbirth

This is the period when postpartum mothers are hospitalized and receive care from healthcare staff. Each hospital has its own policy to promote breastfeeding beginning from the delivery room where breastfeeding is first initiated within half and hour to one hour after birth. This is considered a good time to start breastfeeding as infants are alert to sucking stimulation, and it is considered a good chance to establish bonding between mothers and infants. In case of vaginal birth with no complications, mothers and infants should be in the same room so as to allow mothers to breastfeed their infants as often as required, at least once every two to three hours to stimulate lactation. Before hospital discharge, mothers should be taught how to expressed and store breast milk when they have to return to work. Also, the husband and relatives should be trained on how to feed the infants using a cup or bottle. Information on sources of support or organizations that offer breastfeeding assistance should be given to mothers so that they know where to seek help from in case they have problems. Emphasis should be made that exclusive breastfeeding should be done for at least six months to ensure sufficient intake of nutrition and consistent lactation.

Before returning to work

During this period, mothers, infants, and caregivers need to be prepared for mothers' return to work. Mothers need to plan for manual expression of breast milk or pumping in advance to stock breast milk and to plan for how breastfeeding will continue after they have returned to work. At the same time, caregivers need to be prepared for cup feeding or bottle feeding with expressed breast milk. As for infants, they need to learn to switch from mothers' nipples to a cup or a bottle. In cases infants refuse to suck from a cup or caregivers are unable to do cup feeding, a bottle can be

used after the infants are at least six weeks to two months old (Borwonkeeratikajon & Wichitsukon, 2005). The time when infants are trained to be fed with a bottle is deemed crucial as using a rubber teat too early on may confuse the infants and make them reject their mother's nipples. This is because using a rubber teat is easy and the infants do not have to expend energy. On the contrary, when sucking their mother's nipples, infants need to open their mouth wide and cover the mother's areola. They also need to use energy to suck and lick the mother's skin under the nipple. Therefore, infants are more likely to prefer a rubber teat, and after getting used to suckling from a bottle they may completely reject their mother's nipples.

When feeding from a bottle, the husband or the caregiver should be in a comfortable position. The place should be quiet. The infants should be held with their head a little bit higher. During feeding, the feeder should talk or sing to make the infants feel warm. Air should not be allowed to get into the infants' stomach, and after the feeding is finished, the infants should be burped. The quantity of breast milk given in each meal should be considered carefully, and infants should be bottle-fed by their father or caregiver. This is to make them learn that their mother will feed them from the breasts but others will feed them with a bottle.

After returning to work

This is considered a crucial period as mothers and infants are separated. Mothers need to prepare themselves and caregivers to make sure that they can express breast milk during the day and store breast milk for caregivers to feed the infants. The principles of breastfeeding after mothers have to return to work are as follows:

- Mothers breastfeed the infants in the morning. If possible, they feed the infants one more time before leaving home for work. Caregivers then feed the infants using a cup or a bottle later in the morning, at noon, and in the afternoon.
- Mothers express breast milk and store it in plastic bags periodically as usual feeding to ensure consistent lactation.
- Caregivers should not feed infants one to two hours prior to the time the mothers return home from work so that infants can suck their mothers' nipples.

- During the night mothers breastfeed infants as often as they need. The fathers can help the mothers take care of the infants such as changing diapers to allow mothers to have sufficient rest.

- Mothers need to eat five food groups and eat about 500 kilocalories higher than when they were pregnant. For example, they can eat one plate of rice with curry and a fried egg, with some fresh fruit in one meal. They should also drink water, fruit juice, or milk after breastfeeding their infants.

Milk expression

During the day when mothers are working outside the house, expressing breast milk is very crucial because it not only stocks breast milk for the infants but also maintains consistent lactation and prevents breast engorgement or leaking and stain on clothes while at work. At present, there are different types and brands of breast pumps available in the market including manual pumps, battery-powered pumps, and electric pumps, each of which has its own advantages and disadvantages depending on the purpose of use. In fact, mothers can use their hands to express breast milk without having to use a pump, which can be done anytime and which saves money and is safe. Expressing breast milk using hands can be done as follows (King, 1995; Jeerapat, 1998):

- Prepare a clean container for expressed milk such as glass, bottle, or plastic bag.

- Find a quiet and private place so that mothers will be relaxed and not stressed to express more milk.

- Clean both hands thoroughly to prevent contamination of germs.

- In case of engorged breasts, use a hot pack (a piece of cloth soaked in warm water) around the breasts for about ten minutes before milk expression.

- Softly massage the breasts in a circular manner under the nipples to stimulate lactation and expression.

- Place the thumb and the index finger opposite to each other on the outer edge of the areola. If the areola is large, the fingers should be placed about three centimeters from the nipples.

- Push the thumb and the index finger onto the chest and squeezing both fingers together softly and rhythmically deep into the back of the areola to imitate infants' sucking motion. Do not squeeze the breast.

- Express milk for two or three times and throw the milk away before using a clean container to collect expressed breast milk.

- Express milk rhythmically by moving the squeezing position around the breasts, at the 6 and 12 o'clock position, 1 and 8 o'clock position, and 9 and 3 o'clock position, for five to ten minutes on each breast or until the quantity of the milk is low. The total time for expressing both breasts should not exceed 30 minutes.

Storage of breast milk

The most important consideration in expressing breast milk is cleanliness and maintenance of nutrition, which can be ensured by storing expressed milk in a clean and covered container, which can be a glass or plastic which can be steamed and sterilized to kill germs. A disposable storage bag can also be used, with the date and time of expressing breast milk written. The expressed breast milk should be kept in the freezer, and the refrigerator door should not be opened too often to maintain the temperature.

The frozen breast milk should be dissolved and fed to the infants in accordance with the date and time it was expressed (Biancuzzo, 2003; Blagioli, 2003; Sirithanarattanakul, 2003).

Duration of milk storage

To ensure nutrition and prevent growth of germs, expressed breast milk can be stored as follows (Zinn, 2000; Blagioly, 2003):

- At room temperature, if the temperature is lower than 25 degrees Celsius, expressed breast milk can be stored for four hours, but if the temperature is higher than 25 degrees Celsius, it can be stored for only one hour.

- In the refrigerator, if it is a one-door refrigerator, expressed breast milk can be stored for two weeks in the freezer and 48 hours in the shelf under the freezer. If it is a two-door refrigerator, expressed breast milk can be stored for three months in the freezer and 48 hours in the fridge.

- Expressed breast milk can be stored for six months in the freezer whose temperature can be controlled at -20 degrees Celsius. It can be kept for 24 hours in a cooler.

Using frozen expressed breast milk to feed infants

If the breast milk has been frozen, it has to be thawed by putting it in the refrigerator on the shelf under the freezer for about 24 hours before warming it up in a room temperature or in a bowl of warm water. Frozen breast milk should not be heated in a microwave oven or boiled because some nutrition will be destroyed. Expressed breast milk should be prepared sufficiently for each feeding, and leftover milk should be thrown away without putting it back in the freezer for the next meal.

Problems and Solutions of Breastfeeding in Working Mothers

At present, due to changing economic and social conditions, postpartum mothers also have to work outside the house to earn their living in addition to caring for and raising their infants. For this reason, the rate of exclusive breastfeeding is rather low. When returning to work, mothers have to separate from their infants, hence lack of closeness and continuity in care. Some mothers even have to leave their infants with their grandmothers in another province (Yimyam, 2002). As a result, the chance that infants will receive sufficient breast milk is reduced.

Kuan et al. (2006) conducted a prospective study by interviewing 522 first-time pregnant women about their intention to breastfeed and found that only 22% and 6.5% had an intention to exclusively breastfeed their infants until four to six months and seven to 12 months. Also, at four and eight weeks after childbirth, a large number of mothers stopped breastfeeding, citing the reasons that the infants rejected the breasts, there was insufficient breast milk, the mothers experienced pain in the breasts and nipples, and mothers had to work outside the house. Moreover, Nantaporn Puangkaew (2005) investigated the effects of a perceived self-efficacy promotion program on breastfeeding behaviors of first-time working mothers and found that only 31.82% intended to breastfeed their infants for four months. Furthermore, at eight weeks postpartum, 73.3% of the mothers still breastfed their infants. The reasons why

the mothers discontinued breastfeeding in the initial period included insufficient lactation, nipple sores, and engorged breasts, while the reasons for the discontinuation in the later stages were leakage and exhaustion.

It can be seen that some mothers intended to breastfeed their infants, but after they have returned to work, there was no place in the office where they can express breast milk. Some suffer from engorged breasts. When mothers do not pump often enough, lactation will slow down. Some mothers are also afraid of losing their body image when there is a leakage and breast milk stains their clothes. In addition, inflexibility of work schedules and lack of support from employers and coworkers constitute reasons why mothers stop breastfeeding their infants. Sometimes as soon as during the maternity leave, some mother use a baby formula to feed their infants instead. Thus, a large number of infants lose the chance to receive breast milk which is crucial for their growth and development during the first year of life.

Most postpartum mothers can have problems with breastfeeding, which may start as early on during hospitalization or later on when the mothers and infants have returned home. If these problems are left unsolved, initiation and continuation of breastfeeding may be affected. Nurses, therefore, should assess problems with breastfeeding beforehand and prepare to provide assistance to mothers to ensure successful breastfeeding. Problems with breastfeeding in working mothers and their solutions are as follows (King, 1995).

1. Problems in the initial period

1.1 Nipple fissure and nipple sore

Nipple fissure or nipple sore causes mothers pain during breastfeeding, making them unable to breastfeed for a long period of time. Thus, the infants may not be sufficiently fed. Nipple fissure and nipple sore are caused by incorrect sucking, when the infants' mouth covers only the nipple instead of the areola, or by incorrect removal of infants' mouth. Breastfeeding does not need to be discontinued, but if mothers experience intense pain, they can start with the side where there is no fissure and change to the one with fissure because when infants are hungry, they may suck harder. Apart from correct sucking, correct removal of infants' mouth from the nipple after they are full is also important. Mothers should wait for the infants

to let go of the nipple. However, if they refuse to do so, mothers can insert their small finger into the corner of the infants' mouth and put pressure onto the lower gum to make the infants open their mouth before slowing pulling the nipple out of the mouth. Besides, mothers should not apply body lotion, soap, or any cream on the fissure, as it may cause the nipple to lose moisture. Mothers can instead apply the expressed breast milk on the nipple and wait for it to dry before putting on clothes. The wound should heal faster.

1.2 Blocked duct

Blocked duct is a result of a clot in one of the ducts or part of the breast, obstructing the flow of breast milk. When mothers touch their breast, they will feel that some parts are harder than the other. Redness and swelling may also be experienced by the mothers, but they should not feel the pain. However, if the clot is infected, mastitis may set in. Blocked duct is caused when some of the produced breast milk is not released, when infants suck incorrectly, or when infants do not suck often enough. To prevent blocked duct, infants need to be guided to suck correctly and frequently to ensure release of breast milk. Reposition may help ensure that the infants will suck from the blocked duct. In case mothers express breast milk and feed the infants from a cup or a bottle, they should express breast milk to save for subsequent feeding or just discard them. Mothers can massage the area when there is a lump after each feeding to reduce the blockage.

1.3 Mastitis

Inflamed breast will be lumpy, swollen, and reddened. Mothers will feel pain in the breast with mastitis. They may have a fever higher than 38 degrees Celsius. Mastitis results from engorged breast or blocked ducts which are left unattended, leading to inflammation. Mastitis can take place anytime in breastfeeding mothers. To prevent mastitis, mothers need to let the infants suck correctly and frequently as needed. The infants can suck from both breasts, but beginning with the one with mastitis if the pain is not too much to bear. This is to ensure oxytocin reflex. After the infants are full, mothers can express their milk to release more milk and relieve the blockage. In addition, mothers should use a hot pack on their breast for five to ten minutes to lessen their pain and increase the flow. Finally, mothers should eat

useful food and take a lot of rest. If the mastitis is severe, mothers may need hospitalization and antibiotics.

1.4 Nipple rejection

Nipple rejection largely results from infants' acquaintance with a rubber teat since birth. The mechanisms required when sucking a teat and a nipple differ. When being breastfed, infants have to open their mouth wide to cover the areola and they need to exert energy to ensure the flow. On the other hand, when sucking a teat, infants do not need to open wide and they can exert only little energy. It is natural that infants will prefer what is easier for them, and if infants are used to a rubber teat, they may not be able to suck the nipple correctly enough to ensure sufficient flow and sufficient intake of breast milk. Mothers who are concerned that their infants may not be sufficiently fed may feed them with a baby formula, but if possible, infants should not be introduced to a rubber teat or a pacifier. Instead, they should be fed with a cup as the mechanism involved is more like sucking a nipple. However, if it is medically indicated, or if it is unavoidable, a bottle may be used, but mothers who are determined to breastfeed their infants and who receive needed assistance from medical staff should be able to reintroduce their infants to their breasts and successfully resume breastfeeding.

2. Problems after mothers' return to work

2.1 Breast engorgement

Breast engorgement is frequently found within days after childbirth and after the mothers have returned to work. The cause of breast engorgement is surplus milk that is not released because the infants suck slowly, incorrectly, or infrequently. The engorgement causes tightness in the breasts, nipples, and areolas, making it difficult for the infants to suck and leading to subsequent problems such as cracked nipples, discomfort, and less lactation, all of which make infants receive insufficient intake of breast milk. To prevent breast engorgement, the principle of 'early sucking, frequent sucking, and correct sucking' should be applied. Moreover, when mothers are at work, they should express breast milk at times when infants are supposed to be breastfed. A hot pack or a hand towel soaked in warm water can be put on the breasts to reduce pain as well.

2.2 Insufficient lactation

Insufficient lactation may be found as early as right after birth, and it may continue to affect mothers' attempt to breastfeed their infants when they have to return to work. Major causes of insufficient lactation include mothers' stress, anxiety, exhaustion from work, and lack of rest from increased responsibilities, which affect the production and secretion of the oxytocin hormone, hence insufficient lactation. To prevent or solve insufficient lactation, mothers should take a lot of rest and relieve their stress and anxiety by doing relaxing activities and having positive thinking that they will have enough lactation to care for their infants. They should also eat beneficial food and regularly stimulate lactation by breastfeeding their infants frequently both during the day and at night. When they are at work, they should express breast milk to save for subsequent feedings or just to discard it to maintain lactation. Besides, the husband should play a role to show mothers with moral support and encouragement and help them take care of the infants

2.3 Leaking

Mothers who regularly breastfeed their infants while at home will have consistent and continuous lactation, so when they return to work they may have problem with leaking that stains their clothes (Kamdee, 1994; Yimyam, 1998). Some mothers have a negative attitude toward leaking, thinking that it affects their body image, hence loss of self-confidence. The solution is to express breast milk at regular intervals before the time infants are supposed to be fed. Mothers can also use a breast pad to absorb the leaked milk and prevent it from staining their clothes.

2.4 Lack of support from the workplace

Some mothers have a strong intention to breastfeed their infants, but they are not successful after they return to work. This is because the maternity leave is not long enough to allow mothers to breastfeed their infants for four to six months (Jitcharoen, 1994). Other causes include lack of a private place to express breast milk in the office (Yimyam, 2002) and inflexible work schedules. According to Fein and Roe (1998), the average durations of breastfeeding among full-time mothers, mothers with part-time job (one to19 hours per week), mothers with part-time job (20 to 34 hours per week), and mothers with full-time job (more than 35 hours per week)

are 25.1, 24,4, 22.5, and 16.5 weeks, respectively. Thus, it can be seen that not working full-time has a positive relationship with duration of breastfeeding. For this reason, mothers should consult their employers or colleagues and ask for plan to breastfeed and express breast milk while in office beforehand.

Summary

Breastfeeding is beneficial for the infants, mothers, family, and the country, especially exclusive breastfeeding. At present, exclusive breastfeeding has been vigorously promoted on a national and international level. However, surveys previously conducted have revealed that the goal of exclusive breastfeeding has not yet been achieved. In Thailand, the National Economic and Social Development Plan has specified that infants should be exclusively breastfed for at least the first six months of life, but there are a number of problems and obstacles that hinder successful exclusive breastfeeding of the mothers including mothers' lack of knowledge about benefits of breastfeeding, mothers' lack of confidence to breastfeed their infants, especially those who are first-time mothers, lack of advice or guidance, and mothers' having to work outside the house. As a result, the rate of exclusive breastfeeding among first-time and working mothers is rather low. To help mothers succeed in exclusive breastfeeding, every party involved needs to cooperate with one another including policy makers, employers, and healthcare team members, during the prenatal, perinatal, and postpartum periods. Follow-up visits should also be conducted to provide assistance to mothers who otherwise will have to face problems with breastfeeding by themselves at home. Most importantly, other family members should not only take part in childcare but should also encourage mothers and show them with spiritual support to enable them to successfully exclusively breastfeed their infants.

CHAPTER III
METHODOLOGY

Research Design

The present study was quasi-experimental research which aimed at investigating the effects of the breastfeeding-promoting program on the rate and duration of exclusive breastfeeding in working mothers. In this study, the subjects in the experimental group received the breastfeeding-promoting program together with routine nursing care, whereas the control subjects received only routine nursing care.

Population and Sample

Population

The population of this study consisted of pregnant women who worked outside their home and were first-time mothers with a single fetus, with the gestational age of 37-40 weeks at the beginning of the study. They sought prenatal care and child delivery services at Pranungklao Hospital.

Sample

The sample group was 60 subjects selected by purposive sampling. The inclusion criteria were as follows:

Inclusion criteria

1. Both sides of their breasts and nipples were normal.
2. They did not have any prohibition to breastfeed such as having HIV infection.
3. They have a husband or relative stay together with them at home.
4. They intended to breastfeed their infants.
5. They were willing to participate in the study.

The subjects in both the experimental and control groups would be excluded from the study in cases of the following:

Exclusion criteria

1. The mothers had complications during pregnancy, during delivery, or after childbirth such as undergoing a cesarean section.

2. The children had illness, disability, or had problems with suckling such as oxygen deficiency, cleft lips, cleft palate or tongue-tie which hindered suckling.

Sample size

The sample size was determined based on the normal distribution theory (Mendelhall & Beaver, 1994). Thus, the total number of subjects in each group should be 25. However, to prevent loss of subjects, 30 subjects in each group were recruited. Therefore, the total number of subjects in this study was equal to 60, with 30 in the control group and 30 in the experimental group.

Assignment of subjects into groups

The researcher started to collect data in the control group who received routine nursing care from the hospital until data were collected from all subjects. This was to prevent contamination of data when the subjects in the control group and experimental group exchanged information among one another, to prevent the distortion of the research data, and to prevent the control group from feeling that they were treated unfairly, which may have affected their efforts to breastfeed their infants. The researcher tried to ensure that the subjects in both groups were of similar ages and had similar lengths of maternity leave as follows:

Age: There were three groups of subjects—teenagers aged 17 to 20 years old, early adults aged 21 to 35 years old, and late adults older than 35 years old.

Duration of maternity leave: There were two types of leaves—less than 90 days and 90 days or longer.

Research Setting

Data collection took place at Pranungklao Hospital, which was a secondary hospital with 461 beds. The hospital adhered to the ten-step practice to breastfeeding, and it was a setting for practice of medical and nursing students.

The antenatal unit of the hospital offered services to pregnant women with normal pregnancy and high-risk pregnancy. It was opened Monday through Friday from 08:00 a.m. to 04:00 p.m. A routine care for pregnant women include a session to disseminate knowledge on breastfeeding among pregnant women once during the gestational age of 28-32 weeks with a VCD entitled “Breast milk: An investment for the beloved baby’s brain” by the Breast Milk Center of Thailand and with a summarization of the content by the nurses working in the department.

The delivery room offered services to pregnant women with normal and abnormal delivery, approximately 200 cases per month on average. Breastfeeding was also promoted as the newborn infants were introduced to breastfeeding within one hour after birth.

The postpartum ward accommodated 30 postpartum mother and 10 private cases. Rooming-in was provided for the mothers and newborn infants who were together 24 hours a day. Visiting hours were from 12:00 p.m. to 08:00 p.m. The newborn infants could suck their mothers’ breasts as often as they needed. In cases there were problems with breastfeeding, the staff members would provide assistance and guidance on an individual basis. If the mothers and newborn did not have any complications, they would be discharged within two days. An appointment would be made for the mothers to return to the hospital for a check-up six weeks after the discharge.

Instruments

The instruments used in this study were divided into two categories—data collection instruments and research instruments, which could be explained below.

1. Data collection Instruments

Data collection instruments consisted of the demographic characteristics questionnaire, the breastfeeding efficacy assessment form (LATCH), the feeding

monitoring form, and the problem related to breastfeeding record form. They could be explained in detail as follows:

1.1 Demographic characteristics questionnaire: This questionnaire was designed by the researcher to elicit data regarding age, marital status, educational background, type of family, number of family members, owner of home, occupation, monthly family income, sufficiency of income, number of days of maternity leave, infant's caregiver, as well as data regarding childbirth including date and time of birth, APGAR score, birth weight, body length, head circumference, and time and duration of first breastfeeding.

1.2 The breastfeeding efficacy assessment form (LATCH): The questionnaire was designed by Jensen, Wallace, and Kelsay (1994) and was translated into the Thai language by Kusuma Chusilp (2003). The LATCH was used to assess the mothers' efficacy to breastfeed their infants. Numerical scores were used to assess five components as follows: "L" assessed the infants' ability to latch and suck the breasts; "A" assessed the sound of the infants' swallowing of breast milk, which may be difficult to hear during the initial phases, so it is suggested that the movement of the lower jaw should be observed instead (Buakam, 2006); "T" referred to the type of nipples; "C" referred to the mothers' feelings during breastfeeding such as happy, painful, as well as symptoms which could be observed from the nipples and the breasts such as engorged breasts, reddened nipples, cracked nipples, etc.; and "H" referred to breastfeeding positions. The total scores ranged from 0 to 10 points, with lower scores reflecting mothers' lower level of ability to correctly and appropriate breastfeed their infants, while higher scores (8 to 10 points) indicating mothers' higher level of ability to correctly and appropriate breastfeed their infants. In cases of problems, the researcher would offer assistance and guidance to the mothers until they were able to breastfeed their infants.

1.3 Feeding monitoring form: This form was used to monitor the types of food the infants received after hospital discharge including breast milk, water, formula, solid food, and others. Data regarding the age when feeding started, quantity and frequency of feeding, and reasons for feeding were also elicited.

1.4 Problem related to breastfeeding record form: This record form was developed by the researcher to follow up on breastfeeding problems, mothers' solutions before receiving telephone consultation, advice and activities suggested by the researcher, and nursing outcomes, which was carried out via telephone interviews.

Validation of the instruments

1. Content Validity

The demographic characteristics questionnaire, the feeding monitoring form, and the breastfeeding problems record form were submitted to a panel of five experts to confirm content validity and language appropriateness as follows:

- One obstetrician
- One obstetric nurse
- One pediatric nurse
- Two nurses specializing in breastfeeding

The instruments were revised and improved according to the experts' comments and suggestions before they were tried out with ten working mothers whose characteristics were similar to those of the subjects of the main study to assess their understanding of the content and language before another revision.

It is worth noting that the breastfeeding efficacy assessment form (LATCH) had already been used in the thesis entitled "the effects of breastfeeding-promoting program on the rate of 4-mounth exclusive breastfeeding in first-time mothers at Amnatcharoen Hospital," and it had already been validated in this study.

2. Reliability

The breastfeeding efficacy assessment form (LATCH) was tried out with ten working mothers whose characteristics were similar to those of the subjects of the main study. The researcher and one nursing working in the lactation clinic of Siriraj Hospital assessed their breastfeeding efficacy, and the scores obtained from the two scorers were analyzed to determine inter-rater reliability as follows (Polit & Beck, 2004):

$$\text{Reliability of an instrument} = \frac{\text{number of agreement}}{\text{Number of agreement items + number of disagreement items}}$$

Number of agreement items = total number of items both raters gave the same scores

Number of disagreement items = total number of items both raters gave the different scores

Value of reliability of the form = 0.80

2. Research Instruments

Research instruments could be divided into three components as follows: The breastfeeding teaching plan for working mothers, the plan for provision of support and assistance to postpartum mothers, and the teaching materials, which are described in detail below.

2.1 The breastfeeding teaching plan for working mothers: This teaching plan was designed by the researcher based on an extensive review of textbooks, documents, journals, and research reports. The content of the teaching plan covered the anatomy of the breast, lactation mechanism, benefits of breastfeeding, exclusive breastfeeding, breastfeeding techniques, how to ensure breastfeeding success, breastfeeding position, assessment of sufficient breastfeeding, breastfeeding problems and solutions, breastfeeding in working mothers, and expressing breast milk and ways to feed expressed milk to infants. The teaching was carried out with discussion and exchange of knowledge and experiences of pregnant women, with the researcher summarizing each of the discussed issues using the Power Point presentation. In addition, a 15-minute VCD on breastfeeding techniques produced by "the Nommae Organization" was also shown to the pregnant women. The content of the VCD, which was produced by experts on breastfeeding and distributed to disseminate knowledge of breastfeeding among pregnant women, covered the correct breastfeeding techniques and breastfeeding positions. The researcher also summarized the main points of the VCD to ensure correct understanding of the pregnant women. Moreover, a breastfeeding manual for working mothers was also distributed for a review at home. The objectives of the dissemination of knowledge was to ensure

pregnant women's understanding of the benefits of breastfeeding, decrease their breastfeeding obstacles, and enhance their positive attitudes toward breastfeeding. Besides, there were different skill practices which benefited breastfeeding including correct ways to hold the infant during breastfeeding, burping the infant, pumping, etc. When pregnant women had a chance to learn and practice important skills before they encountered the actual situation, they should be more confident in their capability to breastfeed their infants.

2.2 The plan for provision of support and assistance to postpartum mothers: The researcher planned to enable postpartum mothers to succeed in breastfeeding by letting the infants suck their mother's breast within one hour after birth to stimulate lactation, encouraging the mothers to breastfeed the infants every two-three hours to ensure regular and sufficient lactation, and helping the mothers breastfeed their infants correctly. The researcher offered assistance and guidance until the mothers were confident and certain that they were able to breastfeed their infants correctly. Furthermore, the researcher disseminated knowledge about breastfeeding and guidance to significant persons or influential persons in the mothers' life such as the husband, grandmother, or nanny to ensure positive attitudes toward breastfeeding and similar perceptions of breastfeeding to those of the mothers. The researcher also aimed to let these persons encourage and support the mothers in different ways such as giving support to boost their morale, helping take care of the infants, etc. Breastfeeding was also followed-up one more time before the mothers were discharged from the hospital in cases the mothers still lacked confidence or were unable to breastfeed their infants. Plans to assist postpartum mothers after hospital discharge were also devised in the form of telephone follow-ups and telephone consultancy.

2.3 Teaching materials

The teaching materials consisted of Power Point slides, VCD on breastfeeding, a life-sized baby model, a life-sized breast model, a manual on breastfeeding for working mothers, and tools for pumping and collecting breast milk. All of these could be explained as follows:

2.3.1 Power Point slides: These slides were prepared by the researcher to summarize main points which were not covered in the pregnant women's discussions and exchange of knowledge and experiences sessions. The content of the slides were in congruence with the teaching plan including the anatomy of the breast, lactation mechanism, benefits of breastfeeding, exclusive breastfeeding, breastfeeding techniques, how to ensure breastfeeding success, breastfeeding position, assessment of sufficient breastfeeding, breastfeeding problems and solutions, breastfeeding in working mothers, and expressing breast milk and ways to feed expressed milk to infants using a cup.

2.3.2 Breastfeeding VCD: The main point of the VCD was breastfeeding techniques lasting 15 minutes. The contents of the VCD were related to correct breastfeeding techniques and breastfeeding positions to ensure pregnant women's understanding of the benefits of breastfeeding, decrease their breastfeeding obstacles, and enhance their positive attitudes toward breastfeeding.

2.3.3 A life-sized baby model: The model was used to enable pregnant women to practice holding the infants in different breastfeeding positions and burping to ensure familiarity and confidence of the pregnant women to breastfeed their infants after they were born.

2.3.4 A life-size breast model: The model was used to teach pregnant women about the anatomy of the breast and its external components. It was also utilized in the teaching of breast milk expressing skills.

2.3.5 A breastfeeding manual for working mothers: The researcher compiled the breastfeeding information from an extensive review of textbooks, documents, and research reports. The contents of the manual were in accordance with the contents of the teaching plans. It was distributed to the pregnant women after the teaching ended for further reviews at home.

2.3.6 Breast milk expressing tools: The tools for expressing and pumping breast milk included a milk collection bag and a feeding cup. The researcher demonstrated how these tools were used, and the milk collection bags were given to the mothers after childbirth for their use at home.

Data Collection

The researcher conducted the data collection in the following procedures:

1. Preparation stage

1. The researcher underwent training for providing assistance and guidance to postpartum mothers on breastfeeding to ensure sufficient knowledge and skills to conduct the study at the Breastfeeding Clinic, Siriraj Hospital under supervision of expert. The training lasted three months, from March 1 to May 31, 2007, from Monday to Wednesday, until the experts confirmed that the researcher was able to assist postpartum mothers in breastfeeding.

2. The researcher sought permission from the Ethics Committee of Mahidol University to conduct a study involving human subjects. After permission was granted, the researcher made a request for an introduction letter to be sent from the Graduate School, Mahidol University, to the Director of Pranungklao Hospital to ask for cooperation in data collection.

3. After permission was granted, the researcher met with the heads of the nursing department, the prenatal ward, the delivery room, and the postpartum ward to introduce herself, explain the research objectives and data collection procedures, and ask for cooperation in data collection.

2. Data collection procedures

2.1 Control group

Data were collected from the subjects in the control group as follows:

1. From Monday to Friday, 8:00 a.m. to 12:00 p.m., the researcher went to the prenatal ward to select the pregnant women who met the inclusion criteria previously set based on their medical records.

2. The researcher approached each of the pregnant women who met the inclusion criteria who were waiting for their prenatal check-up to introduce herself, explain the research objectives and data collection procedures, explain the protection of the rights of human subjects (see Appendix B), and invited them to participate in the study. After the pregnant women agreed to take part in the study, they were asked to sign the informed consent form. After that, the researcher interviewed them using the demographic characteristics questionnaire (Part I).

After that, the researcher established rapport with the next pregnant woman and repeated the aforementioned steps.

3. From Monday to Friday, 1:00 p.m. to 4:00 p.m., and on Saturday and Sunday, from 7:00 a.m. to 7:00 p.m., the researcher surveyed the names of the control subjects from the delivery records. When they delivered their infants at the delivery room, data regarding date and time of birth, APGAR score, birth weight, body length, head circumference, time and duration of first breastfeeding were recorded onto the demographic characteristics and delivery questionnaire (Part I). After that, the researcher talked to the control subjects to assess their breastfeeding problems.

4. The researcher assessed the control subjects' breastfeeding efficacy using the LATCH questionnaire before hospital discharge to determine if the control subjects were able to effectively breastfeed their infants.

5. The researcher conducted telephone follow-ups after the control subjects had returned home one day, for one week, and every month until the infants were four years old to elicit data regarding breastfeeding problems and types of feeding to be recorded onto the breastfeeding problems record form and the feeding monitoring form. Reasons for cessation of breastfeeding were also elicited and recorded. If the mothers seemed to have problems with breastfeeding, the researcher gave them the telephone number of the lactation clinic for consultation.

6. The researcher repeated the aforementioned procedures until data were collected from a total of 30 subjects. After that, data collection was carried out with the subjects in the experimental group.

2.2 Experimental group

After data had been collected from the control group, the researcher began collecting data from the experimental subjects in the following procedures:

1. Every Monday to Friday, from 8:00 a.m. to 12:00 p.m., the researcher went to the prenatal ward to select the pregnant women who met the inclusion criteria previously set based on their medical records.

2. The researcher approached each of the pregnant women who met the inclusion criteria who were waiting for their prenatal check-up to introduce herself, explain the research objectives and data collection procedures, explain the protection

of the rights of human subjects (see Appendix B), and invited them to participate in the study. After the pregnant women agreed to take part in the study, they were asked to sign the informed consent form. After that, the researcher interviewed them using the demographic characteristics questionnaire (Part I).

After that, the researcher established rapport with the next pregnant woman and repeated the aforementioned steps. Approximately two to five subjects were recruited in one day.

3. A group of two-five subjects were provided with teaching plans using a Power Point presentation. The contents of the teaching involved the anatomy of the breast, lactation mechanism, benefits of breastfeeding, exclusive breastfeeding, breastfeeding techniques, how to ensure breastfeeding success, breastfeeding position, assessment of sufficient breastfeeding, breastfeeding problems and solutions, breastfeeding in working mothers, and expressing breast milk and ways to feed expressed milk to infants. In addition, a 15-minute VCD on breastfeeding techniques produced by the Nommae Group was also shown to the pregnant women. The content of the VCD covered the correct breastfeeding techniques and breastfeeding positions. The objectives of the VCD was to ensure pregnant women's understanding of the benefits of breastfeeding, decrease their breastfeeding obstacles, and enhance their positive attitudes toward breastfeeding. Besides, pregnant women were offered the opportunity to practice various skills that benefited breastfeeding such as holding the infant in different positions during breastfeeding, burping the infants after breastfeeding, and expressing breast milk to help them develop confidence to breastfeed their infants. After the teaching ended, a breastfeeding manual for working mothers was provided for a review at home. The activities lasted about 50 minutes.

4. From Monday to Friday, 1:00 p.m. to 4:00 p.m., and on Saturday and Sunday, from 7:00 a.m. to 7:00 p.m., the researcher surveyed the names of the experimental subjects from the delivery records (by asking the staff in the delivery room to notify the researcher when the experimental subjects came to give birth). When the subjects delivered their infants at the delivery room, data regarding date and time of birth, APGAR score, birth weight, body length, head circumference, time and duration of first breastfeeding were recorded onto the demographic characteristics and

delivery questionnaire (Part I). After that, the researcher carried out the following procedures:

4.1 Within one hour after delivery (at the recovery room of the delivery unit), the researcher assessed the subjects' readiness to breastfeed their infants. After that, the infants were brought to the mothers to latch on and suck the mothers' both breasts, for five to ten minutes each or longer depending on the infants' need to stimulate the mothers' lactation.

4.2 At the postpartum ward, the researcher brought the infants to their mothers every two to three hours, and the mothers breastfed them in a sitting or side lying position with the researcher providing assistance, helping them adjust their positions, and giving advice and encouragement to ensure correct practice. This activity lasted four to six hours after delivery if the mothers gave birth during 7:00-7:00 p.m. In cases that the mothers gave birth at night or early in the morning, the researcher asked the on-duty staff to provide assistance to the mothers on the researcher's behalf, and the researcher came to assist the mothers within 12 hours after childbirth. For the mothers who were unable to correctly breastfeed their infants, the researcher helped them solve problems until it was certain that they were able to do the breastfeeding. The researcher then left the room and returned on the next day.

4.3 At the second day after the delivery, the researcher taught the mothers how to breastfeed in the sitting and lying position until they were confident in their ability to breastfeed their infants. For those who were still unable to perform breastfeeding, the researcher considered how to help them solve problems until they were confident in their breastfeeding capability. Moreover, the researcher discussed the benefits of breastfeeding, how to assist the mothers in breastfeeding, and how to feed expressed breast milk from a cup to significant persons in the mothers' life such as the husband, grandmother, or nanny who would have to take care of the infants after the mothers returned to work. The researcher also reviewed expressing and pumping techniques with the mothers. This took place for about 40 minutes. During this period, the mothers were offered the opportunity to ask questions. Breast milk collection bags were given to the mothers for use at home.

4.4 The researcher assessed the mothers' breastfeeding efficacy using the LATCH form before hospital discharge to determine if the subjects in the

experimental group were able to breastfeed their infants effectively or not. If problems were detected, the researcher would then be able to plan for continuous assistance.

5. The researcher conducted telephone follow-ups after the mothers had returned home for one day, one week, and every month after delivery until the infants were four months old. The aim was to elicit data regarding problems in breastfeeding and types of food fed to the infants to be recorded in the breastfeeding problems record form and the feeding monitoring form.

Steps involved in the data collection procedures are illustrated in Figure 1 below.

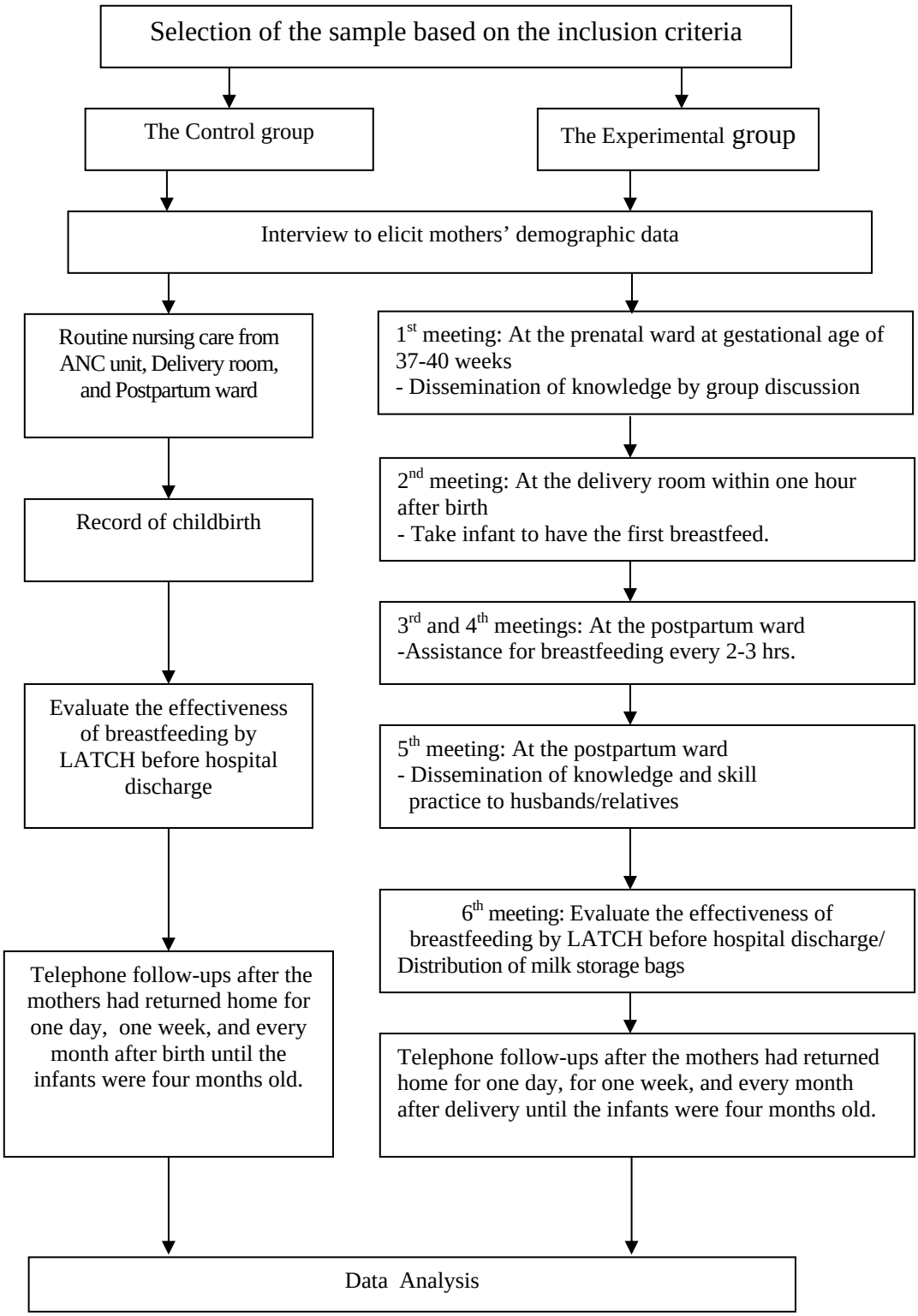

Figure 4: Summary on Research Procedure and Data Collection

Protection of the Rights of Human Subjects

The subjects' rights were protected with an approval given to the research proposal by the Committee of Human Rights Related to Human Experimentation of Mahidol University. Being fully aware of research ethics and the individuality of the participants the researcher made certain that the rights of the subject were well protected, establishing relationships with the sample group and asking questions to determine whether or not they met the inclusion criteria. The researcher protected the rights of the sample group by explaining the objectives and procedures of the research prior from the beginning of the study. Participation in the study was voluntary and the sample group had the right to refuse participation in the research at any time and without advance notice. The subjects were assured that their withdrawal from participation in the study would have no affect whatsoever on the health care services they received from the hospital. All of the data collected was kept strictly confidential with access limited to the researcher alone and participants were assured that the research findings would be reported as group data only. When the subjects agreed to participate in the study, they were asked to sign an informed consent form, after which the researcher proceeded with the study. (The details of the protection of the Rights of Human Subjects is shown in Appendix B)

Data Analysis

All of the questionnaires that were returned to the researcher were checked to ensure completion, The data were analyzed with the computer program as follows:

1. Demographic characteristics of the subjects were analyzed in terms of frequency and percentage.

2. The comparison of the rates of exclusive breastfeeding for four months between the experimental subjects who received the breastfeeding promoting program together with routine nursing care and the control subjects who received only routine nursing care were compared using fisher's exacts test.

3. The duration, the average number of days, of exclusive breastfeeding between the experimental subjects who received the breastfeeding promoting program together with routine nursing care and the control subjects who received only routine nursing care were compared using the t-test.

CHAPTER IV
RESULTS

This quasi-experimental research study was conducted to determine the effects of breastfeeding-promoting program on the rate and duration of exclusive breastfeeding in working mothers. The subject included 60 first-time mothers who received antenatal care and gave birth at Pranungkloa Hospital.

The results of this study are presented in tables accompanied by descriptions in the following seven parts:

Part 1: Characteristics of the study sample

Part 2: LATCH score before hospital discharge

Part 3: The rate of four-month exclusive breastfeeding of the sample

Part 4: The duration of exclusive breastfeeding of the sample

Part 5: Number and percentage of infants classified by type of feeding at each age

Part 6: Types of food and the mothers' reasons for introducing supplementary food before the fourth month

Part 7: Problems related to breastfeeding

Part 1: Characteristics of the Sample

1.1 Demographic characteristics

Table 1 shows the demographic characteristics of the pregnant women in the experimental group and the control groups. The mean age of the pregnant women in the experimental group was 24.4 years (SD = 3.48; Min-Max = 19-33), whereas the average age of the pregnant women in the control group was 24.1 years (SD = 4.2; Min-Max = 19-33). About one-third (33.3%) of the pregnant women in the experimental group and those in the control group graduated from high school. In terms of family type, 66.7% and 33.3% of the pregnant women in the experimental group lived in an extended family and a nuclear family, respectively. On the other hand, half of the pregnant women in the control group lived in an extended family, whereas the other half lived in a nuclear family. Nearly half of the pregnant women in the experimental group (46.7%) lived in a rented house, while 40% lived in their own house. As for the control group, nearly half of the pregnant women (46.7%) had their own house, while about one-third (33.3%) lived in a rented house. Finally, almost all of pregnant women in both groups (96.7%) were married.

About one-third of the pregnant women in the experimental group worked in a private company, followed by having own business and being a laborer (30%, 13.3%, and 13.3%, respectively). In the control group, about one-third of the pregnant women worked in a private company, followed by working as a labor force (36.7% and 33.3%, respectively). An average income per month in the experimental group was close to the corresponding results of the control group (Mean = 14,350.0, SD = 7,807.1, and Mean = 16,783.3, SD = 8025.5, respectively). Most of the pregnant women in the experimental group and the control group had sufficient income (70% in the experimental group and 93.3% in the control group).

Table 1 Comparison of demographic characteristics of the experimental and control groups

Characteristics	Experimental group (n = 30)		Control group (n = 30)		statistics
	N	%	N	%	
Age (years)					
17-20	9	30	9	30	
21-35	21	70	21	70	
	Min = 19, Max = 33		Min = 19, Max = 33		t=.000 p=1.000^{ns}
	Mean = 24.4, SD = 3.48		Mean = 24.1, SD = 4.2		
Education					
Primary school	3	10	2	6.7	
Secondary school	8	26.7	7	23.3	
High school	10	33.3	10	33.3	
Diploma	4	13.3	2	6.7	
Bachelor's degree	5	16.7	9	30.0	
Family type					χ^2=1.714, p=.190^{ns}
Nuclear family	10	33.3	15	50.0	
Extended family	20	66.7	15	50.0	
Ownership of residence					
Own house	12	40.0	14	46.7	
Rented house	14	46.7	10	33.3	
Family house	3	10.0	4	13.3	
Others	1	3.3	2	6.7	

*ns = Not significant (p > .05)

Table1 Comparison of demographic characteristics of the experimental and control groups (Continued)

Characteristics	Experimental group (n = 30)		Control group (n = 30)		statistics
	N	%	N	%	
Marital status					
Married	29	96.7	29	96.7	
Separated	1	3.3	1	3.3	
Occupation					
Government/ state enterprise	1	3.3	1	3.3	
Private company	9	30	11	36.7	
Own business	4	13.3	1	3.3	
Labor force	4	13.3	10	33.3	
Others	12	40	7	23.3	
Family income (baht per month)					
≤ 5,000	1	3.3	1	3.3	
≥ 5,001	29	96.7	29	96.7	
	Min = 5000, Max = 40000 Mean = 14350, SD = 7807.1		Min = 5000, Max = 40000 Mean = 16783.3, SD = 8025.5		t =-.750, p = .532^{ns}
Sufficiency of income					
Sufficient	21	70.0	28	93.3	
Sufficient with no savings	8	26.7	2	6.7	
Insufficient	1	3.3	0	0	

*ns = Not significant (p > .05)

1.2 Personal characteristics related to breastfeeding

Table 2 illustrates the breastfeeding data of the pregnant women in the experimental and control groups. Most of the pregnant women in both groups had duration of maternity leave of 90 days and more (accounting for 70% in both groups). Also, most of the pregnant women in both groups planned to breastfeed their infants during maternity leave (100% in the experimental group and 93.3% in the control group).

In addition, most of the pregnant women in both groups planned to breastfeed after returning to work (70% in the experimental group and 63.3% in the control group). Of all the subjects, 23.3% in the experimental group and 16.7 % in the control group planned to breastfeed their infants together with baby formula. Also, 6.7 % in the experimental group and 20% in the control group planned to formula feed their infants.

In the experimental group, close to two-thirds (63.3%) of the pregnant women intended to breastfeed their infants for six months, while about one-third (33.3%) planned to do so for at least three months. On the other hand, more than half of the pregnant women in the control group (56.7%) intended to breastfeed for six months, and close to one-fourth (23.3%) planned to do so for six months. All pregnant women in both groups (100%) had support for breastfeeding.

Table 2 Number and percentage of the mothers categorized according to duration of maternity leave, type of infant feeding planned during maternity leave, type of infant feeding planned after returning to work, duration of intended breastfeeding, and breastfeeding support

Characteristics	Experimental group (n = 30)		Control group (n = 30)		statistics
	N	%	N	%	
Duration of maternity leave (days)					χ^2=.000 1.000^{ns}
≥ 90	9	30.0	9	30.0	
< 90	21	70.0	21	70.0	
Type of infant feeding planned during maternity leave					
Breastfeeding	30	100.0	28	93.3	
Breastfeeding with formula	0	0	2	6.7	
Formula feeding	0	0	0	0	
Type of infant feeding planed after going back to work					
Breast feeding	21	70.0	19	63.3	
Breast feeding with formula	7	23.3	5	16.7	
Formula feeding	2	6.7	6	20.0	
Duration of intended breastfeeding (months)					
1-2	1	3.3	2	6.7	
3-4	10	33.3	9	30.0	
5-6	19	63.3	19	63.3	
Breastfeeding support					
Yes	30	100.0	30	100.0	
No	0	0	0	0	

*ns = Not significant (p > .05)

Part 2: LATCH scores before hospital discharge

Table 8 shows that the mean LATCH score before hospital discharge in the experimental group was 8.46 (SD = 0.507), while that of the control group was 6.1 (SD = 0.69). The results revealed that the mean LATCH score at discharge of the mothers in the experimental group was significantly higher than that of the mothers in the control group at the statistically significant level of .001 (Table 7).

Furthermore, all mothers in the experimental group were able to successfully breastfeed their infants after discharge, while there was no mothers in the control group who were able to do so.

In the control group, problems of mothers and infants were related to latch-on including incorrect latch-on, inappropriate holding position, sore nipple, and uncomfortable feeding of the mothers.

Table 3 Comparison of the LATCH scores of the mothers in the experimental and the control groups before hospital discharge by grouped t-test

	Experimental group (n = 30)			**Control group (n = 30)**			
LATCH score	**Min-Max**	**Mean**	**SD**	**Min-Max**	**Mean**	**SD**	**t**
	8-9	8.46	0.507	5-7	6.1	0.69	14.586***

***p < .001

Part 3: The Rate of four-month exclusive breastfeeding

Table 4 depicts the rate of exclusive breastfeeding in the experimental group, accounting for 26.67%, and that of the control group, totaling 0% at four months.

Fisher's exact test revealed that the rate of exclusive breastfeeding of the mothers in the experimental group was significantly higher than that of the mothers in the control group at a statistically significant level of .001 (Table 3).

Table 4 Comparison of the rate of four-month exclusive breastfeeding between the experimental group and the control group by Fisher's Exact Test

Breastfeeding at four months	Experimental group (n = 30)		control group (n = 30)		Fisher's Exact test
	N	%	N	%	
Exclusive breastfeeding	8	26.67	0	0	
Breastfeeding with other foods	16	53.33	9	30.00	.000***
Formula with other foods	6	20.00	21	70.00	

***p < .001

Part 4: The duration of exclusive breastfeeding

According to Table 5, an average duration of exclusive breastfeeding in the experimental group was 69.5 days, while that of the control group was 4.46 days.

The results of the t-test revealed that an average duration of exclusive breastfeeding of the mothers in the experimental group was longer than that of the mothers in the control group at the statistically significant level of .001 (Table 4).

Table 5 Comparison of the duration of four-month exclusive breastfeeding between the experimental group and the control group by group t-test

	Experimental group (n = 30)			Control group (n = 30)			
Variable	**Min-Max**	**Mean**	**SD**	**Min-Max**	**Mean**	**SD**	**t**
Duration of Exclusive Breastfeeding (days)	4-120	69.5	37.68	1-14	4.46	3.17	8.566***

***p < .001

Part 5: Number and percentage of infants classified by type of feeding at each Age

According to Table 6, on the first day after discharge from the hospital, 100% of the infants in the experimental group and 33.3% of those in the control group were exclusively breastfed. Of those in the control group, 56.7% were fed with breast milk and water, while 10% were fed with breast milk and formula.

At the age of one week, 86.7% of the infants in the experimental group were exclusively breastfed, and 10% were breastfed together with water. On the other hand, 80% of the infants in the control group were fed with breast milk and water, 16.7% were fed with breast milk, formula, and water, and only 3.3% were exclusively breastfed.

At the age of one month, 80% of the infants in the experimental group were exclusively breastfed, while 60% of the infants in the control group were fed with breast milk and water and 40% received breast milk, formula, and water. However, all infants in both groups still received more or less breast milk from their mothers.

At the age of two months, a little more than half, or 53.3%, of the infants in the experimental group were exclusively breastfed, 30% were breastfed together with formula, 13.3% received breast milk with formula and water. On the other hand, close to half, or 43.3%, of the infants in the control group were breastfed together with formula and water, 26.7% were breastfed with water, 13.3% received formula with water, and 10% received breast milk together with formula, other foods, and water.

At the age of three months, 26.7% of the infants in the experimental group were exclusively breastfed, 53.3% were breastfed with formula and water. In contrast, none of the infants in the control group received exclusive breastfeeding. In fact, 40% of them received formula feeding with other foods, and 20% had breastfeeding with formula and other foods.

At the age of four months, a little more than one-fourth, or 26.7%, of the infants in the experimental group still received exclusive breastfeeding, 43.3% had breastfeeding with formula, and 13.3% received formula feeding with other foods. On the other hand, of all the infants in the control group, 66.7% were fed with formula and other foods, while 20% were breastfed with formula and other foods.

Table 6 Number and percentage of infants classified by type of feeding at each age

	1 day after discharge				1 Week				1 Month				2 Month				3 Month				4 Month			
	E		C		E		C		E		C		E		C		E		C		E		C	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
EBF	30	100	10	33.33	26	88.66	1	3.33	24	80.00	0	0	16	53.33	0	0	8	26.66	0	0	8	26.66	0	0
BF+W	0	0	17	56.66	3	10.00	24	80.00	5	16.66	18	60.00	1	3.33	8	26.66	0	0	1	3.33	0	0	0	0
BF+W+F	0	0	3	10.00	1	3.33	5	16.66	1	3.33	12	40.00	9	30.00	13	43.33	16	53.33	5	16.66	13	43.33	1	3.33
BF+W+F+O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	10.00	1	3.33	6	20.00	3	10.00	6	20.00
BF+W+O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3.33	0	0	4	13.33	1	3.33	2	6.66
F+W	0	0	0	0	0	0	0	0	0	0	0	0	0	13.33	4	13.33	2	6.66	2	6.66	1	3.33	1	3.33
F+W+O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3.33	3	10.00	12	40.00	4	13.33	20	66.66

****Remarks: EBF = exclusive breastfeeding BF = breastfeeding**

W = water O = other foods E=Experimental group C= Control group F= Formula

Part 6: Types of food and mothers' reasons for introducing supplementary foods before the fourth month

According to the mothers in the experimental group and the control group, the reasons why they exclusive breastfed their infants were as follows: they wanted to make their infants strong (83.3% in the experimental group and 66.7% in the control group), they wanted their infants to be intelligent (76.7% and 66.7%, respectively), and breastfeeding was inexpensive (60.0% and 36.7%, respectively).

As regards feeding with water, 30% of the mothers in the experimental group reasoned that they wanted to prevent constipation because their infants were also fed with baby formula, 20% explained that they wanted to clean their infants' mouth and prevent a white film on their infants' tongue, and 6.7% wanted to prevent dehydration. On the other hand, 73.3% of the control group explained that they fed their infants with water to prevent dehydration, 43.3% wanted to clean their infants' mouth and prevent while film on the tongue, and 30% wanted to compensate for breast milk when there was not enough of it.

With regard to formula feeding, 36.7% of the experimental group and 16.7% of the control group did so because they did not have flexible working schedules, 30% of the experimental group and 23.33% of the control group did not have a private place to express breast milk, 16.7% of the experimental group and 36.7% of the control group believed that they did not have sufficient breast milk to feed their infants, and 16.7% of the experimental group and the control group were exhausted and stressed from work.

When considering reasons why the mothers in the experimental group and the control group fed their infants with other foods, it was found that 20% of the experimental group believed that their infants had grown up enough to eat other foods, 3.3% were concerned that their infants may not have sufficient nutritional intake, and 3.3% wanted their infants to become chubby. On the other hand, more than half of the control group, or 56.7%, were concerned that their infants may not have sufficient nutritional intake, 40% believed that their infants had grown up enough to eat other foods, and 6.7% did so because of recommendations from relatives, as illustrated in Table 6 below.

Table 7 Number and percentage of mothers in the experimental group and the control group as classified by types of feeding and reasons for introducing supplementary food before the fourth months

Reason	Experimental group (n = 30)		control group (n = 30)	
	N	%	N	%
Exclusive breastfeeding				
Making infants intelligent	25	83.3	20	66.7
Making infants strong	23	76.7	20	66.7
Saving money	18	60.0	11	36.7
Increasing immunity	9	30.0	6	20.0
Making infants be in a good mood	9	30.0	5	16.7
Being convenient	8	26.7	1	3.3
Creating family bonding	5	16.7	1	3.3
Helping mothers regain pre-pregnancy body figure	5	16.7	5	16.5
Preventing postpartum hemorrhage	1	3.3	0	0.0
Being clean	1	3.3	0	0.0
Preventing constipation	1	3.3	0	0.0
Preventing obesity	1	3.3	0	0.0

*****There can be more than one answer.**

Table 7 Number and percentage of mothers in the experimental group and the control group as classified by types of feeding and reasons for introducing supplementary food before the fourth months (Continued)

Reason	Experimental group (n = 30)		control group (n = 30)	
	N	%	N	%
Water				
Preventing constipation due to formula	9	30.0	2	6.7
Cleaning mouth and preventing a white film on tongue	6	20.0	13	43.3
Preventing dehydration	2	6.7	22	73.3
Preventing jaundice	1	3.3	7	23.3
Following relatives' advice	0	0.0	8	26.7
Compensating for insufficient breast milk	0	0.0	9	30.0
Preventing hiccups	0	0.0	2	6.7
Preventing a fever	0	0.0	1	3.3
Infant formula				
Having inflexible work schedules	11	36.7	5	16.7
Lacking private place to pump	9	30.0	7	23.3
Having insufficient breast milk	5	16.7	11	36.7
Having exhaustion or stress	5	16.7	5	16.7
Being difficult and inconvenient	4	13.3	4	13.3

*****There can be more than one answer.**

Table 7 Number and percentage of mothers in the experimental group and the control group as classified by types of feeding and reasons for introducing supplementary food before the fourth months (Continued)

Reason	Experimental group (n = 30)		control group (n = 30)	
	N	%	N	%
Infant formula				
Avoiding causing trouble to coworkers	2	6.7	2	6.7
Having breast engorgement	1	3.3	0	0.0
Having leakage	1	3.3	1	3.3
Having no refrigerator	1	3.3	0	0.0
Having colicky infants	1	3.3	1	3.3
Other foods				
Thinking infants have grown up enough to eat other foods	6	20.0	12	40.0
Being concerned with insufficient nutritional intake	1	3.3	17	56.7
Wanting to have a chubby baby	1	3.3	0	0.0
Following relatives' advice	0	0.0	2	6.7
Wanting infants to feel full longer	0	0.0	1	3.3

*****There can be more than one answer.**

Part 7: Problems related to breastfeeding of the experimental group categorized according to the type of feeding at each age.

Exclusive breastfeeding group

At four months after giving birth, there were eight mothers in the experimental group who were able to exclusive breastfeed their infants for four months. Of these mothers, on the first day after hospital discharge, 50% had inadequate breast milk, 37.5% suffered from breast engorgement, and 25% had over flow of milk that caused choking. When their infants were one week old, 50% had breast engorgement, 50% had over flow of milk that caused choking, and 12.5% suffered from nipple sore. When the infants were one month old, all these eight mothers were able to breastfeed their infants without any problem. After they had returned to work, when their infants were about two to four months, most of them did not have problems with breastfeeding. However, they were stressed and exhausted from work, and their working schedules were inflexible.

Predominant feeding

There were sixteen mothers in the experimental group, who breastfed their infants together with infant formula. On the first day after hospital discharge, 80% had problem inadequate breast milk, and 46.7% suffered from breast engorgement. When their infants were one week old, 31.3% suffered from breast engorgement 18.8% had over flow of milk that caused choking. When the infants were about one month old, 12.5 % had over flow of milk that caused choking, 12.5% was stress and exhaustion from work, 12.5% had some problems of infants such as constipation, long duration of sleeping, and colic. When the infants were two to four months old, most of mothers in this group had return to work, 37.5%-87.5% was stress and exhaustion from their work.

Formula feeding

There were six mothers in the experimental group who started using infant formula before their infants were four months. On the first day after hospital discharge, 83.3% of them experienced breast engorgement. At one week, 66.7% of

mothers had over flow of milk that caused choking. At one month, 16.7% had inadequate breast milk, 16.7% had over flow of milk that caused choking, 16.7% had problems with infants including constipation, long duration of sleeping, and colic. When the mothers had to return to work at two to four months, the infants had problem with constipation, insufficient breast milk, a common cold, allergy to cow's milk, and colic, while the mothers suffered from work-related stress and exhaustion. Moreover some mothers sent their infants to be raised by grandmother in another province.

Table 8 Problems related to breastfeeding in the experimental group categorized according to the type of feeding at each age.

AGE		1 Day		1 Week		1Month		2 Month		3 Month		4
Month												
Type		after discharge										
Of food		N	%	N	%	N	%	N	%	N	%	N %
EBF(N=8)	NO	0	0	3	37.5	0	0	5	62.5	6	70.5	7 87.5
	I	4	50	0	0	0	0	0	0	0	0	1 12.5
	E	3	37.5	4	50	0	0	1	12.5	0	0	0 0
	O	2	25	1	12.5	0	0	0	0	0	0	0 0
	T	0	0	0	0	0	0	1	12. 5	2	25	0 0
	L	0	0	0	0	0	0	0	0	0	0	0 0
	P	0	0	0	0	0	0	0	0	0	0	0 0
	OR	0	0	0	0	0	0	0	0	0	0	0 0
Predominant	NO	1	6.3	8	50	12	75	11	68.8	2	12.5	10 62.5
Feeding(N=16)	I	12	80	1	6.3	0	0	3	18.8	7	46.7	3 18.8
	E	7	46.7	5	31.3	1	6.3	0	0	2	12.5	1 6.3
	O	0	0	3	18.8	2	12.5	0	0	0	0	0 0
	S	0	0	2	12.5	0	0	0	0	0	0	0 0
	T	0	0	0	0	2	12.5	6	37.5	10	62.5	14 87.5
	L	0	0	1	6.3	0	0	1	6.3	3	18.8	1 6.3
	P	0	0	0	0	2	12.5	0	0	1	6.3	0 0
	OR	0	0	0	0	0	0	0	0	1	6.3	0 0
Formula	NO	1	16.7	4	66.7	3	50	3	50	1	16.7	5 83.3
Feeding(N=6)	I	1	16.7	0	0	1	16.7	1	16.7	1	16.7	0 0
	E	5	83.3	0	0	0	0	0	0	0	0	1 16.7
	O	0	0	4	66.7	1	16.7	0	0	0	0	0 0
	S	0	0	0	0	0	0	0	0	0	0	0 0
	T	0	0	0	0	0	0	1	16.7	2	33.3	2 33.3
	L	0	0	0	0	0	0	0	0	0	0	1 16.7
	P	0	0	0	0	1	16.7	0	0	0	0	0 0
	OR	0	0	0	0	0	0	1	16.7	4	66.7	0 0

NO=No problem EBF=Exclusive breastfeeding I=Inadequate breast milk

E=Breast engorgement O=Overflow of milk S=Sore or crack nipple

T=Tried/stress/inconvenience at work L=Leakage of breast milk P=Problem of infant

OR=Other raised infant to province

Part 7: Problems related to breastfeeding in the control group categorized according to the type of feeding at each age.

Predominant feeding

At four months after giving birth, there were nine mothers in the control group provide breastfeeding together with other food to their babies. (predominant breastfeeding). On the first day after hospital discharge, 33.3% had inadequate breast milk, and 33.3% suffered from breast engorgement. At one week after giving birth, 66.7% had over flow of milk that caused choking and 33.3% had breast engorgement. At one month, 44.4% faced problems with infants such as constipation, long duration of sleeping, and colic. At two months, 33.3% the infants suffered from problems with constipation, insufficient breast milk, a common cold, allergy to cow's milk, and colic, At three months, 55.6% of the mothers suffered from work-related stress and exhaustion At four months, 11.1% had inadequate breast milk.

Formula feeding

There were twenty one mothers in the control group who started using infant formula before their infants were four months old. On the first day after hospital discharge, 38.1% had inadequate breast milk while 33.3% of them experienced breast engorgement. At one week, 33.3% had over flow of milk that caused choking for infant and 28.6% had breast engorgement. At one month, 42.9% of the infants suffered from constipation, insufficient breast milk, a common cold, allergy to cow's milk, and colic, while 14.3% of the infants suffered from constipation, insufficient breast milk, a common cold, allergy to cow's milk, and colic. At two months 61.9% of the infants suffered from constipation, insufficient breast milk, a common cold, allergy to cow's milk, and colic. At three months, 38.1% of the infants suffered from constipation, insufficient breast milk, a common cold, allergy to cow's milk, and colic. At four months& 9.5% had inadequate breast milk, 9.52%, mothers suffered from work-related stress and exhaustion, 9.52% had leakage of breast milk and another 9.5% suffered from constipation, insufficient breast milk, a common cold, allergy to cow's milk, and colic.

Table 9 Problems related to breastfeeding in the control group categorized according to the type of feeding at each age

AGE		1 Day		1 Week		1Month		2 Month		3 Month		4 Month	
Type Of food	after discharge	N	%	N	%	N	%	N	%	N	%	N	%
Predominant Feeding(N=9)	NO	1	11.1	0	0	4	44.4	4	44.4	3	33.3	7	77.8
	I	3	33.3	0	0	0	0	2	22.2	2	22.2	1	11.1
	E	3	33.3	3	33.3	0	0	0	0	0	0	0	0
	O	0	0	6	66.7	1	11.1	0	0	0	0	0	0
	S	1	11.1	0	0	0	0	0	0	0	0	0	0
	T	0	0	0	0	0	0	1	11.1	5	55.6	0	0
	L	0	0	0	0	0	0	0	0	0	0	0	0
	P	1	11.1	1	11.1	4	44.4	3	33.3	1	11.1	1	11.1
	OR	0	0	0	0	0	0	0	0	0	0	0	0
Formula Feeding(21)	NO	1	4.8	4	19.1	9	42.9	4	19.1	9	42.9	13	61.9
	I	8	38.1	1	4.8	3	14.3	3	14.3	2	9.5	2	9.5
	E	7	33.3	6	28.6	1	4.8	1	4.8	1	4.8	0	0
	O	0	0	7	33.3	0	0	0	0	0	0	0	0
	S	3	14.3	8	38.1	0	0	0	0	1	4.8	0	0
	T	0	0	0	0	1	4.8	3	14.3	3	14.3	2	9.5
	L	0	0	0	0	0	0	1	4.8	1	4.8	2	9.5
	P	4	19.1	0	0	9	42.9	13	61.9	8	38.1	2	9.5
	OR	0	0	0	0	0	0	0	0	0	0	0	0

NO=No problem EBF=Exclusive breastfeeding I=Inadequate breast milk
E=Breast engorgement O=Overflow of milk S=Sore or crack nipple
T=Tried/stress/inconvenience at work L=Leakage of breast milk P=Problem of infant
OR=Other raised infant to province

CHAPTER V
DISCUSSION

The present study was quasi-experimental research aiming to investigate the effects of breastfeeding-promoting program on the rate and duration of exclusive breastfeeding in working mother at Pranungklao Hospital. In this chapter, the research results are discussed based on the research hypotheses previously formulated.

Research Hypotheses

There were two research hypotheses which were formulated before the commencement of the study.

1. The rate of exclusive breastfeeding at four months after child delivery the experimental group who received the breastfeeding-promoting program is higher than that of the control group who received only routine nursing care from the hospital.

2. The duration of exclusive breastfeeding of working mothers who received the breastfeeding-promoting program is longer than that of the mothers who received only routine nursing care from the hospital.

The Study Findings

The rate of exclusive breastfeeding at four months after child delivery of the working mothers who received the breastfeeding-promoting program together with routine nursing care is higher than that of the working mothers who received only routine nursing care from the hospital with statistical significance ($F = .000$, $P < .001$) (see Table 4).

The duration of exclusive breastfeeding of the working mothers who received the breastfeeding-promoting program together with routine nursing care is longer than that of the working mothers who received only routine nursing care from the hospital. with statistical significance ($t = 8.566$, $P < .001$) (see Table 5).

Such findings can be explained below.

The breastfeeding-promoting program consisted of the following components:

1. Dissemination of knowledge

The activities involved in the program to disseminate knowledge on breastfeeding included group discussion to offer working mothers the opportunity to exchange knowledge and share experience with breastfeeding. When these mothers had an opportunity to fully and freely express their opinions and listen to others' opinions, they were able to make a decision whether they wanted to breastfeed their infants. When they had freedom in their thinking and decision-making, they were able to developed sense of authority and self-pride.

In addition, pregnant women were offered a chance to watch VCD on breastfeeding. The VCD was made to ensure easy understanding of mothers with moving pictures that were interesting. Thus, mothers could easily follow what was taught in the VCD. After video presentation, the researcher also summarized the contents of the VCD using a PowerPoint Presentation, so mothers were able to memorize what was taught.

Moreover, a breastfeeding manual for working mothers was distributed. The language used in the manual was easy to understand, and the pictures were colorful and interesting. The manual discussed benefits of breastfeeding to motivate mothers to breastfeed their infants and plan for breastfeeding after returning to work. Mothers were also enabled to predict problems and obstacles that might take place in advance and prepare to overcome them. The manual also discussed breastfeeding during the postpartum period with the content related to correct breastfeeding position, both sitting and lying down positions, so that mothers could more easily follow the instructions after giving birth. The manual was considered helpful because mothers could review the manual and practice what was taught in the manual by themselves, especially during the time when the researcher was not around for help. After the hospital discharge, mothers could review the handbook to plan for breastfeeding after returning to work or to solve the problems they faced. It was found that mothers were able to overcome obstacles and solve problems by themselves after studying the handbook including breast engorgement, nipple fissure, and insufficient lactation. Thus, they were enabled to exclusively breastfeed their infants more continuously and for a longer period of time. Likewise, Angsana Siriwattanamethanon (2002) compared the effects of an educative-supportive nursing program on exclusive breastfeeding

behavior and duration in first-time mothers who sought antenatal care at Bureeram Hospital. The subjects were divided into two groups. The control group received routine nursing care from the hospital, whereas the experimental group received an educative-supportive nursing program together with routine nursing care. The activities in the educative-supportive nursing program consisted of dissemination of knowledge through a group process, VCD presentation, demonstration and skill practice on breastfeeding, distribution of a breastfeeding handbook, individual assistance during the postpartum period, and home visits. The findings showed that the scores of breastfeeding behavior of the mothers in the experimental group was statistically significantly higher than those of the mothers in the control group ($P < .001$) and their duration of exclusive breastfeeding was also longer with statistical significance ($P < .001$).

In the present study, the aims of the dissemination of knowledge were to increase pregnant women's perceived benefits of breastfeeding, decrease their perceived barriers to breastfeeding, and increase their positive attitudes toward breastfeeding. When pregnant women learned that breastfeeding benefits themselves, their infants, and society, they may become interested in breastfeeding and eventually make the decision to breastfeed their infants. They should be able to plan for problem coping as well. For those who had already decided to breastfeed their infants, the knowledge they received may enable them to breastfeed their infants for a longer period of time. In addition, when pregnant women had a chance to discuss and listen to positive ideas or experiences with breastfeeding from fellow mothers in the group activity, they may develop their own positive feelings toward breastfeeding.

2. Demonstration and skill practice enabled pregnant women to develop some skills before facing the actual situation. The skills practiced in this study included different breastfeeding positions, burping techniques, expression of breast milk, etc. When pregnant women had a chance to learn these skills before facing an actual situation, they became confident in their efficacy to successfully breastfeed their infants. The use of the LATCH instrument to assess the breastfeeding efficiency, it was found that the mothers in the experimental group were able to correctly breastfeeding their infants, with the LATCH scores ranging from 8 to 9 points. In contrast, the mothers in the control group were not as successful, and their LATCH

scores ranged between 5 and 7 points (see Table 8). The difference between the LATCH scores of the experimental and control mothers was statistically significant (P < .001). Similar findings were reported by Yupa Temeetheerakul (2007) who investigated the effects of a breastfeeding promoting program on success in breastfeeding before hospital discharge. The subjects were 60 first-time mothers who underwent a cesarean section at Bangkok Christian Hospital. The mothers in the control group received only routine nursing care from the hospital, while those in the experimental group received a breastfeeding promoting program together with routine nursing care from the hospital. The activities included in the program consisted of dissemination of knowledge on breastfeeding and practice after undergoing a cesarean section to breastfeed infants, demonstration and skill practice, distribution of a breastfeeding manual, and assistance and support during the postpartum period. Pender's Health Promoting Model was used as the conceptual framework of the study. The findings revealed that more mothers in the experimental group successfully breastfeed their infants before hospital discharge (as assessed by the LATCH scores) than the mothers in the control group with statistical significance (P < .05). Similarly, Orathai Buakam (2006) examined the effects of a breastfeeding promoting program on the rate of exclusive breastfeeding during the first four months in 60 first-time mothers who gave birth at Amnatcharoen Hospital. The subjects in the control group received routine nursing care from the hospital, whereas those in the experimental group received breastfeeding promoting program together with routine nursing care from the hospital. The activities in the program included dissemination of knowledge and provision of support and assistance to postpartum mothers. It was discovered that the mean LATCH score of the experimental subjects was 8.16 (out of the total of 10), while that of the control subject was only 5.06. Later on, it was found that the mean rate of exclusive breastfeeding for the first four months of the experimental group was 46.6%, while that of the control group was 0%, which was statistically significantly different at the .001 level. Moreover, the mean duration of exclusive breastfeeding for the first four months of the experimental group was 104.1 days, while that of the control group was only 19.7 days, which was statistically significantly different at the .001 level. When mothers were able to develop skills to correctly breastfeed their infants when they were still at the hospital, they were confident in their breastfeeding

efficacy and their ability to solve breastfeeding problems after hospital discharge such as breast engorgement, nipple fissure, and insufficient lactation, etc., which were generally found in postpartum mothers. On the other hand, the subjects in the control group were unable to correctly breastfeed their infants. During the first weeks after hospital discharge, they were unable to solve breastfeeding problems, so they turned to a baby formula or fed their infants with water, hence unsuccessful breastfeeding.

3. Provision of support and assistance to mothers after giving birth was an activity carried out by the researcher to help mothers initiate breastfeeding within one hour after giving birth to stimulate lactation. Mothers were also encouraged to breastfeed their infants as often as at least every two to three hours to promote consistent and sufficient lactation. Finally, mothers were assisted to breastfeed their infants in a correct method. The researcher provided assistance and support until it was clear that mother had developed confidence and perceived self-efficacy to breastfeed their infants. The findings of this study yielded support to the findings of Nantaporn Puangkaew (2005) who explored the effects of a perceived self-efficacy promoting program on breastfeeding behavior and duration of 60 first-time working mothers who sought antenatal care and gave normal vaginal birth at Siriraj Hospital. The mothers in the control group received routine nursing care, whereas those in the experimental group received the perceived self-efficacy promoting program with routine nursing care. The findings indicated that the scores of perceived self-efficacy of the experimental mothers at the fourth and eighth weeks were higher than those of the control mothers with statistical significance ($P < .001$). Also, their mean score of breastfeeding behavior obtained before hospital discharge was higher than that obtained before the beginning of the study and the mean score of the control group with statistical significance ($P < .001$). Finally, at the eighth week after giving birth, the duration of exclusive breastfeeding of the mothers in the experimental group was longer than that of the mothers in the control group with statistical significance ($P < .001$).

When significant persons in mothers' life such as husbands, grandmothers, or nannies were allowed to take part in the program, receiving advice while the researcher was providing assistance to the mothers, these individuals were able to develop positive attitudes toward breastfeeding and understand benefits of

breastfeeding. They were then able to help mothers in different ways such as by giving moral support and encouragement, taking care of the infants, etc. Receiving support in breastfeeding from the researcher as well as close persons in the family enabled mothers to develop a strong determination to successfully breastfeed their infants. There were two important points that were found among the experimental and control mothers in this study. They were as follows:

3.1 When mothers received assistance and support for breastfeeding from close persons, they were able to successfully breastfeed their infants. The support was in the form of encouragement, assistance with childcare, and tangible support. Penchan Jamsai (2007) investigated the effects of spousal participation on exclusive breastfeeding of working mothers in the first four months. The subjects were 100 pairs of parents with their first child aged one to four months old who sought medical care at the well-baby clinic of College of Medicine, Bangkok Metropolitan Administration and Vajira Hospital. The subjects in the control group received routine nursing care, while the subjects in the experimental group received routine nursing care together with activities conducted at one, two, and four months after giving birth. The activities included group discussions, review of benefits of breastfeeding, stimulation of idea sharing to exchange experiences with breastfeeding, provision of advice on possible problems of breastfeeding, demonstration and practice of breast milk expression and cup feeding, distribution of a manual on breastfeeding, and a telephone follow-up every two weeks. The findings revealed that the subjects in the experimental group had a mean duration of exclusive breastfeeding of 14.04 weeks, which longer than that of the control subjects which was equal to 2.73 weeks with statistical significance ($P < .001$). Also, the rates of exclusive breastfeeding at one, two, and four months were also longer than those of the control subjects with statistical significance (at 94%, 90%, and 74% in the experimental group and 10%, 6%, and 4% in the control group, respectively) ($P < .001$).

3.2 At the same time, persons who had a positive influence on mothers' breastfeeding behaviors could also have a negative influence on mothers' breastfeeding behaviors. For instance, some mothers received advice from the infants' grandmothers to feed the infants with water, baby formula, or supplementary food

The table 6 show that, at one week after giving birth, the mothers in the experimental had decrease 10% of exclusive breastfeeding because of giving water to the infant. At one month the additional 6.6% decrease exclusive breastfeeding due to giving water to the babies. The reason of giving water were preventing constipation cleaning mouth and preventing a white film on tongue, preventing dehydration. Moreover according to advice of the respected relatives. For the control group mothers provided water since the infant was one day old. Likewise, Orathai Buakam (2006) found that significant persons or elderly relatives tended to advise mothers to feed the infants with something else in addition to breast milk, hence unsuccessful attempt to exclusively breastfeed the infants. So if we able to decrease the giving water, we will be increase the rate of exclusive breastfeeding. Health professionals concern about advice grandmother to don't giving water. Because breast milk had more benefit.

4. Distribution of plastic bags to store expressed milk gave mothers a convenient option to prepare for storing breast milk after they had to return to work.

4. Follow ups to assess and solve problems were activities carried out by the researcher to help mothers continue breastfeeding. Telephone follow-ups were conducted periodically starting from one day after hospital discharge, one week after birth, and once a month until the infants were four months old. The mothers were able to call the researcher to ask for advice or help at any time, especially during the initial periods after they had returned home. Helping mothers solve breastfeeding problems enabled them to continue breastfeeding successfully, especially when they had to return to work, which was considered a critical period when mothers may face different problems. If mothers received sufficient assistance and support, they were more likely to successfully continue breastfeeding until the fourth month. Even after the research ended, mothers were able to continue breastfeeding until the sixth month. However, as for the mothers who were unable to successfully exclusively breastfeed their infants, their failure may be explained as follows:

As regards the process to disseminate knowledge on breastfeeding, first-time mothers who were interested in their new maternal role, especially during the third trimester of the pregnancy, may seek for knowledge from different sources including radio, television, books, or accounts from experienced mothers. When considering perceived benefits of breastfeeding, it could be seen that most mothers understood that

breastfeeding benefited both the infants and themselves. However, knowledge dissemination may not be extensive enough. This could be seen from some mothers who planned to formula-feed their infants after their return to work because they felt that breastfeeding was troublesome and inconvenient, making the mothers more stressed and exhausted. Also, some mothers did not know that they could express their breast milk and store it for subsequent feeding. Others may not know that at present infants should be exclusively breastfed for six months without being given water or foods. This may be possible because dissemination of knowledge during the 32-week gestational age covered mostly knowledge and information on self-care during pregnancy and breastfeeding. Most of the knowledge and information was given through VCD presentations, which was a one-way communication. Some mothers may did not understand some parts of the presentations but did not dare to ask questions, and others may paid more attention to their environment or medical examination.These factors prevented mothers from paying full attention to the significance of breastfeeding as they should have. In addition, during this period, mothers did not have a chance to practice holding infants while breastfeeding them, either sitting or lying down position. As a result, they did not have confidence and skills necessary to breastfeed their infants after they were born. An assessment of breastfeeding efficacy before hospital discharge revealed that some mothers did not hold the infants correctly, and others let infants' mouth cover only their areola. These problems may have made some mothers turned to formula-feeding. Moreover, the mothers in the control group did not receive a manual on breastfeeding in working mothers which summarized benefits of breastfeeding, expression of breast milk, breastfeeding in working mothers, and solution to breastfeeding problems. Thus, they did not have any useful information on hand for a review when they faced problems with breastfeeding. They may have to try to solve problems by themselves or ask for advice from close persons or experienced persons such as the infants' grandmothers, who may have misconceptions about breastfeeding. For this reason, their attempt to exclusively breastfeed their infants failed.

Generally, providing assistance to mothers regarding fast sucking, frequent sucking, and correct sucking is a promotion of successful breastfeeding. However, such assistance takes time as first-time mothers generally lack experience and skills,

especially when it comes to frequent sucking and correct sucking. In this study, it was found that initially mothers were exhausted from child delivery, and their attention was mostly paid to themselves as they felt that they needed assistance from others especially healthcare staff. An assessment of breastfeeding efficacy before hospital discharge showed that mothers still faced with a number of problems such as incorrect breastfeeding position, having the infants suck on the areola which could result in nipple fissure or nipple sore, etc. When the mothers had to return home, they found themselves in a new environment where there was no healthcare staff on hand to provide assistance with both self-care and breastfeeding. Instead, they had to face the problems and try to save these problems by themselves. When the mothers did not have a source of support and assistance, they may make an incorrect or inappropriate decision. Some mothers gave water to their infants because their elderly relatives told them to do so; others fed their infants with a baby formula because they felt that they did not have enough lactation. It was also found that some mothers decided to stop breastfeeding and turned to formula feeding because they did not know that they could express breast milk and store it for subsequent feeding, and other mothers did not want to pump at the office because they did not want to bother their boss or coworkers. The findings of the present study revealed that all mothers had problems with breastfeeding. Mothers who breastfed their infants tended to encounter problems with themselves such as breast engorgement, nipple fissure, and work-related exhaustion and stress. On the other hand, mothers who formula-fed their infants were more likely to face problems with their infants including constipation, fever, and frequent sickness. Evidently, some mothers were able to overcome such obstacles, while others were not.

The findings of the present study revealed that working mothers who participated in the breastfeeding promotion program and received routine nursing care from the hospital had a higher rate and a longer duration of exclusive breastfeeding when compared to those who received only routine nursing care from the hospital.

CHAPTER VI
CONCLUSION

This chapter is divided into two parts. The first section is the summary of the study. The second section focuses on the implications and applications of research findings as well as recommendations.

Summary of the Study

This research employed a quasi-experimental design with the objective of investigating the effects of a breastfeeding promoting program on the rate of exclusive breastfeeding in working mothers for four months. The conceptual framework of the research was Pender's health promotion model. The sample of this study consisted of 60 working mothers who gave birth and received antenatal care at Pranungklao Hospital between May 1 and December 31, 2007. They were selected by means of the purposive sampling method on the basis of similar characteristics regarding age and duration of maternity leave. The sample groups were recruited according to the following inclusion criteria: 1. Both sides of their breasts and nipples were normal.
2. They did not have any prohibition to breastfeed such as having HIV infection.
3. They have a husband or relative stay together them at home. 4.They intended to breastfeed their infants. 5. They were able to be reached by phone. 6.They were willing to participate in the study.

The subjects were divided into the experimental group, consisting of 30 subjects, and the control group, composed of 30 subjects. The experimental group participated in the breastfeeding promoting program and received routine nursing care from the hospital, while the control group received only routine nursing care from the hospital staff. The subjects' rights were protected with an approval given to the research proposal by the Committee of Human Rights Related to Human Experimentation of Mahidol University. The data were collected using data collection instruments comprising: 1) Personal Information Questionnaire; 2) LATCH assessment

tool; 3) Feeding Monitoring Form, and 4) record form of problems related to breastfeeding. The intervention instruments comprised the following:

1. The breastfeeding teaching plan for working mothers, which was designed by the researcher based on an extensive review of textbooks, documents, journals, and research reports. The content of the teaching plan covered the anatomy of the breast, lactation mechanisms, benefits of breastfeeding, exclusive breastfeeding, breastfeeding techniques, how to ensure breastfeeding success, breastfeeding positions, assessment of sufficient breastfeeding, breastfeeding problems and solutions, breastfeeding in working mothers, and expressing breast milk and ways to feed expressed breast milk to infants. The teaching was carried out with discussion and exchange of knowledge and experiences of pregnant women, with the researcher summarizing each of the discussed issues using the Power Point presentation. In addition, a 15-minute VCD on breastfeeding techniques produced by "the Nommae Organization" was also shown to the pregnant women. The content of the VCD, which was produced by experts on breastfeeding and distributed to disseminate knowledge of breastfeeding among pregnant women, covered the correct breastfeeding techniques and breastfeeding positions. The researcher also summarized the main points of the VCD to ensure correct understanding of the pregnant women.

Moreover, a breastfeeding manual for working mothers was also distributed for a review at home. The objectives of the dissemination of knowledge were to ensure pregnant women's understanding of the benefits of breastfeeding, decrease their breastfeeding obstacles, and enhance their positive attitudes toward breastfeeding. Besides, there were different skill practices which benefited breastfeeding including correct ways to hold the infant during breastfeeding, burping the infant, pumping, etc. When pregnant women had a chance to learn and practice important skills before they encountered the actual situation, they should be more confident in their capability to breastfeed their infants.

2. The plan for provision of support and assistance to postpartum mothers was used. The researcher planned to enable postpartum mothers to succeed in breastfeeding by letting the infants suck their mothers' breast within one hour after birth to stimulate lactation, encouraging the mothers to breastfeed the infants every two to three hours to ensure regular and sufficient lactation, and helping the mothers

breastfeed their infants correctly. The researcher offered assistance and guidance until the mothers were confident and certain that they were able to breastfeed their infants correctly. Furthermore, the researcher disseminated knowledge about breastfeeding and offered guidance to significant persons or influential persons in the mothers' life such as the husband, grandmother, or nanny to ensure positive attitudes toward breastfeeding and similar perceptions of breastfeeding to those of the mothers. The researcher also aimed to let these persons encourage and support the mothers in different ways such as giving support to boost their morale, helping take care of the infants, etc. Breastfeeding was also followed-up one more time before the mothers were discharged from the hospital in cases the mothers still lacked confidence or were unable to breastfeed their infants properly. Plans to assist postpartum mothers after hospital discharge were also devised in the form of telephone follow-ups and telephone consultancy.

3. Teaching materials consisted of Power Point slides, videos on breastfeeding, a life-sized baby model, a life-sized breast model, a manual on breastfeeding for working mothers, and tools for pumping and collecting expressed breast milk. All of these could be explained as follows:

3.1 Power Point slides: These slides were prepared by the researcher to summarize main points which were not covered in the pregnant women's discussions and exchange of knowledge and experiences sessions. The content of the slides were in congruence with the teaching plan including the anatomy of the breast, lactation mechanisms, benefits of breastfeeding, exclusive breastfeeding, breastfeeding techniques, how to ensure breastfeeding success, breastfeeding position, assessment of sufficient breastfeeding, breastfeeding problems and solutions, breastfeeding in working mothers, and expressing breast milk and ways to feed expressed milk to infants using a cup.

3.2 Breastfeeding VCD: The main point of the VCD was breastfeeding techniques lasting 15 minutes. The contents of the VCD were related to correct breastfeeding techniques and breastfeeding positions to ensure pregnant women's understanding of the benefits of breastfeeding, decrease their breastfeeding obstacles, and enhance their positive attitudes toward breastfeeding.

3.3 A life-sized baby model: The model was used to enable pregnant women to practice holding the infants in different breastfeeding positions and burping to ensure familiarity and confidence of the pregnant women to breastfeed their infants after they were born.

3.4 A life-size breast model: The model was used to teach pregnant women about the anatomy of the breast and its external components. It was also utilized in the teaching of breast milk expressing skills.

3.5 A breastfeeding manual for working mothers: The researcher compiled the breastfeeding information from an extensive review of textbooks, documents, and research reports. The contents of the manual were in accordance with the contents of the teaching plans. It was distributed to the pregnant women after the teaching ended for further reviews at home.

3.6 Breast milk expressing tools: The tools for expressing and pumping breast milk included a milk collection bag and a feeding cup. The researcher demonstrated how these tools were used, and the milk collection bags were given to the mothers after childbirth for their use at home.

The data obtained were analyzed by the Chi-square test to examine the differences between the characteristics of the sample in the experimental and control groups. Fisher's Exact test and independent t-test were performed for the comparison of the rate of exclusive breastfeeding and the duration of exclusive breastfeeding, respectively, between the working mothers who revived the breastfeeding promoting program together with routine nursing care and those who received only routine nursing care from the hospital.

Research findings

1. The mothers in the experimental group who received the breastfeeding-promoting program together with routine nursing care had a higher rate of exclusive breastfeeding at a statistically significant level in comparison with the mothers in the control group who received only routine nursing care ($p < .001$).

2. The mothers in the experimental group who participated in the breastfeeding Promoting-program together with routine nursing care had a longer mean duration of exclusive breastfeeding at a statistically significant level in comparison with the mothers in the control group who received only routine nursing care ($p < .001$).

In summary, the conclusions of this study are that the breastfeeding-promoting program was able to had a high rate and long duration of exclusive breastfeeding in working mothers.

Implications and Recommendations

The findings of this study show that working mothers who received the breastfeeding-promoting program together with routine nursing care had a higher rate of exclusive breastfeeding and longer duration of exclusive breastfeeding in comparison to the working mothers who received only routine nursing care. The result suggested that this program was effective. Nurses who involve in maternal-child care should apply this program to continuously promote breastfeeding to mothers during pregnancy, through the postpartum period and after hospital discharge as recommended below.

For Nursing Practice

During pregnancy

1. Healthcare personnel should disseminate knowledge about breastfeeding by using a group process to offer mothers with the opportunity to share their experiences and exchange their ideas. The content of the knowledge dissemination should cover the topics of the anatomy and compositions of the breast, lactation mechanisms, benefits of breastfeeding, exclusive breastfeeding, breastfeeding principles, how to ensure successful breastfeeding, breastfeeding positions, assessment of sufficient breast milk intake, problems in breastfeeding and solutions, breastfeeding in working mothers, expressing breast milk and feeding with expressed milk, and cup feeding. The duration of the teaching should not be too long as the mothers may not be able to memorize all the contents. In addition, use of media together with the instructor's lecture should be made interesting so as to ensure better memorization of pregnant women. The teaching environment should be both quiet and private.

2. Demonstration and practice of breastfeeding positions, both sitting and lying down positions, as well as demonstration and practice of breast milk expression and cup feeding, will help increase first-time mothers' confidence so that they will be able to correctly and confidently breastfeed their infants after they have given birth.

3. A breastfeeding manual should be made for mothers' review at home. The manual can also be used as an immediate guideline to help mothers solve problems with breastfeeding by themselves.

Postpartum stage

1. Healthcare personnel should provide assistance and support to mothers based on the principle of fast sucking, frequent sucking, and correct sucking.

2. Husbands and family members should be encouraged to take part in breastfeeding by giving knowledge and skill practice to enable them to help nursing mothers.

3. Nurses working in a postpartum ward should be equipped with skills necessary in helping mothers breastfeed their infants successfully before hospital discharge.

After hospital discharge

Telephone follow-ups will help a mother to solve problems, after discharged from the hospital. Another time that a mothers need help, when she is about to return to work. Mothers should be able to seek advice and support anytime when they have problems.

For further research

For future study, the following topic are recommended.

1. The effects of breastfeeding-promoting program on working situation.

2. A study should be conducted to determine the effects of breastfeeding promoting program on the rate of sick babies, day of the absent of the mothers from work, productivity of the mothers in the workplace.

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APPENDIX

APPENDIX A
LIST OF EXPERTS:

The validity of research instruments was assessed by five experts:

1. Assistant Professor Dr. Suaree Ontrakarn.
   Department of Obstetric and Gynecological.
   Faculty of Medicine, Siriraj Hospital Mahidol University.
2. Assistant Professor Chantika Chanpia.
   Department of Pediatric Nursing.
   Faculty of Nursing, Mahidol University.
3. Dr. Wanna Phahuwathanakorn
   Department of Obstetric and gynecological Nursing.
   Faculty of Nursing, Mahidol University
4. Miss. Thidaratana Wongwisutdhi
   Registered Nurse, Lactation Clinic.
   Siriraj Hospital
5. Miss Sirilak thawornwattana.
   Registered Nurse, Lactation Clinic.
   Queen Sirikit National Institute Of Child Health

APPENDIX B

Consent to Participate in Research Study (Control group)

1. หัวข้อเรื่องที่จะทำวิจัย

ผลของโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ ต่ออัตราและระยะเวลาการเลี้ยงลูกด้วยนมแม่อย่างเดียว ในมารดาที่ทำงานนอกบ้าน

2. วัตถุประสงค์การวิจัยและวิธีการวิจัย

วัตถุประสงค์ในการวิจัยครั้งนี้ เพื่อศึกษาผลของโปรแกรมการส่งเสริมการเลี้ยงลูกด้วยนมแม่ต่ออัตราและระยะเวลาการเลี้ยงลูกด้วยนมแม่อย่างเดียว ในมารดาที่ทำงานนอกบ้านระหว่างกลุ่มที่เข้าร่วมโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ ร่วมกับการพยาบาลตามปกติ กับกลุ่มที่ได้รับการพยาบาลตามปกติโดยเมื่อท่านตกลงใจที่จะเข้าร่วมโปรแกรมแล้ว ท่านยังคงได้รับการดูแลตามปกติจากเจ้าหน้าที่โรงพยาบาลพระนั่งเกล้า คือ ท่านจะได้รับฟังการให้ความรู้เป็นรายกลุ่มเกี่ยวกับการปฏิบัติตัวขณะตั้งครรภ์และการเลี้ยงลูกด้วยนมแม่ เมื่อท่านตั้งครรภ์ระหว่าง 28-32 สัปดาห์ การเตรียมตัวคลอดและการเยี่ยมชมห้องคลอด เมื่ออายุครรภ์ระหว่าง 36 สัปดาห์ขึ้นไป นอกจากนี้ท่านยังได้รับการสัมภาษณ์ข้อมูลส่วนบุคคล ในวันที่ท่านยินยอมเข้าร่วมการวิจัย อายุครรภ์ประมาณ 37-40 สัปดาห์ และเมื่อหลังคลอดก่อนที่แพทย์จะอนุญาตให้กลับบ้าน ท่านจะได้รับการประเมินประสิทธิภาพในการให้นมแม่ และเมื่อท่านกลับไปอยู่ที่บ้าน ท่านจะได้รับการสัมภาษณ์เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ทางโทรศัพท์ หลังจากมารดากลับไปอยู่ที่บ้านแล้ว 1 วัน โทรศัพท์ติดตามอีกครั้งเมื่อทารกอายุ 1 สัปดาห์ หลังจากนั้นจะโทรศัพท์ติดตามทุก 1 เดือน จนทารก อายุครบ 4 เดือน

3. เหตุผลที่เชิญชวนให้ท่านเข้าร่วมโครงการวิจัย

การที่ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยครั้งนี้ เพราะท่านเป็นบุคคลสำคัญที่สามารถเป็นตัวแทนของหญิงตั้งครรภ์คนอื่นที่กำลังจะให้กำเนิดบุตรคนแรกและทำงานนอกบ้าน ในช่วงเวลาที่มีการนำโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ มาใช้ในโรงพยาบาลพระนั่งเกล้า

4. ระยะเวลาที่ใช้ในการทำวิจัย

ระยะเวลาที่ใช้ตลอดการทำวิจัยทั้งหมด ประมาณ 4 เดือน 3 สัปดาห์ นับตั้งแต่วันแรกที่ยินยอมเข้าร่วมการวิจัยเมื่ออายุครรภ์ประมาณ 37 สัปดาห์ จน 4 เดือนหลังคลอด แต่ทั้งนี้ระยะเวลาที่

ใช้ในการเข้าร่วมโครงการวิจัยครั้งนี้ ใช้เวลาในการให้สัมภาษณ์ข้อมูลส่วนบุคคลในครั้งแรกที่เข้าร่วมโครงการวิจัยประมาณ 5-10 นาที และเมื่อหลังคลอดก่อนที่ท่านจะออกจากโรงพยาบาลจะได้รับการประเมินประสิทธิภาพในการให้นมมารดา ใช้เวลาประมาณ 5-10 นาทีและหลังจากจำหน่ายออกจากโรงพยาบาลแล้ว ท่านจะได้รับการสัมภาษณ์เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ทางโทรศัพท์ หลังจากมารดากลับไปอยู่ที่บ้านแล้ว 1 วัน โทรศัพท์ติดตามอีกครั้งเมื่อทารกอายุ 1 สัปดาห์ หลังจากนั้นจะโทรศัพท์ติดตามทุก 1 เดือน จนทารก อายุครบ 4 เดือน

5. ประโยชน์ที่คาดว่าจะเกิดขึ้นทั้งต่อผู้เข้าร่วมวิจัยและต่อผู้อื่น

การเข้าร่วมการวิจัยครั้งนี้คาดว่าจะเกิดประโยชน์ ต่อท่านคือ ท่านจะได้รับความรู้เรื่องการเลี้ยงลูกด้วยนมแม่รวมทั้งท่านยังได้รับข้อมูลเพิ่มเติม หรือสอบถามข้อสงสัยเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ในขณะที่ตั้งครรภ์ หลังคลอด หรือหลังจำหน่ายออกจากโรงพยาบาลไปแล้วจากพยาบาลแผนกฝากครรภ์ ห้องคลอด หลังคลอด คลินิกสุขภาพเด็กดีของโรงพยาบาลพระนั่งเกล้า และนอกจากนี้ ผลการศึกษาสามารถเป็นประโยชน์ต่อมารดาที่เลี้ยงลูกด้วยนมแม่รายอื่นๆ เพราะ ผลการศึกษามาจากการเข้าร่วมวิจัยของท่าน จะเป็นสิ่งสำคัญที่จะเป็นแนวทางให้พยาบาลในหน่วยฝากครรภ์ ห้องคลอด และหลังคลอด นำไปใช้ช่วยเหลือ สนับสนุน และส่งเสริมการเลี้ยงลูกด้วยนมแม่ ซึ่งเป็นสิ่งที่ดีและเหมาะสมสำหรับทารกแรกเกิด เพื่อให้สามารถช่วยเหลือมารดาในการเลี้ยงลูกด้วยนมแม่ให้ประสบความสำเร็จต่อไป

6. ความเสี่ยงที่อาจเกิดขึ้นในขณะทำการวิจัย

ตลอดการเข้าร่วมการวิจัยครั้งนี้จะไม่มีความเสี่ยงที่จะก่อให้เกิดอันตรายแต่อย่างใด เป็นเพียงการสัมภาษณ์ ไม่มีการปฏิบัติการใดๆ แต่ท่านอาจเสียเวลา อึดอัด หรือรู้สึกรำคาญ ท่านอาจบอกยกเลิกไม่ให้สัมภาษณ์ต่อไปโดยไม่บอกเหตุผล ผู้วิจัยก็จะไม่ให้สัมภาษณ์ต่อ ให้เป็นตามความสมัครใจของท่าน และท่านจะยังคงได้รับการดูแลจากทางโรงพยาบาลตามปกติ

7. การเตรียมผลิตภัณฑ์หรือกระบวนการรักษาที่พิสูจน์จากการทำวิจัยแล้วว่าปลอดภัย

ในการศึกษาวิจัยครั้งนี้ไม่มีการใช้ผลิตภัณฑ์ หรือ การรักษาใดๆ ให้กับท่านเพิ่มเติมนอกเหนือจากการตรวจรักษาตามปกติจากทางโรงพยาบาล

8. ทางเลือกในการรักษาหรือวิธีการตรวจวินิจฉัยอื่น ที่อาจเป็นประโยชน์ต่อผู้เข้าร่วมวิจัย

การเข้าร่วมวิจัยครั้งนี้ท่านยังคงมีสิทธิ์ที่จะเลือกการตรวจเพื่อรักษาโรค หรือ การตรวจครรภ์และการพยาบาลอื่นๆ ที่จะเป็นประโยชน์แก่ท่านต่อไป และการมาตรวจหรือฝากครรภ์นี้ ท่านสามารถตัดสินใจในการที่จะเลือกสถานที่ในการฝากครรภ์ที่ใดก็ได้ตามความต้องการของท่าน โดยจะไม่มีผลต่อการให้บริการที่ท่านควรจะได้รับจากทางโรงพยาบาลแต่อย่างใด

9. การดูแลรักษาความลับของข้อมูลต่างๆ ของผู้เข้าร่วมวิจัย

ในการให้ข้อมูลครั้งนี้จะเป็นไปตามความสมัครใจของท่าน โดยข้อมูลที่ได้จากท่านทั้งหมดจะถูกเก็บรักษาไว้เป็นความลับ และผู้วิจัยจะเก็บรักษาไว้เป็นอย่างดี ไม่มีการเปิดเผยชื่อ - นามสกุล และไม่เปิดเผยข้อมูลเป็นรายบุคคล แต่จะสรุปรายงานผลการวิจัยเป็นข้อมูลในภาพรวม ซึ่งข้อมูลเป็นรายบุคคลนั้น อาจมีคณะกลุ่มบุคคลที่มีหน้าที่ในการตรวจสอบมาศึกษาข้อมูลของผู้เข้าร่วมวิจัย เช่น สถาบันหรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ คณะกรรมการจริยธรรม เป็นต้น

10. การดูแลรักษาที่ผู้วิจัยจะจัดให้

การศึกษาวิจัยครั้งนี้ไม่มีการรักษาใดๆ เพิ่มเติมนอกเหนือจากการดูแลรักษาตามปกติจากแนวทางการดูแลของทางโรงพยาบาล

11. กรณีการเกิดอันตรายหรือผลอันไม่พึงประสงค์จากการวิจัย

เนื่องจากการวิจัยครั้งนี้ ท่านจะยังคงได้รับการดูแลตามปกติจากทางโรงพยาบาลพระนั่งเกล้า ต่อไป ซึ่งไม่ทำให้เกิดอันตราย หรือผลอันไม่พึงประสงค์จากการวิจัยแต่อย่างใด หรือ หากเกิดอันตรายใดๆ อันเนื่องมาจากการวิจัยดังกล่าว ผู้เข้าร่วมการวิจัยจะได้รับการรักษาพยาบาลโดยไม่คิดมูลค่าตามมาตรฐานวิชาชีพ และจะได้รับการชดเชยรายได้ที่สูญเสียไปในระหว่างการรักษาพยาบาลดังกล่าว ตลอดจนเงินทดแทนความพิการที่อาจเกิดขึ้น

12. กรณีการเกิดอันตรายจากการวิจัยถึงขั้นพิการ หรือ เสียชีวิต

การวิจัยครั้งนี้จะไม่ทำให้เกิดอันตรายที่ร้ายแรงแต่อย่างใด

13. สิทธิในการถอนตัวออกจากการวิจัย

ระหว่างที่ท่านเข้าร่วมการวิจัย หากท่านเกิดการเปลี่ยนใจภายหลัง ท่านมีสิทธิ์ที่จะขอถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้โดยไม่มีข้อแม้ใดๆ ซึ่งไม่จำเป็นต้องแจ้งให้ทราบก่อนล่วงหน้า

และไม่ว่าท่านจะเข้าร่วมวิจัยหรือไม่ก็ตาม จะไม่มีผลกระทบต่อการรักษาพยาบาลใดๆ ที่ท่านควรได้รับทั้งสิ้น โดยท่านยังคงได้รับการตรวจครรภ์ ตรวจรักษาโรค และการบริการ เมื่อมาฝากครรภ์จากทางโรงพยาบาลพระนั่งเกล้าตามปกติต่อไป

14. ชื่อ ที่อยู่ และ เบอร์โทรศัพท์ของผู้วิจัยที่สามารถติดต่อได้สะดวก

ในขณะที่เข้าร่วมวิจัย หากท่านมีข้อสงสัยใดๆ หรือต้องการข้อมูลเพิ่มเติม ท่านสามารถสอบถามได้จากผู้วิจัย นางสาวประภาพร วิสารพันธ์ นักศึกษาปริญญาโท สาขาการพยาบาลมารดา-ทารกแรกเกิดและสุขภาพสตรี มหาวิทยาลัยมหิดล เบอร์โทรศัพท์ที่สามารถติดต่อได้ตลอดเวลาทั้งในเวลาราชการและนอกเวลาราชการ (08)79222001 ขอขอบคุณในความร่วมมือของท่าน

นางสาวประภาพร วิสารพันธ์
ผู้วิจัย

Consent to Participate in Research Study (Experimental group)

1. หัวข้อเรื่องที่จะทำวิจัย

ผลของโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ ต่ออัตราและระยะเวลาการเลี้ยงลูกด้วยนมแม่อย่างเดียว ในมารดาที่ทำงานนอกบ้าน

2. วัตถุประสงค์การวิจัยและวิธีการวิจัย

วัตถุประสงค์ในการวิจัยครั้งนี้ เพื่อศึกษาผลของโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ต่ออัตราและระยะเวลาการเลี้ยงลูกด้วยนมแม่อย่างเดียวในมารดาที่ทำงานนอกบ้านระหว่างกลุ่มที่เข้าร่วมโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ ร่วมกับการพยาบาลตามปกติ กับกลุ่มที่ได้รับการพยาบาลตามปกติ โดยเมื่อท่านตกลงใจที่จะเข้าร่วมโครงการแล้ว ท่านจะได้รับการดูแลเพิ่มเติมจากการพยาบาลตามปกติตั้งแต่ระยะตั้งครรภ์ ระคลอด ระยะหลังคลอด และระยะจำหน่ายออกจากโรงพยาบาล ตามลำดับขั้นของโครงการวิจัย คือ เมื่อมาฝากครรภ์ท่านจะได้เข้าร่วมกลุ่มกับหญิงตั้งครรภ์รายอื่นๆ เพื่อพูดคุย อภิปรายแลกเปลี่ยนความรู้เกี่ยวกับประโยชน์ของการเลี้ยงลูกด้วยนมแม่ เหตุการณ์ที่ต้องเผชิญในระยะหลังคลอดที่อาจจะเป็นอุปสรรคในการเลี้ยงลูกด้วยนมแม่ ปัญหาและวิธีการแก้ไข สาธิตและฝึกทักษะการอุ้มลูกกินนม ได้รับการแจกคู่มือการเลี้ยงลูกด้วยนมแม่ และเมื่อท่านมาคลอดท่านจะได้รับการช่วยเหลือในการให้ลูกกินนมแม่ตั้งแต่มื้อแรกภายใน 1 ชั่วโมงหลังคลอด และมื้อต่อๆไปทุก 2-3 ชั่วโมง ประมาณ 3 มื้อ จนมารดามั่นใจและสามารถปฏิบัติได้ถูกต้อง ในเวลาที่สามีและญาติมาเยี่ยมท่านก็จะได้รับได้รับการพูดคุยเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ร่วมกับสามีและ/หรือญาติร่วมกับผู้วิจัย ก่อนที่แพทย์จะอนุญาตให้กลับบ้าน ท่านจะได้รับการประเมินประสิทธิภาพในการให้นมแม่ และได้รับการแจกถุงสำหรับเก็บน้ำนมแม่ และเมื่อท่านกลับไปอยู่ที่บ้าน ท่านจะได้รับการสัมภาษณ์เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ทางโทรศัพท์หลังจากมารดากลับไปอยู่ที่บ้านแล้ว 1 วัน โทรศัพท์ติดตามอีกครั้งเมื่อทารกอายุ 1 สัปดาห์ หลังจากนั้นจะโทรศัพท์ติดตามทุก 1 เดือน จนทารก อายุครบ 4 เดือน กรณีที่มารดามีปัญหาในการเลี้ยงลูกด้วยนมแม่สามารถโทรศัพท์ปรึกษาผู้วิจัยได้ตลอดเวลา

3. เหตุผลที่เชิญชวนให้ท่านเข้าร่วมโครงการวิจัย

ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยครั้งนี้ เพราะท่านเป็นบุคคลสำคัญที่สามารถเป็นตัวแทนของหญิงตั้งครรภ์คนอื่นที่กำลังจะให้กำเนิดบุตรคนแรกและทำงานนอกบ้าน ในช่วงเวลาที่มีการนำโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ มาใช้ในโรงพยาบาลพระนั่งเกล้า

4. ระยะเวลาที่ใช้ในการทำวิจัย

ระยะเวลาที่ใช้ตลอดการทำวิจัยทั้งหมด ประมาณ 4 เดือน 3 สัปดาห์ นับตั้งแต่วันแรกที่ยินยอมเข้าร่วมการวิจัยเมื่ออายุครรภ์ประมาณ 37 สัปดาห์ จน 4 เดือนหลังคลอด แต่ทั้งนี้ระยะเวลาที่ใช้ในการเข้าร่วมโครงการวิจัยครั้งนี้ ใช้เวลาในการให้สัมภาษณ์ข้อมูลส่วนบุคคลในครั้งแรกที่เข้าร่วมโครงการวิจัยประมาณ 5-10 นาที และเมื่อหลังคลอดท่านจะได้รับการช่วยเหลือในการให้ลูกกินนมแม่ อย่างน้อย 3 มื้อติดต่อกัน ซึ่งเป็นเวลาปกติที่ท่านต้องให้ลูกกินนมแม่หลังคลอด ในแต่ละครั้งใช้เวลาประมาณ 30 นาที และการจัดให้ท่านได้พูดคุยอภิปรายร่วมกับสามีและ/หรือญาติที่มาเยี่ยมท่านในช่วงหลังคลอดร่วมกับผู้วิจัย ใช้เวลาประมาณ 30 นาที และก่อนที่ท่านจะจำหน่ายออกจากโรงพยาบาลจะได้รับการประเมินประสิทธิภาพในการให้นมมารดา ใช้เวลาประมาณ 5-10 นาทีและหลังจากจำหน่ายออกจากโรงพยาบาลแล้ว ท่านจะได้รับการสัมภาษณ์เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ทางโทรศัพท์ หลังจากมารดากลับไปอยู่ที่บ้านแล้ว 1 วัน โทรศัพท์ติดตามอีกครั้งเมื่อทารกอายุ 1 สัปดาห์ หลังจากนั้นจะโทรศัพท์ติดตามทุก 1 เดือน จนทารก อายุครบ 4 เดือน กรณีที่มารดามีปัญหาในการเลี้ยงลูกด้วยนมแม่สามารถโทรศัพท์ปรึกษาผู้วิจัยได้ตลอดเวลา

5. ประโยชน์ที่คาดว่าจะเกิดขึ้นทั้งต่อผู้เข้าร่วมวิจัยและต่อผู้อื่น

การเข้าร่วมโครงการวิจัยครั้งนี้ ผลประโยชน์ที่คาดว่าจะเกิดขึ้นต่อท่าน คือ ท่านจะได้รับความรู้และเตรียมความพร้อมสำหรับการเลี้ยงลูกด้วยนมแม่ โดยได้รับความรู้เกี่ยวกับประโยชน์ของการเลี้ยงลูกด้วยนมแม่ ได้ทราบเหตุการณ์ที่จะต้องเผชิญหลังคลอดที่อาจจะเป็นอุปสรรคต่อการเลี้ยงลูกด้วยนมแม่ล่วงหน้า และเตรียมการแก้ไขปัญหาเหล่านั้น และได้ลองฝึกทักษะการอุ้มลูกดูดนมที่ถูกต้อง ได้รับคู่มือการเลี้ยงลูกด้วยนมแม่ไปทบทวนความรู้ที่บ้าน ซึ่งสิ่งต่างๆเหล่านี้จะทำให้ท่านมีความมั่นใจในการเลี้ยงลูกด้วยนมแม่หลังคลอด และเมื่อหลังคลอดในขณะที่ท่านต้องให้นมแม่แก่ลูกเอง ท่านก็จะได้รับการช่วยเหลือการให้นม จนกว่าท่านจะสามารถให้นมแม่ได้ด้วยตนเองจนมั่นใจและถูกต้อง รวมทั้งมีการส่งเสริมให้บุคคลสำคัญ เช่น สามี ย่า ยาย ผู้ดูแลเด็กมีความรู้เกี่ยวกับประโยชน์ของการเลี้ยงลูกด้วยนมแม่ มีทัศนคติเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ที่ถูกต้องตรงกับมารดา รวมทั้งมารดาได้รับการสนับสนุนช่วยเหลือจากบุคคลดังกล่าว มีการสอนการป้อนและบีบเก็บน้ำนม ก่อนที่มารดาจะออกไปทำงานนอกบ้าน และหลังจากที่จำหน่ายออกจากโรงพยาบาลกลับไปอยู่ที่บ้านแล้วท่านก็จะได้รับการติดตามปัญหาและให้คำแนะนำเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ต่อเนื่องตลอดระยะเวลาหลังคลอด 4 เดือน และนอกจากนี้ผลของการศึกษาครั้งนี้สามารถเป็นประโยชน์ต่อมารดาที่เลี้ยงลูกด้วยนมแม่คนอื่นๆ เพราะผลของการศึกษาที่ได้มาจากการเข้าร่วมวิจัยของท่านจะเป็นสิ่งสำคัญที่จะเป็นแนวทางให้พยาบาลในหน่วยฝากครรภ์ ห้องคลอด และหลังคลอดนำไปใช้

ช่วยเหลือ สนับสนุน และส่งเสริมการเลี้ยงลูกด้วยนมแม่ซึ่งเป็นสิ่งที่ดีและเหมาะสมสำหรับทารกแรกเกิดเพื่อให้สามารถช่วยเหลือมารดาในการเลี้ยงลูกด้วยนมแม่ให้ประสบความสำเร็จต่อไป

6. ความเสี่ยงที่อาจเกิดขึ้นในขณะทำการวิจัย

ตลอดการเข้าร่วมการวิจัยครั้งนี้จะไม่มีความเสี่ยงที่จะก่อให้เกิดอันตรายแต่อย่างใด เป็นเพียงการสัมภาษณ์ พูดคุยอภิปรายกลุ่มร่วมกับหญิงตั้งครรภ์รายอื่นๆ และหลังคลอดผู้วิจัยจะช่วยเหลือท่านในการให้ลูกกินนมแม่ และมีการสัมภาษณ์ซึ่งท่านอาจเสียเวลา อึดอัด หรือรู้สึกรำคาญ ท่านอาจบอกยกเลิกไม่ให้สัมภาษณ์ต่อไปโดยไม่บอกเหตุผล ผู้วิจัยก็จะไม่ให้สัมภาษณ์ต่อให้เป็นตามความสมัครใจของท่าน และท่านจะยังคงได้รับการดูแลจากทางโรงพยาบาลตามปกติ

7. การเตรียมผลิตภัณฑ์หรือกระบวนการรักษาที่พิสูจน์จากการทำวิจัยแล้วว่าปลอดภัย

ในการศึกษาวิจัยครั้งนี้ไม่มีการใช้ผลิตภัณฑ์ หรือ การรักษาใดๆ ให้กับท่านเพิ่มเติมนอกเหนือจากการตรวจรักษาตามปกติจากทางโรงพยาบาล

8. ทางเลือกในการรักษาหรือวิธีการตรวจวินิจฉัยอื่น ที่อาจเป็นประโยชน์ต่อผู้เข้าร่วมวิจัย

การเข้าร่วมวิจัยครั้งนี้ท่านยังคงมีสิทธิ์ที่จะเลือกการตรวจเพื่อรักษาโรค หรือ การตรวจครรภ์และการพยาบาลอื่นๆ ที่จะเป็นประโยชน์แก่ท่านต่อไป และการมาตรวจหรือฝากครรภ์นี้ ท่านสามารถตัดสินใจในการที่จะเลือกสถานที่ในการฝากครรภ์ที่ใดก็ได้ตามความต้องการของท่าน โดยจะไม่มีผลต่อการให้บริการที่ท่านควรจะได้รับจากทางโรงพยาบาลแต่อย่างใด

9. การดูแลรักษาความลับของข้อมูลต่างๆ ของผู้เข้าร่วมวิจัย

ในการให้ข้อมูลครั้งนี้จะเป็นไปตามความสมัครใจของท่าน โดยข้อมูลที่ได้จากท่านทั้งหมดจะถูกเก็บรักษาไว้เป็นความลับ และผู้วิจัยจะเก็บรักษาไว้เป็นอย่างดี ไม่มีการเปิดเผยชื่อ - นามสกุล และไม่เปิดเผยข้อมูลเป็นรายบุคคล แต่จะสรุปรายงานผลการวิจัยเป็นข้อมูลในภาพรวม ซึ่งข้อมูลเป็นรายบุคคลนั้น อาจมีคณะกลุ่มบุคคลที่มีหน้าที่ในการตรวจสอบมาศึกษาข้อมูลของผู้เข้าร่วมวิจัย เช่น สถาบันหรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ คณะกรรมการจริยธรรม เป็นต้น

10. การดูแลรักษาที่ผู้วิจัยจะจัดให้

การศึกษาวิจัยครั้งนี้ไม่มีการรักษาใดๆ เพิ่มเติมนอกเหนือจากการดูแลรักษาตามปกติจากแนวทางการดูแลของทางโรงพยาบาลร่วมกับการพยาบาลตามโครงการวิจัย

11. กรณีการเกิดอันตรายหรือผลอันไม่พึงประสงค์จากการวิจัย

เนื่องจากการวิจัยครั้งนี้ ท่านจะยังคงได้รับการดูแลตามปกติจากทางโรงพยาบาลพระนั่งเกล้าต่อไป ซึ่งไม่ทำให้เกิดอันตราย หรือผลอันไม่พึงประสงค์จากการวิจัยแต่อย่างใด หรือ หากเกิดอันตรายใดๆ อันเนื่องมาจากการวิจัยดังกล่าว ผู้เข้าร่วมการวิจัยจะได้รับการรักษาพยาบาลโดยไม่คิดมูลค่าตามมาตรฐานวิชาชีพ และจะได้รับการชดเชยรายได้ที่สูญเสียไปในระหว่างการรักษาพยาบาลดังกล่าว ตลอดจนเงินทดแทนความพิการที่อาจเกิดขึ้น

12. กรณีการเกิดอันตรายจากการวิจัยถึงขั้นพิการ หรือ เสียชีวิต

การวิจัยครั้งนี้จะไม่ทำให้เกิดอันตรายที่ร้ายแรงแต่อย่างใด

13. สิทธิในการถอนตัวออกจากการวิจัย

ระหว่างที่ท่านเข้าร่วมการวิจัย หากท่านเกิดการเปลี่ยนใจภายหลัง ท่านมีสิทธิ์ที่จะขอถอนตัวออกจากการวิจัยเมื่อใดก็ได้โดยไม่มีข้อแม้ใดๆ ซึ่งไม่จำเป็นต้องแจ้งให้ทราบก่อนล่วงหน้า และไม่ว่าท่านจะเข้าร่วมวิจัยหรือไม่ก็ตาม จะไม่มีผลกระทบต่อการรักษาพยาบาลใดๆ ที่ท่านควรได้รับทั้งสิ้น โดยท่านยังคงได้รับการตรวจครรภ์ ตรวจรักษาโรค และการบริการ เมื่อมาฝากครรภ์จากทางโรงพยาบาลพระนั่งเกล้าตามปกติต่อไป

14. ชื่อ ที่อยู่ และ เบอร์โทรศัพท์ของผู้วิจัยที่สามารถติดต่อได้สะดวก

ในขณะที่เข้าร่วมวิจัย หากท่านมีข้อสงสัยใดๆ หรือต้องการข้อมูลเพิ่มเติม ท่านสามารถสอบถามได้จากผู้วิจัย นางสาวประภาพร วิสารพันธ์ นักศึกษาปริญญาโท สาขาการพยาบาลมารดา-ทารกแรกเกิดและสุขภาพสตรี มหาวิทยาลัยมหิดล เบอร์โทรศัพท์ที่สามารถติดต่อได้ตลอดเวลาทั้งในเวลาราชการและนอกเวลาราชการ (08)79222001 ขอขอบคุณในความร่วมมือของท่าน

นางสาวประภาพร วิสารพันธ์
ผู้วิจัย

ใบยินยอมให้ทำการวิจัย

กลุ่มควบคุม

การวิจัยเรื่อง ผลของโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ ต่ออัตราและระยะเวลาการเลี้ยงลูกด้วยนมแม่อย่างเดียว ในมารดาที่ทำงานนอกบ้าน

วันให้คำยินยอม วันที่..... เดือน ..... พ.ศ. .....

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย ผลของความเสี่ยงที่จะไม่ก่อให้เกิดความเสี่ยงต่ออันตรายแก่ข้าพเจ้าแต่อย่างใด รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียด และมีความเข้าใจเป็นอย่างดี

ผู้วิจัยรับรองว่าจะตอบคำถามต่างๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้นข้าพเจ้าจนข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมในโครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วมโครงการวิจัยนี้โดยสมัครใจ และบอกเลิกการเข้าร่วมการวิจัยนี้จะไม่มีผลต่อการรักษาที่ข้าพเจ้าพึงได้รับต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะในรูปแบบที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับข้าพเจ้าต่อหน่วยงานต่างๆ ที่เกี่ยวข้องกระทำได้เฉพาะในกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ผู้วิจัยรับรองว่าหากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการวิจัย ข้าพเจ้าจะได้รับการแจ้งให้ทราบโดยไม่ปิดบัง ซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และ มีความเข้าใจดีทุกประการ และได้ลงลายมือชื่อในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม .....ผู้ยินยอม

ลงนาม .....พยาน

ลงนาม .....พยาน

ในกรณีที่ผู้ยินยอมตนให้ทำการวิจัยยังไม่บรรลุนิติภาวะ จะต้องได้รับการยินยอมจากสามี ผู้ปกครอง หรือผู้อุปการะโดยชอบด้วยกฎหมาย

ลงนาม ..... สามี /ผู้ปกครอง/ผู้อุปการะ

ลงนาม ..... พยาน

ลงนาม ..... พยาน

ใบยินยอมให้ทำการวิจัย

กลุ่มทดลอง

การวิจัยเรื่อง ผลของโปรแกรมส่งเสริมการเลี้ยงลูกด้วยนมแม่ ต่ออัตราและระยะเวลาการเลี้ยงลูกด้วยนมแม่อย่างเดียว ในมารดาที่ทำงานนอกบ้าน

วันให้คำยินยอม วันที่..... เดือน ..... พ.ศ. .....

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ผู้วิจัยรับรองว่าหากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการวิจัย ข้าพเจ้าจะได้รับการแจ้งให้ทราบโดยไม่ปิดบัง ซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และ มีความเข้าใจดีทุกประการ และได้ลงลายมือชื่อในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม .....ผู้ยินยอม

ลงนาม .....พยาน

ลงนาม .....พยาน

ในกรณีที่ผู้ยินยอมตนให้ทำการวิจัยยังไม่บรรลุนิติภาวะ จะต้องได้รับการยินยอมจากสามี ผู้ปกครอง หรือผู้อุปการะโดยชอบด้วยกฎหมาย

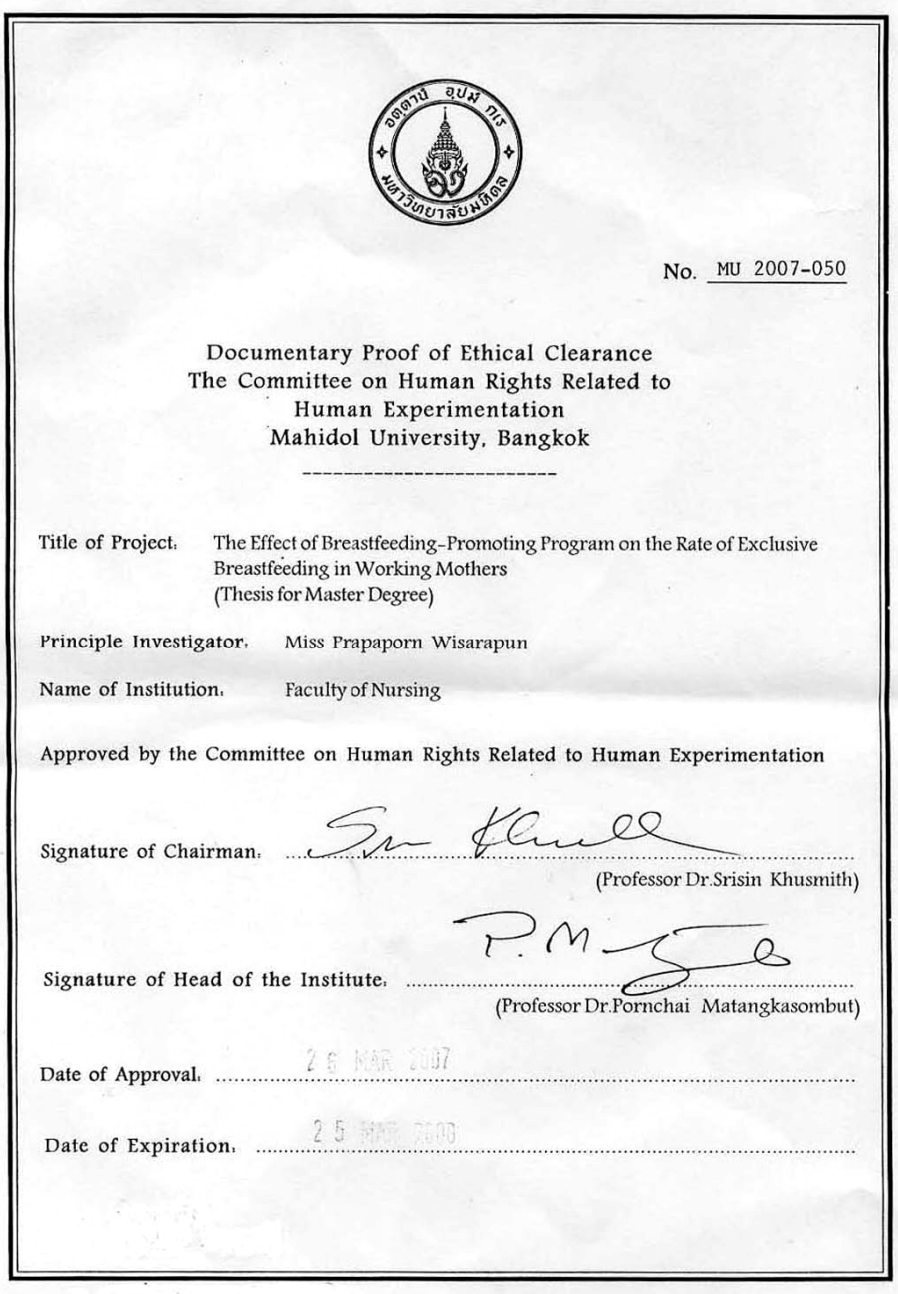
ลงนาม ..... สามี /ผู้ปกครอง/ผู้อุปการะ

ลงนาม ..... พยาน

ลงนาม ..... พยาน

APPENDIX C

Documentary Proof of Ethical Clearance
The Committee on Human Rights Relate to
Human Experimentation Mahidol University. Bangkok.



No. MU 2007-050

Documentary Proof of Ethical Clearance
The Committee on Human Rights Related to
Human Experimentation
Mahidol University, Bangkok

Title of Project: The Effect of Breastfeeding-Promoting Program on the Rate of Exclusive Breastfeeding in Working Mothers
(Thesis for Master Degree)

Principle Investigator: Miss Prapaporn Wisarapun

Name of Institution: Faculty of Nursing

Approved by the Committee on Human Rights Related to Human Experimentation

Signature of Chairman: .....
(Professor Dr.Srisin Khusmith)

Signature of Head of the Institute: .....
(Professor Dr.Pornchai Matangkasombut)

Date of Approval: 26 MAR 2007

Date of Expiration: 25 MAR 2008

APPENDIX D

Data collection instrument

ส่วนที่ 1 แบบสัมภาษณ์ข้อมูลส่วนบุคคล เลขที่……

คำชี้แจง ให้ผู้สัมภาษณ์เติมข้อความที่ได้จากการสัมภาษณ์สตรีตั้งครรภ์ลงในช่องว่าง และทำเครื่องหมายถูก ลงใน ( ) ตามที่สตรีตั้งครรภ์ตอบ

1.ข้อมูลส่วนบุคคล

1.1 อายุ…….ปี 1.2 ระดับการศึกษาสูงสุด.....

1.3 ลักษณะครอบครัว

( ) ครอบครัวเดี่ยว ( ) ครอบครัวขยาย

1.4 จำนวนสมาชิกในครอบครัว.....คน ประกอบด้วย……

1.5 ลักษณะที่อยู่อาศัย

( ) บ้านของตนเอง ( ) บ้านเช่า

( ) บ้านบิดา/มารดา ( ) อื่นๆ**……**

1.6 สถานภาพสมรส

( ) คู่/อยู่กับสามี ( ) โสด/หม้าย/หย่า/แยก

17 อาชีพ

( ) รับราชการ / รัฐวิสาหกิจ ( ) บริษัท ( ) ธุรกิจส่วนตัว

( ) รับจ้าง ( ) อื่นๆ ระบุ**…….**

1.8 รายได้ของครอบครัวต่อเดือน……บาท

1.9 ความเพียงพอของรายได้

( ) เพียงพอ มีเหลือเก็บ ( ) เพียงพอ แต่ไม่เหลือเก็บ

( ) ไม่เพียงพอ

1.10 ระยะเวลาการลาคลอด

( ) น้อยกว่า 90 วัน ( ) 90 วันหรือมากกว่า

1.11 ระหว่างลาคลอดท่านตั้งใจจะให้ลูกกินนมชนิดใด

( ) นมแม่อย่างเดียว ( ) นมแม่ร่วมกับนมผสม

( ) นมผสม

1.12 เมื่อครบกำหนดลาคลอดท่านตั้งใจจะให้ลูกกินนมชนิดใด

( ) นมแม่อย่างเดียว ( ) นมแม่ร่วมกับนมผสม

( ) นมผสมอย่างเดียว

1.13 ท่านตั้งใจเลี้ยงลูกด้วยนมแม่อย่างเดียวนาน……เดือน

1.14 บุคคลที่ช่วยมารดาดูแลทารกเมื่อมารดากลับไปทำงานนอกบ้าน

คือ……

1.15 เบอร์โทรศัพท์……

2. ประวัติการคลอด

วัน เวลา ที่คลอด……

คะแนน APGAR score ……น้ำหนักแรกเกิด ……กรัม

ความยาวลำตัว……เซนติเมตร ความยาวเส้นรอบศีรษะ……เซนติเมตร

ระยะเวลาที่ลูกได้ดูดนมแม่ครั้งแรกหลังคลอด……

เลขที่.....

ส่วนที่ 2 แบบประเมินประสิทธิภาพในการให้นมบุตร (LATCH)

วันที่..... เดือน..... พ.ศ.....

	0	**1**	**2**	**คะแนน**
L Latch การดูด/การอมหัวนม	- นอนหลับมาก ไม่ดูดนม	-มีความพยายามที่จะดูดนม แต่ต้องจับหัวนมเข้าปาก - ลูกอมเฉพาะปลายหัวนม	- แนวเหงือกของลูกอยู่บนกระเปาะน้ำนม - ลิ้นอยู่ใต้ลานหัวนม -ริมฝีปากบานออกแนบติดลานหัวนม - ดูดแรงเพียงพอและเป็นจังหวะประมาณ 6-7 ครั้งใน 1 นาที	
A Audible swallowing เสียงกลืนน้ำนม/การขยับของขากรรไกร	-ไม่มีเสียงกลืนนม ขากรรไกรไม่ขยับ	-มีเสียงกลืนนมเล็กน้อย ขากรรไกรขยับเล็กน้อย -กลืนเฉพาะเมื่อมีการกระตุ้น	- มีการเคลื่อนขึ้นลงของขากรรไกรอย่างเป็นจังหวะ - มีเสียงกลืนเป็นช่วงๆ	
T Type of nipple ชนิดของหัวนม	หัวนมบอด (inverted)	- หัวนมสั้น(short) - แบน (flat)	- หัวนมยื่นมาดี หรือภายหลังการกระตุ้น	
C Comfort (Breast/Nipple) ความรู้สึกของแม่ขณะให้นมลูก (เต้านม/หัวนม)	- หัวนมแตก - มีเลือดออก - มีแผลหรือรอยช้ำขนาดใหญ่ - เจ็บปวดมาก	- เต้านมตึง ๆ - หัวนมมีสีแดง / มีแผล หรือรอยช้ำเล็กน้อย -มีอาการไม่สุขสบายระดับเล็กน้อยถึงปานกลาง	-เ ต้านมนุ่มลง หัวนมยืดหยุ่นดี - แม่รู้สึกสบาย	

แบบประเมินประสิทธิภาพในการให้นมบุตร (LATCH) (ต่อ)

	0	**1**	**2**	**คะแนน**
H Hold (Positioning) การจัดท่าให้นมบุตร	- เจ้าหน้าที่ต้องให้ความช่วยเหลือแม่ทุกอย่าง ในการอุ้มลูกกินนม	- ช่วยเหลือเล็กน้อย (ยกศีรษะขึ้นให้สูงขึ้น วางหมอนหนุนให้)	- แม่สามารถจัดท่าในการให้นมบุตรได้อย่างถูกต้องโดยไม่ต้องช่วยเหลือ	
สรุป	**คะแนนรวม**			

( ) สำเร็จ

( ) ไม่สำเร็จ

เลขที่.....

ส่วนที่ 3 แบบติดตามการให้อาหารทารก

ประเภทของอาหาร	อายุเมื่อเริ่มให้	เหตุผลที่ให้
1. นมแม่อย่างเดียว		
2. นมแม่+น้ำ		
3. นมแม่+นมผสม		
4. นมผสม+น้ำ		
5. นมแม่+อาหารเสริม		
6. นมผสม+น้ำ อาหารเสริม		
7. นมแม่+นมผสม อาหารเสริม+น้ำ		

เลขที่.....

ส่วนที่ 4 แบบบันทึกปัญหาที่เกี่ยวข้องกับการเลี้ยงลูกด้วยนมแม่

- O **กลุ่มควบคุม**
- O **กลุ่มทดลอง**

วันที่คลอด.....วันที่จำหน่ายออกจากโรงพยาบาล.....เบอร์โทรศัพท์.....

วัน/เดือน/ปี (ครั้งที่)			
น้ำหนักทารก (กรัม)			
ปัญหาที่พบ			
วิธีการแก้ไขของมารดา			
ผลการแก้ไขของมารดา			
คำแนะนำและกิจกรรมที่ให้			
ผลการพยาบาล			
หมายเหตุ			

APPENDIX E

Intervention instrument

คู่มือการเลี้ยงลูกด้วยนมแม่

สำหรับ
มารดาที่ทำงานนอกบ้าน

แผนการสอนเรื่องการเลี้ยงลูกด้วยนมแม่สำหรับมารดาที่ทำงานนอกบ้าน

ประกอบด้วย

1.การอภิปรายกลุ่ม

2.การชมวีดีทัศน์

3.การสาธิตและการฝึกทักษะ

กลุ่มเป้าหมาย สตรีตั้งครรภ์จำนวน 2-5 ราย

สถานที่ แผนกฝากครรภ์ โรงพยาบาลพระนั่งเกล้า

เวลา 50 นาที

ผู้สอน นางสาวประภาพร วิสารพันธ์

วัตถุประสงค์ทั่วไป

1.เพื่อให้สตรีตั้งครรภ์มีความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่

2.เพื่อให้สตรีตั้งครรภ์มีแรงจูงใจและเตรียมพร้อมที่จะเลี้ยงลูกด้วยนมแม่

3. เพื่อให้สตรีตั้งครรภ์มีความเชื่อมั่นว่าตนเองสามารถเลี้ยงลูกด้วยนมแม่ได้

แผนการสนับสนุนและช่วยเหลือมารดาในระยะหลังคลอด

โดย

นางสาวประภาพร วิสารพันธ์

นักศึกษาพยาบาลศาสตรมหาบัณฑิต

สาขาการพยาบาลมารดา-ทารกแรกเกิดและสุขภาพสตรี

คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

BIOGRAPHY

NAME Ms. Prapaporn Wisarapun.

DATE OF BIRTH 20 January 1980.

PLACE OF BIRTH Ubon Ratchathani, Thailand

INSTITUTE ATTENDED Khonkaen University, 1999-2003:
Bachelor of Nursing Science
Mahidol University, 2004-2008:
Master of Nursing Science
(Maternal-Newborn and Women's Health Nursing)

RESEARCH –GRANT Supported by The faculty of graduate studies, Mahidol University.

POSITTION&OFFICE 2003-2004, Yasothonraumpat Hospital.
Yasothon, Thailand.
Position : Head nurse.

HOME ADDRESS 5 M. 15 T. Srangnoktha, Maung district
Amnatcharoen Province 37000, Thailand
Tel. 0879222001
E-mail:Prapa_porn1@yahoo.co.th