

**THE EFFECTS OF SYSTEMATIC INSTRUCTIONAL PROGRAM  
ON BREASTFEEDING SELF-EFFICACY, NIPPLE PAIN,  
NIPPLE SKIN CHANGES AND INCISION PAIN  
OF CESAREAN MOTHERS**



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR  
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Thesis  
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Benjamas Thussanasupap

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ABSTRACT

The purpose of this study was to determine the effects of a systematic instructional program on breastfeeding self-efficacy, nipple pain, nipple skin changes, and incision pain of cesarean mothers. The purposive sample of 60 unplanned cesarean mothers, who were primipara and admitted at the postpartum unit of Rajavithi Hospital between September 2005 and January 2006, and their healthy infant, were divided into control and experimental groups. The first 30 dyads were assigned to the control group and received the usual nursing intervention by staff nurses or other healthcare professionals, while the other 30 dyads were assigned to the experimental group and received a systematic instructional program for cesarean mothers from the researcher in addition to the usual nursing intervention. Breastfeeding self-efficacy was evaluated by self-report using the breastfeeding self-efficacy scale-short form (BSES-SF), incision pain and nipple pain were measured by Stewart's visual analogue pain scale, and nipple skin changes were observed following the checklist form.

The study findings showed that the breastfeeding self-efficacy mean score of cesarean mothers who received a systematic instructional program was statistically significantly higher than the mean score of the mothers who did not receive such a program ( $t = -3.20, p < .001$ ). The experimental group also experienced less nipple pain than the control group on Day 3 after the delivery with statistical significance ( $t = 2.58, p < .01$ ), but not on Day 1 and Day 2 ( $t = 0.07, p > .05$ ; and  $t = 1.12, p > .05$ , respectively). Likewise, the experimental group experienced fewer nipple skin changes when compared to the control group on Day 3 after delivery with statistical significance ( $p < .001$ ), but not on Day 1 and Day 2 ( $p > .05$ ). Finally, the experimental group had statistically significantly less incision pain than the control group on Days 2 and 3 ( $t = 2.47, p < .01$ ; and  $t = 2.81, p < .001$ , respectively) but not on Day 1 ( $t = 1.39, p > .05$ ).

Based on these findings, it can be concluded that integrating self-efficacy enhancing intervention through four primary sources of information could increase new cesarean mothers' confidence in their breastfeeding ability, as well as their perseverance when encountering difficulties. Moreover, the program could be used to improve the quality of care in promoting breastfeeding among cesarean mothers. However, further research is still needed to examine breastfeeding self-efficacy of unplanned cesarean mothers during the period after six weeks postpartum.

KEY WORDS: BREASTFEEDING SELF-EFFICACY/ NIPPLE PAIN/ NIPPLE  
SKIN CHANGES/ INCISION PAIN/ CESAREAN MOTHERS

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ผลของโปรแกรมการให้คำแนะนำอย่างมีแบบแผนต่อสมรรถนะแห่งตนในการให้นมบุตร, อาการเจ็บหัวนม, การเปลี่ยนแปลงของหัวนม และความเจ็บปวดแผลผ่าตัด ในมารดาหลังผ่าตัดคลอด (THE EFFECTS OF SYSTEMATIC INSTRUCTIONAL PROGRAM ON BREASTFEEDING SELF-EFFICACY, NIPPLE PAIN, NIPPLE SKIN CHANGES AND INCISION PAIN OF CESAREAN MOTHERS)

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### บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาผลของโปรแกรมการให้คำแนะนำอย่างมีแบบแผนต่อสมรรถนะแห่งตนในการให้นมบุตร, อาการเจ็บหัวนม, การเปลี่ยนแปลงของหัวนม และความเจ็บปวดแผลผ่าตัด ในมารดาหลังผ่าตัดคลอด กลุ่มตัวอย่าง คือ มารดาครรภ์แรกหลังผ่าตัดคลอดฉุกเฉินและบุตร ซึ่งเข้าพักพื้นที่แผนกสูติกรรม โรงพยาบาลราชวิถี ระหว่างเดือนกันยายน 2548 ถึงเดือนมกราคม 2549 จำนวน 60 ราย ผู้วิจัยแบ่งกลุ่มตัวอย่างออกเป็นกลุ่มควบคุมและกลุ่มทดลอง โดยการจัดให้ผู้ร่วมวิจัย 30 รายแรกเป็นกลุ่มควบคุมและให้ผู้ร่วมวิจัย 30 รายหลังเป็นกลุ่มทดลอง กลุ่มควบคุมได้รับการพยาบาลตามปกติส่วนกลุ่มทดลองได้รับโปรแกรมการให้คำแนะนำอย่างมีแบบแผนร่วมกับการพยาบาลตามปกติ ผู้วิจัยประเมินสมรรถนะแห่งตนในการให้นมบุตรโดยใช้แบบสอบถามสมรรถนะแห่งตนในการให้นมบุตร ประเมินอาการเจ็บหัวนมและความเจ็บปวดแผลผ่าตัดโดยใช้แบบวัดความเจ็บปวดของสจ๊วต และประเมินการเปลี่ยนแปลงของหัวนมโดยใช้แบบประเมินการเปลี่ยนแปลงของหัวนม

ผลการวิจัยพบว่า คะแนนสมรรถนะแห่งตนในการให้นมบุตรในกลุ่มทดลองสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ( $p < .001$ ) อาการเจ็บหัวนมของกลุ่มทดลองในวันที่ 3 หลังผ่าตัดคลอดน้อยกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ( $p < .01$ ) เช่นเดียวกับการเปลี่ยนแปลงของหัวนมของกลุ่มทดลองในวันที่ 3 หลังผ่าตัดคลอดพบว่าน้อยกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ( $p < .001$ ) และความเจ็บปวดแผลผ่าตัดของกลุ่มทดลองในวันที่ 2 และ 3 หลังผ่าตัดคลอดนั้นน้อยกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ( $p < .01, p < .001$  ตามลำดับ)

จากผลการวิจัยสรุปได้ว่า การให้โปรแกรมเพื่อส่งเสริมสมรรถนะแห่งตนโดยผ่านแหล่งประโยชน์ทางด้านข้อมูลทั้ง 4 จะช่วยให้มารดาครรภ์แรกที่ผ่าตัดคลอดมีความมั่นใจในความสามารถในการให้นมบุตรของตนและพร้อมที่จะเผชิญกับปัญหาต่าง ๆ ยิ่งกว่านั้นโปรแกรมนี้ยังช่วยเพิ่มคุณภาพของการดูแลในการส่งเสริมการเลี้ยงลูกด้วยนมแม่ในมารดาที่ผ่าตัดคลอด อย่างไรก็ตามสมรรถนะแห่งตนในการให้นมบุตรในระยะ 6 สัปดาห์หลังคลอดของมารดาที่ไม่ได้วางแผนผ่าตัดคลอดก็ยังคงต้องการการศึกษาวิจัยต่อไป

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## CHAPTER I

### INTRODUCTION

#### **Background and Rationale of the Study**

Breastfeeding is the greatest gift of love. Human breast milk is undoubtedly the best start for infants because it is species-specific and uniquely superior for infant feeding (Levitt, 2001: 401). Evidence that confirms the benefits of breastfeeding abounds. For instance, extensive research demonstrates that breastfeeding of infants provides many advantages for not only infants but also mothers, families, and society. Moreover, breastfeeding also enhances health, nutrition, immunology, development, psychological status, environment, and social and economic factors (American Academy of Pediatrics, 1997: 1035). Epidemiologic research shows that breastfeeding decreases the infants' susceptibility to a number of severe acute and chronic diseases such as diarrhea (Beaudry, Dufour, & Marcoux, 1995: 191-197), respiratory infection (Wilson, et al., 1998: 21-25), otitis media (Paradise, et al., 1994: 853-860), bacteremia and bacterial meningitis (Takala, et al., 1989: 694-701), and asthma (Oddy, et al., 1999: 815-819). Also, human breast milk may protect against sudden infant death syndrome (SIDS), insulin-dependent diabetes mellitus (Gimeno & de Souza, 1997: 1256-1260), Crohn's disease (Koletzko, et al., 1991: 1580-1581), lymphoma (Shu, et al., 1995: 27-32), and allergy (Saarinen & Kajosaari, 1995: 1065-1069). Finally, breast milk is good for childhood cognitive development (Anderson, Johnstone, & Remley, 1999: 525-535).

There are also a number of studies that indicate possible health benefits for mothers. It has long been acknowledged that breastfeeding increases levels of oxytocin resulting in reduced postpartum hemorrhage and more rapid uterine involution (Chua, et al., 1994: 804-805). Recent research demonstrates that lactating women have an earlier return to pre-pregnancy weight (Dewey, Heinig, & Nommsen, 1993: 162-166). Breastfeeding has also been related to possible reduction in the risk

of ovarian cancer (Siskand, et al., 1997: 188-191) and breast cancer (Newcomb, et al., 1999: 174-182; Newcomb, et al., 1994: 81-87).

Despite the aforementioned benefits of breastfeeding, many developing and developed countries have a long way to go to ensure that their infants are breastfed (Levitt, 2001: 401). During the last three decades, several events and initiatives have taken place with the goal of making breastfeeding a public health priority (Biancuzzo, 2003: 9). WHO and The American Academy of Pediatrics (1997: 1037) propose a worldwide policy that infants should be exclusively breastfed for the first six months, breastfeeding while weaning and beginning solid foods should continue for at least another six months, and then breastfeeding should continue as long thereafter as the mother and her infant desire (Naylor & Morrow, 2001 cited as in Dennis, 2003: 734). The promotion of breastfeeding and a global initiative has been made by WHO and UNICEF since 1978, including the WHO International Code of Marketing of Breast Milk Substitutes, the Baby-Friendly Hospital Initiative, and the Ten Steps to Successful Breastfeeding (Dennis, 2002: 12-13). Unfortunately, both the frequency and duration of breastfeeding decline rapidly, falling far from the goals for Healthy People 2010. A breastfeeding initiation rate of all mothers immediately after delivery is 75%, with 50% of all mothers continuing breastfeeding for at least six months and 25% continuing until the twelfth month (Biancuzzo, 2003: 11).

The rationale for such a sharp decline in breastfeeding is a complex interplay of factors (Dennis, 2002: 14). Recently, a prospective survey found that the most important reason for the early use of formula at one week postpartum included insufficient milk supply (IMS); maternal factors such as nipple pain or cracked nipples, fatigue, and mastitis; and infant factors such as poor latch, slow weight gain, and feeding frequency. Specifically, this finding was consistent with breastfeeding self-efficacy, as it has been found that low self-efficacy was related to bottle-feeding at one week postpartum. Furthermore, the self-efficacy scores at one week postpartum can be used to predict breastfeeding outcomes. New mothers with higher breastfeeding self-efficacy scores were significantly more likely to continue to breastfeed to four months postpartum and do so exclusively than mothers with lower scores (Blyth, et al., 2002: 278-284).

Numerous studies have been conducted to identify the factors that influence the breastfeeding rate and duration, and several researchers have examined the relationship between methods of delivery and the mothers' decision to breastfeed or bottle-feed their infant. The results from previous studies have yielded a significant negative relationship between cesarean section and breastfeeding, and the effect was even larger for unplanned cesarean section (DiMatteo, et al., 1996: 305-309; Pérez-Escamilla, et al., 1996: 832-836). In fact, cesarean section can also contribute to the breastfeeding difficulties. The first breastfeeding is often delayed, particularly in mothers who have had general anesthesia (DiMatteo, et al., 1996: 310; Halpern, et al., 1999: 87). After a cesarean section, especially unplanned one, many hours or even a day may pass before mothers have a chance to hold or interact with their infants for the first time (DiMatteo, et al., 1996: 310). It has long been known that delaying breastfeeding initiation can have adverse effects, especially infants' difficulty attaching to the nipple (Pérez-Escamilla, et al., 1996: 835). Also, mothers who have had a cesarean section have difficulty getting comfortable and the most important source of pain is their wound, as one study showed that 73% still had incision pain on Day 4 (Dewan, Glazener & Tunstall, 1993: 63-66). Sometimes, they are in pain that not only makes them feel that they dislike breastfeeding their infants, but also simply reduces the number of times they offer the breast. Intense pain level and delayed or reduced suckling ultimately reduces maternal milk supply. Accordingly, some early studies suggested that cesarean mothers are at risk for weaning earlier than mothers who have had vaginal deliveries (Biancuzzo, 2003: 100-105). Not surprisingly, the meta-analysis also found that unplanned cesarean mothers are significantly less likely to breastfeed their infants than are those who have had vaginal deliveries (DiMatteo, et al., 1996: 310). Correspondingly, another study found that among mothers who decided not to breastfeed (n = 1339), 26.2% were cesarean mothers and 32.9% were primiparous (Heck, et al., 2003: 157).

Problematically, cesarean section rates have been increasing worldwide as a global phenomenon, and this has caused a growing concern in many countries, particularly the United States and United Kingdom (Linton, et al., 2004: 3; Khawaja, et al., 2004: 12). In the United States, a cesarean section rate increased from 22.9% in 2000 to 24.4% in 2001, and in the United Kingdom, a cesarean section rate increased

from 18.8% in 1997-1998 to 21.3% in 2000 (Matthews, et al., 2003: 348). In Thailand, a cesarean section rate steadily increased from 15.2% in 1990 to 22.4% in 1996 and showed a further increasing trend (Tangcharoensathien, et al., 1998: 4). However, WHO recommends an upper rate of cesarean section of 15% on the basis that the admittedly poor quality cesarean section did not yield any benefit in relation to maternal mortality or perinatal mortality. Furthermore, there is no evidence that cesarean section rates of greater than 7% save lives, and there is also no evidence of benefit to the infant (Matthews, et al., 2003: 346-349). In contrast, unplanned cesarean delivery is especially problematic, as this procedure imposes the physiologic stresses of anesthesia, (Miovech, et al., 1994: 53), and it also has an impact on psychosocial outcomes. Thus, it may not only attenuate the positive life experience of giving birth but may actually introduce negative consequences as well (DiMatteo, et al., 1996: 303-304). Mothers who have had unplanned cesarean section have reported feeling of guilt, less self-satisfaction, loss of self-esteem (Miovech, et al., 1994: 53). Lack of self-confidence or self-esteem has been associated with failure to initiate breastfeeding and a high likelihood of cessation within seven days of initiation (Biancuzzo, 2003: 42; Buxton, et al., 1991: 101-106).

Unplanned cesarean mothers usually need greater support than those having vaginal birth (Leifer, 2003: 185). Interestingly, several studies have shown that healthcare professional support and the mother's confidence level are better predictors of breastfeeding continuation than the mode of delivery (Biancuzzo, 2003: 105; Buxton, et al., 1991: 101-106; O'Campo, et al., 1992: 195-201). Hence, healthcare professionals should be able to encourage mothers that they can successfully breastfeed even if they have a cesarean section (Biancuzzo, 2003: 105). Confident mothers are more likely to continue to breastfeed, persist when face with obstacles, employ self-encouraging thoughts, and particularly perceive difficulties as a positive challenge (Creedy, et al., 2003: 145). Therefore, healthcare professionals could introduce confidence-building strategies to maintain breastfeeding and help them find the ways to overcome potential barriers to breastfeed. Furthermore, the tendency to experience pain could be explicitly acknowledged and normalized while strategies for controlling this state could be taught and practiced (Blyth, et al., 2002: 283).

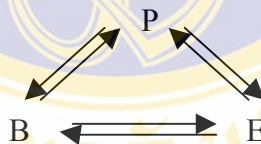
Although research in relation to breastfeeding confidence has suffered from an atheoretical perspective in the literature, the significance of maternal confidence in relation to breastfeeding outcomes has often been cited (Dennis, 1999: 195-201; Libbus, Bush, & Hockman, 1997: 144-150). Furthermore, self-efficacy has been shown frequently, through correlation and causal associations, to be predictive of health behaviors. Increases in self-efficacy have been influenced, created, and sustained in quasi-experimental and experimental studies (Redland & Stuijbergen, 1993: 427-442; Schlickau & Wilson, 2005: 200-210). As self-efficacy has been used as a framework in a number of instruments, each instrument has added to the body of evidence that supports the strong psychometric properties of self-efficacy measurements and their value in predicting the future behavior of targeted population. Based on Bandura's (1977) social cognitive theory, self-efficacy refers to an individual's confidence in his or her perceived ability to perform a specific task or behavior. It is a salient variable in breastfeeding performance as it predicts (a) whether a mother chooses to breastfeed, (b) how much effort she will expend if she does, (c) whether she will have self-enhancing or self-defeating thought patterns, and (d) how she will emotionally respond to breastfeeding difficulties (Dennis, 1999: 195-200; Creedy, et al., 2003: 144-145).

At present, numerous studies have shown several factors that influence breastfeeding. However, there were only few studies that have focused on cesarean mothers about their breastfeeding self-efficacy and the effective intervention which increased their confidence to breastfeed. A review of literature has revealed that cesarean section is a risk factor for failure to initiating breastfeeding and for early weaning before one month (Biancuzzo, 2003: 105; Pérez-Escamilla, et al., 1996: 832-836). Also, the evidence has suggested that an instruction intervention from healthcare professionals in the early postpartum period has been shown to promote the initiation, positive breastfeeding behaviors, and continuation of breastfeeding (Susin, et al., 1999: 149-156). Unfortunately, although healthcare professionals may positively influence breastfeeding mothers (Ekström, 2003: 261-266; Mitra, et al., 2003: 758), they can also be a negative source of support if they provide mothers with inconsistent, inaccurate, and/or inadequate breastfeeding instruction (Dennis, 2002: 12; Tiedje, et al., 2002: 160). For these reasons, the researcher felt the necessity to fill the

gap in existing knowledge. It would be fruitful to investigate the importance of breastfeeding self-efficacy in unplanned cesarean mothers and develop a systematic instructional program applying the self-efficacy theory proposed by Bandura to enhance cesarean mothers' confidence in their breastfeeding ability.

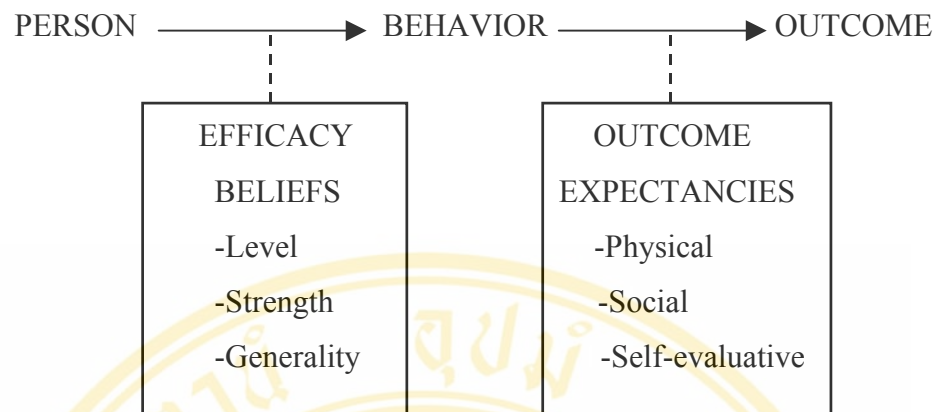
### Theoretical Framework

Recently, self-efficacy has received considerable attention as a predictor of health-related behaviors (Dennis, 2003: 735). The present research was based on the self-efficacy theory of Albert Bandura (1977). Self-efficacy is defined as an individual's confidence in his or her perceived ability to perform a specific task or behavior, and it is determined by many interacting factors rather than the sole determiners. Bandura explains behavior as a continuous triadic reciprocal causation of three major classes of determinants, including internal personal factors in the form of cognitive, affective, and biological events; behavior; and external environment. All of them operate as interacting determinants that influence one another bi-directionally (Bandura, 1977: 9-10, 1986: 23-24; 1997: 5-6; Dennis, 2003: 735), as shown in Figure 1:



**Figure 1:** The relationships between the internal personal factors (P), behavior (B), and the external environment (E) (Bandura, 1997: 6)

Self-efficacy is a dynamic cognitive process in which an individual evaluates his or her capability to perform a given behavior (Dennis & Faux, 1999: 400), as shown in Figure 2:



**Figure 2:** The conditional relationships between efficacy beliefs, and outcome expectancies (Bandura, 1997: 22)

Self-efficacy is the concomitant process between beliefs of an individual's efficacy and outcome expectations. Perceived self-efficacy is an individual's conviction that one can successfully perform certain tasks or behaviors to produce the desired outcome, whereas outcome expectancy is the belief that a given behavior will produce a particular outcome (Bandura, 1997: 21-23; Dennis, 2003: 735).

Efficacy beliefs vary on three dimensions that have important performance implications. They differ in the following (Bandura, 1977: 84-85; 1997: 42-43):

1. *Level:* tasks are ordered according to level of difficulty and the range of perceived capability. Cesarean mothers have to face with more difficulty when trying to continue to breastfeed than mothers who have had vaginal deliveries (DiMatteo, et al., 1996: 310). If they have perceived breastfeeding self-efficacy, they will interpret breastfeeding difficulties as a positive challenge and not be overwhelmed (Dennis, 1999: 198).

2. *Strength:* weak expectations are easily extinguishable by disconfirming experiences, whereas individuals who have higher beliefs in their ability will persevere in their coping efforts despite innumerable difficulties and obstacles. In other words, cesarean mothers who have a tenacious belief in their ability to breastfeed are more likely to choose breastfeeding, persist when face with plenty of obstacles, employ self-encouraging thoughts, and react positively to perceived difficulties (Creedy, et al., 2003: 145).

3. *Generality*: individuals may judge their self-confidence across a wide range of activities or only in certain domains of functioning. Generality of expectation refers to the perception of self-efficacy of individuals based on past successes and the self-efficacy to do other similar activities in similar situations in the future (Wirifai, 2004: 6). Personal experiences are the powerful source of perceived self-efficacy; previous successful breastfeeding experiences increase self-efficacy, whereas repeated failures diminish it. Therefore, for a new mother who succeeds at correctly positioning her infant at her breast, her self-efficacy increases and she expects that she will effortlessly succeed at this task in the next time as well.

Outcome of expectation can take three major forms, each of which can be both positive and negative. The positive expectations serve as incentives; on the other hand, the negative ones serve as disincentives (Bandura, 1997: 21-23). They can be explained as follows:

1. *Physical affects*: the first major class of outcomes. On the positive side, they include pleasant sensory experiences and physical pleasures, whereas on the negative side, they include aversive sensory experiences, pain, and physical discomfort.

2. *Social affects*: the second major class of outcomes. On the positive side, they include such social reactions of others as expressions of interest, approval, social recognition, monetary compensation, and conferral of status and power, whereas on the negative side, they include disinterest, disapproval, social rejection, censure, deprivation of privileges, and imposed penalties.

3. *Self-evaluative*: the third major class of outcomes that reacts to one's own behavior. On the positive side, they include such self-satisfaction and a sense of pride, while on the negative side, they include self-sanction, self-dissatisfaction, self-devaluation, and self-censure.

The distinction of efficacy beliefs and outcome of expectancies is important because individuals may believe that a certain behavior will assist them to accomplish a specific outcome but have low self-efficacy when personally performing the given behavior in the particular situation. Therefore, an individual's belief in a specified outcome alone does not result in performance unless the individual also believes that the behavior can be executed successfully. For instance, if a mother believes that

exclusive breastfeeding is important but is not confident in her capability to maintain her milk supply or determine if the infant is receiving sufficient breast milk, then it is likely that she will refrain from formula supplementation (Dennis, 2003: 735-736).

Self-efficacy beliefs influence the behaviors individuals engage in, how much effort they expend, how long they persist when confronted with difficulties, and whether they undertake self-debilitating or self-encouraging cognition. As such, breastfeeding self-efficacy is a salient variable in breastfeeding performance as it predicts (a) whether a mother chooses to breastfeed or not, (b) how much effort she will expend if she does, (c) whether she will have self-enhancing or self-defeating thought patterns, and (d) how she will emotionally respond to breastfeeding difficulties (Dennis, 1999: 195-200; Creedy, et al., 2003: 144-145).

In exploring self-efficacy beliefs, Bandura (1997: 80-113; 1977: 81-82) has identified four primary sources of information that influences breastfeeding self-efficacy:

1. *Enactive mastery experiences* are the most influential source of efficacy information because they provide the most authentic evidence of whether one can master whatever it takes to succeed. Performance successes raise strenuous beliefs of an individual's self-efficacy, whereas repeated performance failures lower them.

According to Bandura (1997: 81), a small performance success that persuades mothers they have what it takes to succeed often enables them to go well beyond their immediate performance accomplishments that influence mothers' perceived ability to breastfeed their infant. Developing enactive mastery experiences can be enhanced through direct performance accomplishments. For example, a new mother who effortlessly succeeds at a simple task, such as her infant correctly positioning at her breast, may not indicate much about her breastfeeding ability, while failing at this simple task may have no destructive consequences on her breastfeeding self-efficacy. In contrast, succeeding at a complicated task, such as her infant is properly latched on for the whole feeding, can increase her perceptions of breastfeeding self-efficacy (Dennis, 1999: 196).

2. *Vicarious experiences* alter efficacy beliefs through transmission of abilities and comparison with attainment of the model that is similar to observers. Watching the model performs successful activity raises observers' efficacy beliefs.

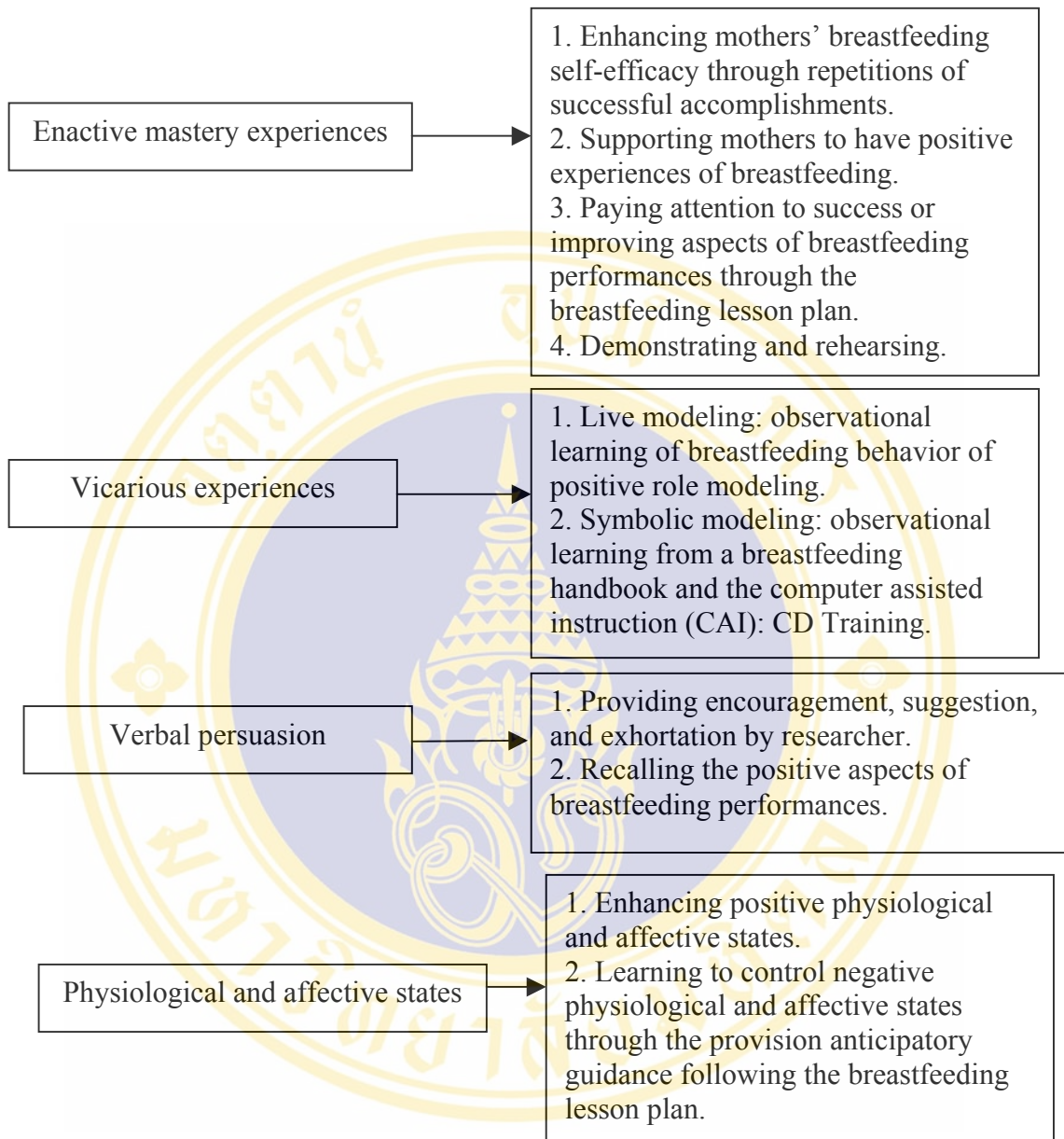
They persuade themselves that if the model can do it, they should be able to attain their performance as well. The model can be either live or symbolic modeling. Previous observation in breastfeeding behavior of another mother is strongly associated with the observer's self-efficacy, depending on whether the observer has perceived these experiences as positive or negative. Observational learning can have powerful impact on perceived self-efficacy, especially in the absence of previous experience (Dennis, 1999: 196). Instruction that focuses on the theoretical benefits of breastfeeding may not be nearly as important as helping mothers to see positive role models (Hoddinott & Pill, 2000: 30-34). The computer assisted instruction (CAI) is one symbolic modeling which provides visualized positive role modeling, additional high-quality behavioral demonstrations of breastfeeding performance.

3. *Verbal persuasion* serves as further means of strengthening individuals' beliefs. Individuals are led to try hard enough to succeed, through encouragement from influential others such as healthcare professionals, the newborn's father, and friends (Blyth, et al., 2002: 279; Ekström, Widström & Nissen, 2003: 262; Humphreys, Thompson & Miner, 1998: 170; Lu, et al., 2001: 293-294; Susin, et al., 1999: 153-155), fostering their belief that they have the ability to achieve successes. Social persuasion can bolster individuals' sense of efficacy, especially when they are struggling with difficulties. Individuals who are persuaded verbally are more likely to mobilize greater effort and boost their perceived self-efficacy. Mothers who are encouraged by their nurses or physicians to breastfeed are more likely to initiate breastfeeding than those who do not receive such encouragement. Receiving encouragement and recalling the positive aspects of their breastfeeding performances may influence their cognitive processes, may increase confidence in their ability to breastfeed, and may enhance breastfeeding self-efficacy (Biancuzzo, 2003: 38).

4. *Physiological and affective states* can influence individuals' judgment in their self-efficacy, strength, and vulnerability to dysfunction. Individuals rely partly upon their state of physiological arousal in judging their anxiety and vulnerability to stress. They are likely to expect success when they are not surrounded by aversive arousal. Positive interpretations of arousal, such as excitement or satisfaction, enhance self-efficacy, while negative interpretations like nipple pain, incision pain, fatigue, discomfort, anxiety, and stress reduce individuals' sense of self-efficacy (Dennis, 1999:

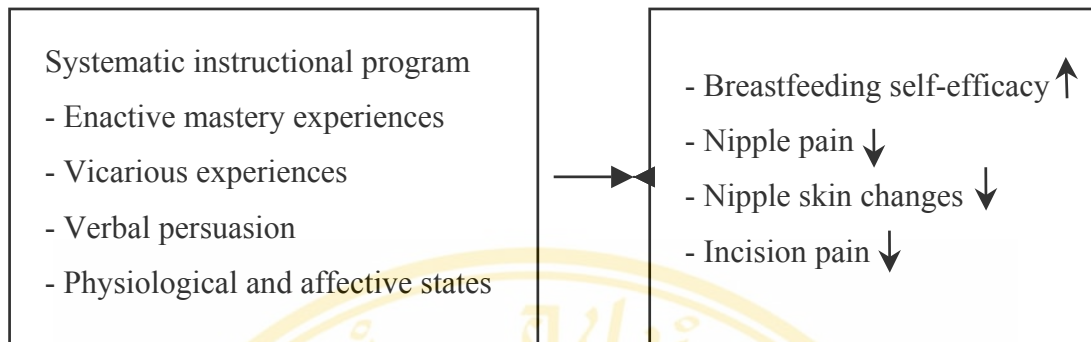
197). Cesarean mothers have reported feelings of those and they are likely to confront more breastfeeding difficulties than mothers who have had vaginal deliveries (DiMatteo, et al., 1996: 303-314; Halpern, et al., 1999: 83-88; Miovech, et al., 1994: 53-59; Pérez-Escamilla, et al., 1996: 832-836). Interpretations of the current physiological and affective states have been shown to influence self-efficacy and breastfeeding process. In particular, breastfeeding has been termed a “confidence trick,” failure to breastfeed can be attributed to emotional and physiological interference with the let-down reflex, and negative emotional arousal can also stimulate a lactation crisis (Biancuzzo, 2003: 54-56; Dennis, 1999: 197; Edgehouse & Radzyminski, 1990: 34-35; Groer, Davis & Hemphill, 2002: 411-417).

Breastfeeding self-efficacy is influenced by these four main sources of information. As such, the special intervention that has been devised based on the self-efficacy theory for cesarean mothers is expected to not only improve breastfeeding outcomes but also to increase mothers’ confidence in their ability to breastfeed through adjusting these sources of self-efficacy information. Thus, if they do confront difficulties, they will be able to make an effort and continue (Blyth, et al., 2002: 279-284). The conceptualization of systematic instructional program has been developed based mainly on the conceptual scheme of Bandura (1977: 80-81) and the recommendation of Dennis (1999: 195-200; 2003: 742-744) as illustrated in Figure 3.



**Figure 3:** The conceptualization of a systematic instructional program

Efficacy beliefs are based on four primary sources of information. Figure 3 depicts the conceptualization of a systematic instructional program which represents the relationship between four primary sources of efficacy beliefs and the source through which each mode of the systematic instructional program operates to create expectations of mastery. This conceptualization leading to the relationship between study variables is illustrated in Figure 4:



**Figure 4:** The relationship between study variables

## Research Questions

1. Is there a difference in the breastfeeding self-efficacy of cesarean mothers who received a systematic instructional program and cesarean mothers who received usual nursing intervention?
2. Is there a difference in the level of nipple pain between cesarean mothers who received a systematic instructional program and cesarean mothers who received usual nursing intervention on Days 1, 2, and 3 after delivery?
3. Is there a difference in the level of nipple skin changes in cesarean mothers who received a systematic instructional program and cesarean mothers who received usual nursing intervention on Days 1, 2, and 3 after delivery?
4. Is there a difference in the level of incision pain between cesarean mothers who received a systematic instructional program and cesarean mothers who received usual nursing intervention on Days 1, 2, and 3 after delivery?

## Research Objectives

1. To compare breastfeeding self-efficacy between cesarean mothers who received a systematic instructional program and breastfeeding self-efficacy of those who received usual nursing intervention.
2. To compare the level of nipple pain between cesarean mothers who received a systematic instructional program and the nipple pain of those who received usual nursing intervention on Days 1, 2, and 3 after delivery.

3. To compare the level of nipple skin changes between cesarean mothers who received a systematic instructional program and the nipple skin changes of those who received usual nursing intervention on Days 1, 2, and 3 after delivery.

4. To compare the level of incision pain between cesarean mothers who received a systematic instructional program and the incision pain of those who received usual nursing intervention on Days 1, 2, and 3 after delivery.

### **Research Hypotheses**

1. Cesarean mothers who received a systematic instructional program will have higher breastfeeding self-efficacy than those who did not.

2. Cesarean mothers who received a systematic instructional program will have less nipple pain than those who did not on Days 1, 2, and 3 after delivery.

3. Cesarean mothers who received a systematic instructional program will have fewer nipple skin changes than those who did not on Days 1, 2, and 3 after delivery.

4. Cesarean mothers who received a systematic instructional program will have less incision pain than those who did not on Days 1, 2, and 3 after delivery.

### **Scope of the Study**

This study employed a quasi-experimental design to assess the effects of systematic instructional program with reference to breastfeeding self-efficacy, nipple pain, nipple skin changes, and incision pain among women who had unplanned cesarean section and were admitted to the postpartum unit at Rajavithi Hospital during September 2005 to January 2006.

### **Definition of Variables**

**Systematic instructional program** referred to the breastfeeding intervention program which was designed to promote the breastfeeding self-efficacy of the cesarean mother. This intervention program was constructed based on the four main sources of information of Bandura's self-efficacy theory. The systematic instructional program for cesarean mother included the following:

*The first step: Building relationships* (The first 24 hours after cesarean delivery: Duration = 30 minutes). The researcher established the relationships with cesarean mothers.

*The second step: Nursing strategies* (The first day of post-operation: Duration = 75 minutes). The researcher provided the breastfeeding instruction, which consisted of (a) the importance of breastfeeding, (b) general information of breastfeeding, (c) the method of breastfeeding, (d) the method of reducing incision pain while breastfeeding, (e) the method of hand massage, milk expression, cup-feeding technique, and burping after feeding, (f) demonstration and rehearsal of breastfeeding, cup-feeding, and burping after feeding, and (g) the provision of anticipatory guidance including preventing and solving breastfeeding problems, given to cesarean mothers at bedside in combination with presentation of CD training.

*The third step: Support and encouragement 1* (The second day of post-operation: Duration = 30 minutes). The researcher visited cesarean mothers to assess their breastfeeding performance and giving encouragements. In case of uncertainly, cesarean mothers could ask questions or consulted their breastfeeding performance with the researcher. If cesarean mothers could correctly perform the breastfeeding behavior, the researcher praised them and further encouraged them to repeat that performance accomplishment. *Support and encouragement 2* (The third day of post-operation: Duration = 20 minutes) the researcher visited cesarean mothers to give more encouragements and verbal persuasions, while also focusing the mothers' attention to the successful aspects of the breastfeeding session and their existing breastfeeding skills.

**Usual nursing intervention** referred to care giving activities and any kind of knowledge that postpartum mothers routinely received from the staff nurses or other healthcare professionals that were unrestricted in term of forms or content and that were unspecified in the cesarean mother group.

**Breastfeeding self-efficacy** referred to the mother's perceived ability to breastfeed her infant. In this study, breastfeeding self-efficacy was evaluated by the short version of the breastfeeding self-efficacy scale (BSES-SF), developed by Dennis

(2003: 734-744), which consisted of 14 self-administered items arranged in a 5-point Likert-type scale that assessed breastfeeding self-efficacy expectancies in new mothers. The total scores ranged from 14 to 70, with higher scores indicating higher levels of breastfeeding self-efficacy.

**Nipple pain** referred to the perception of the mother's abnormal or uncomfortable feelings around the nipples due to redness, bruising, blistering, papillae, petechiae, bleeding, or cracking. Stewart's visual analogue nipple pain scale was used to evaluate nipple pain. The scale was modified by Santitham (2002: 54-55) from the visual analogue scales originally created by Stewart (1977: 113). Higher scores indicated higher levels of nipple pain.

**Nipple skin changes** referred to the characteristics of the nipple skin including appearance and color, which were identified and assessed using the nipple skin changes form of Somhatai Aussahatanon (B.E. 2531: 7) which was modified by the researcher. The characteristic of the nipple skin was assessed as follows:

1. *Unchanged*: if the nipples had no visible signs of redness, bruising, blistering, papillae, petechiae, bleeding, or cracking, an assessment score of 3 was given.
2. *Mild change*: if the nipples had visible signs of redness, bruising, blistering, papillae, or petechiae, an assessment score of 2 was given.
3. *Cracked nipples*: if the nipples had visible sign of fissures, an assessment score of 1 was given.

**Incision pain** referred to the perception of the mother's uncomfortable feelings at her incision wound while breastfeeding. The level of incision pain was measured by Stewart's visual analogue incision pain scale which was modified by Santitham (2002: 54-55), with higher scores indicating higher levels of incision pain.

## CHAPTER II

### LITERATURE REVIEW

In this chapter, related literature in the following topics is reviewed: (1) benefits of breastfeeding, (2) breastfeeding in cesarean mothers, (3) breastfeeding self-efficacy, and (4) a systematic instructional program to improve breastfeeding self-efficacy of cesarean mothers.

#### **Benefits of Breastfeeding**

Extensive research on biology of human breast milk and on the health outcomes, especially in recent years, associated with breastfeeding has established diverse and compelling benefits of breastfeeding to infants, mothers, families, and society (American Academy of Pediatrics, 1997: 1035). The major benefits of human breast milk are studied in detail as follows:

**1. Resistance to infectious diseases:** This benefit has been recognized for hundreds of years since breast milk contains immunologic agents, enzymes, and others compounds, such as secretory antibodies, leukocytes, and carbohydrates. These agents act against viruses, bacteria, and parasites (Biancuzzo, 2003: 7-9; Riordan & Auerbach, 1998: 133-134). Many studies support these antimicrobial effects of breast milk in decreasing the incidence or severity of several bacterial and viral infections in infants such as diarrhea (Beaudry, Dufour, & Marcoux, 1995: 191-197), respiratory tract infection (Wilson, et al., 1998: 21-25), otitis media (Paradise, et al., 1994: 853-860), pneumonia (Levine, et al., 1999: E28), unitary infection (Pisacane, et al., 1992: 87-89) and necrotizing enterocolitis (Lucas & Cole, 1990: 1519-1523).

**2. Enhanced immune system:** Breast milk enhances immune response to polio, tetanus, diphtheria, and *Haemophilus influenzae* immunizations and to respiratory syncytial virus infection, a common infant respiratory infection (Pabst, 1997: 991-995). Human breast milk contains anti-inflammatory factors and other

factors that regulate the response of the immune system against infection, such as antioxidants, alpha<sub>1</sub>-antitrypsin, cortisol, epidermal growth factor, IgA, lysozyme, and prostaglandins (Goldman, 1993: 664-671). Evidence also suggests that breastfeeding promotes post-natal development of secretory immunity and enhances secretory as well as systemic immune response to oral and parenteral vaccines (Brandtzaeg, 1998: S5-S18).

**3. Nutrition and growth benefits:** Human breast milk contains a balance of nutrients that the infant needs (Leifer, 2003: 224-225), is species-specific, and is uniquely superior for infant feeding (American Academy of Pediatrics, 1997: 1035; Levitt, 2001: 401, Picciano, 1998: 84-93). Human breast milk is low in total protein and low in casein, making it more readily digestible and less stressful on immature infant kidneys (Biancuzzo, 2003: 8). The essential lipids and many enzymes in human breast milk also promote efficient digestion and utilization of nutrients (Picciano, 1998: 84-93; Riordan & Auerbach, 1998: 142-143). Research findings have shown that infants breastfed exclusively have the same or somewhat greater weight gain in the first three to four months than do bottle-fed or mixed-fed infants (Fawzi, et al., 1997: 1731-1737).

**4. Reduced risk for chronic diseases:** Breast milk decreases infants' susceptibility to develop chronic illnesses such as types 1 and 2 diabetes (Gimeno & de Souza, 1997: 1256-1260; Pettitt, et al., 1997: 166-168), celiac disease (Ivarsson, et al., 2000: 165-171), childhood cancer (Smulevich, Solionova & Belyakova, 1999: 712-717), and allergy (Saarinen & Kajosaari, 1995: 1065-1069). Human milk increases resistance and immunity. It also raises the antigenic peptides that help protect against the autoimmune disease. Also, the primary function of sIgA in human milk is to protect the infant against allergies (Biancuzzo, 2003: 69; Riordan & Auerbach, 1998: 136).

**5. Developmental Benefits:** The potential effect of breastfeeding on cognitive development is of considerable interest. Human breast milk contains a wide range of long-chain polyunsaturated fatty acid (PUFA), including docosahexanoic acid (DHA) and arachidonic acid (AA) (Biancuzzo, 2003: 8; Riordan & Auerbach, 1998: 127), which act as components of cellular membranes and are particularly important in eye and brain development (Northrop-Clewes, 2001: 416). Observations in some

studies on neurologic and cognitive outcomes in breastfed children have led to a hypothesis that the early visual acuity and cognitive function of these children is greater than in non-breastfed children (Anderson, Johnstone & Remley, 1999: 525-535). In addition, sucking at the breast also promotes mouth development (Leifer, 2003: 225).

**6. Improved maternal health:** A number of studies indicate that breastfeeding has several positive hormonal, physical, and psychosocial effects on the mothers. Breastfeeding increases levels of oxytocin resulting in reduced postpartum hemorrhage, stimulates uterine contractions, and promotes more rapid uterine involution (Chua, et al., 1994: 804-805; Heinig, 1997: 35-56; Leifer, 2003: 225). Recent research demonstrates that lactating women have an earlier return to prepregnant weight (Dewey, Heinig & Nommsen, 1993: 162-166) since breast milk production uses maternal fat stores (Leifer, 2003: 225). Breastfeeding has also been related to possible reduction in the risk of ovarian cancer (Siskand, et al., 1997: 188-191). Studies have shown that mothers may also experience psychological benefits, such as increased self-confidence and facilitated bonding with their infants (Kuzela, Stifter & Worobey, 1990: 185-194). In addition, breastfeeding for longer time periods (up to two years) and among younger mothers (in their early twenties) may reduce the risk of pre-menopausal and possibly post-menopausal breast cancer (Marcus, et al., 1999: 1244-1247; Newcomb, et al., 1999: 174-182; Newcomb, et al., 1994: 81-87).

**7. Socioeconomic benefits:** Breastfeeding provides significant economic and social benefits to the family, the healthcare system, the employer, and the nation, including reduced healthcare costs and reduced employee absenteeism for care attributable to child illness (American Academy of Pediatrics, 1997: 1035; Leifer, 2003: 225). Breastfed infants typically require fewer sick care visits, prescriptions, and hospitalizations, especially if breastfed exclusively or almost exclusively (Ball & de Wright, 1999: 870-876). The significantly lower incidence of illness in the breastfed infant allows the parents more time for attention to siblings and other family duties and reduces parental absence from work and loss of family income (American Academy of Pediatrics, 1997: 1035).

According to much recognition of the benefits of human breast milk, all governments worldwide, including the Thai government, have begun to promote,

protect, and support breastfeeding as a public health priority to comply with the policies of UNICEF and WHO. The Baby-Friendly Hospital Initiative (BFHI) is a major effort strategy to improve breastfeeding, and the Ten Steps to Successful Breastfeeding have been designed to help postpartum mothers overcome the barriers to breastfeeding (Biancuzzo, 2003: 181). However, in terms of practicality, some groups of mothers such as cesarean mothers still face with breastfeeding problems. To be successful in promoting breastfeeding, there is the need to better understand the impact of cesarean section on the breastfeeding process.

### **Breastfeeding in Cesarean Mothers**

Cesarean section is the surgical delivery of the fetus through incisions in the mother's abdomen and uterus (Leifer, 2003: 183). Cesarean section rates have been increasing worldwide (Khawaja, et al., 2004: 12). Several studies have reported that certain situations, such as prolonged labor, administration of anesthesia, and lack of adequate compression of the infant thorax by the vaginal wall can contribute to the breastfeeding difficulties associated with cesarean section (Biancuzzo, 2003: 100).

The outcomes of cesarean section have demonstrated that this procedure may not only attenuate the positive life experience of giving birth but may actually introduce negative consequences (DiMatteo, et al., 1996: 303-304). Several studies have reported a variety of maternal physiologic, psychological, and life-style responses to cesarean section. More specifically, these studies have pointed out the major physiologic concerns of mothers after cesarean delivery which include: (a) incision pain, (b) breast and nipple problems such as nipples soreness and breast engorgement, (c) activity intolerance including getting out of bed and walking, bending, lifting, handling the infant, not being able to take a bath, and not being able to do everything they want to do, (d) fatigue, and (e) gastrointestinal disturbances including complaints of gas, vomiting, and intolerance to certain foods (Dewan, Glazener & Tunstall, 1993: 63-66; Miovech, et al., 1994: 55-56; Troy, 2003: 252-257). On the other hand, major psychological and life-style concerns of mothers after cesarean delivery are (a) limited activities including complaints of being limited in activity, not feeling like entertaining visitors, not being able to get out of bed, taking too long to feel better, having trouble getting organized, and being tied to the house, (b)

less confidence in mothering, (c) depression, as described in terms of feeling blue, feeling low, just not feeling like themselves, feeling alone and bored, and feeling emotionally overwhelmed, (d) dissatisfaction with the birth experience, (e) family interaction related to changed family patterns, and (f) childcare related to having problems with feeding the infant, or getting upset with the infant's cries (DiMatteo, et al., 1996: 305-309; Leifer, 2003: 185; Miovech, et al., 1994: 55-56). These outcomes of cesarean section have been founded to be significantly and negatively related to breastfeeding (DiMatteo, et al., 1996: 305-309). A review of existing studies has revealed that cesarean section also appears to be one important risk factor for failure to breastfeed, as it affects breastfeeding by delaying the initiation, hindering establishment of lactation, and shortening the duration of breastfeeding (Pérez-Escamilla, et al., 1996: 832-836; Riordan & Auerbach, 1998: 291-294).

Although the Step 4 of the Ten Steps to Successful Breastfeeding reads "Help mothers initiate breastfeeding within a half hour of birth," cesarean mothers generally experience a long elapsed time between birth and the first offering of the breast to their infants (Rowe-Murray & Fisher, 2002: 124-130). Also, findings of many studies have confirmed that cesarean section is a persistent barrier to early initiation of breastfeeding (Buxton, et al., 1991: 101-106; DiMatteo, et al., 1996: 305-309; Halpern, et al., 1999: 83-88; Pérez-Escamilla, et al., 1996: 832-836). Breastfeeding is often delayed because cesarean mothers need extra time to recover from major surgery, and they may be in so much pain that they do not feel like breastfeeding their infants. It is also possible that hospital policies or personnel simply do not encourage early breastfeeding due to these reasons (Biancuzzo, 2003: 100, 105; Buxton, et al., 1991: 101-106; Halpern, et al., 1999: 86; Riordan & Auerbach, 1998: 291-292; Rowe-Murray & Fisher, 2002: 124-130). For instance, the study of Rowe-Murray & Fisher found that the mean time to initiation of breastfeeding (measured in hours) was shortest for spontaneous vaginal delivery, followed by instrumentally assisted vaginal delivery, and longest for infants born by cesarean section (Rowe-Murray & Fisher, 2002: 124-130). Similarity, other studies found that the first mothers-infant contact occurred after 90 minutes of life for cesarean mothers and primiparous mothers were predictive factors associated with early weaning (Berra, et al., 2003: 954; Berra, et al., 2001: 546-549).

Cesarean mothers and their infants are commonly separated for a brief period or for a day after birth. This routine practice delays the onset of lactogenesis II and affects the establishment of lactation (Biancuzzo, 2003: 191-195; Pérez-Escamilla, et al., 1996: 832-836). In addition, the study of different patterns of hormones released during breastfeeding found that the release of oxytocin occurs more frequently and in bigger spurts after vaginal delivery as compared with cesarean delivery. This study also found that the mothers who had cesarean delivery lacked a significant rise in prolactin levels at 20 to 30 minutes after the onset of suckling as compared with vaginal delivery (Nissen, et al., 1996: 103-118).

Therefore, it can be concluded that prolonged maternal-infant separation and maternal endocrinological changes could affect the breastfeeding duration (DiMatteo, et al., 1996: 309; Pérez-Escamilla, et al., 1996: 835). Consequently, mothers who have had cesarean delivery are at risk for weaning earlier than mothers who have had vaginal delivery (Biancuzzo, 2003: 100-105). The study of Pérez-Escamilla and colleagues found that cesarean section was associated with shortened breastfeeding duration among women who elected to breastfeed for at least one month (Pérez-Escamilla, et al., 1996: 832-836).

Those problems mentioned above are breastfeeding barriers from inflexible hospital policies which are amenable to change. Appropriate hospital practices should enable early initiation of breastfeeding regardless of the mode of delivery. Enactment of these practices can be achieved through a hospital culture of solid support for the common goal of achieving Baby-Friendly practices, including strong leadership, effective interdepartmental communication and action, and participation of all staff members in the effort (Rowe-Murray & Fisher, 2002: 129). However, there are common physiologic problems related to breastfeeding in cesarean mothers which nurses can independently help. One of the frequent concerns that new mothers have about breastfeeding is the fear of pain, and this concern is a major reason that mothers do not initiate breastfeeding (Dustine & Dix, 1991: 225; Jacobi & Levin, 1997: 423; Libbus, Bush, & Hockman, 1997: 146-147; Riordan & Auerbach, 1998: 315), especially cesarean mothers who have experienced pain not only from incision but also from nipple problems caused by incorrect breastfeeding.

### **Nipple pain and cracked nipples**

Nipple pain is a common problem among breastfeeding in the first week postpartum (Keaeney, Cronenwett & Barrett, 1990: 90) and contributes to early breastfeeding cessation (Bick, et al., 2002: 62; Hill, 1991: 312-316). Ziemer and colleagues found that 96% of all breastfeeding mothers complained of nipple pain, and 27% of those mothers discontinued breastfeeding by six weeks postpartum (Ziemer, et al., 1990: 732-744). Similarly, Halpern and colleagues discovered that some cesarean mothers reported either nipple problems or difficulty latching (Halpern, et al., 1990: 732-744). Furthermore, nipple pain influences not only milk ejection or let-down reflex, but also the mothers' intention to continue breastfeed and their sense of efficacy (Jensen, Wallace & Kelsay, 1994: 29). Nipple pain is not an expected consequence of breastfeeding, yet it can be regarded as a signal for help because breastfeeding is not meant to be painful. Sometime, pain occurs when visible damage cannot be observed (Ziemer & Pigeon, 1993: 247-256). Therefore, it is significant to first identify the possible source of pain. If the underlying problem is not corrected, nipple pain will ultimately progress to cracked nipples.

Nipple damage may range from a slightly imperceptible white compression stripe to a gaping fissure (Biancuzzo, 2003: 333-334). A study of skin changes and pain in the nipple during the first week of lactation found that nipple damages include erythema, edema, fissures, blisters, inflamed areas, eschar, white patches, dark patches, yellow patches, peeling, pus, and ecchymosis areas. In Ziemer & Pigeon's study, nipple pain was reported by 90% of the sample. Furthermore, pain curve corresponded to the occurrence of edema, erythema, and the development of fissures. Also, the presence of inflamed areas and eschar were associated with significantly more pain (Ziemer & Pigeon, 1993: 247-256).

Nipple pain and cracked nipples can be attributed to one or more of the following four causes: (1) transient, physiologic causes, (2) incorrect latch-on or removal of the infant, (3) use or misuse of equipment or commercial products, and (4) pathologic causes, each of which is further explained in more details below.

*1. Transient, physiologic causes* result from a common physiologic reason of unrelieved negative pressure. During the first few days, there is little milk in the ducts and swallowing occurs infrequently, so unrelieved negative pressure may

cause discomfort. However, if the discomfort does not result from incorrect latch-on, this feeling should disappear when milk supply is copious and usually resolves after about one week. Moreover, using different positions may be helpful; mothers should alternate the pressure points so that the discomfort may be reduced (Biancuzzo, 2003: 334-335; Riordan & Auerbach, 1998: 315-321).

2. *Incorrect latch-on or removal of the infant* vigorously correlates with nipple problems such as discomfort, inflammation, abrasions, and bruising (Biancuzzo, 2003: 334; Jensen, Wallace & Kelsay, 1994: 29; Righard, 1998: 40-44). The location of the nipple damage may indicate the cause of the problem. For instance, imagine the face of a clock superimposed on the right breast if the infant suckles too low on the breast or too close to the tip of the nipple, the nipple damage is most likely to occur between 10 and 12 o'clock and between 4 and 6 o'clock on the right breast. Similarly, on the left breast, the nipple damage will occur between 12 and 2 o'clock and between 6 and 8 o'clock. To correct this problem, the mothers should bring the infant closer to their body in order that the infant's nose and chin brush the mothers' breast (Riordan & Auerbach, 1998: 318-319).

Besides, questioning the mothers about the position of their pain is helpful. If they experience pain on the top of the nipple, it is likely to be caused by incorrect latch-on and/or tongue thrusting. To solve this problem, the mothers should initiate to correct the latch-on, and if the infant is thrusting the tongue, the mothers should hold the infant's tongue down for about 30 seconds before latch-on by inserting a gloved finger. If the mothers perceive pain on the underside of the nipple, it is more likely that the pain is caused by the nipple being tipped upward when the mothers offer the breast. Thus, the mothers should tip the breast slightly upward in order that the infant can readily latch on, chin first. They must stop tipping the breast immediately when the infant has a suitable grasp of the breast because they may displace the nipple by exerting more pressure with their thumb (Biancuzzo, 2003: 334).

3. *Use or misuse of equipment or commercial products* such as an electric breast pump may cause excessive negative pressure that can contribute to the nipple problems. Similarly, prolonged exposure to wet nursing pads or to moisture build-up in insufficiently vented breast shells often macerate the nipple tissue and will eventually progress to cracked nipples (Biancuzzo, 2003: 335).

4. *Pathologic causes are found when the mothers experience the nipple problems because of anatomic variations of the infant.* For example, the infant has a cleft of the soft palate that makes it hard for mothers to correct the sucking technique at the breast. However, it is worth a try, especially when the infant's mouth is opened wide before grasping the breast and when the mothers can maneuver proper latch-on. Nipple problems immediately disappear. Furthermore, inverted nipples may cause the mother's complaint of nipple tenderness while breastfeeding; however, the best remedy for inverted nipples is frequent suckling at the breast (Biancuzzo, 2003: 335).

### **Incision pain**

A number of studies have reported that one of the most important physiologic concerns of mothers after cesarean delivery is incision pain (Miovech, et al., 1994: 55-56). An Aberdeen survey of postnatal pain experienced has reported that cesarean mothers had difficulty getting comfortable because the most important source of pain was their wound. They were surveyed on Days 1, 2, and 4 post-operation, and 73% of all cesarean mothers reported that they still had incision pain on Day 4 (Dewan, Glazener & Tunstall, 1993: 63-66).

Difficulty getting comfortable due to incision pain is an authentic trouble for cesarean mothers. Sometimes they are in such incision pain that they would not like to do anything, including breastfeeding. This may make them want to reduce the number of breastfeeding times (Biancuzzo, 2003: 105-106). Although the cesarean section may not affect milk volume by itself, the level of pain has been related to milk volume. As confirmed by the study of Hirose and colleagues, cesarean mothers who reported more intense pain on a visual analog scale also experienced reduction in milk volume. On the contrary, cesarean mothers who had better pain relief had more milk volume during the first 11 days (Hirose, Hosokawa & Tanaka, 1997: 120-121). Therefore, it is essential that pain be managed effectively to solve such problems (Smith, 2001: 196).

For these reasons, the cesarean mothers have more difficulty to breastfeed. Once cesarean mothers become disheartened to breastfeed, the initiation and the length of breastfeeding will be a problem among these mothers. Therefore, promoting breastfeeding self-efficacy should be a good method to solve the problems caused by the feeling of discourage and fear to breastfeed.

## **Breastfeeding Self-Efficacy**

The history of infant feeding in the 20<sup>th</sup> century is a story of the loss of a breastfeeding culture, the loss of traditional knowledge about breastfeeding behavior of mothers and infants, the kind of strengths they possess, and the kind of support they need (Mulford, 1995: 464). The identification of high risk breastfeeding mothers based on modifiable variables may guide the development and evaluation of interventions rather than non-modifiable demographic and socioeconomic variables. One potential modifiable variable is maternal confidence (Janke, 1994: 100-104).

Although research in relation to breastfeeding confidence has suffered from an atheoretical perspective in the extant literature, the significance of maternal confidence in relation to breastfeeding outcomes has been often cited (Dennis, 1999: 195-201; Libbus, Bush, & Hockman, 1997: 144-150). Furthermore, self-efficacy has been shown frequently, through correlation and causal associations, to be predictive of health behaviors. Increases in self-efficacy have been influenced, created, and sustained in quasi-experimental and experimental studies (Redland & Stuijbergen, 1993: 427-442).

In a descriptive study of O'Campo and colleagues, 11 psychosocial and demographic variables were examined. The findings suggested that maternal confidence was one of the five variables that were an important influence on breastfeeding duration. When the ten variables were entered into a regression model, maternal confidence also was one of the most significant variables affecting anticipated length of breastfeeding. As such, mothers with low confidence in their ability to breastfeed had 3.1 times higher risks (95% CI = 1.39-6.79) of early discontinuation of breastfeeding when compared to very confident mothers (O'Campo, et al., 1992: 195-201).

Similarly, Buxton and colleagues found that among mothers intending to breastfeed, low maternal confidence in the ability to breastfeed was a significant predictor of failure to breastfeed for more than seven days. Particularly, in this study, among mothers who had cesarean section, 25% rejected breastfeeding and 18% had early discontinuation of breastfeeding (Buxton, et al., 1991: 101-106).

A prospective survey of Blyth and colleagues discovered that maternal breastfeeding self-efficacy is a significant predictor of breastfeeding duration and level.

As such, mothers with high breastfeeding self-efficacy were significantly more likely to breastfeed and to do so exclusively, at one week and four months postpartum, than mothers with low breastfeeding self-efficacy (Blyth, et al., 2002: 278-284).

It has also been found that maternal breastfeeding confidence in the postpartum period is associated with maternal perceptions of insufficient milk supply, a leading cause of formula supplementation (Quarles, et al., 1994: 102-108). Hill & Humenick have developed the H & H Lactation Scale to measure mothers' perception of insufficient milk supply. The maternal confidence/commitment in breastfeeding subscale is one of the three indicators of insufficient milk supply. Maternal confidence/commitment scores were correlated with breastfeeding level at six weeks postpartum. As hypothesized, mothers with lower maternal confidence/commitment scores also had a lower level of breastfeeding at six weeks postpartum ( $r = .66, p < .05$ ) (Hill & Humenick, 1996: 136-140).

In addition, postpartum breastfeeding confidence is also associated with breastfeeding duration as Papinczak & Turner found that mothers who were unable to establish lactation reported significantly lower levels of breastfeeding confidence compared with mothers who breastfed for more than six months (Papinczak & Turner, 2000: 25-33). Moreover, in a phenomenological study involving in-depth interviews, deterioration in breastfeeding confidence during the early postpartum period was found to be a major factor in the decision to cease breastfeeding (Dykes & Williams, 1999: 232-246).

According to the aforementioned research findings, self-confidence in relation to breastfeeding or breastfeeding self-efficacy is associated with the diversity of breastfeeding. As proposed by Bandura (1977: 79-80; 1986: 390-399; 1997: 3-23), self-efficacy is a cognitive process of individuals' confidence in their perception to regulate their motivation, thought processes, emotional states, and social environment in performing a specific behavior. Self-efficacy is an essential variable in the performance of a specific behavior since it reflects individuals' perception about their abilities and not necessarily their factual abilities. These self-efficacy perceptions are related to beliefs about abilities to perform specific behaviors in particular situations and do not refer to a personality characteristic that operates independently of contextual variables (Bandura, 1977: 191-215). Thus, an individual's self-efficacy

beliefs are situation-specific and diverse (Dennis, 1999: 196). On the basis of breastfeeding self-efficacy results, specific confidence-enhancing strategies could integrate self-efficacy to improve the quality of care and to increase a new cesarean mother's confidence in her ability to breastfeed so that if she does encounter difficulties, she will be able to persevere and continue to breastfeed (Dennis, 1999: 200).

In brief, preparing cesarean mothers to launch breastfeeding is situation-specific and it requires training, rehearsal, and support. Finding the method to improve breastfeeding self-efficacy among cesarean mothers is needed to be investigated and its efficiency needs to be proved.

### **Systematic Instructional Program to Improve Breastfeeding Self-Efficacy of Cesarean Mothers**

To ensure breastfeeding self-efficacy, nurses and healthcare professionals should implement confidence-building strategies to maintain breastfeeding (Dennis, 1999: 199). Through empirical and methodological endeavors, nurses and healthcare professionals should have a more thorough understanding of breastfeeding self-efficacy as follows:

#### **Development of breastfeeding self-efficacy beliefs**

In building breastfeeding self-efficacy beliefs, breastfeeding activities including initiation, performance, and maintenance are influenced by four primary sources of information: (1) enactive mastery experiences, (2) vicarious experiences, (3) verbal persuasion, and (4) physiological and affective states (Bandura, 1986: 399-409; Bandura, 1997: 80-113; Dennis, 1999: 196-197).

*1. Enactive mastery experiences.* These are the most influential source of efficacy information because they provide the most authentic evidence of whether one can master whatever it takes to succeed. Successful performances increase self-efficacy, whereas repeated failures decrease it, especially if failures occur early on before a sense of efficacy is steadily built. The extent to which individuals will change their perceived efficacy through performance experiences depends on, among other factors, their preconceptions of their abilities, the perceived difficulty of the tasks, the amount of effort they expend, the amount of external support they receive,

the circumstances under which they perform, the timing and pattern of their success and failure experiences, and the way these enactive experiences are cognitively organized and reconstructed in memory.

According to Bandura (1997: 81), a small performance success that persuades cesarean mothers they have what it takes to succeed often enables them to go well beyond their immediate performance accomplishments that influence mothers' perceived ability to breastfeed their infant. Developing enactive mastery experiences can be done through direct performance accomplishments. For example, new cesarean mothers who effortlessly succeed at a simple task, such as having their infant correctly positioning at their breast, may not indicate much about their breastfeeding ability, while failing at this simple task may have no destructive consequences on their breastfeeding self-efficacy either. In contrast, succeeding at a complicated task, such as having the infant properly latch on for the whole feeding, can increase their perceptions of breastfeeding self-efficacy (Dennis, 1999: 196). The effect of actual experience on self-efficacy is modified by individuals' interpretations of their performance and desired outcome (Dennis, 1999: 196). In this study, the researcher applied enactive mastery experiences by enhancing mothers' breastfeeding self-efficacy through successful accomplishments and supporting these mothers to have positive experiences of breastfeeding, paying attention to the success or improving aspects of breastfeeding performances via the specific breastfeeding instruction for cesarean mothers including (a) the importance of breastfeeding, (b) the method of breastfeeding, (c) general information of breastfeeding, (d) the method of hand massage, milk expression, cup-feeding technique, and burping after feeding, (e) demonstration and rehearsal of breastfeeding, cup-feeding, and burping after feeding, (f) reinforcement of positive breastfeeding skills, and (g) enhancement of cesarean mothers' successful experiences with their breastfeeding ability and raise of their breastfeeding self-efficacy through repeated successes as recommended by Bandura (1997: 81; 1977: 81) so that they would consider themselves to be successful, have positive thinking, and perceive difficulties as "normal" so that they could solve problems.

2. *Vicarious experiences.* Others individuals' performances, whether live, recorded, or printed, provide a primary source of information about skills and abilities.

This type of observational learning can have powerful impact on perceived self-efficacy, especially in the absence of previous experience. Helping new cesarean mothers to see effective role models is important to promote their behavior. To further boost the role modeling effect, demonstrations should make a complex behavior simpler by breaking it into easy steps for success.

In this study, vicarious experiences were applied through (a) live modeling: breastfeeding self-efficacy gained through observational learning could be maximized by modifying how the researcher conducted demonstrations such as the method of breastfeeding, the method of hand massage, milk expression technique, and cup-feeding technique. Also, cesarean mothers observed successful breastfeeding behaviors of others in the postpartum ward; (b) symbolic modeling: cesarean mothers received a breastfeeding handbook. In addition, the researcher implemented the computer assisted instruction (CAI) which provided positive role modeling, additional high-quality behavioral demonstrations of breastfeeding performance, and cup-feeding technique. These visualized successful breastfeeding performances were all shown to the cesarean mothers.

3. *Verbal persuasions.* Individuals frequently believe the appraisals of others as valid assessments of their own abilities, and this can impact the level of self-efficacy. Social persuasion can bolster cesarean mothers' sense of efficacy, especially when they are struggling with difficulties. Cesarean mothers who are persuaded verbally are more likely to mobilize greater effort and to have increased perceived self-efficacy.

In this study, verbal persuasions were applied when suggestions were provided following the breastfeeding lesson plan and also through encouragement of recollection of the positive aspects of breastfeeding performances.

4. *Physiological and affective states.* Individuals make inferences about their abilities from emotional arousals and other physiologic cues experienced while enacting a behavior or expecting its enactment. Positive interpretations of arousals, such as excitement or satisfaction, enhance self-efficacy, while negative interpretations like pain, fatigue, discomfort, anxiety, and stress reduce individuals' sense of self-efficacy. Hence, in this study, positive physiological and affective states such as satisfaction with breastfeeding experiences were enhanced. Conversely,

negative physiological and affective states were applied to reduce these undesirable maternal states through the provision of anticipatory guidance following the breastfeeding lesson plan to control these maternal states that could be explicitly acknowledged and normalized (Dennis, 2003: 736-743; Blyth, et al., 2002: 283). Learning to control negative physiological and affective states is a significant step in gaining breastfeeding proficiency. For example, encouraging cesarean mothers to recall the positive aspects of their breastfeeding performances purposefully rather than to dwell solely on performance deficits could decrease anxiety and promote concurrent gains in their breastfeeding self-efficacy (Dennis, 1999: 199). The researcher observed all initial breastfeeding attempts with mothers to ensure that negative physiological and affective states did not undermine their perceptions of breastfeeding self-efficacy.

### **Influence of self-efficacy on breastfeeding behaviors**

The function of self-efficacy in explaining and predicting behavior is founded on the proposition that behavior is initiated, performed, and maintained as a function of (1) expectations about outcomes that will result from individuals' engagement in behavior (outcome expectations), and (2) expectations about individuals' ability to engage in or master the behavior (efficacy beliefs) (Bandura, 1997: 21-23). Particularly, self-efficacy influences thoughts and actions through four broad processes including (1) choice of behaviors, (2) the amount of effort expenditure and persistence, (3) thought patterns, and (4) emotional reactions. These processes accumulate to exert a powerful influence over behavioral performance (Bandura, 1986: 393-395; Dennis, 1999: 195-201).

*1. Choice of behaviors.* Individuals are likely to avoid tasks that they believe exceed their abilities and to perform those they feel they have the ability to do. Self-efficacy influences individuals' behavioral attempts and the level to which they set and commit to outcomes and goals. The importance of self-efficacy beliefs on the decision to initiate breastfeeding was confirmed by Dix's study which found that several new mothers rejected to initiate breastfeeding since they were scared to breastfeed and thought breastfeeding was painful. In particular, another reason of mothers who decided to bottle-feed was they had had cesarean section (Dix, 1991: 224). Also, it

appears that mothers' commitment to breastfeeding goals is important to the maintenance of breastfeeding intentions (Chezem, Friesen & Boettcher, 2003: 40-47; Hill & Humenick, 1996: 136-140).

In actuality, cesarean mothers have to face with more difficulties when trying to continue to breastfeed than mothers who have had vaginal deliveries. In this study, a systematic instructional program was designed to encourage cesarean mothers to perceive their breastfeeding self-efficacy by providing essential skills and motivational supports needed in mastering the breastfeeding skills after cesarean section, making them perceive the ease to breastfeed their infant.

*2. The amount of effort expenditure and persistence.* Mastering new behavior of learning and continuing to breastfeed requires a significant amount of effort, motivation, and support. Self-efficacy affects the effort and persistence required to master the new behavior. A well-built sense of self-efficacy encourages individuals to engage themselves completely in the behavioral performance, to endure difficulties and setbacks, and to increase their efforts when they fail (Bandura, 1977: 80). Persistence has been shown to be a necessary part of successful breastfeeding (Robbins, 1992: 243). That is to say, cesarean mothers who have a persistent belief in their ability to breastfeed are more likely to initiate breastfeeding, persist when faced with plenty of obstacles, employ self-encouraging thoughts, and react positively to perceived difficulties (Creedy, et al., 2003: 145).

In this study, a systematic instructional program was applied to promote knowledge especially information about breastfeeding that enabled cesarean mothers to develop confidence in their breastfeeding self-efficacy. Included as part of the program were demonstration and rehearsal of how to feed the infant with incision wound as it was believed that these demonstration and rehearsal would enable cesarean mothers to perceive their strength in breastfeeding and possess the knowledge and skills to successfully breastfeed their infant.

*3. Thought patterns.* Individuals' judgments of their abilities influence their thought patterns. High self-efficacy maintains raised expectations and prompts individuals to visualize successful performance, while low self-efficacy induces individuals to underline their perceived deficiencies and to visualize failure and self-defeat. Furthermore, a strong sense of self-efficacy prompts individuals to react to

difficulties by thinking analytically rather than by responding emotionally. Bottorff (1990: 201-209) discovered that women who were experiencing breastfeeding difficulties repeatedly found themselves involved in an “internal dialogue.” Difficulties and doubts attracted a cognitive process associated with the possibility of quitting breastfeeding versus the challenge of personal commitment (Dennis, 1999: 198).

Personal experiences are the powerful source of perceived self-efficacy. Previous successful breastfeeding experiences increase self-efficacy, whereas repeated failures diminish it. In this study, a systematic instructional program enabled cesarean mothers to perceive positive breastfeeding experiences and facilitated them to succeed at the breastfeeding task through rehearsing breastfeeding skills. For example, new mothers who succeeded at correctly positioning their infant at their breast experienced increased self-efficacy and expected that they would effortlessly succeed at this task in the next time.

*4. Emotional reactions.* The last influence of self-efficacy is an individual’s emotional reaction to new behavior. Individuals who have a strong sense of self-efficacy in their ability will persevere in their coping efforts despite innumerable difficulties and obstacles. The influence of mothers’ emotional reaction to breastfeeding was supported by the findings of Tarkka and colleagues’ which pointed out that mothers who had a positive experience of breastfeeding in the maternity ward coped with breastfeeding better than those mothers who were upset while in the maternity ward. Furthermore, in this study, the mothers who received the greater level of emotional (affect) support coped with breastfeeding better (Tarkka, Paunonen & Laippala, 1998: 175-181). Moreover, maternal satisfaction with breastfeeding can predict the mothers’ continuation of breastfeeding (Hill & Humenick, 1996: 139).

Besides, mothers who chose artificial feeding perceived pain or discomfort as the most barriers to breastfeeding (Biancuzzo, 2003: 39). Nipple pain is commonly experienced in the first week postpartum (Keaeney, Cronenwett & Barrett, 1990: 90). The evidence indicated that cesarean section was the risk factor of breastfeeding failure (Pérez-Escamilla, et al., 1996: 835). In the same way, cesarean mothers often delay initiating breastfeeding or reduce the number of breastfeeding times because they are in pain (Biancuzzo, 2003: 105). In this study, a systematic instructional

program facilitated cesarean mothers to reduce negative physical experiences and to increase positive physical experiences through the breastfeeding lesson plan so that they could learn to control undesirable feelings. Information was also provided to these mothers so that they would feel more comfortable while breastfeeding their infant. For example, they were informed that special positioning could minimize incision pain.

Breastfeeding may be influenced by the general values within a society. Women are more likely to breastfeed in cultures where the group is valued and where groups of women publicly breastfeed (Biancuzzo, 2003: 24-32). Embarrassment is often mentioned as a deterrent to breastfeeding (Dustine & Dix, 1991: 224; Hoddinott & Pill, 2000: 30-34; Libbus, Bush & Hockman, 1997: 148; Tiedje, et al., 2002: 157). It is likely that fears about embarrassment are based on the presumption that the mothers will need to breastfeed in public and the erroneous belief that breastfeeding requires them to expose their breasts (Biancuzzo, 2003: 39). In this study, a systematic instructional program helped the mothers realize the value of a group that that was attached to breastfeeding in the postpartum unit environment which provided visualization of the breastfeeding culture. The computer assisted instruction (CAI) was also integrated to provide positive role modeling, as well as additional high-quality behavioral demonstrations of breastfeeding performance. If the high level of self-efficacy suggests choosing, performing, and maintaining breastfeeding, then it is rational that the self-efficacy framework should be used in developing the assessment, care, and evaluation guidelines (Dennis, 1999: 198).

**Table 1:** The relationship between self-efficacy theory and breastfeeding (Dennis, 1999: 198)

Elements of self-efficacy theory		Examples of breastfeeding self-efficacy
Behavioral expectations	Efficacy beliefs	Mothers are confident that they will be able to properly latch their baby on their breast.
	Outcome expectations	Mothers believe that properly latching their baby will prevent cracked nipples.
Influence of self-efficacy on breastfeeding behaviors	Choice of behaviors	Mothers with high breastfeeding self-efficacy will choose to initiate breastfeeding.
	Effort expenditure and persistence	Mothers with high breastfeeding self-efficacy will exert effort and persevere with breastfeeding even when confronted with difficulties.
	Thought patterns	Mothers with high breastfeeding self-efficacy will envision success, think analytically, and manage self-defeating thoughts when confronted with difficulties.
	Emotional reactions	Mothers with high breastfeeding self-efficacy will interpret breastfeeding difficulties as a positive challenge and not be overwhelmed.
Development of breastfeeding self-efficacy beliefs	Enactive mastery experiences	Mothers with previous breastfeeding experience or successful initial attempts will have higher breastfeeding self-efficacy than mothers who do not.
	Vicarious experiences	Mothers who have observed successful breastfeeding will have higher breastfeeding self-efficacy than mothers who have not.
	Verbal persuasions	Mothers who receive positive evaluations and encouragement by a credible significant others (professionals, family, peers) will have higher breastfeeding self-efficacy than mothers who do not.
	Physiological and affective states	Mothers who are relaxed and calm will have higher breastfeeding self-efficacy than mothers who are overwhelmed, anxious, or in pain.

Since new cesarean mothers equally need the effective confidence-building strategies and consistent breastfeeding information, nursing support could then be the breastfeeding barrier if provided information is not correct and inconsistent. Thus, the

standard of instruction is necessary (Tiedje, et al., 2002: 160). There is the component of a systematic instructional program that may be used as a helpful guideline for nurses and healthcare professionals in order to diminish the barrier of inconsistent instruction.

**The component of a systematic instructional program to improve breastfeeding self-efficacy of cesarean mothers**

Although the Step 5 of the Ten Steps to Successful Breastfeeding reads “Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants,” in practice, opportunities for breastfeeding instruction are given low priority by busy healthcare professionals in the maternity ward (Bolam, et al., 1998: 805-811; Labarere, et al., 2003: 847-852). Despite the fact that healthcare professionals may positively influence breastfeeding mothers (Ekström, 2003: 261-266; Mitra, et al., 2003: 758), they also can be a negative source of support if they provide mothers with inconsistent, inaccurate, and/or inadequate breastfeeding instruction (Dennis, 2002: 12). The significance of a systematic instructional program on breastfeeding was supported by Bell and colleagues who found that the consistent instruction and support help mothers to maintain an adequate milk supply and shed their sense of helplessness and isolation (Bell, Geyer, & Jones, 1995: 309-314).

Cesarean mothers generally confront with breastfeeding difficulties than those who had vaginal deliveries (DiMatteo, et al., 1996: 310). The pertinent breastfeeding instruction for cesarean mothers assists them to overcome potential breastfeeding obstacles. These mothers are reassured that cesarean section does not preclude a successful breastfeeding. Even if they may experience delay in having their milk “come in” or have decreased milk volume for the first few days, this is not necessarily worrisome. Also, they are emphasized about how the difficulties that do occur are often more related to the time of initiation and frequency of breastfeeding, so mothers can evade these difficulties by persisting on breastfeeding as soon and as often as possible. In particular, their sense of breastfeeding self-efficacy is increased, and that contributes to better breastfeeding outcomes (Biancuzzo, 2003: 107).

Most mothers who face with breastfeeding obstacles are primiparas. It seems logical that mothers with their first infant are more likely to ask for help than

experienced mothers (Righard, 1998: 42). Bell and colleagues reported that primiparas are most receptive to instruction given at the maternity ward and then recognize the instruction better than that obtained from the antenatal and child health centers (Ekström, 2003: 265). In addition, media is useful in reinforcing the main points made during instructing sessions and also helpfully assists the instruction (Biancuzzo, 2003: 80).

The type of instruction also helps mothers grasp the benefit of element (Biancuzzo, 2003: 78-79). Individual instruction or one-to-one instruction is the most effective and rewarding for both parents and healthcare professionals as this type of instruction is easy to assess and more directly responds to the mothers' needs. Additionally, individual instruction is often the most effective approach for achieving affective objectives such as helping mothers overcome a specific barrier in their decision to breastfeed. Individual instruction is also satisfying for the mothers for the reason that they have the instructor's assistance in accomplishing some specific psychomotor skills, such as effective latch-on. Nevertheless, individual instruction is time-consuming and expensive when resources are limited. Group instruction should be arranged in a comfortable environment and at convenient times for parents. It has some dissimilar advantages as this type of instruction encourages the sharing of thoughts and questions. The affective aspects of learning such as discussing feelings and fears about breastfeeding are frequently best accomplished in this environment, where other mothers may have the same thoughts and feeling and they often offer encouragement and support for difficulties or dilemmas they have successfully resolved. Instructing groups assist mothers interact with one another and with their partner. This interaction lays the foundation to establish a network of support from others, and it serves as a stimulus for discussion about breastfeeding. Group instruction is a time-efficient way to cover the content of instruction for several persons. It works well in addressing generally asked questions with simple answers. For example, almost all mothers have concerns and questions about achieving or increasing milk volume, and basic answers can be discussed in an instructing group. However, specific questions about why some mothers with a specific breastfeeding situation do not have enough milk require individual instruction.

A systematic instructional program may lead not only to an increased breastfeeding outcome, but also to happier mothers and families. For healthcare professionals, the establishment of successful and trusting relationships will undoubtedly lead to greater satisfaction (Bell, Geyer & Jones, 1995: 314).

According to those reasons mentioned above, in this study, a systematic instructional program for cesarean mothers was designed specially to promote the breastfeeding self-efficacy of cesarean mothers and to cope with nipple pain, incision pain, and maternal feeling of discouragement to breastfeed. Knowledge of breastfeeding and specific breastfeeding techniques for cesarean mothers were instructed, practiced, and rehearsed. This was carried out in addition to other nursing strategies such as enhancement of the breastfeeding self-efficacy through encouragements and verbal persuasions as well as support of successful aspects of the breastfeeding sessions and existing breastfeeding skills provided by the researcher. The plan of a systematic instructional program for cesarean mothers was described in the next chapter; only the breastfeeding knowledge and clinical management strategies are discussed below.

**Mechanisms of milk production:** Human breast milk is produced through two main mechanisms including endocrine function and autocrine function. Prolactin, oxytocin, and other hormones are neurohormonal mechanisms that control the initiation of milk production when the placenta is delivered. That is, autocrine mechanisms control the continuation of milk production, and the milk must be effectively and continually removed. Effective milk removal depends on the frequency, duration, and efficiency of infant suckling (Biancuzzo, 2003: 141-177).

*1. Frequency of suckling:* Encouraging early and frequent suckling is important because there is early window of opportunity for the infant's suckling to stimulate the maternal breasts. Milk production increases as the frequency of stimulation increases during the first month of life. As soon as the maternal milk supply is well established (around three to four weeks after birth), the frequency does not correlate with milk production (Biancuzzo, 2003: 141-142; Riordan & Auerbach, 1998: 106-107). The frequency of infant feeding during a 24-hour period is highly varied. During the first 60 hours of life, the average feeding time is seven to eight times per 24 hours. This means the infant must nurse about every two to three hours

around the clock in order that the infant meets the adequate nutrition while the mother meets her comfort by expressing milk frequently. However, in the early days, feeding ten to 15 times in a 24-hour period is not unusual because the infant's stomach capacity is small and because breast milk is easily digested (Diaz, et al., 1995: 371-376; Jacobi & Levin, 1997: 415; Leifer, 2003: 229). In addition, encouraging frequent unlimited breastfeeding increases milk production which leads to greater infant weight gain, decreased nipple and breast problems, and increased duration of breastfeeding (Jacobi & Levin, 1997: 415).

2. *Duration of suckling* may be related to infant consumption, but not maternal milk production. If suckling is too short, the infant may receive little milk or only the foremilk, so he or she does not receive the richer hindmilk. This will affect his or her weight gain. The infant should nurse at least ten minutes on the first breast because let-down reflex may take as long as five minutes to occur. Then, the mothers should move the infant to nurse at the second breast. The total duration of early feeding should be at least 15 minutes per breast (Biancuzzo, 2003: 144-145; Leifer, 2003: 225-229). However, "marathon" suckling in the first few days, particularly when there is little milk in the ducts, invites unrelieved negative pressure and the potential for sore nipples (Biancuzzo, 2003: 336). In addition, new mothers do need to know that not all feedings will last the same length of time, nor will the infant nurse an equal number of minutes from each breast at each feeding (Jacobi & Levin, 1997: 415).

3. *Effective suckling* results in removal of milk from the breast. Most times, ineffective sucking is the result of poor latch-on related to inexperience of the infant, the mothers, or both, and the root of ineffective sucking problem is the infant has not opened wide enough. The first feeding is critical because the infant imprints a suckling pattern that tends to be repeated in subsequent feedings (Biancuzzo, 2003: 145; Riordan & Auerbach, 1998: 113).

**Achieving successful milk transfer** is an important factor that helps mothers generate sufficient milk supply. Good positioning and latch-on are prerequisites for milk transfer. Good positioning has everything to do with continued breastfeeding. If the mothers are not comfortable, they will not feel encouraged to continue, while excellent latch-on causes the infant to successfully obtain enough milk

and prevents breastfeeding problems (Biancuzzo, 2003: 148; Jacobi & Levin, 1997: 416).

**Preparing for latch-on:** The fact that the infant can latch correctly onto the breast is important. The mothers will need some helpful tips. Instruct the mothers to use their fingers to tilt their nipple upward. The mothers use their nipple to stimulate the infant, and they have to wait until the infant's mouth is open-wide before grasping the breast. The mouth should be gaping with the tongue extended over the lower alveolar ridge and the lower lip. If the infant latches on before the mouth is gaping open-wide, the mothers should break the suction by inserting their finger between the mouth and the nipple to prevent nipple problems and to achieve effective latch-on (Biancuzzo, 2003: 146-149; Jacobi & Levin, 1997: 418-419; Jensen, Wallace & Kelsay, 1994: 28; Leifer, 2003: 228-230; Riordan & Auerbach, 1998: 110-111).

**Basic positions of breastfeeding:** Good positioning enables the mothers to achieve excellent latch-on and ensures comfort for both mothers and the infant, especially cesarean mothers who have difficulty getting comfortable during breastfeeding. A comfortable position for cesarean mothers can minimize incision pain and help them achieve a good latch-on that prevents nipple problems (Biancuzzo, 2003: 105; Bick, et al., 2002: 48-54; Leifer, 2003: 228-230; Riordan & Auerbach, 1998: 291-294).

1. *Side-lying position* (sometimes called parallel hold) (Biancuzzo, 2003: 95, 105, 152-153; Leifer, 2003: 227; Riordan & Auerbach, 1998: 301-304) works well with cesarean mothers during the first day or so when the mothers are usually in bed. Besides, a modified version of the side-lying position does work better, because the mothers may be able to use both breasts without rolling over onto the other side. They can instead use an "elevator" side-lying position when they are fully alert. Place the infant so that the mothers can use the hand that does not have the IV line to first offer the upper breast with the infant lying on a pillow to elevate the infant to the level of the breast. When the infant has finished on one side, mothers can remove the pillow and offer the infant the lower breast (the one nearest the mattress). In the same way, mothers can first offer the lower breast, and then when the infant has finished with this, they can then tuck the lower breast under the torso and offer the upper breast. Use a rolled-up receiving blanket behind the infant to maintain chest-to-

chest position and a pillow tucked behind the mothers' back to maintain their position and comfort. The mothers' body should be at a slight angle to the mattress, leaning backward just a bit against a pillow. The special position can minimize incision discomfort as well. In addition, the side-lying position can also minimize episiotomy pain in the early postpartum period while breastfeeding (Pochaiquopt, 2000: 39-51).

2. *Football position* (sometimes called clutch hold) (Biancuzzo, 2003: 105, 153-154; Leifer, 2003: 227; Riordan & Auerbach, 1998: 209-304) is useful for cesarean mothers when they are able to sit up in either the bed or the chair. With this position, they can avoid the infant's touching the suture line. Moreover, the pressure on the suture line can be minimized when the mothers flex their knees. The football position provides almost complete control of the infant's head and better visualization of the latch-on process. One important tip of this position is that the mothers and the infant are in the chest-to-chest position and the mothers should hold the infant at the base of the neck, not on the crown of the head, as usually occurs when the fingers are pointing toward the infant's ears, rather than toward the infant's crown.

3. *Cradle position* (sometimes called Madonna hold) (Biancuzzo, 2003: 151-155; Leifer, 2003: 227; Riordan & Auerbach, 1998: 301-304) can also be used when the mothers would like to offer a second breast without moving their own position. They can move the infant from the football position on the right breast to the cradle position on the left breast. A few important points about this position that are often overlooked include (a) the mothers have to make sure that they and the infant are in the chest-to-chest position rather than chest-to-ceiling and that there is no space between the mothers' body and the infant's body, (b) the mothers do not hold the infant below the level of the nipple, as this will cause a drag on the nipple and subsequent bruising, (c) the mothers also do not hold the infant above the level of the nipple because the milk would need to overcome gravity to be transferred to the infant, (d) the infant's head should not be directly in the antecubital fossa as bottle-fed infant is held, but the infant should rest slightly lower on the mothers' forearm to ensure better alignment, (e) the mothers should hold the infant at the base of the neck, not on the crown of the head, and (f) the mothers should facilitate flexion of the infant's knees to maintain postural control.

### **Clinical management strategies for nipple pain and cracked nipples**

Over the years, nipple pain and cracked nipples have been reported as the main reason for early discontinuation of breastfeeding (Bick, et al., 2002: 62; Quarles, et al., 1994: 102-108). Since then several recommendations have been given to preventing and/or deal with these problems (Buchko, et al., 1994: 46; Jacobi & Levin, 1997: 423).

For decades, the old techniques such as prenatal nipple “toughening” have been taught to pregnant women when they were instructed to prepare for breastfeeding by rubbing their nipple strongly with a bath towel, limiting the suckling time, and using nipple creams and nipple shields. These are techniques that have proved to provide relief and healing to damaged nipple tissue (Biancuzzo, 2003: 335; Jacobi & Levin, 1997: 423).

A variety of topical creams and ointments have been recommended as a key for solving the nipple pain and/or the nipple damage such as hydrogel dressings, lanolin ointment, olive oil, and A&D ointment (Biancuzzo, 2003: 336-337; Riordan & Auerbach, 1998: 318-321; Robinson, 2002: 110-112). Based on recent clinical research, Dodd & Chalmers found that hydrogel dressing provides greater pain relief and better promotes healing than lanolin ointment (Dodd & Chalmers, 2003: 486-494). In another clinical study, Buchko and colleagues found that warm water compress is the most effective nipple pain treatment when compared with moist tea bag compress or massage of expressed breast milk into the nipple and areola before air-drying them (Buchko, et al., 1994: 46-52). However, an abundance of evidence as well as several expert clinicians’ recommendation suggest that the mothers’ own breast milk, which contains natural lanolin, antibodies, and no harmful effects, is the most effective prevention and treatment for the nipple damage (Dodd & Chalmers, 2003: 492-493; Jacobi & Levin, 1997: 423; Riordan & Auerbach, 1998: 318). Whether those creams, ointments, and treatments are effectiveness or not, they have yet to be completely proved by scientific evidence (Bick, et al., 2002: 76). Therefore, proper positioning and latch-on are likely to be the best prevention strategy for most cases of nipple pain and cracked nipples (Righard, 1998: 40-44).

### **Anticipatory guidance for nipple pain and cracked nipples**

Anticipatory guidance anticipates possible problems without meaning that they will definitely happen. Mothers need instructions that could help them find ways to overcome potential barriers to breastfeed and introduce confidence-building strategies to maintain breastfeeding when nipple pain and cracked nipples will occur. A review of helpful instruction is as follows (Biancuzzo, 2003: 93-94, 335-336; Bick, et al., 2002: 76; Blyth, et al., 2002: 283; Leifer, 2003: 230):

1. Determine the root of the problem. A sharp, acute pain when the infant latches-on is likely to be caused by nipple pain and is a result of incorrect latch-on.
2. Advise on the importance of effective positioning as well as latch-on and how to correct it.
3. Advise on how to break suction gently with mothers' forefinger while taking the infant off the breast.
4. Advise the mothers to discontinue using practices or products that are likely to cause or worsen nipple pain and cracked nipples such as rubbing the nipples with a towel, using soap or alcohol products, using creams or ointments which they may be allergic to, having prolonged exposure to wet breast pads, and using nipple shields which can rub on the nipple skin and cause an abrasion. If the mothers wish to apply moisture to their nipples, recommend them to bathe the nipples with fresh expressed colostrums or breast milk.
5. Reduce pressure on the painful spot. Feed on the side with less pain first because the infant usually sucks vigorously when starting. Also, alternate positions for a few days may be helpful.
6. Enhance milk-ejection reflex. Warm compresses or massages applied before feeding or while the infant pauses during feeding help an eager infant obtain milk without excessive sucking before let-down.
7. If the mothers are unable to breastfeed because of severe nipple trauma, resting and expressing breast milk for 24 hours may reduce the trauma.
8. The mothers should be reassured that once positioning and latch-on are effective, the nipple will heal very quickly.

9. Reassure the mothers that nipple pain and cracked nipples do not preclude a successful breastfeeding experience. The mothers should be persistent to continue breastfeeding as soon and as often as possible.

### **Clinical incision pain management strategies**

Pain management is indispensable not only to reduce suffering but also to facilitate early ambulation that can prevent postoperative complications (Leifer, 2003: 213). The cesarean mothers should be instructed to relieve pain, and this adequately includes the application of both nonpharmacological and pharmacological methods.

The basis of analgesia used immediately post-operation is opioid-based medications administered by injection. These medications may cause drowsiness, nausea, and respiratory depression that reduce the mothers' ability to breastfeed and care for their infant (Bick, et al., 2002: 48). Non-steroid anti-inflammatory drugs (NSAIDs) have become more commonly used to treat incision pain during the past ten years. Publications on the use of NSAIDs to relieve incision pain have concentrated largely on the first 48 hours post-operation. Findings published indicate that the use of stronger NSAIDs such as diclofenac is related to relief of intense incision pain. More importantly, the amount of NSAIDs excreted in breast milk is considered to be too small to be harmful (Bick, et al., 2002: 51; Bush, Lyons & Macdonald, 1992: 1075-1077; Dennis, Leeson-Payne & Hobbs, 1995: 297-299; Rorarius, et al., 1993: 293-297). For several decades, codeine, which offers significant incision pain relief, has been documented as safe for lactating mothers. More recently, other narcotic or synthetic-narcotic analgesics have been prescribed for pain relief, including oxycodone (Percocet) or ketorolac (Toredol). Although there are a smaller number of studies on the effects of these medications, it appears that unbearable pain may be a larger threat to breastfeeding than the medicine which the mothers take (Biancuzzo, 2003: 106). It can be explained that adequate pain management helps the mothers to relax in order that they can breastfeed their infant more comfortably and have the energy to establish bonding with their baby (Leifer, 2003: 212-214). Some helpful instructions are reviewed here (Biancuzzo, 2003: 106-107; Leifer, 2003: 189-213):

1. Use a pain scale to evaluate the pain level before and after pain interventions in order that the mothers' pain experience and the amount of relief the mothers receive from the pain interventions can be assessed.
2. Demonstrate breastfeeding techniques that provide comfort to cesarean mothers to ensure adequate pain relief.
3. Encourage the mothers to change positions regularly (about every two hours) as well as support their body and extremities with pillows as needed in order to reduce discomfort from constant pressure and having the body in one position for too long. It also helps mobilize respiratory secretions.
4. Encourage the mothers to use the breathing and relaxation techniques so as to increase the mothers' sense of pain control.
5. Teach the mothers to use a small pillow or folded blanket to firmly press on her incision when moving or coughing in order to support the incision, reducing pain and increasing the likelihood that they will cough adequately to expel respiratory secretions.
6. Inform the mothers that incision pain does not preclude a successful breastfeeding experience. The mothers should be encouraged to continue breastfeeding as soon and as often as possible.
7. Provide order analgesia to reduce the perception of pain which facilitates breastfeeding, moving, coughing, and ambulating. Also, anxiety and fatigue can also be reduced.

Based on the review of literature and related research, it can be concluded that breastfeeding has great advantage for both mothers and the infant. While the majority of cesarean mothers initiate breastfeeding, many discontinue breastfeeding early on as a result of difficulties rather than maternal choice. Using the self-efficacy theory as a framework, in combination with a systematic instructional program, it was expected that maternal confidence would increase, resulting in a higher level of perceived self-efficacy beliefs which, in turn, can influence mothers' judgments regarding their ability to initiate, be persistent in, and continue breastfeeding.

## CHAPTER III

### MATERIALS AND METHODS

In the present study, a quasi-experimental design was used to compare breastfeeding self-efficacy, nipple pain, nipple skin changes, and incision pain in cesarean mothers who received a systematic instructional program and postpartum mothers who received only usual nursing intervention.

#### **Population and Sampling**

The target population of this study was mothers who had unplanned cesarean section to deliver their healthy infant and who were hospitalized at the postpartum unit of Rajavithi Hospital, Bangkok, during September 2005 to January 2006. The study sample was selected by means of purposive sampling from the target population who met the following criteria:

##### **Inclusion criteria**

##### **Mothers:**

1. They were between 20 and 40 years old;
2. They were primipara;
3. They had unplanned cesarean delivery;
4. Their delivery was at term (38-42 weeks);
5. They were healthy and had no complications during the operation or no complications that may be barrier to breastfeeding such as HIV positive and infection;
6. They had normal nipples;
7. They intended to breastfeed their infant;
8. They were literate and were able to communicate in the Thai language; and,
9. They were willing to participate in the study.

**Infants:**

1. They were health and experienced no complications after birth that might be the breastfeeding barrier such as neurologic deficit and tongue tie;
2. Their body weight was more than 2,500 grams; and,
3. The APGAR scores at five minutes and ten minutes were higher than eight.

**Exclusion criteria:**

1. The infant was separated to receive treatment at the special care nursery; and,
2. The mothers intended not to breastfeed their infant.

The sample size was calculated following the sample size tables for t-test of Cohen (1988: 54), suggesting that when the desired power to determine the sample size was .80, the effect size was .70 and the significance criterion was .05, for one-tail analysis. Thus, the sample should be at least 26 cases for experimental research. However, the researcher considered using 30 dyads as the sample size in each group in the present study.

In terms of the mortality during data collection, 2 dyads that were intended to be the subjects in the control group were excluded due to infants were separated to treat at the special care nursery.

**Setting**

The study was conducted at the postpartum unit at Rajavithi Hospital which was the Baby-Friendly Hospital. All mothers received breastfeeding information such as benefits of breastfeeding and how to breastfeed in brief once during the briefing in the antenatal class. Both of the operation unit and the postpartum unit encouraged cesarean mothers to breastfeed as stated in the hospital policies. At the operation unit, after the infant was delivered, the mothers who had spinal analgesia or epidural analgesia was encouraged to kiss their infant (mothers who had general analgesia did not do that as they did not have the ability to do so). After that, cesarean mothers rested at the recovery room for one to two hours, during which the infant was cared for

by nursery staffs. Then, cesarean mothers and their infant moved to the postpartum unit.

The postpartum unit consisted of two wards (36 beds for each ward) which provided similar care for postpartum mothers regardless of their mode of delivery—normal labor, cesarean section, or other abnormal labors, with the healthy infant. The postpartum unit had responsibility to promote breastfeeding as part of the usual nursing intervention as follows:

1. Cesarean mothers were initiated to breastfeed and given the breastfeeding information at least six hours after birth. The first time when they were given their infant to suck on their breast, the staff nurse offered help and breastfeeding information similar to what mothers with normal labor received such as general breastfeeding techniques and general breastfeeding benefits in brief. Then, their infant was cared for by staff nurses and was taken to be breastfed every three hours as routine nursing practice. As soon as cesarean mothers rested for 24 hours, they were encouraged to care for their infant completely.

2. The postpartum unit provided a routine education program, which was administered in groups, through video tapes which were played on Monday to Friday, starting at 10.30 a.m. The topic of video tape played in each day included the following:

Monday: How to initiate breastfeeding correctly (duration = 25 minutes)

Tuesday: Infant care (duration = 27 minutes)

Wednesday: Bonding-attachment after birth, postpartum self-care, and general breastfeeding information (duration = 20 minutes)

Thursday: Supplementation for infants, the development of infants in the first year, and how to care the infants when they had a fever or diarrhea (duration = 30 minutes)

Friday: The art of motherhood and general breastfeeding information (duration = 40 minutes)

3. Cesarean mothers were usually discharged on the fourth day post-operation.

## **Instrumentation**

Two types of instruments were used in this study. One was instruments for intervention and the other was for data collection as follows:

### **1. Instruments for intervention**

The instruments for intervention were developed based on the four primary sources of information of Bandura's self-efficacy theory. Firstly, the enactive mastery experiences enhanced mothers' breastfeeding self-efficacy through successful accomplishments, positive experiences of breastfeeding, and attention to the successful or improved aspects of breastfeeding. Secondly, vicarious experiences were shown to the cesarean mothers through live modeling: observational learning in the demonstrations, and symbolic modeling: a breastfeeding handbook and CD training. Thirdly, verbal persuasions bolstered breastfeeding self-efficacy through directing attention to the successful aspects of the breastfeeding session, praising new and existing breastfeeding skills, and the encouragements from the researcher. Fourthly, as for physiological and affective states, the breastfeeding lesson plans reduced the negative side such as pain and enhanced the positive side such as satisfaction with breastfeeding experiences. The instruments for the intervention could further be divided as follows:

**1.1 Systematic instructional program for cesarean mothers** was designed by the researcher to promote the breastfeeding self-efficacy of the cesarean mothers. Basic knowledge was summarized by using texts, journals, and literature reviews. Nursing strategies included enhancing the breastfeeding self-efficacy through teaching, guiding, and giving support from the researcher. The plan of the systematic instructional program for cesarean mothers could be described as follows:

#### **The first step: Building relationship (duration = 30 minutes)**

This step started in the first 24 hours after cesarean delivery when cesarean mothers were ready. At the beginning, the researcher established the relationship with cesarean mothers and explained the purpose and procedure of the study. After that, the researcher made an appointment with them to give them instruction at the time they were ready on the following day.

**The second step: Nursing strategies (duration = 60 minutes)**

This step started on the first day post-operation when cesarean mothers were ready. The researcher provided the breastfeeding instruction, which consisted of (a) the importance of breastfeeding, (b) general information of breastfeeding, (c) the method of breastfeeding, (d) the method of reducing incision pain while breastfeeding, (e) the method of hand massage, milk expression, cup-feeding technique, and burping after feeding, (f) demonstration and rehearsal of breastfeeding, cup-feeding, and burping after feeding, and (g) the provision of anticipatory guidance including preventing and solving breastfeeding problems. Such information was given to cesarean mothers at bed side in combination with presentation of CD training via the researcher's laptop when the instruction was being given. This CD training was useful to provide positive role modeling, additional high-quality behavioral demonstrations of breastfeeding performance, breast massage, milk expression, and cup-feeding techniques. These visualized successful breastfeeding performances were shown to the cesarean mothers and performance accomplishments were established through rehearsals. The researcher encouraged cesarean mothers to breastfeed continually. Finally, the researcher gave CD Training and a handbook of breastfeeding to cesarean mothers for further encouragements, persuasions, and self-learning.

**The third step: Support and encouragement****Support and encouragement 1: The second day post-operation (duration = 30 minutes)**

The researcher visited cesarean mothers to assess their breastfeeding performance and give them encouragements. In case of uncertainty, cesarean mothers could ask question or proved their breastfeeding performance with the researcher. If cesarean mothers could correctly perform any breastfeeding behavior, the researcher praised them and encouraged them to repeat that performance accomplishment.

**Support and encouragement 2: The third day post-operation (duration = 20 minutes)**

The researcher visited cesarean mothers to give encouragements and verbal persuasions, as well as to help focus their attention on the successful aspects of the breastfeeding session and their existing breastfeeding skills.

**1.2 The breastfeeding lesson plans** (Appendix H) was modified from the breastfeeding lesson plans designed by Nitwiboon (B.E. 2541: 138-156), which was examined by five experts (Appendix A): four obstetrics and gynecological nursing instructors and a pediatrician. These experts examined the lesson plans for content validity and language appropriateness. The researcher modified the instrument according to the experts' recommendations and comments before using it in this study. Basic knowledge for the cesarean mothers was summarized by using text books, journals, and literature reviews. The major topics included (a) the importance of breastfeeding, (b) general information of breastfeeding, (c) the method of breastfeeding, (d) the method of reducing incision pain while breastfeeding, (e) the method of hand massage, milk expression, cup-feeding technique, and burping after feeding, (f) demonstration and rehearsal of breastfeeding, cup-feeding, and burping after feeding, and (g) the provision of the anticipatory guidance including preventing and solving breastfeeding problems.

**1.3 CD Training: Breastfeeding...the greatest gift of love** was the computer assisted instruction (CAI) created by the researcher with the use of the Macromedia Authorware 7.01 Program. This CD Training was examined by five experts (Appendix A): four obstetrics and gynecological nursing instructors and a pediatrician. These experts examined the CD Training for content validity and language appropriateness. The researcher then modified the instrument according to the experts' recommendations and comments before using it in this research study. The content of the CD Training followed the breastfeeding lesson plan, with the video clips which presented the method of breastfeeding, the method of hand massage, milk expression, and cup-feeding technique.

**1.4 The handbook of breastfeeding: Breastfeeding...the greatest gift of love** (Appendix I) was created by the researcher and was examined by five experts (Appendix A): four obstetrics and gynecological nursing instructors and one pediatrician. These experts examined the handbook of breastfeeding for content validity and language appropriateness. The researcher modified the instrument according to the experts' comments and suggestions before using it in this research study. The handbook of breastfeeding included the content of the breastfeeding lesson plan in brief.

## 2. Instruments for data collection

**2.1 The Demographic Data Form** (Appendix C) elicited basic demographic data of cesarean mothers including age, education level, occupation, family income, gestational age, the cause of delivery by cesarean section, duration of surgery, and skin incision, as well as basic demographic data of the infants including the date and time of birth, sex, APGAR score at five minutes and ten minutes, and infant body weight.

**2.2 The breastfeeding self-efficacy scale-short form (BSES-SF)** (Appendix D) was developed based on the self-efficacy theory to measure maternal breastfeeding confidence by Dennis (2003: 734-744). The BSES-SF was considered ready for clinical use to (a) identify breastfeeding mothers at high risk, (b) assess breastfeeding behaviors and cognitions to individualize confidence-building strategies, and (c) evaluate the effectiveness of various interventions and guide program development (Dennis, 2003: 742). Dennis revised the BSES-SF from the original breastfeeding self-efficacy (BSES) which she developed in 1999 (Dennis, 1999: 195-201) because the internal consistency statistics with the original BSES suggested item redundancy. The original BSES was a 33-item and then 18 items were deleted, using explicit reduction criteria. As a consequence, the BSES-SF was a 14-item self-administered instrument that assessed breastfeeding self-efficacy expectancies in new mothers. Each item was rated on a 5-point Likert-type scale. The subjects were required to respond to all of the items by rating from 1 to 5 as follows:

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

The total scores ranged from 14 to 70, with higher scores indicating higher levels of breastfeeding self-efficacy.

### **Validity**

Dennis (2003: 734-741) conducted a study to refine the original BSES and psychometrically assessed the revised BSES-SF with 491 breastfeeding mothers as study participants. Construct validity was assessed using components factor analysis, comparison of contrasted groups, and correlations with measures of similar constructs.

Finally, the result of the study demonstrated that all hypotheses between the BSES-SF and related constructs were supported. Furthermore, support for predictive validity was demonstrated through significant mean differences between breastfeeding and bottle-feeding mothers at four and eight weeks postpartum.

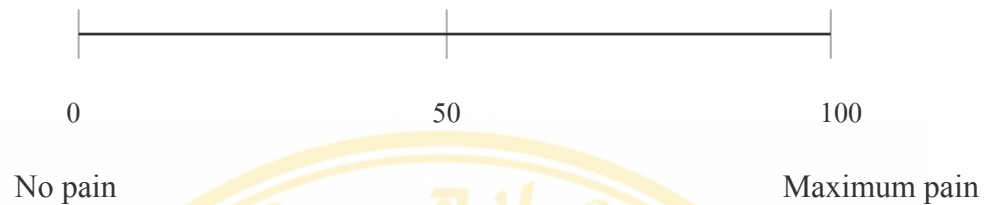
The BSES-SF was translated into Thai by the researcher. The back-translation technique was utilized. After a bilingual linguistic expert translated the Thai version of BSES-SF into English, this scale was sent to Dennis who developed the original BSES-SF for consideration and suggestions. After that, the content validity of the Thai version of BSES-SF was evaluated by six experts (Appendix A): four obstetrics and gynecological nursing instructors, a pediatrician, and a bilingual linguistic expert. These experts examined the Thai version of BSES-SF for content validity and language appropriateness. The researcher then modified the instrument according to the experts' recommendations and comments before using it in this research study.

### **Reliability**

As regards the reliability estimate of the BSES-SF, Cronbach's alpha coefficient was 0.94, the mean inter-item correlation was 0.55, ranging from 0.41 to 0.73, and the BSES-SF scores correlated significantly with the respective original BSES scores at one ( $r = 0.99$ ), four ( $r = 0.99$ ), and eight ( $r = 0.99$ ) weeks postpartum, thus demonstrated excellent internal consistency (Dennis, 2003: 738). In this study, the Thai version of BSES-SF was evaluated for reliability by Cronbach's alpha coefficient in a trial of 20 cesarean mothers. The result showed that Cronbach's alpha coefficient was 0.84.

**2.3 Stewart's visual analogue nipple pain scale** (Appendix E) was used to evaluate nipple pain. Santitham (2002: 54-55) modified the scale from the visual analogue scales created by Stewart (1977). This analogue scale consisted of a line which was 100 mm in length, with "No pain" printed on the left end and "Maximum pain" on the right. Santitham printed the number "50" on the line between 0 and 100 in the original analogue scale of Stewart to make it easier for participants to judge the half way point. This was believed to ensure a more accurate mark of their pain perceptions. The participants were given the scale and asked to make a mark on the line at a point which best represented the level of nipple pain they were experiencing

at the moment of breastfeeding. The pain score was the distance of the mark from the left and measured in millimeters (0-100).



**Figure 5:** Stewart's visual analogue nipple pain scale

#### **Validity**

Santitham (2002: 54-55) modified this scale to suit the sample group who had similar characteristics to the sample of five cases before presenting it to five experts in maternity and newborn nursing in order to validate its content accuracy and language appropriateness.

#### **Reliability**

In this study, 20 cesarean mothers were used to analyze the reliability of the instrument. The alternative form technique was utilized when Stewart's visual analogue nipple pain scale was compared with the verbal description scale (VDS). The result revealed that Pearson's product moment correlation coefficient was 0.998.

**2.4 The assessment of nipple skin changes form** (Appendix F) was used to identify and assess the characteristics of the nipple skin including appearance and color. The researcher modified this instrument from the assessment of cracked nipples form created by Aussahatanon (B.E. 2531: 7). The characteristics of the nipple skin could be assessed and categorized as follows:

1. Unchanged. If the nipples had no visible signs of redness, bruising, blistering, papillae, petechiae, bleeding, or cracking, an assessment score of 3 was given.
2. Mild change. If the nipples had visible signs of redness, bruising, blistering, papillae, or petechiae, an assessment score of 2 was given.
3. Cracked nipples. If the nipples had visible sign of fissures, an assessment score of 1 was given.

In addition, the researcher deleted some assessments including "Feel nipple pain" and "Not feel nipple pain" from the original form of Aussahatanon in order to avoid repetition in nipple pain assessment.

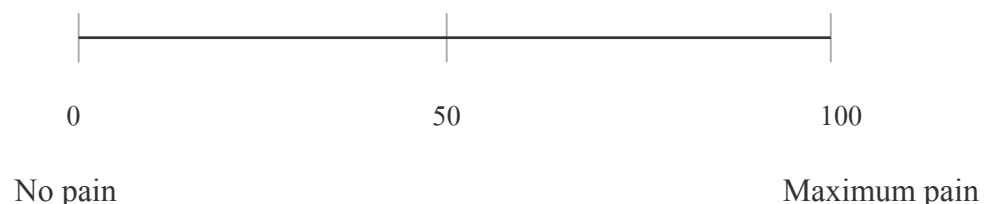
### Validity

Aussahatanon (B.E. 2531: 7) presented the form to five experts consisting of four obstetrics and gynecological nursing instructors in maternity and newborn nursing and one obstetrician to confirm its content validity. In this study, the researcher presented it to the same group of four obstetrics and gynecological nursing instructors and a pediatrician who examined the form to confirm its content validity and language appropriateness.

### Reliability

Aussahatanon (B.E. 2531: 7) used one research assistant to assist in data collection. After creating understanding of the assessment form, a sample of 30 cases was employed, and the inter-rater reliability was .96. In this study, the researcher used one research assistant who was assigned to conduct data collection as well. After creating understanding of the assessment form, a sample of 20 cases was employed. The inter-rater reliability was 0.86, and Cronbach's alpha coefficient was 0.87.

**2.5 Stewart's visual analogue incision pain scale** (Appendix G) was used to evaluate incision pain. Santitham (2002: 54-55) modified this scale from the visual analogue scales created by Stewart (1977). This analogue scale consisted of a line which was 100 mm long, with "No pain" printed on the left end and "Maximum pain" printed on the right end. Santitham added the figure "50" on the line between 0 and 100 to make it easy for participants to judge the half way point to ensure a more accurate mark of their pain perceptions. The participants were asked to place a mark at some point on the line to represent the level of incision pain they were experiencing at the moment while they were performing breastfeeding. The pain score was the distance of the mark from the left and measured in millimeters (0-100).



**Figure 6:** Stewart's visual analogue incision pain scale

### Validity

Santitham (2002: 54-55) modified the assessment of nipple pain form to suit the sample group who had similar characteristics to the sample of five cases before

submitting it to five experts in maternity and newborn nursing to validate its content accuracy and language appropriateness.

### **Reliability**

In this study, 20 cesarean mothers were used to analyze the form's reliability. The alternative form technique was used when Stewart's visual analogue incision pain scale was compared with the verbal description scale (VDS). Pearson's product moment correlation coefficient was 0.996.

### **Protection of Human Rights of the Subjects**

This study was conducted based on the protection of human rights. The research proposal was examined by the Ethical Committee of Rajavithi Hospital, and approval was granted before data collection started. Eligible subjects were asked to participate in the study. The researcher explained the purpose of the study, the research procedure, benefits, length of time for teaching and practice, and also the time needed to complete the questionnaires in the study. The subjects who agreed to participate in the study were assured that the data would be kept strictly confidential and reported only as group data.

### **Data Collection**

Data were collected from the control group first and the experimental group later, because this design prevented the contamination from intervention, as the two groups may meet and exchange knowledge and thoughts. In particular, this design helped prevent disheartenment that could influence morale and willpower to breastfeed as well as the feelings of unfairness caused by different interventions and treatments that the two groups of subjects received.

Data collection was conducted by the researcher. The procedures of data collection were as follows:

1. An introduction letter from the Faculty of Graduate Studies, Mahidol University, was sent to the Director of Rajavithi Hospital asking for permission to collect data.
2. The researcher met the head nurse of the postpartum unit to explain the research project in detail and to get permission for data collection.

3. The researcher screened and selected the subjects from their hospital chart by following the criteria set up for this study.

4. The researcher introduced herself to the would-be subjects, and then gave information about the purpose of the study, the method, the potential risks and the benefits of participation, and the protection of confidentiality to the subjects. The subjects were ensured that they could terminate their participation at any time during the study if they wished and such decision would not affect the treatment their infants and they would receive from the hospital in any way.

5. The first 30 dyads of the sample were allocated to the control group, and the second 30 dyads formed the experiment group. The researcher collected data from the control group before proceeding with the experiment group to prevent contamination of information. The date and time when data collection took place was on Mondays to Sundays from 08:00 a.m. to 06:00 p.m.

**The details of data collection procedures are as follows:**

**Control group**

**The first 24 hours after cesarean delivery (duration = 30 minutes)**

1. The researcher introduced herself, explained the objectives and research procedure, and asked for cooperation from potential subjects.

2. After the subjects agreed to participate in the study, the researcher asked the subjects to complete the Demographic Data form. While doing so, the subjects could ask any question if they did not understand.

3. The subjects were initiated to breastfeed their infant by the staff nurse. They received a little informal knowledge about breastfeeding that was unrestricted in term of forms and content as a usual nursing intervention.

**The first day post-operation (duration = 15 minutes)**

1. The researcher introduced herself and asked the subjects to place a mark at one point on the line that best represented the level of pain at the moment of breastfeeding they were experiencing on the two scales—Stewart's visual analogue nipple pain scale and Stewart's visual analogue incision pain scale.

2. The researcher asked the subjects to respond to the breastfeeding self-efficacy scale-short form (BSES-SF), explaining to them that they should choose the answers that best described how confident they were with breastfeeding their infant.

3. The researcher asked the subjects to allow her to assess their nipples skin following the assessment of nipple skin changes form.

**The second day post-operation (duration = 15 minutes)**

1. The researcher greeted the subjects and asked them to place a mark at one point on the line that best represented the level of pain at the moment of breastfeeding they were experiencing using Stewart's visual analogue nipple pain scale and Stewart's visual analogue incision pain scale.

2. The researcher asked the subjects to allow her to assess their nipples skin following the assessment of nipple skin changes form.

**The third day post-operation (duration = 20 minutes)**

1. The researcher greeted the subjects and asked them to place a mark at one point on the line that best represented the level of pain at the moment of breastfeeding they were experiencing using Stewart's visual analogue nipple pain scale and Stewart's visual analogue incision pain scale.

2. The researcher asked the subjects to complete the breastfeeding self-efficacy scale-short form (BSES-SF) and explained that they should the answer that best described how confident they were with breastfeeding their infant.

3. The researcher asked the subjects to allow her to assess their nipples skin following the assessment of nipple skin changes form.

4. The researcher expressed her profound appreciation to the subjects for their cooperation in the study.

**Experimental group**

**The first 24 hours after cesarean delivery (duration = 30 minutes)**

1. The researcher introduced herself, explained the objectives and research procedure, and asked for cooperation from potential subjects.

2. After the subjects agreed to participate in the study, the researcher asked the subjects to complete the Demographic Data form. While doing so, the subjects could ask any question if they did not understand.

3. The researcher made an appointment with the subjects for the time they would be ready to receive the breastfeeding instruction on the following day.

4. The subjects were initiated to breastfeed their infant by the staff nurse. They received a little informal knowledge about breastfeeding that was unrestricted in term of forms and content as a usual nursing intervention.

**The first day post-operation (duration = 75 minutes)**

1. The researcher greeted the subjects and asked them to place a mark at one point on the line that best represented the level of pain at the moment of breastfeeding they were experiencing using Stewart's visual analogue nipple pain scale and Stewart's visual analogue incision pain scale.

2. The researcher asked the subjects to complete the breastfeeding self-efficacy scale-short form (BSES-SF) and explained that they should the answer that best described how confident they were with breastfeeding their infant.

3. The researcher asked the subjects to allow her to assess their nipples skin following the assessment of nipple skin changes form.

4. The researcher started to provide the breastfeeding instruction when cesarean mothers were ready. The breastfeeding instruction consisted of (a) the importance of breastfeeding, (b) general information of breastfeeding, (c) the method of breastfeeding, (d) the method of reducing incision pain while breastfeeding, (e) the method of hand massage, milk expression, cup-feeding technique, and burping after feeding, (f) demonstration and rehearsal of breastfeeding, cup-feeding, and burping after feeding and (g) the provision of anticipatory guidance including preventing and solving breastfeeding problems. The instruction was provided to cesarean mothers at bedside in combination with presentation of CD training via the researcher's laptop computer. This CD training was useful to provide positive role modeling, giving cesarean mothers additional high-quality behavioral demonstrations of breastfeeding performance, breast massage, milk expression and cup-feeding technique. These visualized successful breastfeeding performances were shown to the cesarean mothers and performance accomplishments were established through rehearsals. At the end of the session, the researcher encouraged cesarean mothers to continue their breastfeeding.

5. The researcher gave the CD Training and a handbook of breastfeeding to cesarean mothers for further encouragements, persuasions, and self-learning.

### **The second day post-operation (duration = 30 minutes): Support and encouragement 1**

1. The researcher visited the subjects and asked them to place a mark at one point on the line that best represented the level of pain at the moment of breastfeeding they were experiencing using Stewart's visual analogue nipple pain scale and Stewart's visual analogue incision pain scale.

2. The researcher asked the subjects to allow her to assess their nipples skin following the assessment of nipple skin changes form.

3. The researcher assessed their breastfeeding performances and gave encouragements. In case of uncertainty, cesarean mothers could ask questions or sought assurance about their breastfeeding performance from the researcher. If cesarean mothers could correctly perform the breastfeeding behavior, the researcher praised them and encouraged them to repeat that performance accomplishment.

### **The third day post-operation (duration = 20 minutes): Support and encouragement 2**

1. The researcher greeted the subjects and asked them to place a mark at one point on the line that best represented the level of pain at the moment of breastfeeding they were experiencing using Stewart's visual analogue nipple pain scale and Stewart's visual analogue incision pain scale.

2. The researcher asked the subjects to complete the breastfeeding self-efficacy scale-short form (BSES-SF) and explained that they should the answer that best described how confident they were with breastfeeding their infant.

3. The researcher asked the subjects to allow her to assess their nipples skin following the assessment of nipple skin changes form.

4. The researcher gave encouragements and verbal persuasions to cesarean mothers and focused their attention on the successful aspects of the breastfeeding session and their existing breastfeeding skills.

5. The researcher expressed her profound appreciation to the subjects for their cooperation in the study.

The summary of the data collection procedures is described in Figure 7.

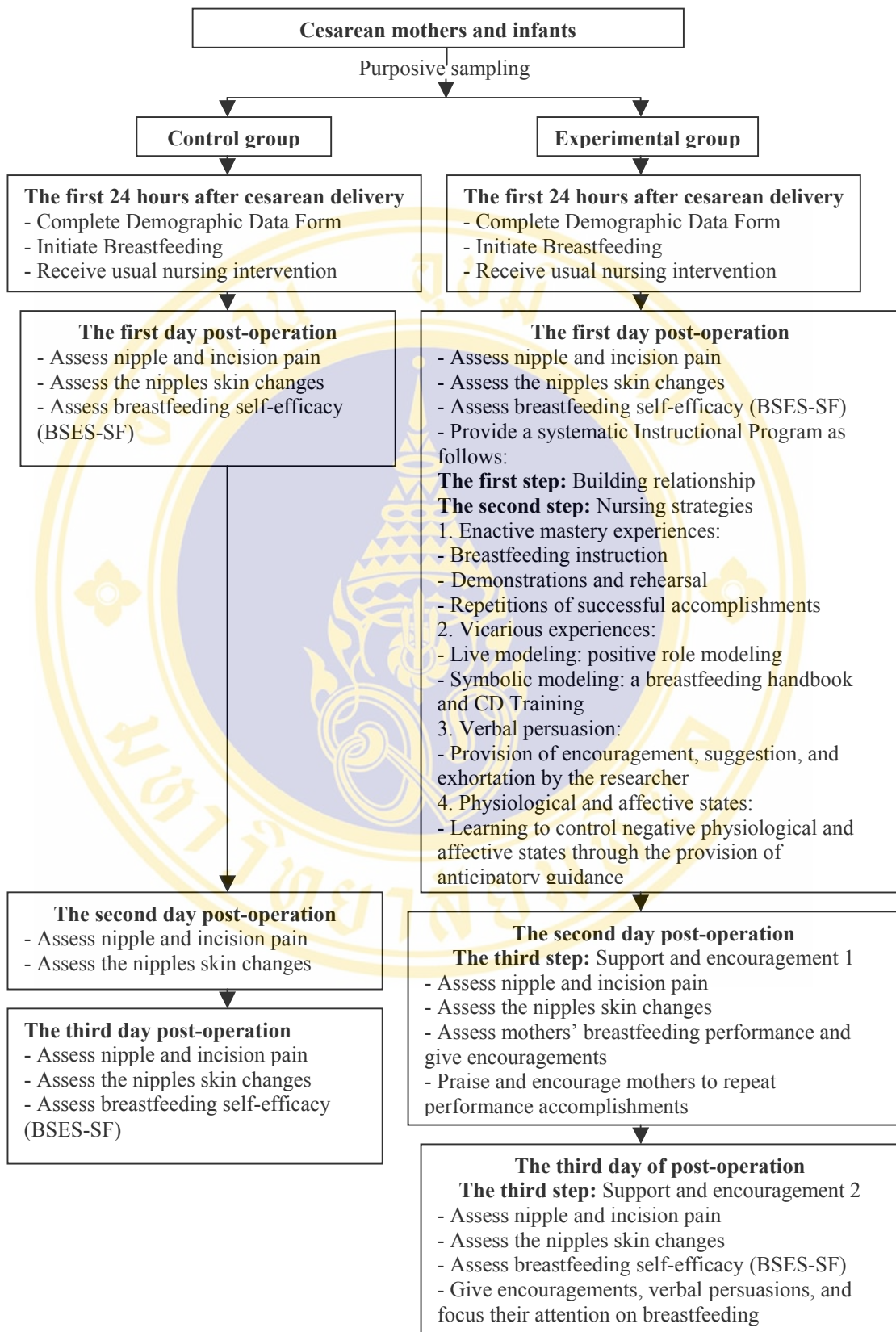


Figure 7: Summary of the data collection procedures

## Data Analysis

Data were analyzed as follows:

1. General characteristics of the sample group were compared and analyzed by grouped t-test, Mann-Whitney U test, and Chi-square test.
2. Comparison of the mean scores of breastfeeding self-efficacy between the control and experimental groups before and after the intervention was conducted by using the t-test.
3. Comparison of the mean scores of nipple pain and incision pain between the control and experimental groups on Days 1, 2, and 3 after delivery was carried out by using the t-test.
4. Comparison of the mean scores of nipple skin changes between the control and experimental groups on Days 1, 2, and 3 after delivery was conducted using by means of the Mann-Whitney U test.

## CHAPTER IV

### RESULTS

This study employed a quasi-experimental research design to determine the effects of systematic instructional program on breastfeeding self-efficacy, nipple pain, nipple skin changes, and incision pain. There were two groups of subjects: the control and experimental groups (30 dyads in each group). The control group received usual nursing intervention, while the experimental group received usual nursing intervention plus a systematic instructional program of breastfeeding. The research results are presented in two parts in this chapter. The first part presents the data regarding demographic characteristics of the subjects in both the control and experimental groups and their homogeneity testing; the second part shows the result of the hypothesis testing.

#### **Demographic Characteristics of the Sample**

The control and experimental groups were rather very similar in terms of age. The findings showed that the control subjects were between 20 and 39 years old, while the experimental subjects were 20 to 38 years old, with the mean age of 24.03 ( $\bar{x} = 24.03$ ; SD = 4.92) and 26.07 ( $\bar{x} = 26.07$ ; SD = 5.10) in the control group and the experimental group, respectively. In addition, as regards educational background, the duration of formal education for both groups were also rather similar, with the mean of 9.13 and SD of 3.62 in the control group and the mean of 10.07 and the SD of 3.91 in the experimental group. In addition, when it comes to family income, the experimental group had more family income than the control group (Median = 12,000 Baht and Median = 10,000 Baht in the experimental and control groups, respectively). It was noticeable that the ranges of duration of surgery of both groups were equal (min-max = 40-110), and the mean scores were quite similar ( $\bar{x} = 58$ ; SD = 14.54 and

$\bar{x} = 60$ ; SD = 16.55 in the control group and the experimental group, respectively) (Table 2).

The Kolmogorov-Smirnov test was firstly used to test the normality of all characteristics. The test result revealed that most of the demographic characteristics had normal distribution, except for the duration of surgery. Therefore, the homogeneity of the sample's characteristics was mostly tested by the grouped t-test, except for the duration of surgery which was analyzed by the Mann-Whitney U test. The results showed that there were no statistically significant differences among the demographic characteristics between both groups ( $p > .05$ ) (Table 2).

**Table 2: Comparison of the characteristics of the sample by grouped t-test and Mann-Whitney U test**

Characteristics	Control group (n = 30)			Experimental group (n = 30)			t
	Min-Max	$\bar{x}$	SD	Min-Max	$\bar{x}$	SD	
Age (years)	20-39	24.03	4.92	20-38	26.07	5.10	-1.57 <sup>ns</sup>
Education (years)	3-17	9.13	3.62	0-16	10.07	3.91	-0.96 <sup>ns</sup>
Duration of surgery <sup>(a)</sup> (minutes)	40-110	58	14.54	40-110	60.10	16.55	428 <sup>ns</sup>
Family income (Baht/month)	3,000- 30,000	10,700	5,748.46	5,000- 30,000	13,050	6,523.63	-1.48 <sup>ns</sup>
		Mode = 10,000			Mode = 6,000		
		Median = 10,000			Median = 12,000		

ns =  $p > .05$ , a = Mann-Whitney U test

The other characteristics were variables categorized according to level of measurement by the Chi-square test to test the homogeneity between the control and experimental groups. The results showed they were perfectly identical in terms of occupational characteristic. In each group, 66.70% of the subjects were employed outside their house while 33.30% worked at home. Similarly, more than 60% of the subjects in both groups had vertical midline incision (classical incision style) (66.30%

in the control group and 70% in the experimental group), whereas 36.70% of the subjects in the control group and 30% of the subjects in the experimental group had transverse incision (Bikini's incision style).

The subjects' characteristics were analyzed to determine the homogeneity between the control group and the experimental group by means of the Chi-square test. The results showed that occupation and skin incision were not statistically significantly different between both groups ( $p > .05$ ), as presented in Table 3.

**Table 3: Comparison of the characteristics of the sample by Chi-square**

Characteristics	Control group (n = 30)		Experimental group (n = 30)		$\chi^2$
	n	%	n	%	
<b>Occupation</b>					
Employed outside	20	66.70	20	66.70	0.00 <sup>ns</sup>
Working at home	10	33.30	10	33.30	
<b>Skin incision</b>					
Vertical midline incision	19	66.30	21	70	0.08 <sup>ns</sup>
Transverse incision	11	36.70	9	30	

ns =  $p > .05$

### Results of Hypothesis Testing

The pretest mean score of breastfeeding self-efficacy in the control group was 51.47 (SD = 8.36), ranging from 30 to 68, while that of the experimental group was 51.50 (SD = 6.86), ranging from 38 to 63. In addition, the posttest mean score of breastfeeding self-efficacy was 52.47 (SD = 9.38), ranging from 27 to 66, in the control group, whereas that of the experimental group was 64.87 (SD = 4.95), ranging from 48 to 70 (Table 4).

**Table 4: Comparison of the mean scores of pretest and posttest breastfeeding self-efficacy between the control and experimental groups by t-test**

Intervention	Control group (n = 30)			Experimental group (n = 30)			t (one-tailed)
	Min-Max	$\bar{x}$	SD	Min-Max	$\bar{x}$	SD	
Pretest	30-68	51.47	8.36	38-63	51.50	6.86	-0.01 <sup>ns</sup>
Posttest	27-66	52.47	9.38	48-70	64.87	4.95	-3.20*

ns =  $p > .05$ ; \*  $p < .001$

Before testing the hypothesis, the pretest mean score of breastfeeding self-efficacy was initially tested for homogeneity of this variable between groups. The result showed that there was no statistically significant difference of pretest mean scores between the control and experimental groups ( $t = 0.01$ ,  $p > .05$ ). Hypothesis One of the study stated that “*Cesarean mothers who received systematic instructional program will have higher breastfeeding self-efficacy than those who did not.*” The independent t-test was calculated, and the results showed that the breastfeeding self-efficacy mean score of cesarean mothers who received a systematic instructional program was statistically significantly higher than that of the subjects who did not ( $t = -3.20$ ,  $p < .001$ ) (Table 4). Therefore, Hypothesis One was supported.

With regard to nipple pain, the results in Table 5 showed that the mean scores of nipple pain on Days 1, 2, and 3 after delivery in the control group were 36.07 (SD = 26.08), 40.80 (SD = 26.71), and 52.07 (SD = 30.09), respectively, while those of the subjects in the experimental group were 35.20 (SD = 22.15), 27.10 (SD = 20.28), and 18.23 (SD = 19.49), respectively.

**Table 5: Comparison of the mean scores of the nipple pain on Days 1, 2, and 3 after delivery between the control and experimental groups by t-test**

Day after delivery	Control group (n = 30)			Experimental group (n = 30)			t (one-tailed)
	Min-Max	$\bar{x}$	SD	Min-Max	$\bar{x}$	SD	
1	0-78	36.07	26.08	0-80	35.20	22.15	0.07 <sup>ns</sup>
2	0-100	40.80	26.71	0-77	27.10	20.28	1.12 <sup>ns</sup>
3	0-100	52.07	30.09	0-63	18.23	19.49	2.58*

ns =  $p > .05$ ; \*  $p < .01$

Hypothesis Two stated that “*Cesarean mothers who received a systematic instructional program will have less nipple pain than those who did not on Days 1, 2, and 3 after delivery.*” To test this hypothesis, the nipple pain scores of each day after delivery were compared by means of the t-test. The results suggested a variation in statistical significance. On Days 1 and 2 after delivery, the nipple pain mean scores of the experimental group were not statistically significantly lower than those of the control group ( $t = 0.07$ ;  $p > .05$  and  $t = 1.12$ ,  $p > .05$ , respectively). However, the experimental group had statistically significantly less nipple pain than the control group on Day 3 after delivery ( $t = 2.58$ ,  $p < .01$ ) (Table 5). Therefore, Hypothesis Two was partially supported.

As for the extent of nipple skin changes, the results illustrated in Table 6 indicated that the mean scores of nipple skin changes on Days 1, 2, and 3 after delivery of the control group were 2.97 (SD = 0.18), 2.57 (SD = 0.57), and 2.17 (SD = 0.53), respectively, while those of the experimental group were 2.93 (SD = 0.25), 2.77 (SD = 0.43), and 2.67 (SD = 0.48), respectively.

**Table 6: Comparison of the mean scores of the nipple skin changes on Days 1, 2, and 3 after delivery between the control and experimental groups by Mann-Whitney U test**

Day after delivery	Control group (n = 30)			Experimental group (n = 30)			Mann-Whitney U
	Min-Max	$\bar{x}$	SD	Min-Max	$\bar{x}$	SD	
1	2-3	2.97	0.18	2-3	2.93	0.25	435.00 <sup>ns</sup>
2	1-3	2.57	0.57	2-3	2.77	0.43	371.50 <sup>ns</sup>
3	1-3	2.17	0.53	2-3	2.67	0.48	245.00*

ns =  $p > .05$ ; \*  $p < .001$

Hypothesis Three stated that “*Cesarean mothers who received a systematic instructional program will have fewer nipple skin changes than those who did not on Days 1, 2, and 3 after delivery.*” The comparison of nipple skin changes on Days 1, 2, and 3 after delivery was carried out by means of the Mann-Whitney U test. It was found that the nipple skin changes of the experimental group were not statistically significantly fewer than those of the control group on Days 1 and 2 after delivery ( $p > .05$ ). However, on Day 3 after delivery, the nipple skin changes of the experimental group were statistically significantly fewer than those of the the control group ( $p < .001$ ). Consequently, Hypothesis Three was partially supported.

As displayed in Table 7, the mean scores of incision pain on Days 1, 2, and 3 after delivery in the control group were 62.93 (SD = 25.14 ), 46.80 (SD = 24.74), and 37.20 (SD = 24.97), respectively. On the other hand, those of the experimental group were 45.63 (SD = 22.93), 21.13 (SD = 14.13), and 9.30 (SD = 10.72), respectively.

**Table 7: Comparison of the mean scores of the incision pain on Days 1, 2, and 3 after delivery between the control and experimental groups by t-test**

Day after delivery	Control group (n = 30)			Experimental group (n = 30)			t (one-tailed)
	Min-Max	$\bar{x}$	SD	Min-Max	$\bar{x}$	SD	
1	13-100	62.93	25.14	0-85	45.63	22.93	1.39 <sup>ns</sup>
2	0-100	46.80	24.74	0-57	21.13	14.13	2.47*
3	0-100	37.20	24.97	0-50	9.30	10.72	2.81**

ns =  $p > .05$ ; \*  $p < .01$ ; \*\*  $p < .001$

Hypothesis Four stated that “*Cesarean mothers who received a systematic instructional program will have less incision pain than those who did not on Days 1, 2, and 3 after delivery.*” The results suggested that the experimental group had statistically significantly less incision pain than the control group on Days 2 and 3 after delivery ( $t = 2.47, p < .01$  and  $t = 2.81, p < .001$ , respectively), but not on Day 1 ( $t = 1.39, p > .05$ ). Thus, Hypothesis Four was partially supported.

## CHAPTER V

### DISCUSSION

This study was quasi-experimental research designed to study the effects of systematic instructional program on breastfeeding self-efficacy, nipple pain, nipple skin changes, and incision pain. In this chapter, the research results regarding the demographic characteristics of the sample and hypothesis testing are discussed.

#### **Characteristics of the Sample**

The sample of this study consisted of new mothers who had unplanned cesarean delivery and their healthy newborns. All mothers of the control and experimental groups (30 dyads in each group) intended to breastfeed their infant. Each mother signed the consent form which clearly stated their intention to perform breastfeeding in compliance with the policies of Rajavithi Hospital, and they also had a personal commitment to breastfeed their infant. However, mothers' breastfeeding commitment was not the only breastfeeding outcome predictor (Quarles, et al., 1994: 107). Other individual variables including maternal age, race, education, and family income were also predictors of breastfeeding (Dennis, 2002: 12-32; Scott & Binns, 1999: 5-16). For these reasons, this study was firstly designed to control the influence of these variables by applying the purposive sampling technique, which resulted in homogeneity of the subjects. After that, the homogeneity of the sample was tested by t-test and Chi-square which affirmed that both groups were similar in important characteristics that may have affected the breastfeeding outcome (Tables 2 and 3). Thus, it could be summarized that the findings of this study simply resulted from the effects of systematic instructional program.

## Hypothesis Testing

### **Hypothesis One: Cesarean mothers who received systematic instructional program had higher breastfeeding self-efficacy than those who did not.**

The results showed that the breastfeeding self-efficacy mean scores of cesarean mothers who received the systematic instructional program were statistically significant higher than those of the mothers who did not receive such program ( $t = -3.20, p < .001$ ) (Table 4). Therefore, Hypothesis One was supported.

The results of the current study could be explained that mothers' breastfeeding self-efficacy has a direct influence on performance accomplishments at breastfeeding. *Enactive mastery experiences* are the most influential source of efficacy information (Bandura, 1997: 80-113; 1977: 81-82). When new cesarean mothers receive pertinent instruction and support which are specific for cesarean mothers in the form of a systematic instructional program during early establishment of lactation at the postpartum unit, they will be more likely to have positive experiences, contributing to their perception of their ability to continue to breastfeed successfully (Biancuzzo, 2003: 107; Ekström, Widström & Nissen, 2003: 265; McCarter-Spaulding & Kearney, 2001: 520). Furthermore, frequently repeated accomplishing breastfeeding (following *the third step of the systematic instructional program: Support and encouragement*) also enhances performance mastery and consequently self-efficacy of new mothers (Bandura, 1997: 81; 1977: 81; Creedy, et al., 2003: 149; Dennis, 1999: 196).

Adequate teaching and support related to other known influences on milk supply, such as early initiation of breastfeeding, correct positioning and latch-on, and frequency of suckling, enable mothers to have the experience of successful breastfeeding (Biancuzzo, 2003: 106-107; Jabobi & Levin, 1997: 413-415). Observing others breastfeed successfully can raise breastfeeding self-efficacy in terms of *vicarious experiences*, and this can be facilitated by complimenting mothers who directly observe breastfeeding performed by others in the postpartum ward, since breastfeeding is less overt in general public (Biancuzzo, 2003: 30-32; Henderson, Stamp & Pincombe, 2001: 237). Generally, new mothers have equally unrealistic ideas or ignorance about techniques of breastfeeding and how to read their infant's signs of satiety (Biancuzzo, 2003: 92; Jabobi & Levin, 1997: 415). Consequently, the

worry of not having enough milk is a frequently expressed concern by mothers, and this negative thinking has been reported as the sign of low breastfeeding self-efficacy (Quarles, et al., 1994: 107; Hill & Humenick, 1996: 136-140; Vogel, Hutchison & Mitchell, 1999: 1321). Interestingly, the computer assisted instruction (CAI) was the effective educational media which influenced breastfeeding self-efficacy through provision of visualized correct breastfeeding techniques and dominant video clips about how to interpret the infant's readiness-to-feed behaviors and to judge satiety after feeding. These help new mothers feel more competent, confident in their body's ability to produce enough milk for the infant, and satisfied with their breastfeeding experiences (Biancuzzo, 2003: 38-39; McCarter-Spaulding & Kearney, 2001: 521). Also, mothers' self-efficacy can be bolstered by demonstrations that could simplify a complex performance as breastfeeding by breaking it into easy steps for success and rehearsal that enhance new mothers to experience direct performance accomplishments (Bandura, 1986: 59-61; Dennis, 1999: 196).

Because unplanned cesarean mothers have to face with breastfeeding difficulties and are less likely to breastfeed than mothers who have had vaginal deliveries (Biancuzzo, 2003: 100-105; DiMatteo, et al., 1996: 310; Halpern, et al., 1999: 87), nursing support and counseling could result in a positive impact on mothers' experience of success in breastfeeding (Dennis, 2002: 12-32; McCarter-Spaulding & Kearney, 2001: 520; Quarles, et al., 1994: 107). Nursing support could be understood in another source of efficacy information as *verbal persuasion* that could impact the level of breastfeeding self-efficacy (Dennis, 1999: 196-197). Breastfeeding self-efficacy is a peculiar thing in that it is not something we could just give to mothers as we would give a treatment or an injection. Communication that affirms mothers' perception of their breastfeeding competence is likely to be helpful (Biancuzzo, 2003: 42). Furthermore, the level of self-efficacy is influenced by the appraisals of others (Bandura, 1997: 101-106). For this reason, mothers' self-efficacy is bolstered when their attention is directed toward the successful aspects of the breastfeeding session and when their new and existing breastfeeding skills are praised. Finally, providing verbal persuasion and encouragement has a great potential to affect perceptions of maternal breastfeeding self-efficacy (Dennis, 1999: 196-197).

Since breastfeeding self-efficacy is also influenced by *physiological and affective states* (Bandura, 1997: 106-107), unplanned cesarean delivery does not only attenuate the positive birth experience of new mothers but also introduces negative arousals such as low self-efficacy, nipple pain, incision pain, loss of self-esteem, anxiety, stress, and fatigue (DiMatteo, et al., 1996: 303-314; Halpern, et al., 1999: 83-88; Miovech, et al., 1994: 53-59; Pérez-Escamilla, et al., 1996: 832-836; Riordan & Auerbach, 1998: 292). Therefore, in the present study, maternal state of mind and maternal coping with breastfeeding were carefully assessed by the researcher in order to ensure that negative physiological and affective states did not undermine mothers' perceptions of breastfeeding self-efficacy. These undesirable maternal states were reduced through the provision of the anticipatory guidance following the breastfeeding lesson plan to control these maternal states and to gain breastfeeding self-efficacy (Dennis, 1999: 199; Dennis, 2003: 736-743; Blyth, et al., 2002: 283). For instance, a review of literature suggested that mothers are likely to worry about insufficient milk supply, so the researcher aimed to instill confidence in mothers by providing continuous, positive feedback to them with reassurance and objective signs that lactation was going well (Biancuzzo, 2003: 173). In addition, it is not uncommon that cesarean mothers not only experience pain from incision while breastfeeding their infant but also from the nipple due to incorrect latch-on caused by difficulty in latching (Halpern, et al., 1990: 732-744). This undesirable pain is regulated and modulated by anticipatory guidance of nipple and incision pain and also instruction about the pain self-management (Bandura, 1997: 267). When mothers perceive their ability to control and manage pain, breastfeeding self-efficacy is boosted (Bandura, 1997: 104-107). In contrast, if mothers perceive the source of pain as not corrected and seemingly unmanageable, their breastfeeding self-efficacy will be decreased and they may subsequently feel like giving up (Biancuzzo, 2003: 333). The findings of the present study revealed that there were two mothers in the control group who experienced cracked nipples, and when their nipple pain scores were increased, their breastfeeding self-efficacy scores were decreased. Likewise, the study of Amir and colleagues found that when mothers experienced nipple pain, they were highly anxious and distressed. However, once the pain resolved, their distress also resolved (Amir, et al., 1996: 53-58).

Also, the level of breastfeeding self-efficacy can be enhanced by positive physiological and affective states such as maternal satisfaction with breastfeeding (Hill & Humenick, 1996: 139; McCarter-Spaulding & Kearney, 2001: 516; Tarkka, Paunonen & Laippala, 1998: 175-181).

In this study, it is noteworthy that the phenomenon of maternal coping with anxiety and stress when the infant received phototherapy impacted maternal breastfeeding self-efficacy scores. During data collection, three infants in the sample received phototherapy in their crib (Still 24-hour rooming-in and mothers managed infant care by themselves as usual). One infant in the control group received phototherapy on Day 3 after delivery, and two infants in the experimental group received phototherapy on Day 2 after delivery. Breastfeeding self-efficacy scores of the mother in the control group decreased from 57 to 46, whereas breastfeeding self-efficacy scores of the two mothers in the experimental group increased from 56 to 70 and from 43 to 67 (the maximum breastfeeding self-efficacy score was 70). Therefore, it may be summarized that new mothers who received a systematic instructional program had high self-efficacy that helped new mothers cope better and increase faith in their confidence. Even when faced with a difficult situation, they could see the situation as challenging, and this could be transformed into breastfeeding self-efficacy (Robbins, 1992: 243-245; Tarkka, Paunonen & Laippala, 1998: 175-181).

The significant results of this study were consistent with those of previous studies. A prospective survey of Blyth and colleagues found that maternal breastfeeding self-efficacy was a significant predictor of breastfeeding outcome. As such, mothers with high breastfeeding self-efficacy are much more likely to breastfeed their infant than mothers with low breastfeeding self-efficacy (Blyth, et al., 2002: 278-284). Furthermore, Papinczak & Turner found that mothers who were unable to establish lactation reported significantly lower levels of breastfeeding confidence compared with mothers who breastfed for more than six months (Papinczak & Turner, 2000: 25-33). In addition, a phenomenological study of Dykes & Williams discovered that deterioration in breastfeeding confidence during the early postpartum period was a major factor in the decision to cease breastfeeding (Dykes & Williams, 1999: 232-246). By the same token, the study of Hill & Humenick demonstrated that maternal confidence/commitment scores were correlated with breastfeeding level at six weeks

postpartum. As such, mothers who had lower maternal confidence/commitment scores also had a lower level of breastfeeding at six weeks postpartum ( $r = .66, p < .05$ ). Also, low maternal confidence/commitment in breastfeeding is one of the three indicators of insufficient milk supply (Hill & Humenick, 1996: 136-140). Similarly, McCarter-Spauling & Kearney found the significant correlation ( $r = .487, p < .01$ ) between the self-efficacy and perceived insufficient milk score. Regression analysis revealed that 23% of the variance in perception of insufficient milk supply could be explained by parenting self-efficacy (McCarter-Spauling & Kearney, 2001: 520).

**Hypothesis Two: Cesarean mothers who received a systematic instructional program will have less nipple pain than those who did not on Days 1, 2, and 3 after delivery.**

The study results indicated a variation in statistical significance. On days 1 and 2 after delivery, the nipple pain mean scores of the experimental group were not statistically significantly lower than those of the control group ( $t = 0.07; p > .05$  and  $t = 1.12, p > .05$ , respectively). However, the experimental group had statistically significantly less nipple pain than the control group on Day 3 after delivery ( $t = 2.58, p < .01$ ) (Table 5). Therefore, Hypothesis Two was partially supported.

The results of this study could be explained by various possible reasons and phenomena. First of all, all mothers in the sample received the correct basic breastfeeding information in the prenatal class and the postpartum unit from staff nurses or other healthcare professionals, so they may have been able to recognize the knowledge about nipple pain.

- Many mothers still felt unconfident in their breastfeeding performance. This was evidenced by their expressions such as “Did my baby have enough of the areola?” or “I had no idea about what I did, so did I breastfeed correctly?” The source of the problem may come from lack of proper evaluation of breastfeeding and lack of continued support that are rather essential for new mothers (Biancuzzo, 2003: 159; Jacobi & Levin, 1997: 413). The study of Swanson & Power suggested that nurses should not only encourage new mothers to initiate breastfeeding but also offer continued support to maintain breastfeeding and better coping (Swanson & Power, 2005: 280).

- Almost all mothers were hurried to put their infant to the breast, did not wait for the infant's mouth to open wide, and allowed poor latched-on and sucking of the nipple instead of the areola, all of which contribute to nipple pain (Biancuzzo, 2003: 336).

- Most mothers were concerned about infant breathing while breastfeeding. As the researcher observed, they took their breast away from the infant's nose for it to breathe; consequently, the problem of poor latch-on occurred. Many mothers complained of intense nipple pain and blamed their infant's vigorous sucking rather than their own malpractice.

- All mothers did not know how to correctly remove the infant from the breast; everybody pulled their infant away from the breast and that caused nipple pain (Leifer, 2003: 228).

- Many mothers had misunderstanding about their nipple pain. They thought that the feeling of pain while breastfeeding their infant was a common experience and that it was possible that other mothers may experience nipple pain like them. Therefore, the root of this problem was not determined and corrected; consequently, their pain level increased on Days 2 and 3. It is worth noting that some mother stated that they did not mind the pain and could stand it because they knew that breast milk was best for their infant, so it was worth it to persevere.

These reasons caused nipple pain, the negative breastfeeding experience that often occurred in the lactating women (Vogel, Hutchison & Mitchell, 1999: 1321), including the mothers in this study. Eighty-seven percent of mothers in the sample experienced nipple pain on Day 1 after delivery. Similarly, the study of Ziemer & Pigeon found that nipple pain was reported by 90% of the sample (Zierner & Pigeon, 1993: 247-256). These reasons may explain why nipple pain scores of mothers in the control group increased on Day 2 ( $p > .05$ ) and reached its peak on Day 3 ( $p < .001$ ) after delivery. On the other hand, nipple pain scores of mothers in the experimental group sharply lowered on Day 2 and were lowest on Day 3, because of the effective systematic instructional program that helped them.

- The root of nipple pain problems should be determined and corrected. For instance, in case the nipple pain was caused by poor latch-on due to mothers' worry about the infant's breathing, the researcher explained to them that the infant's nose

was designed to stick out just enough to push the breast back to create an adequate air passage. The researcher also helped her visualize a nose-to-breast idea through a video clip and practice (Biancuzzo, 2003: 148; Jacobi & Levin, 1997: 414). This concept was congruent with other studies. Poor latch-on and positioning were associated with nipple pain. Latching and positioning a new infant at the breast is a learned and mostly manual skill that is acquired through instruction, observation, and practice. Early correction of poor latching and positioning is most important in decreasing pain, and one-to-one instruction is the most helpful for new mothers (Biancuzzo, 2003: 78-79; Henderson, Stamp & Pincombe, 2001: 236-242; Kristine & Pamela, 2005; 428-437; Righard, 1998: 42; Ziemer, et al., 1990: 732-744; Ziemer & Pigeon, 1993; 247-256).

- Misunderstanding about nipple pain should be corrected, since nipple pain actually is a signal of incorrect latch-on and positioning (Biancuzzo, 2003: 159; Righard, 1998: 41).

- Mothers should be taught to recognize that nipple pain is not an expected consequence of breastfeeding, but a signal for help, and that breastfeeding is not meant to be painful (Biancuzzo, 2003: 337; Jacobi & Levin, 1997: 419). When mothers feel a sharp, acute pain immediately after the infant starts to suck, it is almost always the effect of incorrect latch-on (Bick, et al., 2002: 76). They need to break the suction and re-latch-on correctly, and nipple pain almost immediately disappears (Biancuzzo, 2003: 335; Leifer, 2003: 228). It is noteworthy that when mothers experienced nipple pain, it was a situation that required immediate relief. Generally, mothers who receive assistance and encouragement under this circumstance are very likely to continue, and attain their intended or preferred duration of breastfeeding (Chezem, Friesen & Boettcher, 2003: 45-46; Quarles, et al., 1994: 107).

- Mothers should receive the anticipatory guidance of nipple pain that is useful for new mothers in order to prepare them for the discomfort of the early days of breastfeeding and also prevent the consequence of nipple pain (Buchko, et al., 1994: 50). The study of Kristine & Pamela recommended that no one topical agent showed superior results in relieving nipple pain. The most important factor in decreasing the incidence of nipple pain is the provision of instruction in relation to proper

breastfeeding techniques and latch-on as well as anticipatory guidance regarding the high incidence of early postpartum nipple pain (Kristine & Pamela, 2005; 428-437).

- Mothers should receive verbal persuasion, praising, and encouragement that are particularly great for new mothers especially those with unplanned cesarean delivery. This is because when mothers attempt to continue breastfeeding regardless of the nursing problems they face and to handle these problems, this could be perceived as a tiring, discouraging, and sometimes painful process (such as when inflamed nipples or incision pain are involved) (Righard, 1998: 43).

In addition, on Day 2 after delivery, the nipple pain mean scores of mothers in the experimental group were not statistically significantly lower than those of the control group even though they had received a systematic instructional program. One plausible reason is that because some mothers were not able to correct latch-on and positioning for the whole feeding and/or every feeding, the nipple pain still existed (Biancuzzo, 2003: 333-337).

The results of this study were almost similar to those of previous studies. For example, a randomized trial of Henderson, Stamp, & Pincombe found variation in statistical significance. On Day 1 after delivery, the nipple pain of the experimental group was not statistically significantly lower than that of the control group ( $t = 0.4$ ). On Days 2 and 3, the nipple pain increased in both groups and the experimental group had statistically significantly less nipple pain than the control group ( $t = 0.004$  and  $t = 0.04$ , respectively) (Henderson, Stamp & Pincombe, 2001: 236-242). Furthermore, a quasi-experimental study of Santitham revealed that the experimental group had statistically significantly less nipple pain on Days 1, 2, and 3 after delivery than the control group ( $F = 4.96$ ,  $p < .05$ ) (Santitham, 2002: 80).

**Hypothesis 3: Cesarean mothers who received a systematic instructional program will have fewer nipple skin changes than those who did not on Days 1, 2, and 3 after delivery.**

According to the study findings, the nipple skin changes of the experimental group were not statistically significantly fewer than those of the control group on Days 1 and 2 ( $p > .05$ ). However, on Day 3 after delivery, the nipple skin changes of the

experimental group were statistically significantly fewer than those of the control group ( $p < .001$ ). Consequently, Hypothesis Three was partially supported.

It could be explained that the results regarding this hypothesis were the consequence of various possible reasons as previously discussed with Hypothesis Two. Naturally, if the underlying nipple pain problem is not corrected, eventually nipple pain would progress to nipple damage (Biancuzzo, 2003: 333; Tiedje, et al., 2002: 157). Sometimes, pain exists when nipple skin does not yet show signs of possible problems. In these cases, it is essential to first identify the potential root of pain (Biancuzzo, 2003: 333) that may contribute to nipple skin damage and finally early weaning, even with a sufficient milk supply (Hill, 1991: 315).

In this study, the nipple skin changes on Day 2 and Day 3 increased in both groups. In the control group, the nipple skin changes increased day by day and were related to the higher level of nipple pain. Unfortunately, the incident of “cracked nipples” was report in two mothers. One mother experienced cracked nipples (both sides) with inflamed areas on Day 2 and complained of severe and burning pain at fissures. Moreover, it was observed that fissures were localized on the erectile portion of the nipple rather than the areola, related to her increased nipple pain scores. Also, there was another mother who experienced cracked nipple on the right side with yellow pad. On Day 3, it was observed that the fissure was localized on the lateral portion of the nipple, related to her increased nipple pain scores as well. For the incident of “mild changes,” such as redness, bruising, blistering, papillae, and petechiae, they rose sharply on Day 2 (36.67 %), and peaked on Day 3 (70 %) after delivery. These nipple skin changes were confined mostly to the erectile portion of the nipple skin rather than the areola that was caused by incorrect latch-on. Ignoring the pain could lead to increased pain followed by cracked nipple (Biancuzzo, 2003: 333-334; Leifer, 2003: 318-319). These results were in agreement with previous studies. For instance, the study of Ziemer & Pigeon found that all mothers ( $n = 20$ ) had some visible nipple skin changes, and changes occurred mostly on the erectile portion of the nipple. Few changes on the areola were noted. The occurrence of edema, erythema, and the development of fissures corresponded to the nipple pain curve during that time. The presence of inflamed areas and eschar were associated with significantly more pain. The nipple skin characteristics included blister; inflamed

areas; eschar; and area of white, dark and yellow patches; peeling; pus, and ecchymosis. When nipple skin changes of the inflamed areas took place, eschar and blisters appeared to reach their peak on the third to seventh day after delivery (Ziemer & Pigeon, 1993; 247-256). Besides, the study of Henderson, Stamp & Pincombe found the high incidence of nipple skin changes, predominantly related to nipple redness in the experimental and control groups that increased sharply on Day 2, and peaked on Day 3 after delivery. However, no significant differences were noted between groups (Henderson, Stamp & Pincombe, 2001: 236-242). Lastly, Heads & Higgins (1995: 59-64) found a positive relationship between nipple damage and the level of reported pain at three and five days postpartum. Nipple damage occurred most commonly in the form of minor grazes (61%) and blisters (23%). It is noteworthy, however, that mothers who had a strong commitment to breastfeed reported less nipple pain than did those who were not so strongly committed.

In the experimental group, the nipple skin changes increased day by day as well, though unrelated to the nipple pain score of the control group because their nipple pain lowered on Day 2 and was lowest on Day 3. The incident of “mild change” increased on Day 2 (11.67%), and more slightly increased on Day 3 (16.67%) after delivery. Fortunately, the incident of “cracked nipples” did not occur. These results may explain that as in a previous discussion, nipple skin changes are the consequence of nipple pain. Mothers in the experimental group were instructed that nipple pain really was a signal of incorrect latch-on and should not be overlooked (Biancuzzo, 2003: 337; Jacobi & Levin, 1997: 419). They directly experienced the effectiveness of the researcher’s instruction, as when they broke the suckling and re-latched-on correctly, nipple pain almost immediately disappeared (Biancuzzo, 2003: 335; Leifer, 2003: 228). Thus, their pain decreased day by day as suggested by the findings. Furthermore, they received the anticipatory guidance of cracked nipples via the computer assisted instruction (CAI) that provided visualized real cracked nipples picture and prevention, and this may persuade mothers to prevent cracked nipple problems (Robinson, 2002: 112). In addition, the result of the visible nipple skin changes in the experimental group was not corresponded to the nipple pain. It could be explained with reference to the study of Ziemer & Pigeon (1993; 225) which

suggested that normal infant sucking may induce inflammation and skin changes to the nipples.

**Hypothesis 4: Cesarean mothers who received a systematic instructional program will have less incision pain than those who did not on Days 1, 2, and 3 after delivery.**

The results showed that the experimental group had statistically significantly less incision pain than the control group on Days 2 and 3 ( $t = 2.47, p < .01$  and  $t = 2.81, p < .001$ , respectively) but not on Day 1 ( $t = 1.39, p > .05$ ). Thus, Hypothesis Four was partially supported.

Generally, difficulty getting comfortable during breastfeeding could be a most important authentic problem of cesarean mothers who had major surgery (Biancuzzo, 2003: 105). As in this study, 96.67% of mothers in the sample had peaking incision pain on Day 1 after delivery. This finding was correlated with that of other studies (Khun, et al., 1990: 1687-1689; Oberele, et al., 1990: 745-752). Also, the study of Waiyanetta found that the highest pain on Day 1 most interfered with infant care and also interfered with other lifestyles such as doing general activities, walking or moving, mood, relationship with others, and coughing and deep breathing (Waiyanetta, 1999: 68). These results shared common features with previous studies (DiMatteo, et al., 1996: 305-309; Leifer, 2003: 185; Miovech, et al., 1994: 55-56). In fact, incision pain is caused by tissue damage that induces the release of chemical substance to facilitate transmission of pain sensation through small fibers. This mechanism allows the pain impulse to be transmitted further to a higher center in the brain, hence perception about the severity of pain. Chemical substances would be released in a large amount on the first day after delivery before beginning to reduce (Bonica, 1990: 463; Edwards & Breed, 1990: 263; Smith, 2001: 191-194). In this study, both groups in the sample had lower incision pain on Days 2 and 3 ( $t = 2.47, p < .01$  and  $t = 2.81, p < .001$ , respectively).

The statistical significance of the results on Days 2 and 3 between groups may be caused by the effects of a systematic instructional program that was designed especially for cesarean mothers. Usually, the first breastfeeding is often delayed because cesarean mothers need extra time to recover from major surgery. They may

be in so much pain that they are not ready to breastfeed their infant even though Rajavithi Hospital's policies encouraged early breastfeeding (Biancuzzo, 2003: 100, 105; Berra, et al., 2003: 954; Berra, et al., 2001: 544-551; Buxton, et al., 1991: 101-106; Halpern, et al., 1999: 86; Riordan & Auerbach, 1998: 291-292; Rowe-Murray & Fisher, 2002: 124-130). Moreover, mothers had pain not only from incision while breastfeeding their infant but also from the nipples due to incorrect latch-on which in turn resulted in difficulty latching (Halpern, et al., 1990: 732-744). Therefore, the effective methods could assist these mothers to get more comfortable during breastfeeding;

- Mothers should be provided with the anticipatory guidance of incision pain and instruction about the pain management including both non-pharmacological and pharmacological methods. Having adequate information enables mothers to prepare themselves for the discomfort; reduce anxiety, confusion, and conflict; and also increase the perception of coping ability and tolerance of pain (Gross, 1986: 229). Since pain is a complex psychobiologic phenomenon influenced by psychosocial factors, rather than only a sensory experience arising directly from stimulation of pain receptors, thus, the same intensity of pain stimulation could give rise to different levels of conscious pain depending on how attention is deployed, how the experience is cognitively appraised, and how self-activation of physiological systems through a variety of coping techniques is supported (Bandura, 1986: 428; 1997: 267). For instance, the study on pain management carried out by Waiyanetta found that cesarean mothers use different techniques including deep breathing, posture changes, effleurage, and distraction to reduce their pain to better care for their infant (Waiyanetta, 1999: 68).

- Mothers should be assisted to practice special positioning because for cesarean mothers this could minimize incision pain. For example, the "football position" (Biancuzzo, 2003: 105, 153-154; Leifer, 2003: 227; Riordan & Auerbach, 1998: 209-304 enables mothers to prevent the infant from touching the suture line and pressure on the suture line, and pain could be minimized when they flex their knees. Furthermore, the football position provides most complete control of the infant's head and yields better visualization of the latch-on process. This non-pharmacological pain

management could modulate pain, as well as regulate pain through attention and coping strategies (Bandura, 1997: 267).

- Mothers should be encouraged to breastfeed the infant while in the position that is most comfortable for them. Some mothers may prefer the “side-lying position” or “cradle position,” as this depends on their satisfaction. Flexibility was the key for breastfeeding management that could decrease the level of pain, discouragement, and fatigue. The consciousness of pain sensations of mothers could further be reduced by supports. Short-term technique supports may be long-term breastfeeding goals (Bandura, 1997: 267; Biancuzzo, 2003: 95).

However, pain medication was not recorded in this study. Thus, this posed further limitation. It may not be possible to confidently summarized that the statistical significance reduction of incision pain was solely caused by the effects of the systematic instructional program.

## CHAPTER VI

### CONCLUSION

This study was a quasi-experimental research design which aimed at investigating the effects of systematic instructional program on breastfeeding self-efficacy, nipple pain, nipple skin changes, and incision pain based on the self-efficacy theory of Albert Bandura.

The sample consisted of 60 unplanned cesarean mothers who were primipara and were admitted into the postpartum unit at Rajavithi Hospital during September 2005 to January 2006. Purposive sampling was used to obtain 30 dyads of the sample in each group based on the homogeneity of individual characteristics. Both groups received usual nursing intervention by staff nurses or other healthcare professionals. However, the subjects in the experimental group also received a systematic instructional program for cesarean mother developed and provided by the researcher.

Data collection was carried out with respect to protection of human rights after approval was granted by the Ethical Committee of Rajavithi Hospital. Data were first collected from the subjects in the control group and then from those in the experimental group. The instruments of this study were divided into two parts—the instruments for intervention including (1) a systematic instructional program for cesarean mothers, (2) the breastfeeding lesson plan, (3) CD Training, and (4) the handbook of breastfeeding. In addition, the instruments for data collection were composed of (1) the Demographic Data Form, (2) the breastfeeding self-efficacy scale-short form (BSES-SF), (3) Stewart's visual analogue nipple pain scale, (4) the assessment of nipple skin changes form, and (5) Stewart's visual analogue incision pain scale.

The subjects completed the Demographic Data Form within the first 24 hours after cesarean delivery. On the first day post-operation, the subjects completed Stewart's visual analogue nipple pain scale and incision pain scale, as well as the BSES-SF. In addition, their nipple skin was assessed by the researcher following the

assessment of nipple skin changes form. On the second day post-operation, they completed Stewart's visual analogue nipple pain scale and incision pain scale, and again their nipple skin was assessed by the researcher following the assessment of nipple skin changes form. Finally, on the third day post-operation, they completed Stewart's visual analogue nipple pain scale and incision pain scale, the BSES-SF, and their nipple skin was assessed by the researcher following the assessment of nipple skin changes form. After that, data were analyzed by means of Chi-square test, Mann-Whitney U test, and t-test. The results of this study are summarized as follows:

1. The breastfeeding self-efficacy mean scores of cesarean mothers who received a systematic instructional program was statistically significantly higher than those of the postpartum mothers who did not receive such a program ( $t = -3.20$ ,  $p < .001$ ).

2. On Days 1 and 2 after delivery, the nipple pain mean scores of the subjects in the experimental group were not statistically significantly lower than those of the subjects in the control group ( $t = 0.07$ ;  $p > .05$  and  $t = 1.12$ ,  $p > .05$ , respectively). However, the experimental group had statistically significantly less nipple pain than the control group on Day 3 after delivery ( $t = 2.58$ ,  $p < .01$ ).

3. The nipple skin changes of the experimental group were not statistically significantly fewer than those of the subjects in the control group on Days 1 and 2 ( $p > .05$ ). However, on Day 3 after delivery, the nipple skin changes of the experimental group were statistically significantly fewer than those of the control group ( $p < .001$ ).

4. The experimental group had statistically significantly less incision pain than the control group on Days 2 and 3 ( $t = 2.47$ ,  $p < .01$  and  $t = 2.81$ ,  $p < .001$ , respectively), but not on Day 1 ( $t = 1.39$ ,  $p > .05$ ).

## **Nursing Implications**

Based on the findings of this study, the following implications are recommended:

### **Recommendations for Nursing Practice**

1. The results of the current study suggest that mothers' breastfeeding self-efficacy may be related to their success at breastfeeding. Mothers develop their self-efficacy beliefs through four sources of information. *Enactive mastery experiences* are

the most influential source of efficacy information. If new cesarean mothers receive pertinent instruction and support which are specific for cesarean mothers, they may be more likely to have positive experiences, contributing to their perception of their ability to continue to breastfeed successfully. Because unplanned cesarean mothers may be more susceptible to early weaning, support and encouragement by staff nurses in the hospital could make a positive impact on mothers' experience of success in breastfeeding. Nursing care and encouragement can be understood in the self-efficacy framework as *verbal persuasion* that can impact the level of breastfeeding self-efficacy. Besides, since self-efficacy is also influenced by *physiological and affective states*, pain could then undermine mothers' perceptions of breastfeeding self-efficacy. For this reason, providing anticipatory guidance and pain management instruction would enhance self-efficacy. In addition, observing others breastfeeding successfully can influence self-efficacy in terms of *vicarious experiences*, and this can be facilitated by assisting new mothers to directly observe breastfeeding performed by others in the postpartum ward, as breastfeeding is less overt in general public. Also, instructional tools such as the computer assisted instruction (CAI) are effective educational media which provide visualized correct breastfeeding techniques to new mothers. Integrating these self-efficacy enhancing strategies improves the quality of care and increases new mothers' confidence in their ability to breastfeed so that if they do encounter difficulties, they will be able to persevere and continue to breastfeed.

In actual clinical practice, the systematic instructional program may take time to implement and may need the extra facilitation from praiseworthy nurses. However, it is worth it to use this program as a practice guideline to increase mothers' breastfeeding self-efficacy.

2. The breastfeeding self-efficacy scale-short form (BSES-SF) has been developed to measure a mother's confidence in her ability to breastfeed and may be used as an assessment tool in offering individualized care to those mothers identified as at high risk of premature discontinuation of breastfeeding.

### **Recommendations for Nursing Education**

The study results may be applied as a guideline in implementing theoretical teaching and practical teaching for nursing students on breastfeeding and on the

implementation of the self-efficacy theory, with the aim to develop maternal breastfeeding self-efficacy.

### **Recommendations for Nursing Research**

1. A systematic instructional program should further be examined to confirm its effectiveness in promoting breastfeeding self-efficacy of unplanned cesarean mothers at the period after six weeks postpartum.
2. The systematic instructional program should also be used to measure other dependent variables such as perception of insufficient milk supply and duration of breastfeeding.
3. The systematic instructional program should be tried out in other groups of mothers such as mothers who had vaginal deliveries so as to determine its effectiveness among different groups of mothers.
4. This research study should be used as an example for other researchers who are interested in investigating breastfeeding self-efficacy by applying it with other groups of population of interest.
5. The breastfeeding self-efficacy scale-short form (BSES-SF) may also be used to determine the efficacy of various types of supportive interventions.
6. Utilizing educational media such as the computer assisted instruction (CAI) as the instrument in nursing intervention may be helpful since it is able to provide the effective visualized symbolic modeling to new mothers.

### **Limitations of the study**

1. Because the purposive sampling was used in this study, the findings cannot be generalized to other groups of population of postpartum mothers with cesarean delivery.
2. Pain medication was not recorded in this study. Thus, it constituted the limitations of the study. This also prevents definite summarization that statistical significance of incision pain was only caused by the effects of the systematic instructional program.

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ชมนุมพร นิตย์วิบูลย์. (Chumnumporn Nitwiboon, B.E. 2541) (2541). ผลของการให้คำแนะนำอย่างมีแบบแผนแก่หญิงตั้งครรภ์ต่อความสามารถตนเองและการเลี้ยงลูกด้วยนมแม่ของมารดาภายหลังคลอด โรงพยาบาลแพร์. วิทยานิพนธ์ปริญญาวิทยาศาสตรมหาบัณฑิต(สาธารณสุขศาสตร์), สาขาวิชาเอกพยาบาลสาธารณสุข บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.  
สมหทัย อุตสาหานนท์. (Somhatai Aussahatanon, B.E. 2531) (2531). ผลของการดูแลเต้านมและหัวนมในระยะก่อนคลอดและหลังคลอดต่อการเกิดภาวะหัวนมแตก. วิทยานิพนธ์ปริญญาวิทยาศาสตรมหาบัณฑิต, บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.



## APPENDIX A

### LIST OF EXPERTS

There were six experts who had examined the research instruments for content validity including: (1) The breastfeeding lesson plans, (2) CD Training: Breastfeeding...the greatest gift of love, (3) The handbook of breastfeeding: Breastfeeding...the greatest gift of love, (4) The breastfeeding self-efficacy scale - short form (BSES-SF), and (5) The assessment of nipple skin changes form. They were as follows:

1. Associate Professor Dr. Punchalee Wasanasomsithi, Chulalongkorn University.
2. Assistant Professor Dr. Yaowalax Serisathien, Faculty of Nursing, Mahidol University.
3. Assistant Professor Dr. Nittaya Sinsuksai, Faculty of Nursing, Mahidol University.
4. Assistant Professor Dr. Sukunya Prachusilpa, Faculty of Nursing, Chulalongkorn University.
5. Dr. Suvimol Jivamongkol, Pediatrician, Certified Expressive Therapist.
6. Mrs. Poompoung Chirakool, Department of Nursing, Faculty of Medicine, Ramathibodi Hospital, Mahidol University.

## APPENDIX B

### ใบยินยอมให้ทำการวิจัย

การวิจัยเรื่อง “ผลของโปรแกรมการให้คำแนะนำอย่างมีแบบแผนต่อสมรรถนะแห่งตนในการให้นมบุตร, อาการเจ็บหัวนม, การเปลี่ยนแปลงของหัวนม และความเจ็บปวดแผลผ่าตัด” แก่ มารดาหลังผ่าตัดคลอด”

วันที่ให้คำยินยอม วันที่.....เดือน.....พ.ศ.....

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย อันตราย หรืออาการที่อาจเกิดขึ้นจากการวิจัย รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียดจนมีความเข้าใจดีแล้ว ผู้วิจัยรับรองว่าจะตอบคำถามต่าง ๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้นจนข้าพเจ้าเข้าใจ จะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าไว้เป็นความลับ และจะเปิดเผยได้เฉพาะในรูปที่เป็นผลสรุปการวิจัยในภาพรวม การเปิดเผยข้อมูลของข้าพเจ้าต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้องกระทำได้ในเฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น ในกรณีที่ได้รับอันตรายจากการทำวิจัยข้าพเจ้าจะได้รับการช่วยเหลือทันที หากมีข้อมูลที่ส่งผลกระทบต่อการศึกษา ข้าพเจ้าจะได้รับการแจ้งให้ทราบโดยไม่ปิดบัง ซ่อนเร้น ข้าพเจ้าเข้าร่วมการวิจัยด้วยความสมัครใจ และมีสิทธิที่จะบอกเลิกการเข้าร่วมงานวิจัยนี้เมื่อใดก็ได้ โดยจะไม่มีผลต่อการดูแลที่ข้าพเจ้าพึงได้รับต่อไป

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม.....ผู้ยินยอม

ลงนาม.....พยาน

ลงนาม.....พยาน

## APPENDIX C

## ส่วนที่ 1 ข้อมูลทั่วไป

คำชี้แจง เขียนเครื่องหมาย ✓ ลงใน ( ) หน้าข้อความที่มารดาตอบ และเติมข้อความในช่องว่างให้  
สมบูรณ์

ชื่อ-สกุลมารดา.....HN.....

ที่อยู่ปัจจุบัน.....

1. อายุ.....ปี

2. การศึกษาสูงสุด .....

3. อาชีพ .....

อาชีพของท่านต้อง  ทำงานอยู่กับบ้าน

ออกไปทำงานนอกบ้าน

4. รายได้ครอบครัว..... บาท/เดือน

5. วันที่คลอด.....เวลา.....น. อายุครรภ์เมื่อคลอด.....สัปดาห์

6. สาเหตุที่คลอด โดยวิธีผ่าตัด.....

7. เพศบุตร

ชาย  หญิง

8. น้ำหนักบุตรแรกเกิด.....กรัม

9. คะแนน APGAR score นาทีที่ 5 เท่ากับ....., นาทีที่ 10 เท่ากับ.....

### APPENDIX D

**ส่วนที่ 2 แบบสอบถามสมรรถนะแห่งตนในการให้นมบุตร (The Breastfeeding Self-Efficacy Scale: BSES-SF) ของมารดาหลังผ่าตัดคลอด**

ชื่อ-สกุล.....HN.....

คำชี้แจง จากระดับคะแนนข้างล่างนี้ กรุณาเลือกระดับคะแนนที่สามารถอธิบายถึงความมั่นใจในการให้นมลูกของท่านได้ดีที่สุด กรุณาทำเครื่องหมายวงกลมล้อมรอบหมายเลขที่ใกล้เคียงความรู้สึกของท่านมากที่สุด ซึ่งในแต่ละข้อคำถามนี้ไม่มีคำตอบที่ถูกหรือผิด

- คะแนน 1      เท่ากับ    ไม่มีความมั่นใจเลย
- คะแนน 2      เท่ากับ    ไม่ค่อยมั่นใจ
- คะแนน 3      เท่ากับ    มั่นใจเป็นบางครั้ง
- คะแนน 4      เท่ากับ    มั่นใจ
- คะแนน 5      เท่ากับ    มั่นใจมาก

**ตัวอย่าง**

ข้อความ	ระดับความมั่นใจ				
	5	4	3	2	1
ฉันมีความมั่นใจที่สามารถกระทำตามข้อความต่อไปนี้ได้เสมอ					
1. ฉันสามารถบอกได้เสมอว่าลูกของฉันได้รับน้ำนมแม่อย่างเพียงพอ	✓				

ข้อความ	ระดับความมั่นใจ				
	5	4	3	2	1
ฉันมีความมั่นใจว่าสามารถกระทำตามข้อความต่อไปนี้ได้เสมอ					
1. ฉันสามารถบอกได้เสมอว่าลูกของฉันได้รับนมแม่อย่างเพียงพอ					
2. ฉันสามารถแก้ไขปัญหาเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ได้สำเร็จเช่นเดียวกับการทำงานอื่น ๆ ที่ทำด้วยความสามารถของฉันเสมอ					
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13. ฉันสามารถจัดการให้ลูกได้ดุนนมแม่ตามความต้องการของลูกได้เสมอ					
14. ฉันสามารถบอกได้เสมอว่าลูกของฉันดุนนมอ้อมเมื่อไร					

### APPENDIX E

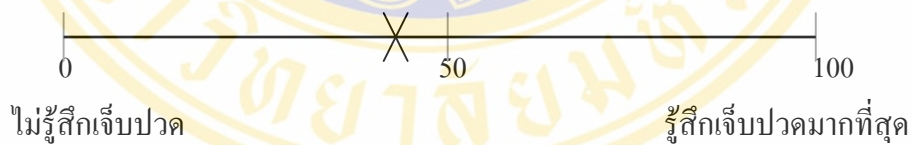
#### ส่วนที่ 3 แบบวัดความเจ็บปวดของหัตถ์นมมารดา

ชื่อ-สกุล.....HN.....

#### คำชี้แจง

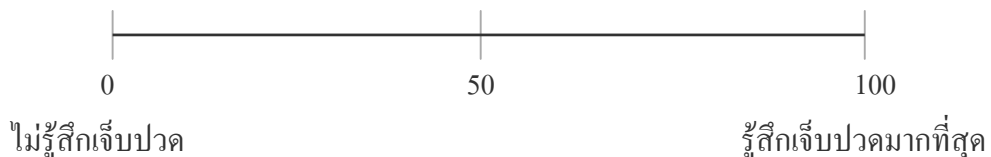
เครื่องมือนี้เป็นเครื่องมือสำหรับวัดความเจ็บปวดของหัตถ์นมของท่านขณะให้นมบุตรว่า ท่านรู้สึกเจ็บปวดรุนแรงมากน้อยเพียงใด ในวันที่ 1, 2 และ 3 หลังผ่าตัดคลอด โดยกำหนดเส้นตรง ความยาว 10 เซนติเมตร เริ่มต้นจากด้านซ้ายมือของท่าน ณ ตำแหน่งเลข 0 เป็นจุดที่ท่านไม่มีความรู้สึกเจ็บปวด ระดับความเจ็บปวดค่อย ๆ เพิ่มมากขึ้นถึงปลายสุดด้านขวามือ ณ ตำแหน่งเลข 100 เป็นจุดที่ท่านรู้สึกเจ็บปวดมากที่สุด

ให้ท่านประเมินความรู้สึกเจ็บปวดหัตถ์นมของท่าน ขณะให้นบุตรดูจนแน่ใจว่าท่านรู้สึกเจ็บปวดมากน้อยเพียงใด โดยขีดเครื่องหมายกากบาท ( X ) ลงบนเส้นตรงนี้ ณ ตำแหน่งที่ท่านคิดว่าตรงกับระดับความเจ็บปวดที่ท่านมี โดยให้จุดตัดของกากบาทอยู่บนเส้นตรงนี้ ตัวอย่างเช่น



โปรดตอบคำถามข้างล่างนี้ โดยทำเครื่องหมาย ( X ) ลงบนเส้นตรงที่ตรงกับตัวท่าน

ท่านรู้สึกเจ็บหัตถ์นมมากน้อยเพียงใด



วันที่ประเมิน.....

## APPENDIX F

### ส่วนที่ 5 แบบประเมินการเปลี่ยนแปลงของห้วนม

ชื่อ-สกุล..... HN.....

#### เกณฑ์การประเมิน

- 3 คะแนน** หมายถึง ห้วนมไม่มีการเปลี่ยนแปลง  
 กล่าวคือ ห้วนมมีลักษณะปกติ ไม่มีอาการเปลี่ยนแปลงใดๆที่สังเกตได้
- 2 คะแนน** หมายถึง ห้วนมผิดปกติเล็กน้อย  
 กล่าวคือ ห้วนมมีสีแดง (redness), มีรอยฟกช้ำ (bruising), พุพอง (blistering), มีติ่ง (papillae) หรือมีฝ้า (petechiae) เกิดขึ้น
- 1 คะแนน** หมายถึง ห้วนมแตก  
 กล่าวคือ ห้วนมมีรอยแยก หรือเป็นแผล

#### แบบประเมิน

กรณาวางกลมล้อมรอบหมายเลขคะแนนที่ตรงกับลักษณะของห้วนมที่ท่านประเมินได้

วันที่ประเมิน	คะแนนลักษณะของห้วนม		
หลังผ่าตัดคลอดวันที่ 1	3	2	1
หลังผ่าตัดคลอดวันที่ 2	3	2	1
หลังผ่าตัดคลอดวันที่ 3	3	2	1

### APPENDIX G

#### ส่วนที่ 4 แบบวัดความเจ็บปวดแผลผ่าตัดของมารดา

ชื่อ-สกุล.....HN.....

#### คำชี้แจง

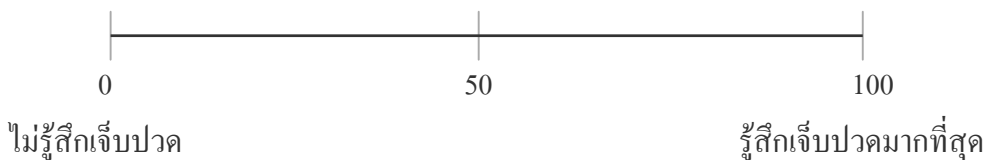
เครื่องมือนี้เป็นเครื่องมือสำหรับวัดความเจ็บปวดแผลผ่าตัดของท่านขณะให้บุตรว่า ท่านรู้สึกเจ็บปวดรุนแรงมากน้อยเพียงใด ในวันที่ 1, 2 และ 3 หลังผ่าตัดคลอด โดยกำหนดเส้นตรง ความยาว 10 เซนติเมตร เริ่มต้นจากด้านซ้ายมือของท่าน ณ ตำแหน่งเลข 0 เป็นจุดที่ท่านไม่มีความรู้สึกเจ็บปวด ระดับความเจ็บปวดค่อย ๆ เพิ่มมากขึ้นถึงปลายสุดด้านขวามือ ณ ตำแหน่งเลข 100 เป็นจุดที่ท่านรู้สึกเจ็บปวดมากที่สุด

ให้ท่านประเมินความรู้สึกเจ็บปวดแผลผ่าตัดของท่าน ขณะให้บุตรคุณนมแม่ว่าท่านรู้สึกเจ็บปวดมากน้อยเพียงใด โดยขีดเครื่องหมายกากบาท ( X ) ลงบนเส้นตรงนี้ ณ ตำแหน่งที่ท่านคิดว่า ตรงกับระดับความเจ็บปวดที่ท่านมี โดยให้จุดตัดของกากบาทอยู่บนเส้นตรงนี้ ตัวอย่างเช่น



โปรดตอบคำถามข้างล่างนี้ โดยทำเครื่องหมาย ( X ) ลงบนเส้นตรงที่ตรงกับตัวท่าน

ท่านรู้สึกเจ็บปวดแผลผ่าตัดมากน้อยเพียงใด



วันที่ประเมิน.....

## APPENDIX H

แผนการให้คำแนะนำเพื่อพัฒนาสมรรถนะแห่งตนในการให้นมบุตรของมารดาหลังผ่าตัดคลอด

### วัตถุประสงค์ทั่วไป

1. เพื่อให้มารดาหลังผ่าตัดคลอดมีความรู้ความเข้าใจที่ถูกต้องในเรื่องการเลี้ยงลูกด้วยนมแม่
2. เพื่อให้มารดาหลังผ่าตัดคลอดมีความเชื่อมั่นในสมรรถนะแห่งตนว่าสามารถเลี้ยงลูกด้วยนมแม่ได้อย่างถูกต้อง
3. เพื่อให้มารดาหลังผ่าตัดคลอดมีประสบการณ์ตรงและมีทักษะการปฏิบัติตนในการเลี้ยงลูกด้วยนมแม่

### กลุ่มเป้าหมาย

มารดาหลังผ่าตัดคลอดที่เข้ารับการรักษาที่แผนกสูติกรรม โรงพยาบาลราชวิถี  
จำนวน 30 ราย

### ระยะเวลา

ใช้เวลา 60 นาที

### สถานที่

แผนกสูติกรรม โรงพยาบาลราชวิถี

## APPENDIX I

คู่มือการเลี้ยงดูทารกด้วยนมแม่  
สำหรับมารดาหลังผ่าตัดคลอด



นมแม่...กลิ่นรักจากอกแม่

**BIOGRAPHY**

<b>NAME</b>	Miss Benjamas Thussanasupap
<b>DATE OF BIRTH</b>	26 April 1979
<b>PLACE OF BIRTH</b>	Prachinburi, Thailand
<b>EDUCATION</b>	Burapa University, 1998-2001 Bachelor of Nursing Science Mahidol University, 2003-2006 Master of Nursing Science (Maternity and Newborn Nursing)
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