

Factors Influencing Breast Symptoms in Breastfeeding Women After Cesarean Section Delivery

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Purpose The purposes of this study were to explore postpartum stress and breast symptoms in postpartum breastfeeding of parturient mothers as well as to identify the factors influencing the breast symptoms in breastfeeding women after cesarean section delivery.

Methods A cross-sectional survey was conducted. A total of 162 breastfeeding women after cesarean section delivery were recruited from five hospitals in Taiwan. Structured questionnaires were used to collect data.

Results The five highest postpartum stress comes from the flabby flesh of maternal belly, the baby getting sick suddenly, interrupted sleep, insufficient breast milk, and discomfort due to breast engorgement. The most two common breast symptoms in breastfeeding encountered by subjects in this study were breast engorgement and breast hardening, whereas the least common one was nipple bloody discharge. Cesarean section women with early suckling on the operating table had more breast symptoms in postpartum breastfeeding; and the higher the postpartum stress of them, the more the breast symptoms.

Conclusions Breastfeeding in a comfortable condition is a key factor of precipitating breast milk secretion, so early suckling on the operating table may result in discomfort and stress of the woman and interfere with the secretion or production of breast milk. Additionally, it is a crucial factor of the success in breastfeeding that the nursing personnel can provide women help in maintaining breast milk production and secretion, taking care of a baby, and reminding women's families (especially their husbands) of giving their assistance, encouragement and praises to relieve women's postpartum stress. [*Asian Nursing Research* 2011;5(2):88-98]

Key Words breastfeeding, breast, cesarean section, postpartum period



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INTRODUCTION

The reported benefits of breastfeeding for infant health include the decreased risk of otitis media, respiratory tract infections, atopic dermatitis, gastroenteritis, type 2 diabetes, sudden infant death syndrome, and obesity (Ip et al., 2007). The breastfeeding (including mixed-feeding) rate, for women in the first postpartum month was 40.9%, while the exclusive breastfeeding rate was 5% in Taiwan in 1996 (Gau, 2000). Research into breastfeeding rates in Taiwan in 2004 has found that the breastfeeding (including mixed-feeding) rate for women in the first postpartum month was 54.17%, while exclusive breastfeeding rate was 33.21% (Kuo, Lin, Li, & Gau, 2004). This showed that the breastfeeding rate for women in the initial postpartum period has increased significantly in Taiwan in the recent years. The situation is partly thought of as the result of the implementation of the government's policy of breastfeeding by the Baby Friendly Hospitals.

The process of pregnancy, delivery, breast milk secretion, and breastfeeding is natural to human beings (Chen, Gau, Lu, & Pan, 2001). Breast milk secretion is a physiologic phenomenon and the first postpartum week which is the critical lactation period is the hardest for parturient women of breastfeeding to experience. Kuo et al. (2004) indicated that in Taiwan, "inadequate breast milk" ranked the highest among the factors of cessation in breastfeeding in all age groups of women. The researchers also found that in the scenario of the Baby Friendly Hospital, the situation of women's breast milk secretion was inconsistent although the parturient women were all informed of the related knowledge.

Much local research (Chen et al., 2001; Gau, Kuo, & Wu; 2005) focused on the promoting of the Baby Friendly Hospital policy and increasing women's willingness in breastfeeding. Little attention has been paid to the factors which may affect women's breast milk secretion, and further, lead to women's cessation in breastfeeding. Additionally, comparing to other countries in the world, the prevalence rate 32–34% of cesarean section delivery remains relatively high in Taiwan (Department of Health, Executive Yuan,

Republic of China [R.O.C.], 2010). Therefore, the issue concerning the breast symptoms in breastfeeding women after cesarean section delivery in Taiwan deserves attention. With more understanding of the factors influencing breast symptoms in breastfeeding women after cesarean section delivery, the nursing personnel can provide more optimal health education and assistance to women who are willing to breastfeed and reduce their discomfort and embarrassment to the minimum by implementing the breastfeeding program. This program might result in increasing breastfeeding rate of women after cesarean section delivery. However, no empirical studies to date identify factors that influence the breast symptoms in breastfeeding women after cesarean section delivery. Therefore, the purposes of this study were (a) to explore the level of postpartum stress of breastfeeding women after cesarean section delivery, (b) to measure the breast symptoms in breastfeeding women after cesarean section delivery, and (c) to identify the factors influencing the breast symptoms in breastfeeding women after cesarean section delivery.

Literature review

Relationship between parturient women's characteristics and postpartum breastfeeding

Breastfeeding involves complex physiological and psychological factors. Many local researchers have concluded that the behavior of feeding is related to a woman's age, birth place, educational level, primiparas or multiparas, delivery method, decision time for feeding method, previous breastfeeding experience, attitudes about advantage and value of breastfeeding, the antepartal health education, and the support of her family and husband (Teng, Chang, & Yang, 1997; Teng, Kuo, & Ho, 1993). Hailes and Wellard (2000) also indicated that in addition to health education and knowledge, women need support from their husband and families to maintain a longer period of breastfeeding. Therefore, during the breastfeeding process, any given support and assistance has a great influence on the results of breastfeeding, especially in cases with cesarean section delivery (Hartshorn, n.d.). Immediate skin-to-skin contact between mother and infant and early initiation of

breastfeeding are shown to improve breastfeeding outcomes (Keister, Roberts, & Werner, 2008). In addition, it was recommended that rooming-in, feeding on demand, and no artificial pacifiers or supplemental formula unless ordered by physician. According to Haku (2007), factors contributing to discontinuation of breastfeeding included fatigue, perceived lack of breast milk, sore nipples, lack of previous experience in breast feeding, poor previous experience, lack of family support and so forth. The mother's loss of confidence leads to early cessation of breastfeeding.

Relationship between maternal postpartum stress and postpartum breastfeeding

During the postpartum period, a woman would face maternal role attainment and postpartum negative body changes, a series of change in interpersonal relationships, economical need, and need for social support. Her needs would gradually result in postpartum stress. Therefore, the major sources of postpartum stress are from change of body image, role of motherhood, and lack of social support (Hung, 2001). The thoughts, feelings, and perceptions of a woman have a great influence on the oxytocin reflex. Positive emotions such as "love for the baby" or "belief in the benefit of milk to the baby" can stimulate the oxytocin reflex and help breast milk secretion. Negative emotions such as "pains" and "worry about the adequacy of milk production" will suppress the oxytocin reflex and cease breast milk secretion (Bureau of Health Promotion, Department of Health, R.O.C., 2006).

Postpartum breastfeeding of women after cesarean section delivery

Breastfeeding difficulties in the early lactation period will create a misconception of inadequate milk secretion, influencing the success of breastfeeding for the parturient woman later on. Comfortable breastfeeding is an important factor in stimulating breast milk secretion, which is a reflex induced by infant suckling. This kind of suckling can stimulate the secretion of prolactin released from the anterior lobe of the pituitary gland (Riordan & Auerbach, 2005). However, pains from a cesarean section wound and

restlessness will suppress both prolactin secretion and breast milk secretion because pains can stimulate neurotransmitter-catecholamine release. Evans, Evans, Royal, Esterman, and James (2003) demonstrated that 2–5 days after delivery, breast milk secretion of women with cesarean section delivery is less than that of women with normal vaginal delivery. In addition, psychological adjustment after a cesarean operation interferes with a woman's learning of motherhood and baby care skills and makes her feel incompetent in breastfeeding. Therefore, cesarean section delivery was a significant barrier in initiating breastfeeding (Pérez-Ríos, Ramos-Valencia, & Ortiz, 2008).

Research framework

Based on the literature review, the conceptual framework of this study was as follows (see Figure 1).

Term definition

1. Postpartum stress

Postpartum stress is defined by Hung (2001) as a compulsive influence originating from stressor after delivery. In this study, it means the score of the revised Hung Postpartum Stress Scale (Hung, 2005a).

2. Early suckling on the operating table

Early suckling on the operating table means that a newborn sucks the mother's nipple on the operating table when the neonatal care has been finished but the operating wound of the mother is not yet closed after cesarean.

3. Breast symptoms in breastfeeding women

Breast symptoms in breastfeeding women are the breast symptoms that are related to postpartum

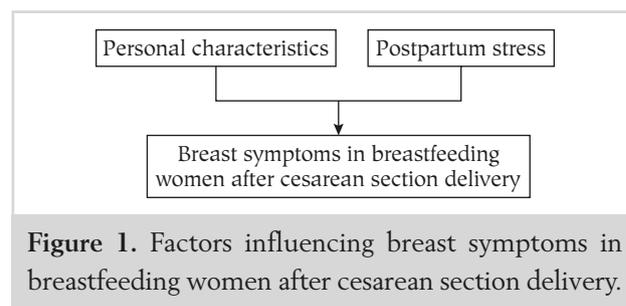


Figure 1. Factors influencing breast symptoms in breastfeeding women after cesarean section delivery.

breastfeeding and could annoy or discourage women when they have had cesarean births and stayed for over 72 hours in the hospital. In this study, it means the score of Breastfeeding Breast Symptom Scale (BBSS) developed by the researchers.

4. Exclusive breastfeeding

A baby is exclusively breastfed if it is given only breast milk, without other liquids or solids except for medicine, vitamins or mineral supplements.

METHODS

Research design

This is a cross-sectional correlative research conducted by a questionnaire survey.

Research locations and participants

Research participants were recruited from two regional hospitals, a district hospital and two obstetric hospitals in southern Taiwan under a purposive sampling. The criteria for recruitment were married women in puerperium who had epidural anesthesia, cesarean births and had been hospitalized for over 72 hours but still stayed in the hospital; had no voluntary breast milk suppression (oral or injection for lactation suppression, use of raw malt); were able to express their feelings in Mandarin or Taiwanese and read the questionnaire; and agreed to participate in the research, irrespective of whether a woman has implemented rooming-in or any breastfeeding behavior during staying in the hospital. A total of 165 questionnaires were distributed and 163 were collected. One questionnaire was abandoned because of missing answers to many questions; 162 questionnaires with the response rate of 98.2% were analyzed.

Research instruments

The contents of the structured questionnaire used for this study were composed of three sections:

1. Personal characteristics

This section was to investigate (a) demographic characteristics: age, birth place, educational level,

antepartum occupation, and primiparas or multiparas, (b) antepartum preparedness for breastfeeding: willingness to breastfeed, decision time to breastfeed, physician encouragement at antenatal care, antepartum learning about breastfeeding, worry about the impact of their own breast size in breastfeeding efficiency, (c) family attitudes toward breastfeeding: husband's attitudes, attitudes of husband's family, attitudes of woman's family, (d) breastfeeding conditions: early suckling on the operating table, the timing of postpartum initial breastfeeding, engaged in rooming-in, recognition of the benefit of breastfeeding, average daily breastfeeding frequency, average daily formula milk feeding frequency. Three variables of personal characteristics, age, average daily breastfeeding frequency, and average daily formula milk feeding frequency, were measured in interval scales, while the other variables of personal characteristics were all measured in categorical scales.

2. Scale for measuring the breast symptoms in breastfeeding women

The first version of the instrument BBSS was initiated by the researchers according to experience and the literature. For improving the content validity, the questionnaire was reviewed by experts including a member of accreditation committee for Baby Friendly Hospitals, a supervisor of the nursing department at some teaching hospital, a head nurse and a director of the obstetrics and gynecology department at some regional hospital. The instrument BBSS modified by the experts consisted of 10 questions: (1) breast engorgement, (2) nipple cleavage, (3) nipple bloody discharge, (4) nipple pains arising from a baby's suckling, (5) breast hardening, (6) unbearable breast pains which cannot be touched, (7) sunken nipple making it difficult for baby to latch on, (8) large nipple making it difficult for baby to latch on, (9) milk discharge from nipple, and (10) spontaneous and inconvenient milk discharge at the period of nonfeeding time. The experts rated the 10 questions on a scale of point 1–4 (i.e., *not related*, *little related*, *related*, and *much related*) according to the association of each question to breast symptoms in breastfeeding. The content validity index of the first version of BBSS was 70%.

This instrument BBSS was rated by participants on a Likert scale of 5 points (i.e., 1 = *completely not true*, 2 = *a little true*, 3 = *moderately true*, 4 = *much true*, 5 = *perfectly true*). Questions of “milk discharge from nipple” and “milk discharge at the period of non-feeding time” were scored in a negative direction and the rest of the questions were scored in a positive direction. The higher the score, the more breast symptoms in breastfeeding were shown. A pilot study was carried out among 40 breastfeeding women after cesarean section delivery. The researchers used item analysis to exclude 4 items which had low item-remainder correlation ($r < .3$) and increased Cronbach’s alpha of the BBSS if the item was deleted: “sunken nipple making it difficult for baby to latch on”, “large nipple making it difficult for baby to latch on”, “milk discharge from nipple”, “milk discharge at the period of non-feeding time”. After the pilot study, the final version of BBSS, which was constituted by six questions, had the content validity index 83.3%, a Cronbach’s alpha of .82 and a half-split reliability coefficient of .88. In this study which aimed at 162 participants, Cronbach’s alpha of the BBSS was .81 and the half-split reliability coefficient was .88. The final BBSS with validated reliability and validity was a simple measurement for the breast symptoms in postpartum breastfeeding.

3. Scale for measuring postpartum stress

The researchers adopted the revised Hung Postpartum Stress Scale modified by Hung (2005a) for postpartum stress evaluation. This instrument as Likert’s scale used a 5-point scoring method (i.e., 1 = *none*, 2 = *not often*, 3 = *sometimes*, 4 = *often*, and 5 = *always*). The total score would be ranged from 61 to 305. Higher total scores represented higher postpartum stress. This instrument was divided into three subscales: 31 items for “concerns about maternal role attainment” (e.g., the baby getting sick suddenly), 11 items for “concerns about negative body changes” (e.g., the flabby flesh of the belly), and 19 items for “concerns about lack of social support” (e.g., poor marital relationship). The internal consistency reliability Cronbach’s alpha of the total scale and three subscales, playing the role of motherhood, change of body

image and lack of social support, was .94, .92, .86, and .86 respectively. These three factors can account for 28.3% of the total variance (Hung, 2005a). In this study, the Cronbach’s alpha was .84 for the total scale and the values of Cronbach’s alpha were .82 for the subscale “worrying about playing the role of motherhood”, .83 for the subscale “worrying about change of body image”, and .80 for the subscale “worrying about lack of social support” respectively.

Data collection and ethical issues

After the research questionnaire was reviewed by experts and the data of the pilot study were analyzed for reliability, this study was carried out. All procedures followed were in accord with the standards of the institutional review board at the hospital in southern Taiwan. After an explanation of study purposes, the nature of the research, confidentiality, anonymity, and the maternal right of rejecting participation, women satisfying the recruitment criteria were recruited for this study. Participants who were able to read Chinese filled out the informed consents and the questionnaires by themselves. One of the investigators would explain each question verbally to foreign immigrant women in case they were unable to read Chinese. The average time for completing the questionnaire was about 15–20 minutes.

There is no conflict of interest for this study. Additionally, all individuals named as authors qualify for authorship.

Data processing and analysis

Data were analyzed by using SPSS software version 10.0 (SPSS, Inc., Chicago, IL, USA). The statistical methods included descriptive analyses of mean, standard deviation, frequency, and percentage as well as a multiple linear regression analysis.

RESULTS

Personal characteristics of participants

Maternal demographic data

A total of 162 women in puerperium who had stayed for over 72 hours at a hospital participated in

this study. They were aged between 19–41 years ($M=29.54$, $SD=4.49$). Most of the participants were Taiwanese (93.8%, $n=152$). Most were educated at the senior high school level and below (42.6%, $n=69$) and employed (59.3%, $n=96$). More than a half of participants were primiparas (54.9%, $n=89$).

Maternal preparedness for breastfeeding

It was found that participants tended to have antepartum willingness for breastfeeding (95.7%, $n=155$), decide the feeding methods before pregnancy (62.3%, $n=101$), receive their physician's advice for breastfeeding (80.9%, $n=131$), have antepartum learning of breastfeeding skills (51.9%, $n=84$), and feel confident of their own breast size in breastfeeding efficiency (77.8%, $n=126$). Among 73 multiparas, most had previous breastfeeding experiences (89.0%, $n=65$). Among 65 postpartum women who have previous breastfeeding experience, 36.9% ($n=24$) of them had had persistent breastfeeding for over two months and 53.8% ($n=35$) of them had had an experience in exclusive breastfeeding.

Family attitudes toward breastfeeding

The percentages of the responses concerning participants' husband, their husbands' families, and their own families supports in breastfeeding were 97.5% ($n=158$), 98.1% ($n=159$), and 96.3% ($n=156$) respectively.

Maternal breastfeeding conditions

The larger percentages for items were having infant (early) suckling on the operating table (86.4%, $n=140$), starting breastfeeding within the postpartum 24–48 hour period (37.0%, $n=60$), not rooming in (57.4%, $n=93$), and recognizing benefits of breastfeeding (98.8%, $n=160$). The times for breastfeeding per day were ranged from 0 to 12 ($M=4.25$, $SD=2.30$), while the times for formula milk feeding per day were ranged from 0 to 9 ($M=3.63$, $SD=1.59$).

Postpartum stress of breastfeeding women after cesarean section delivery

The mean score of postpartum stress was 129.75 ($SD=39.76$). For a single factor, the mean score for

“concerns about maternal role attainment” was 2.19 ($SD=0.69$), 2.58 ($SD=0.86$) in “concerns about negative body changes”, but the mean score in “concerns about the lack of social support” was 1.77 ($SD=0.65$). The scores of “concerns about negative body changes” in cases with cesarean section delivery were higher than the scores of the other two factors. The scores of “concerns about maternal role attainment” were higher than the scores of “worry about lack of social support” (Table 1).

Of the 61 items concerning postpartum stress, the five highest scores were: “the flabby flesh of my belly” ($M=2.94$, $SD=1.34$), “the baby getting sick suddenly” ($M=2.89$, $SD=1.28$), “interrupted sleep” ($M=2.85$, $SD=1.17$), “insufficient breast milk” ($M=2.83$, $SD=1.38$), and “discomfort due to breast enlargement” ($M=2.78$, $SD=1.29$). The lowest postpartum stress scores appeared in the items such as “lack of acceptance of the baby by the woman's family” ($M=1.11$, $SD=0.51$), “my baby's appearance” ($M=1.30$, $SD=0.62$), “the baby's appearance differing from my family's expectation” ($M=1.31$, $SD=0.74$), “the baby's sex being the opposite of what I expected it to be” ($M=1.33$, $SD=0.76$), and “poor marital relationship” ($M=1.43$, $SD=0.90$).

Breast symptoms in breastfeeding women after cesarean section delivery

The mean score for breast symptoms was 16.6 ($SD=5.42$). The scores for six items of breastfeeding breast symptoms from the highest to the lowest were breast engorgement ($M=3.74$, $SD=1.15$), breast hardening ($M=3.60$, $SD=1.17$), unbearable breast pains which cannot be touched ($M=2.77$, $SD=1.30$), nipple pains arising from a baby's suckling ($M=2.77$, $SD=1.34$), nipple cleavage ($M=2.01$, $SD=1.34$), nipple bloody discharge ($M=1.67$, $SD=1.20$; Table 1).

Factors influencing breast symptoms in breastfeeding women after cesarean section delivery

To identify the factors influencing the breast symptoms in breastfeeding women after cesarean section delivery, the researchers transferred important, categorical variables of women's characteristics into

Table 1*Analysis of Postpartum Stress and Breast Symptoms (N = 162)*

Postpartum stress	M (SD)	M (SD) per item	Maximum	Minimum
Total stress score	129.75 (39.76)	2.13 (0.65)	63	236
(1) Concerns about maternal role attainment	67.80 (21.48)	2.19 (0.69)	123	31
(2) Concerns about negative body changes	28.35 (9.44)	2.58 (0.86)	55	12
(3) Concerns about lack of social support	33.59 (12.31)	1.77 (0.65)	76	19
Breast symptom	M (SD)		Ranking	
(1) Breast engorgement	3.74 (1.15)		1	
(2) Nipple cleavage	2.01 (1.34)		5	
(3) Nipple blood discharge	1.67 (1.20)		6	
(4) Breast pain as baby sucks	2.77 (1.34)		4	
(5) Breast hardening	3.60 (1.17)		2	
(6) Breast sensitivity to touch pain	2.77 (1.30)		3	

Note. The higher the score of Breastfeeding Breast Symptom Scale, the more breast symptoms in breastfeeding were shown.

indicator variables first; and then conducted a multiple linear regression analysis using those indicator variables, other interval variables of women's characteristics and postpartum stress score as independent variables. The VIF (variance inflation factor) for these variables were less than 10, indicating there was no large level of collinearity. The result of the regression analysis revealed that only "early suckling on the operating table" and "postpartum stress score" had significant influence on the breast symptoms in breastfeeding women after cesarean section delivery. More breast symptoms were found in women with early suckling on the operating table ($\beta = .26, p = .003$) and in higher postpartum stress ($\beta = .21, p = .010$; Table 2).

DISCUSSION

Postpartum stress of breastfeeding women after cesarean section delivery

The results of this study has shown that the five highest postpartum stress comes from the flabby flesh of maternal belly, the baby getting sick suddenly, interrupted sleep, insufficient breast milk, and discomfort due to breast engorgement. Hung (2005b)

also indicated that the five highest postpartum stress factors were related to interrupted sleep, unpredictability of the baby's schedule, the baby getting sick suddenly, the flabby flesh of maternal belly, and not sleeping enough. Therefore, it is necessary to provide women with the relative information about postpartum exercise, infant care, and breastfeeding in nursing indications and manual guidelines (Kuo, Chen, Mao, & Tsou, 2000).

Breast symptoms in breastfeeding women after cesarean section delivery

The most common breast symptoms in breastfeeding encountered by participants in this study were breast engorgement and breast hardening arising from untimely evacuation of milk in case of milk fluid production. Breast engorgement would compress the mammary gland duct and block the secretion of milk (Bureau of Health Promotion, Department of Health, R.O.C., 2006; Riordan & Auerbach, 2005). In implementing the Baby Friendly Hospital program, medical personnel with better knowledge can instruct and educate women to have more knowledge of efficient breastfeeding (Lin, 2002). In order to efficiently reduce the maternal breast symptoms in breastfeeding, especially in the area of minimizing

Table 2

Multiple Linear Regression Analysis for Breast Symptoms in Breastfeeding Women (N = 162)

Variable	Unstandardized coefficient b	Standardized coefficient b	t	p
Constant	11.90		1.91	.058
Age	-0.08	-.06	-0.77	.444
Ever breastfeeding	-1.56	-.14	-0.69	.492
Ever breastfeeding time	(Reference group: ≥ 2 mo)			
1-2 mo	-0.62	-.04	-0.37	.712
< 1 mo	-0.12	-.01	-0.07	.946
Primiparas	-3.55	-.33	-1.70	.091
Educational level	(Reference group: Senior high school and below)			
College	1.76	.15	1.53	.129
Junior college	1.47	.12	1.32	.188
Born abroad	-1.03	-.05	-0.55	.581
Agreement of husband to breastfeeding	3.42	.10	1.15	.252
Daily breastfeeding frequency	0.29	.12	1.03	.303
Daily formula milk feeding frequency	0.30	.09	0.78	.434
Timing of postpartum initial breastfeeding	(Reference group: In postpartum 24 hr)			
Never	1.49	.04	0.44	.658
Postpartum 24-48 hr	-0.45	-.04	-0.38	.704
Beyond postpartum 48 hr	-0.08	-.01	-0.07	.943
Engaged in rooming-in	0.65	.06	0.65	.514
Early suckling on the operating table	4.02	.26	3.02**	.003
Physician encouragement to breastfeeding	-0.85	-.06	-0.78	.437
Postpartum stress	0.03	.21	2.61*	.010

* $p < .05$. ** $p < .01$.

the problem of engorgement, nurses can be engaged in giving women the guidance of clinical technologies, education in timely breastfeeding and encouragement of frequent breastfeeding.

Personal characteristics and breast symptoms in breastfeeding women after cesarean section delivery

The results of this study have found that those women without early suckling on the operating table have less breast symptoms. This is a matter of when/where

to carry out the early suckling, but rather to indicate that early suckling is not good for breastfeeding. The optimal time for early suckling as shown in the ten steps of the Baby Friendly Hospital is the time when the newborn is awake within the first postpartum 30-60 minute period and the woman is in a comfortable situation (Gau, 2000). In the environment for a Baby Friendly Hospital suggested by WHO, the major concern is that the woman can breastfeed her baby in a warm, comfortable, secure and private environment. However, epidural anesthesia was most

commonly adopted for cesarean operations unless in cases of emergency (e.g., fetal distress). Hypotension and tachycardia are major side effects of epidural anesthesia and the drug 2% Xylocaine used in anesthesia is related to dizziness, tremor, respiratory difficulty, and consciousness disturbance (Levine et al., 2010). Therefore, cesarean operations result in women's much discomfort. Early suckling on the operating table would increase the stress in women in addition to stress from the cesarean section delivery. Breastfeeding in a comfortable condition is a key factor of precipitating breast milk secretion (Riordan & Auerbach, 2005), so early suckling on the operating table may result in discomfort and stress to the woman and interfere with the secretion or production of breast milk. Mozingo, Davis, Droppleman, and Merideth (2000) disclosed from research into inductive phenomena related to the experience in breastfeeding that any early breastfeeding experience which does not correspond to maternal expectations would induce irrational belief, lessen intention of breastfeeding, create feelings of frustration or guilt for discontinuing breastfeeding or lead to self-doubt of personal ability. In this study, some women were asked to express their physiological and psychological conditions in experiencing early suckling on the operating table. In addition to the nervousness and fear of a cesarean section delivery, one woman perceived the added discomfort from early suckling on the operating table. Another woman reported that she had experienced tremors, chills, and dizziness during the operation, so it was unacceptable to have early suckling on the operating table. According to the study of Spear (2006), most (83.1%) nurse representatives said that women did not ask to breastfeed in the operating room, and many (66.2%) stated that initiation of breastfeeding in the operating room was impractical due to the physical discomfort of a woman, risk of contamination to the incision site, and the disapproval of physicians. Therefore, in order to reduce maternal stress and discomfort, the researchers suggest that in hospitals of Taiwan early suckling be implemented in postpartum 30–60 minutes and in a much warmer, more comfortable, and more private room such as recovery room, rather

than before the woman's operating wound has not been closed after cesarean and in the operating room.

Postpartum stress and breast symptoms in breastfeeding women after cesarean section delivery

According to the other finding of this study, that postpartum stress influenced breast symptoms was similar to the results of previous research (Riordan & Auerbach, 2005). It is a crucial factor of success in breastfeeding that the nursing personnel can provide women with methods of maintaining breast milk production and secretion, knowledge of taking care of a baby, and remind the women's families (especially the husband) to give their assistance, encouragement, and praises to relieve women's postpartum stress and reinforce women's confidence in breastfeeding.

With the participants limited to cases with cesarean section delivery, the results of this study cannot be generalized to represent the cases of vaginal delivery. Only two variables, "early suckling on the operating table" and "postpartum stress", significantly influenced the breast symptoms in breastfeeding women after cesarean section delivery. Another limitation was that some factors which may influence the breast symptoms in breastfeeding women, including reasons for cesarean operation, physical discomfort from the cesarean birth such as pain, physical condition after the surgery (such as physical symptoms), women's nutritional status, the attitudes and knowledge of nursing personnel towards breastfeeding, and reasons for disagreement from family and husband, were not considered in this study. This research is of cross-sectional design. Future research can consider longitudinal design with qualitative and quantitative surveys to collect more information and then based on the study results to provide more assistance for breastfeeding women.

CONCLUSIONS

Breastfeeding in a comfortable condition is a key factor of precipitating breast milk secretion, so early suckling on the operating table may result in discomfort and stress of the woman and interfere with

the secretion or production of breast milk. Additionally, it is a crucial factor for success in breastfeeding that the nursing personnel can provide women with help in maintaining breast milk production and secretion, taking care of a baby, and reminding women's families (especially their husband) to give their assistance, encouragement, and praises to relieve women's postpartum stress.

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