Factors Predicting 6-Month-Exclusive Breastfeeding in Mothers with Cesarean Section*

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Abstract

Purpose: This study aimed to determine the relative contributions of exclusive breastfeeding at discharge, breastfeeding self-efficacy, previous breastfeeding experience, and employment status to 6-month exclusive breastfeeding in mothers with Cesarean Section.

Design: Predictive research design.

Methods: Seventy five mothers who delivered by Cesarean Section at one university hospital in Bangkok, Thailand; and previously enrolled in earlier study were recruited into this study. During August – September 2013, the subjects were interviewed by telephone. Instruments used to obtain data including the Personal Data Interviewing Form, the Breastfeeding Self-Efficacy Scale-Short Form, the Baby-Feeding Records, and Infant-Feeding Interviewing Form. Percentage, mean, standard deviation, and logistic regression were used in data analysis.

Main findings: Exclusive breastfeeding rate decreased from 56% at the beginning to 18.7% within 6-month period. Logistic regression revealed that exclusive breastfeeding at discharge, breastfeeding self-efficacy, previous breastfeeding experience, and employment status could explain 19% of variance (R^2 = .19, $p < .05$) in 6-month-exclusive breastfeeding of the mothers with Cesarean Section. However, only previous experience was a significant predictor [Exp (B) = 6.694, 95% CI = 1.371-32.692].

Conclusion and recommendations: Experienced breastfeeding mother with Cesarean Section is more likely to get success in later pregnancy. Therefore, maternal support to breastfeeding is necessary and beneficial not only in the present but also the subsequent gestation.

Keywords: Cesarean Section, exclusive breastfeeding, breastfeeding experience, breastfeeding self-efficacy, employment

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ปัจจัยทำนายการเลี้ยงลูกด้วยนมแม่อย่างเดียว 6 เดือน ในมารดาผ่าตัดคลอด*

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บทคัดย่อ

วัตถุประสงค์: การศึกษาเชิงทำนายนี้ต้องการศึกษาผลของการเลี้ยงลูกด้วยนมแม่อย่างเดียวก่อนจำหน่าย ความเชื่อมั่นในสมรรถนะของตนเองในการเลี้ยงลูกด้วยนมแม่ ประสบการณ์การเลี้ยงลูกด้วยนมแม่ และการทำงานต่อการเลี้ยงลูกด้วยนมแม่อย่างเดียว 6 เดือน ในมารดาที่คลอดโดยการผ่าตัด

รูปแบบการวิจัย: การวิจัยเชิงทำนาย

วิธีดำเนินการวิจัย: กลุ่มตัวอย่างเป็นมารดาที่คลอดโดยการผ่าตัด ณ โรงพยาบาลมหาวิทยาลัยแห่งหนึ่งในกรุงเทพมหานคร จำนวน 75 ราย ซึ่งเป็นกลุ่มตัวอย่างในการศึกษาก่อนหน้านี้ เก็บข้อมูลต่อเนื่องโดยโทรศัพท์สัมภาษณ์มารดาระหว่างเดือนสิงหาคม-กันยายน 2556 เก็บรวบรวมข้อมูลโดยใช้แบบสัมภาษณ์ข้อมูลส่วนบุคคล แบบสอบถามการรับรู้สมรรถนะในตนเองเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ แบบบันทึกการให้อาหารทารก และแบบสัมภาษณ์ทางโทรศัพท์เกี่ยวกับเกี่ยวกับชนิดของอาหารทารกในระยะ 6 เดือนแรก วิเคราะห์ข้อมูลโดยคำนวณร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และสถิติถดถอยพหุโลจิสติกส์

ผลการวิจัย: อัตราการเลี้ยงลูกด้วยนมแม่อย่างเดียวในกลุ่มตัวอย่างลดลงจากร้อยละ 56 เหลือร้อยละ 18.7 ภายในระยะเวลา 6 เดือนหลังคลอด ผลการวิเคราะห์ด้วยสถิติถดถอยพหุโลจิสติกส์พบว่า การเลี้ยงลูกด้วยนมแม่อย่างเดียวก่อนจำหน่าย ความเชื่อมั่นในสมรรถนะของตนเองในการเลี้ยงลูกด้วยนมแม่ ประสบการณ์การเลี้ยงลูกด้วยนมแม่ และการทำงานสามารถอธิบายความผันแปรของการเลี้ยงลูกด้วยนมแม่อย่างเดียว 6 เดือนได้ร้อยละ 19 (R^2 = .19, $p < .05$) แต่มีเพียงประสบการณ์ในการเลี้ยงลูกด้วยนมแม่ในบุตรคนก่อนที่มีผลอย่างมีนัยสำคัญทางสถิติ [Exp (B) = 6.694, 95% CI = 1.371-32.692]

สรุปและข้อเสนอแนะ: ประสบการณ์ในการเลี้ยงลูกด้วยนมแม่ในบุตรคนก่อนเป็นปัจจัยสำคัญที่ทำให้มารดาที่คลอดโดยการผ่าตัด สามารถเลี้ยงลูกด้วยนมแม่อย่างเดียวได้นาน 6 เดือนในบุตรคนถัดมา ดังนั้น การสนับสนุนให้มารดาเลี้ยงลูกด้วยนมแม่จึงมีความสำคัญ และช่วยเพิ่มโอกาสสำเร็จในครรภ์ถัดไป

คำสำคัญ: มารดาผ่าตัดคลอด เลี้ยงลูกด้วยนมแม่อย่างเดียว ประสบการณ์ในการเลี้ยงลูกด้วยนมแม่ ความเชื่อมั่นในสมรรถนะของตนเองในการเลี้ยงลูกด้วยนมแม่ การทำงาน

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Background and Significance

It has been accepted that human breast milk is the best food for the first six month of life for babies, and it should be continued together with complementary food until two years or over. Exclusive breastfeeding is defined as feeding only breast milk to a child, with no other kinds of food, no water or tea[1]. Thai Ministry of Public Health set goals that at least 30% of mothers can exclusively breastfeed the babies for six months then continue together with appropriate complementary food for two years. Regarding National Statistics[2] report, 6-month-exclusive breastfeeding rate was only 12.3 % which was much lower than the target. Although, breastfeeding is beneficial in several ways, the breastfeeding rate is still lower than expected. Delivery mode remains one of several factors contributing for the successful breastfeeding. Cesarean Section was found to associate with low rate of breastfeeding. Moreover, the rate of Cesarean Section tends to increase drastically due to advanced medical knowledge and technology[3]. According to Siriraj and King Chulalongkorn Memorial Hospital's statistic data, the Cesarean Section rate in Thailand has been significantly increasing for the last 10 years especially in public hospital (32-44%). Similarly, Cesarean Section rate is also as high as 36% in Europe and 40.5% in Asia[4].

Cesarean Section is an obstacle for breastfeeding in some degrees because of post-operative pain particularly with movement. Mothers with Cesarean Section may feel uncomfortable with urinary catheterization, intravenous fluid line, fasting, thirsty, and difficulty of movement. Moreover, they may feel fatigue from blood loss and may need to rest more than mothers with vaginal delivery[5]. They cannot initiate breastfeeding by themselves that may delay early initiation of breastfeeding. Therefore, the newborn babies cannot learn effective suckling early[6-7]. These babies may lose their instinct to suckle if they are fed with cup or bottle before breastfeeding. Furthermore, mechanism of milk production and milk ejection is not stimulated early. Then, milk production may be delayed[5]. Evans KC, et al[8] found that mother with Cesarean Section have less milk than mother with vaginal delivery during 2-5 postpartum days. The mother's perception of 'not enough milk' may make them worry about sufficeincy of food for the baby. Therefore, they usually offer supplement formula milk to their babies. This reduces production of breast milk and may make the baby familiar with the formula's taste and flow. The baby's suckle may not be effective. Besides, mechanisms of suckle from the breast and bottle are different[9]. Finally, the mothers may stop breastfeeding due to the baby deny the breast.

However, there are some mothers with Cesarean Section can breastfeed exclusively their babies for six months. Previous studies found that exclusive breatsfeeding at discharge[10-11], previous breastfeeding experience[12-13], employment status[14] , and breastfeeding self efficacy[15-16] have impact on exclusive breastfeeding at six months. Therefore, this study aimed to determine the relative contributions of these factors on 6-month exclusive breastfeeding (6-month EBF) in mothers with Cesarean Section in order to bring the results to guide health personnel to promote breastfeeding in this population.

Objectives

This study aimed to determine the relative contributions of exclusive breastfeeding at discharge, breastfeeding self-efficacy, previous breastfeeding experience, and employment status to 6-month exclusive breastfeeding in mothers with Cesarean Section.

Research Question

Exclusive breastfeeding at discharge, breastfeeding self-efficacy, previous breastfeeding experience, and employment status can predict successful exclusive breastfeeding for six months in mothers with Cesarean Section.

Methodology

The research protocol was approved by the Institutional Review Board of the studied hospital (No.346/2556, EC3). The sample was 110 mothers delivered by Cesarean Section at one university hospital in Bangkok, Thailand who were recruited in the earlier study on the topic of "Personal factors, first feeding time and nurse support in predicting successful exclusive breastfeeding at discharge in mothers with Cesarean Section[17]". They were recruited at the postpartum wards after delivery according to inclusion criteria as follows: age 15-45 years with singleton baby, delivery at term (37-42 weeks of gestation), having normal breast and nipple, no complication, no restrictions against breastfeeding, can communicate in Thai language; the babies had no complication and congenital anomaly. The subjects were excluded if they could not be contacted by telephone. The total number of mothers in this study was 75.

Instrumentation

Data were obtained by using four instruments including the Personal Data Interviewing Form, Infant-Feeding Interviewing Form, the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF)[18], and the Baby-Feeding Records.

1. The Personal Data Interviewing Form was developed by the researcher to obtain personal demographic data (age, education, marital status, occupation, employment, family income, and maternity leave), previous breastfeeding experience, and sources of breastfeeding knowledge.

2. The Infant-Feeding Interviewing Form was developed by the researcher to ask about types of food feeding to the baby during six months, starting time of each kind of food, problems or obstacles of breastfeeding, status of employment, baby's health and illness and cost of treatment. If babies had been fed only breast milk through six months, they were count as 6-month exclusive breastfeeding. If they received any kinds of food other than breast milk, they were failing to be 6-month exclusive breastfeeding.

3. The Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF)[18] was translated into Thai version with back-translation technique by Thussanasupap[19]. This questionnaire consisted of 14 items in positive dimension measured on a 5-point Likert-like scale (1 = not at all confident, 5 = always confident). Scores were summed to a rage from 14-70, with higher scores indicating higher levels of breastfeeding self-efficacy. The researcher received permission from the author to use in this study.

4. The Baby-Feeding Record was developed by the researcher to record infant-feeding types during 24 hours before discharge from the hospital. It was measured during 48-72 hours after Cesarean Section. Mothers were asked to record every meals that the baby were fed, kinds of milk (breast milk or formula), a baby who was fed only breast milk during 24 hours referred to successful exclusive breastfeeding at discharge[20].

All instruments were validated by five experts for face validity. The Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) was used in previous study with 100 Spanish postpartum mothers; Cronbach's alpha coefficient was .96. In this study, it was .87.

Data collection

The personal characteristics, previous breastfeeding experience, and breastfeeding self-efficacy were collected during 12-24 hours after Cesarean Section. Exclusive breastfeeding at discharge obtained from The Baby-Feeding Record which was recorded 24 hours before discharge (48-72 hours after Cesarean Section). The data were collected during April-June, 2012 for earlier study[17]. This study continued to collect data about kinds of food feeding to the babies during six months after birth and related information using The Infant-Feeding Interviewing Form. The interview was conducted by one of the researchers after getting approval from the Institutional Review Board of the studied hospital, and receiving permission

from Cesarean Section mothers. The researcher interviewed mothers during August-September, 2013 (the baby was about 14-16 months of ages). The interview took about 10-15 minutes by telephone.

Data analysis

Descriptive statistics (frequency, percentage, mean, standard deviation) was used to describe the maternal characteristics and Logistic Regression was used to predict 6-month-EBF by exclusive breastfeeding at discharge, breastfeeding self-efficacy, previous breastfeeding experience, and employment status.

Findings

Seventy-five mothers and their babies were eligible to participate in the study. Mother's age ranged between 15-42 years with an average of 27 years. Eighty percent of mothers finished high school or lower, about 95% married, 75% was employed, family income ranged 6,000-38,000 baht/month with an average of 15,459 baht, about 59% had maternity paid leave, most of them (84%) had maternity leave for three months. Almost half of the sample (49.3%) had experience of breastfeeding from the previous child (Table 1). Seventy three percent had received knowledge about breastfeeding, mostly from nurses and physicians. The largest part of mothers had emergency Cesarean Section (81.3%), while 14.3% was elective Cesarean Section, with all mothers received epidural/spinal anesthesia. Forty four of the babies was boy, birth weight ranged 2,510-4,000 grams with an average of 3,100 grams.

Table 1 Frequency and percentage of the sample classified by personal characteristics (N = 75)

Personal Characteristics	Frequency	Percent
Maternal age (years)		
15-19	10	13.3
20-24	14	18.7
25-29	25	33.3
30-34	17	22.7
≥ 35	9	12.0
(Range = 15-42 years , Mean ± 1 SD = 27 ± 6 years)		
Occupation		
Housewife	19	25.3
Employee	9	12.0
Business	46	61.4
Government offices	1	1.3
Duration of maternity leave (n = 44)		
1 month	3	6.8
2 months	4	9.1
3 months	37	84.1
Previous experience of breastfeeding in the previous child		
Yes	37	49.3
No	38	50.7

The overall rate of 6-month EBF was 18.7% which reduced from 56% at the discharge period. However, only 14.3% of the mothers who could successfully exclusive breastfeeding at discharge did it for six months while 24.2% of the mothers who could not breastfeed exclusively at discharge could do it for six months (Table 2). Regarding exclusive breastfeeding duration, 49.3% of the participant breastfed exclusively one to two months, 32% could do for 3-5 months. Approximately, 30.3% of the mothers could continue breastfeeding for one year. For the participants who could not breastfeed exclusively for six months gave the reasons that they had to return to work (25.3%), had insufficient milk (18.7%), and nipple pain/ baby refuse the breast (2.7%).

Table 2 Frequency and percent of the sample classified by breastfeeding data at six month

Breastfeeding data at six month	Frequency	Percent
Exclusive breastfeeding at discharge		
Yes	42	56.0
No	33	44.0
Exclusive breastfeeding (n = 75)		
1 month	28	37.3
2 months	9	12.0
3 months	18	24.0
4 months	3	4.0
5 months	3	4.0
6 months	14	18.7
(Range = 1-6 months, Mean ± 1 SD = 2.81 ± 1.87 months)		

Logistic regression revealed that exclusive breastfeeding at discharge, breastfeeding self-efficacy, previous breastfeeding experience, and employment could explain 19% of variance in 6-month-exclusive breastfeeding among the mothers with Cesarean Section. However, only previous experience was a significant predictor [Exp (B) = 6.694, $p < .05$] (Table 3).

Table 3 Logistic regression analysis

Variables	B	SE	Wald	df	Sig	Exp (B)	95% CI
EBF at discharge	-1.083	.697	2.417	1	.120	.338	.086 - 1.326
BF self-efficacy	- .031	.043	.520	1	.471	.969	.891 - 1.055
BF experience	1.901	.809	5.521	1	.019	6.694	1.371 - 32.692
Employment status	-1.209	.742	2.657	1	.103	.298	.070 - 1.277
Constant	.433	2.244	.037	1	.847	1.541	

*$p < .05$, Nagelkerke $R^2 = .19$, Overall Percentage = 81.3

Discussion

The study finding showed that mothers with Cesarean Section could breastfeed exclusively one to six months with an average of 2.8 months. Thirty seven, 24, and 18.7 percent of mothers could breastfeed exclusively for 1, 3, and 6 months, respectively. However, about one third of them (30.3%) were able to continue breastfeeding for one year. The rate of 6-month exclusive breastfeeding in this study was higher

than that reported by WHO[21] which were 12.3%. The participants in this study had some barriers to continue breastfeeding such as returning to work (25.3%), insufficient milk supply (18.7%) and nipple pain or the baby refuse the nipple (2.7%). This is consistency to the report from CDC, USA, that the two reasons for stopping breastfeeding were returning to work (18%) and insufficient milk supply (29%). Moreover, this study found that one fourth of the sample perceived lack of breastfeeding knowledge during pregnancy, while the evidence showed that antenatal period offers the best time to introduce information about breastfeeding to expectant mothers[22].

Logistic Regression Analysis revealed that exclusive breastfeeding at discharge, breastfeeding self-efficacy, previous breastfeeding experience, and employment accounted for 19% of variance in 6-month EBF, but only previous experience was a significant predictor [Exp (B) = 6.694, $p < .05$]. This could be explained that breastfeeding is a complex phenomenon that needs several factors to facilitate the mother's capability to breastfeed the infants such as knowledge, skills, mother-child relationship, support from family, strong intention to breastfeed, perceived physical strength and less perceived breastfeeding difficulties[23]. Moreover, this important task imposes only on the mothers. These mothers have to be with the infants for all feedings[24]. They may have uncontrollable and unpleasant physical experiences such as crack/sore nipples or milk leakage. Besides, mothers have multiple roles in complex living situations and may feel overwhelmed with the situations. Therefore, mothers who had experience of breastfeeding in the previous child may overcome these problems and have ability to manage things revolving around them. As a result, it makes them feel more confidence than mothers without previous experience. Similarly, Phillips, Brett, and Mendola[25] had reported that mothers usually repeated the duration of exclusive breastfeeding of previous child. Consistently, Bai et al[24] also found that inadequate breastfeeding skill was a barrier to continue breastfeeding.

The results of this study revealed that exclusive breastfeeding at discharge, breastfeeding self-efficacy, and employment were not significant predictors of 6-month EBF. Although mothers can breastfeed exclusively in the hospital, environments in hospital and home may differ. The initiation of breastfeeding was determined by the hospital policy in which staff nurses will help the mother to breastfeed their newborn infants. However, discontinuation of breastfeeding after return home depends on several factors and mother's decision. Moreover, the sample group stated that their problems of breastfeeding at the initiation were having not enough milk/no milk (46%) and baby's refusal (15.8%). Breastfeeding-related problems at six months were returning to work (25.3%) and perceiving not enough milk (18.7%). The results showed that only 14.3% of the mothers who exclusively breastfeed at the initiation period could exclusively breastfeed for six months, while 24.2% of the mothers who could not breastfeed exclusively before discharge could do it for six months. This might suggest that factors influencing initiation and continuation of exclusive breastfeeding may be different[24].

Breastfeeding self-efficacy also did not contribute significantly to 6-month EBF. This may be explained that mothers with high breastfeeding self-efficacy may change their mind when they encounter difficult situations including difficulty baby, breast-related discomfort and multiple roles. Therefore, the mother's situations may be complicated than anticipated. This is not congruent with the result of Meedya, Fahy, and Kable[16] which found that breastfeeding self-efficacy was positively related to breastfeeding duration. Employment also did not contribute significantly to 6-month EBF. This may be explained that mothers who have experience of breastfeeding for the previous

child, may find out the way to solve their problems and have more facilities than the past including breast pump, milk bag for collecting breast milk.

Conclusion and Recommendation

Exclusive breastfeeding at discharge, breastfeeding self-efficacy, previous breastfeeding experience, and employment could predict 6-month-EBF among mothers with Cesarean Section. However, experienced breastfeeding mother is more likely to be success in later pregnancy. Therefore, helping the mother to have breastfeeding experience with first born would be beneficial not only for the present but also for the subsequent child.

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