Prevalence and Factors Influencing Exclusive Breast-Feeding in Rajavithi Hospital

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Objective: *The aim of the present study was to identify the prevalence of exclusive breast-feeding after 2,4, and 6 months in Rajavithi Hospital. The present study evaluated the factors associated with discontinuing breast-feeding before the first two months of life in order to target early nursing interventions to encourage and support continued breast-feeding and increase the exclusive breast-feeding rate.*

Material and Method: *From September 2010 to May 2011, mothers were interviewed prior to hospital discharge from the maternity ward and follow-up phone calls were made after 2,4 and 6 months postpartum.*

Results: *The prevalence of exclusive breast-feeding after 2, 4 and 6 months was 57.9% (252 out of 435), 32.0% (139 out of 435) and 4.8% (21 out of 435) respectively. At 2 months postpartum, multivariate analysis was carried out to identify whether maternal obesity and breast-feeding intervals of more than 3 hours had a statistically significant association with cessation of breast-feeding. The most common reason for cessation of exclusive breast-feeding by mothers was their return to work.*

Conclusion: *The prevalence of exclusive breast-feeding at 2, 4, and 6 months was 57.9%, 32.0% and 4.8%, respectively. Maternal obesity, and maternal breast-feeding for intervals of more than 3 hours prior to hospital discharge were risk factors of early breast-feeding cessation at 2 months postpartum. This is an area on which we would target nursing interventions to prevent early unintended weaning.*

Keywords: *Breast-feeding, Exclusive breast-feeding, Prevalence, Factors*

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Breast-feeding is the preferred method of infant feeding, with well-documented health benefits for both mothers and infants, and exclusive breast-feeding is therefore the recommended method of infant feeding for the first six months of life[1]. The available evidence suggests that exclusive breast-feeding has a short-term protective effect against important child health problems such as respiratory illness, diarrhea and mortality[2-9], and may also have long-term benefits. Breast-fed subjects experienced lower mean blood pressure and total cholesterol, and performed better in intelligence tests. Furthermore, the prevalence of overweight/obesity and type 2 diabetes was lower among breast-fed subjects[10]. Breast-feeding has also been related to important maternal benefits such as decreasing the risk of breast[11,12] and ovarian cancer[13-15].

Rajavithi Hospital, a tertiary care teaching hospital affiliated with Rangsit University has been promoting exclusive breast-feeding. As a means of promoting exclusive breast-feeding, it is imperative to understand the prevalence of exclusive breast-feeding and the factors for the cessation of exclusive breast-feeding in order to target nursing interventions to encourage and support continued breast-feeding.

It is important to identify women at risk of early breast-feeding cessation in order to target nursing interventions to prevent this early unintended weaning. Therefore, the present study was conducted to identify the prevalence of exclusive breast-feeding at 2,4, and 6 months in Rajavithi Hospital, and to evaluate the factors associated with the discontinuation of breast-feeding before the first two months of life.

Material and Method

The protocol for this research was approved by the institutional ethics committee of Rajavithi Hospital. Mothers were interviewed prior to hospital discharge from September 2010 to May 2011 at the postpartum ward, Rajavithi Hospital and follow-up phone calls were made at 2, 4 and 6 months postpartum. The inclusion criteria were: 1) mothers of Thai race who had initiated breast feeding in the postpartum ward,

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2) infants who had gestational age at delivery of 35-42 weeks, 3) healthy mothers without any maternal disease or pregnancy complications, 4) healthy infants scheduled to go home at the same time as their mother. Mothers taking part in the present study provided informed written consent at the time of the interview in the maternity ward.

The major areas covered in the interview were: maternal factors (socio-demographic variables, knowledge regarding breast-feeding, attitudes related to breast-feeding, psychosocial variables); obstetric factors; infant characteristics; mode of delivery; and other possible potential influences. Follow-up phone calls were made at 2, 4 and 6 months postpartum in order to ask the question, "Are you still exclusively breast-feeding?" Participants who had ceased breast-feeding were asked an open-ended question to identify the reasons for breast-feeding cessation.

Infants were considered exclusively breast-fed when fed exclusively on their mother's milk, including pumped breast milk. The only other permitted oral intakes were water, vitamin supplements, and medication.

Definitions of some variables were as follows: maternal obesity: body mass index $\geq$ 30 kg/m^2; frequency of difficult latching: frequency of difficulty in latching of more than half of total latching in one day.

Statistical analysis

Descriptive results of continuous variables were expressed as mean $\pm$ SD, and categorical variables were expressed as numbers (%). Univariate comparisons of the independent variables of continuous and categorical dependent variables were made using Student's t-test and Pearson Chi-square test respectively. Multivariate regression was used to assess the factors associated with exclusive breast-feeding with odds ratio and 95% confidence interval (95%CI). A p-value of less than 0.05 was considered statistically significant. Analysis was done with the software program SPSS for Windows version 17.0 (SPSS Inc., Chicago, lllinois, USA).

Results

Of 460 mothers enrolled in the present study, 25 (5.4%) were excluded due to inability to follow-up within 6 months. The remaining 435 cases were available for analysis. Of these, 252 (57.9%), 139 (32.1%) and 21 (4.8%) continued exclusive breast-feeding at 2, 4 and 6-months postpartum respectively.

Baseline characteristics of the patients were as follows: Most of the cases were aged between 20 and 30 years old, with education $\leq$ grade 9, and income 10,000-20,000 Baht. The mean gestational agec ($\pm$ SD) was 38.6 $\pm$ 1.57 weeks, and the mean birth weight ($\pm$ SD) was 3,111 $\pm$ 423 g. A total of 37.9% of the newborn were delivered by cesarean section. The mean Apgar score was 8.8 $\pm$ 0.67 at the first minute and 9.9 $\pm$ 0.46 at 5 minutes. All mothers planned to breast-feed (Table 1).

At 2-months postpartum, 183 mothers (42.1%) had ceased exclusive breast-feeding while 252 mothers (57.9%) were still exclusively breast-feeding. The authors sought to determine factors that were possibly associated with 2-month cessation of breast-feeding. From univariate analysis of variables that were possibly associated with 2-month cessation of exclusive breast-feeding (Table 2), variables that were significant ($p < 0.050$) or borderline-significant ($p = 0.050$ to ≤ 0.100) included maternal obesity, knowledge of breast-feeding, previous breast-feeding experience, latching difficulty, and breast-feeding interval, and these factors were evaluated by multivariate analysis. Variables that were neither statistically significant nor borderline statistically significant ($p > 0.100$) included maternal age group, education, parity, income, working mothers,

Table 1. Baseline characteristics

Variables	Total (n = 435)
Maternal age group	
Mean $\pm$ SD	28.5 $\pm$ 6.36
$\leq$ 19 years	36 (8.3%)
20-35 years	331 (76.1%)
> 35 years	68 (15.6%)
Education	
$\leq$ grade 9	155 (35.7%)
grade 10-12	142 (32.7%)
$\geq$ Bachelor degree	137 (31.6%)
Missing data (data were not applicable)	1
Income (Baht)	
< 10,000	72 (17.3%)
10,000-20,000	188 (45.1%)
> 20,000	157 (37.6%)
Missing data (data were not applicable)	18
Mother	
Employed	356 (82.2%)
Unemployed	77 (17.8%)
Missing data (data were not applicable)	2

Values were represented as n (%) means $\pm$ SD

Table 2. Univariable analysis of variables that are possibly associated with 2-month cessation of exclusive breast-feeding

Variables	Cessation of exclusive breast-feeding at 2 months (n = 183)	Exclusive breast-feeding at 2 months (n = 252)	p-value
Maternal age group			0.105
≤ 19	19 (10.4)	17 (6.7)	
20-35	130 (71)	201 (79.8)	
> 35	34 (18.6)	34 (13.5)	
Education			0.188
≤ grade 9	56 (30.8)	99 (39.3)	
grade 10-12	63 (34.6)	79 (31.3)	
> Bachelor degree	63 (34.6)	74 (29.4)	
Missing data (data were not applicable)	1		
Primiparity	76 (41.5)	97 (38.5)	0.523
Income (Baht)			0.248
< 10,000	32 (18.3)	40 (16.5)	
10,000-20,000	69 (39.4)	119 (49.2)	
> 20,000	74 (42.3)	83 (34.3)	
Missing data (data were not applicable)	8	10	
Mother			0.486
Employed	145 (79.7)	211 (84.1)	
Unemployed	37 (20.3)	40 (15.9)	
Missing data (data were not applicable)	1	1	
Consultation at breast-feeding clinic prior to hospital discharge	19 (10.5)	30 (12.2)	0.580
Intended to exclusively breast-feed			0.175
< 6 months	69 (39.7)	78 (32.0)	
> 6 months	105 (60.3)	166 (68.0)	
Missing data (data were not applicable)	9	8	
Maternal obesity	15 (8.2)	5 (2.0)	0.002*
Lack of breast-feeding knowledge	34 (26.4)	30 (17.4)	0.052
Route of delivery			0.907
Vaginal delivery	113 (61.8)	157 (62.3)	
Cesarean section	70 (38.2)	95 (37.7)	
Previous breast-feeding experience			0.013*
Fail or None	117 (64.3)	132 (52.4)	
Success	65 (35.7)	120 (47.6)	
Missing data (data were not applicable)	1		
Frequency of difficult latching			0.001*
More than half of latching	108 (59.7)	105 (43.4)	
Less than half of latching	73 (40.3)	137 (56.6)	
Missing data (data were not applicable)	2	10	
Breast-feeding interval			0.001*
> 3 hours	75 (41.0)	64 (25.4)	
≤ 3 hours	108 (59.0)	188 (74.6)	
Birth weight (g)	3,121 ± 456	3,104 ± 397	0.686

* significant at $p < 0.05$
Values were represented as n (%), means ± SD

consultation at breast-feeding clinic at postpartum, intention to exclusively breast-feed to 6 months, route of delivery, and birth weight, and these variable were not evaluated any further. Multivariate analysis, which included all of the significant or borderline-significant variables in the univariate analyses (including maternal obesity, knowledge of breastfeeding, previous breast-feeding experience, latching difficulty, breast-feeding

interval), demonstrated that maternal obesity and breast-feeding interval of more than 3 hours are risk factors strongly associated with cessation of exclusive breast-feeding before the 2nd month of an infant's life (Table 3).

The most common reason for cessation of exclusive breast-feeding at 2 months postpartum was return to work 33.3% (61 out of 183), and the second most common reason was insufficient milk 26.8% (49 out of 183).

Discussion

Review of evidence has shown that, on a population basis, exclusive breast-feeding for 6 months is the optimal method of feeding infants[1,16]. The national target of the Ninth National Health Development Plan (NHDP) of Thailand has been set for the rate of exclusive breast-feeding at 6 months to be at 30% by the end of 2006[17]. In the present study, the exclusive breast-feeding rate at 6 months (4.8%) was much lower than NHDP recommendation, but quite similar to that in the UNICEF survey in Thailand in 2005 (5%).

Factors associated with 6-month exclusive breast-feeding in the present study could not be clarified exactly due to the limited number of mothers who breast-fed exclusively for 6 months. Thus, the author focused on the factors associated with exclusive breast-feeding at 2 months instead because it is important to identify women at risk of early breast-feeding cessation before hospital discharge in order to target nursing interventions to prevent early unintended weaning. Camurdan et al[18] found that mothers who breast-fed exclusively for the first 3 months were six times more likely to continue breast-feeding until 12 months.

In the present study, maternal obesity and a breast-feeding interval of more than 3 hours before hospital discharge were found to be risk factors strongly associated with cessation of exclusive breast-feeding before the 2nd month of an infant's life. Rasmussen and Baker et al[19,20] reported the association between women with high pre-pregnant body mass index and the early termination of breast-feeding. Rasmussen theorized that excess maternal adiposity may interfere with the development of the mammary glands[19]. Difficulty in breast-feeding could also be related to hormonal and metabolic abnormalities associated with excess maternal adiposity, resulting in a delay in the onset of copious milk secretion. A maternal breast-feeding interval of more than 3 hours before hospital discharge may affect the onset of lactogenesis III and milk production.

Similar to several other reports, the most common reason given in the present study for cessation of exclusive breast-feeding was return to work[21,22]. Ways to increase the continuation of breast-feeding included: health care workers should encourage breast-feeding and provide full information about it for working mothers[1,2]; working mothers should have the benefit of facilities for supporting breast-feeding in the workplace such as a mother's room, a breast pump and storage for expressed breast milk; a child care centre should be located at or near the work place to assist working mothers in continuing to breast-feed their infants; and there should be support from the government and employers in the way of policies and facilities that would benefit mothers[3]. The government should also implement policies that allow mothers to receive six months' paid maternity leave and receive a half-hour break during their working day to pump their breast milk.

The prevalence of exclusive breast-feeding at 2, 4 and 6 months were 57.9%, 32.0% and 4.8%, respectively. Maternal obesity and a maternal breast-

Table 3. Multivariate analysis of variables that were possibly associated with 2-month cessation of exclusive breast-feeding

Variables	Adjusted odds ratio	95%CI	p-value
Maternal obesity	8.023	1.699-37.896	0.009*
Lack of breast-feeding knowledge	1.577	0.862-2.885	0.139
Previous failed breast-feeding experience or no breast-feeding experience	1.246	0.739-2.099	0.409
Frequency of difficult latching	1.483	0.899-2.444	0.122
Breast-feeding interval (> 3 hr)	1.802	1.063-3.056	0.029*

* significant at $p < 0.05$
95%CI = 95% confidence interval

feeding interval of more than 3 hours prior to hospital discharge were risk factors of early breast-feeding cessation at 2 months postpartum.

Potential conflicts of interest

None.

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ความชุกและปัจจัยที่มีผล ต่อการเลี้ยงลูกด้วยนมแม่อย่างเดียวในโรงพยาบาลราชวิถี

ภาวิณี ปลิวมา

วัตถุประสงค์*: เพื่อต้องการทราบถึงความชุกของการเลี้ยงลูกด้วยนมแม่อย่างเดียวที่ 2 เดือน, 4 เดือน, และ 6 เดือน ในโรงพยาบาลราชวิถี และปัจจัยที่มีผลทำให้มารดาไม่สามารถเลี้ยงลูกด้วยนมแม่ต่อได้ก่อนบุตรอายุ 2 เดือน เพื่อที่จะได้ให้การสนับสนุนและส่งเสริมให้มารดาสามารถเลี้ยงลูกด้วยนมแม่และเพิ่มอัตราการเลี้ยงลูกด้วยนมแม่อย่างเดียว*

วัสดุและวิธีการ*: สัมภาษณ์มารดาหลังคลอดที่จำหน่ายจากหอผู้ป่วยโรงพยาบาลราชวิถี ช่วงระหว่างเดือน กันยายน พ.ศ. 2553 ถึง พฤษภาคม พ.ศ. 2554 และติดตามเยี่ยมทางโทรศัพท์เมื่อบุตรอายุ 2 เดือน, 4 เดือน และ 6 เดือน*

ผลการศึกษา*: อัตราการเลี้ยงลูกด้วยนมแม่อย่างเดียวที่ 2 เดือน, 4 เดือน, 6 เดือน เท่ากับร้อยละ 57.9 (252 รายจาก 435), ร้อยละ 32.0 (139 ราย จาก 435 ราย) และร้อยละ 4.8 (21 ราย จาก 435 ราย) ตามลำดับ จากการวิเคราะห์แบบหลายตัวแปรที่หลังคลอด 2 เดือน พบมารดาที่อ้วนและมีระยะห่างของการให้บุตรดูดนมในช่วงหลังคลอดมากกว่า 3 ชั่วโมง มีผลทำให้มารดาหยุดเลี้ยงลูกด้วยนมแม่อย่างมีนัยสำคัญทางสถิติ สาเหตุสำคัญที่ทำให้มารดาหยุดเลี้ยงลูกด้วยนมแม่อย่างเดียวเนื่องจากมารดาต้องกลับไปทำงาน*

สรุป*: ในการศึกษาครั้งนี้พบอัตราการเลี้ยงลูกด้วยนมแม่อย่างเดียว 6 เดือนหลังคลอดมีจำนวนน้อย และส่วนใหญ่จะหยุดการเลี้ยงลูกด้วยนมแม่เมื่อหลังคลอด 2 เดือน มารดาที่อ้วนและมีระยะห่างของการดูดนม ของทารกมากกว่า 3 ชั่วโมงช่วงก่อนจำหน่ายออกจากโรงพยาบาลเป็นสาเหตุแรกที่ทำให้มารดาหยุดให้นมแม่ เมื่อหลังคลอด 2 เดือน*