
OBSTETRICS

The Effect of Early Mother-Infant Skin to Skin Contact and Suckling on Duration of Exclusive Breastfeeding: A Randomized Controlled Trial

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ABSTRACT

Objective: To compare duration of exclusive breastfeeding of mothers who contact and suckling with their child within 30 minutes postpartum, with mothers who contact and suckling with their child after 30 minutes postpartum.

Materials and Methods: Fifty term pregnant women who had normal labor for their first child at the department Obstetric and Gynecology were chosen to participate in this study. Simple random sampling method was used to assign participants into early contact and suckling group and late contact and suckling group. Data were collected from telephone interview monthly from 1-6 months postpartum.

Results: There were initially 50 participants involved in the study, 4 participants were not included due to loss contactation. The remaining 26 participants (56.5%) were in the early contact and suckling group and 20 participants (43.5%) were in the late contact and suckling group. At the first month of postpartum, 100% of mothers breastfed in both groups. The percentages of exclusive breast feeding decreased in each month from 1-6 months postpartum in both groups of participants. There was no statistically different in exclusive breastfeeding in each month between two groups ($p=0.481, 0.151, 0.300, 0.603$ and 0.492 from 2-6 months of postpartum.)

Conclusion: No statistically significant different in rate and duration of exclusive breastfeeding between early contact and suckling group and late contact and suckling group.

Keywords: exclusive breastfeeding, ten steps to successful breastfeeding, WHO

Introduction

Mother's milk plays a pivotal role in growth and development of a baby. During breastfeeding, a mother's body synthesizes and releases high level of oxytocin, a hormone known to stimulate the feeling of love and create bond between mothers and infants.

During breastfeeding, infants will communicate with the mother through eye contact, voice and touch; creating strong bond between them. This early bond building is an important foundation for healthy growth, development of body and mind⁽¹⁻²⁾.

Studies have revealed that early breastfeeding

within 30 minutes of postpartum induce synthesis and released of oxytocin in the mother that results in faster lactation than those who breastfeed at later time. Oxytocin further stimulates maternal feeling of love and bonding to infant. At the same time, oxytocin stimulates uterine contraction and involution of uterus⁽³⁾. In addition to nutritional values and inborn immunity against many diseases, breast milk aids in normal bowel movement to expel meconium from the body reducing the rate of bilirubin reabsorption and thus preventing neonatal jaundice⁽⁴⁻⁶⁾. Importantly, the first hour of postpartum is a “sensitive period” for both mother and her child⁽⁷⁻⁹⁾. It is a period where the mother has heightened sensitivity and the infant is alert, ready to suck breast milk. Sucking reflex of infants perform best during the first 20-30 minutes of postpartum⁽⁴⁻⁶⁾.

According to the importances of breastfeeding, the World Health Organization (WHO) and the United Nation Children’s Emergency Fund (UNICEF) set up practical guideline to promote healthy and successful of breast feeding. The program is called “Ten steps to successful breastfeeding”⁽⁷⁾.

One of the guidelines recommends breastfeeding initiation within 30 minutes after birth to increase the rate of lactation. E.M. Salariya et al. reported that a group of mothers who began breastfeed within 10 minutes after birth and continued breastfeeding every 2 hours, lactate faster by 24 hours than a group of mothers who began breastfeed at 4-6 hours and continued to breastfeed every 4 hours⁽¹⁰⁾.

In addition, several studies reported that early breastfeeding and early mother-infant contacts after birth increase rate of mothers raising child by breastfeeding. For example, Sosa et al., published that 72% of mothers who had contacted with their infants within 45 minutes of postpartum continue to breastfeed their children 3 months after birth with the average duration of 196 days. In contrast, only 42% of mothers in the control group, who had touched their infants after 24 hours of postpartum, remained breastfeed 3 months after birth with the average duration of 104 days⁽¹¹⁾.

De Chateau P. and Wiberg B. have reported that significantly greater numbers (58%) of mothers who had contacted their infants and breastfeed within

15-20 minutes of postpartum continued to breastfeed their infants at 3 months of postpartum, than the numbers (26%) of the mothers who did not have early contact and early breastfeed of postpartum⁽¹²⁾.

Thomson M.E. found that a group of mothers who had contacted their infants within the first hour of postpartum and began to breastfeed their infants within 15-30 minutes after birth, remained breastfeed their infants at 2 months at the rate of 60%, as compared only 20% of mothers in the control group⁽¹³⁾.

Ali Z. and Lowry M. published that 76% of mothers who had contacted with their infants 45 minutes of postpartum remained breastfeed their infants at 6 weeks of postpartum. In contrast to 49% of mothers who first carried their infants at 9 hours of postpartum. At 12 weeks of postpartum, 57% of mothers who had early contacted with their infants postpartum remained breastfeeding compared to 27% of mothers who had contacted their infants later postpartum⁽¹⁴⁾.

It can be concluded that early breastfeeding and early contact between mother-infant influences duration of exclusive breastfeeding. In practice, however, numbers of early breast feeding and mother-infant contact postpartum are low, especially in developing countries. A survey of percentage of breastfeeding within 30 minutes of postpartum found in Africa, North Africa, Asia and Latin America were only 32.5%, 35.6%, 15% and 36.6%⁽¹⁵⁾.

The published study of relationship between early suckling and duration of exclusive breastfeeding mentioned before were conducted in various country. There is, however, no report in Thailand. Therefore, the authors are interested in studying relationship between early mother-infant contact and early breastfeeding on rate of exclusive breastfeeding 1-6 months postpartum in Thailand. The study will be performed by comparing mothers who begin breastfeed and have contact with their child within 30 minutes postpartum, with mothers who begin breastfeed and have contact with their child after 30 minutes postpartum.

Materials and Methods

The proposed study carried out with randomized controlled trial qualified 50 pregnant women with normal

labor and delivery at the department of Obstetrics and Gynecology, Faculty of Medicine Vajira Hospital, University of Bangkok Metropolis from June-July 2012. The study data was collected from out-patient medical registry, in-patient medical registry, antenatal care registry, computer registry, and by telephone follows up interview on 1, 2, 3, 4, 5, and 6 months postpartum, respectively.

Inclusive criteria for the study participants were all pregnant woman who had normal labor, pregnancy term of 37 weeks or greater, and primigravida.

Exclusive criteria were infant weight less than 2,000 grams or greater than 4,000 grams, infants complicated by labor process such as prolonged PROM, neonatal sepsis, meconium aspiration syndrome and hypoglycemia, congenital anomalies such as imperforated anus, cleft lip cleft palate, Apgar score at 1 minute less than 7, contraindication for breastfeeding such as mastitis, mothers with HIV infection, tuberculosis or drug addicts, infants with metabolic diseases such as galactosemia, twin pregnancy, maternal-infant separation and nipple abnormality.

The sample size was calculated using a formula to compare two proportions. When α -error = 5% β -error = 20% and proportion from previous study by Sosa R. in the control group is 0.72 and in the treatment group is 0.42, sample size in each group is 17.5, but we use the sample size of 50 in two groups to keep in reserve for the loss follow up of the participants.

Study participants who were asked to sign informed consent forms prior to child birth were assigned by simple random sampling into two groups, early contact and suckling within 30 minutes postpartum and late contact and suckling postpartum by simple drawing. All details of demographic data, delivery process and breastfeeding were recorded by researcher. The participants were telephoned interview at 1,2,3,4,5 and 6 months postpartum. The reason to stop breastfeeding was also interviewed.

The participant was excluded from the study when she cannot be contacted for the interview. Telephone interview was stopped after the last interview at 6 months postpartum was completed, or when the participant mothers stopped exclusively breastfeeding

their infants.

Original participants in this study were 50 mothers, but telephone contact cannot be made with 4 participants. Therefore, only 46 participants remained which 26 mothers (56.5%) belonged to the early contact and suckling group, while 20 mothers (43.5%) belonged to the late contact and suckling group. (Fig. 1)

The collected data were analyzed, computed and presented in statistic forms that include mean, standard deviation, median and range using SPSS Statistics 17.0. The t-test was used to analyze the data. The two participant groups will be considered significantly different when the p-value < 0.05. (Table 4)

Result

Analysis of demographic data found that background of the participant mothers in the early contact and suckling group and the late contact and suckling group were similar in age, maternity leave, levels of education, occupation and income. Majority of mothers in both group had secondary education and high school education ($p = 0.82$). Most of the mothers worked as housewives and labors in both group ($p=0.73$). The average incomes each month for both participant groups were between 5,000-15,000 baths. (Table 1)

The average age in early and late contact and suckling group was 22.7 and 24.4 years, respectively ($p=1.3$). Maternity leave after child birth in the early and late contact and suckling group was averaged to be 2.17 and 2.29 months, respectively ($p = 0.079$). (Table 2)

The average age in the early contact and suckling group of mothers was 22.7 years, (ranging from 17-33 years), which was not significantly ($p=1.3$) different from 24.4 years, (ranging from 18-34 years) of the average age in the late contact and suckling group. (Table 2) Maternity leave after child birth in the early contact and suckling group was averaged to be 2.17 months, (ranging from 1-3 months) was not significantly ($p=0.079$) different from the averaged 2.29 months (ranging from 1-3 months) in the late contact and suckling group. (Table 2)

The rate of exclusive breastfeed at 1, 2, 3, 4, 5

and 6 months of postpartum. At 1 month postpartum, 100% of mothers in both group breastfeed their infants. At 2 months postpartum, the averaged rate of breastfeed reduced to 67.4% and there was not statistically different ($p=0.48$) in the rate of breastfeed between the two groups of participant mothers. Specifically, the early contact and suckling group of mothers had 73.1%, and the late contact and suckling group of mothers had 60%. At 3 months postpartum, there was not significant different ($p=0.12$) in the rate of breastfeed between the two groups of mothers. The rate of breastfeed in the early contact and suckling group, and the late contact and suckling group were 57.7% and 40%, respectively, with the averaged rate of breastfeed at 50%. At 4 months postpartum, the averaged rate of breastfeed by both group decreased to 26.1% with no significant different ($p=0.30$) between rate of the early contact and suckling group of mothers (34.6%), compared to the late contact and suckling group (15%). At 5 months postpartum, the averaged rate of breastfeed by both group was 21.7% with no significant different ($p=0.60$) between the rate of breastfeed in the early contact and suckling group (26.9%), compared to the late contact and suckling group (15%). At 6 months postpartum, the averaged rate of breastfeed by both group was 17.4% with no significant different ($p=0.49$) between the rate of breastfeed in the early contact and suckling group (23.1%), compared to the late contact and suckling group (10%). (Table 3 and Fig. 2) The averaged duration of exclusive breastfeed by the early contact and suckling group was 3.15 ± 1.91 months, while the late contact and suckling group was 2.40 ± 1.63 months. The averaged durations of exclusive breastfeed between the two groups were not statistically significant with $p=0.166$. Two main reasons for stopping breastfeed in the early contact and suckling group were inadequate lactation (46.1%) and return to work (23%). As same as the reasons for stopping breastfeed in the late contact and suckling group were inadequate lactation (35%) and return to work (35%). (Table 4)

Discussion

There was a greater tendency for mothers in the early contact and suckling group to exclusive breastfeed

their infants in each month following postpartum than mothers in the late contact and suckling group. Statistically, however, the rates of breastfeed at each month following postpartum were not significantly different. The averaged duration of exclusive breastfeed also seem to be longer in the early contact and suckling group than the late contact and suckling group, but not statistically significant. Early contact and suckling within 30 minutes postpartum, therefore, will be more effective than later because the infant is more alert and sensitive to stimuli⁽⁷⁻⁹⁾. The infant will communicate with the mother during suckling milk through eye contact and increases the level of oxytocin hormone. The oxytocin hormone stimulates love and bonding between mother-infant and increased confident level of pregnant women to raise their infants 3.

Two major factors influence the reduction of exclusive breastfeed in both participant groups in each month following postpartum were inadequate lactation and return to work.

The results of this study showed no statistic significant different between the mothers of early contact and suckling group and the late contact and suckling group. The limitation was that the study was carried out as an open randomized research in which the researchers, the attending nurses and the participants knew in advance which of the groups they belong to, that may lead to the bias of the study. Others factor that could affect the rate of breastfeeding were maternity leave after child birth and intention of raising children by breastfeeding. Each occupation has different duration time to return to work. Unfortunately, all of the participants' maternity leave were not exceed than three months. Therefore, future study should be carried out to rule out the effects of bias and other factors that may confound the results.

From the previous study of Sosa et al. in 40 Guatemalan women who were randomly assigned to an early contact (<45 minutes) or a control group (>45 minutes), and followed up by home visits at 3 months after birth. After 3 months, 72% in the early contact group were still breastfeeding that more than 42% in the control group but no statistical significant ($p=0.0557$). De Chateau & Wiberg studied 40 primipara in Sweden.

Mothers were randomly assigned to a control group and an intervention group which had “extra contact” (15-20 min) suckling and skin to skin contact during the first hour after delivery). At 3 months, 58% of mothers in the extra contact group were still breastfeeding compared with 26% in the control group ($p < 0.05$).

As compared with our study, we used 30 minutes for separate the early and the late groups and duration of exclusive breastfeeding for 6 months related from WHO guideline. The previous studies showed similar results that the number of the mothers who began to breastfeed and contact the infants earlier still breastfeeding more than the later group. Mothers who began to breastfeed and contact the infants earlier were also exclusive breastfeeding for longer duration than

another group, but no statistically significant between two groups.

The strength of our study was the duration of 6 months follow up which was longer than every studies and reference from the recommendation of international WHO and UNICEF guideline. The weakness of the study were “open randomization” as discuss above and the method of follow up by telephone interview which was not as precise and reliable as home or OPD visit. The useful of the study is to confirm that the early breastfeeding is useful for mothers and their infants, especially, who want to exclusive breastfeeding. Although it was not significant different due to many confounding factors and bias as mentioned above.

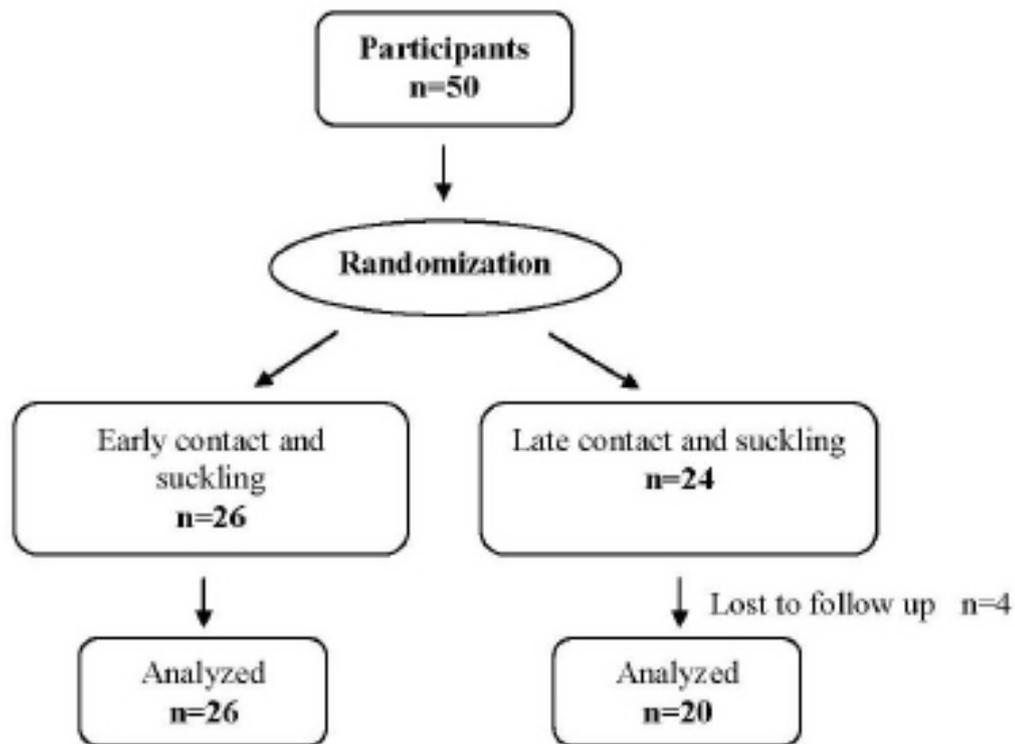


Fig. 1. Flow of the populations through the study.

Table 1. Demographic data on the study participants (N = 46)

Personal Information	Early suckling and contact (n = 26)		Late suckling and contact (n = 20)		p-value
	Number	Percent	Number	Percent	
Education					
None	1	3.8	0	0	0.826
Primary education	4	15.4	3	15	
Secondary education	8	30.8	9	45	
High school	6	23.1	5	25	
Vocational certificate	5	19.2	2	10	
Bachelor degree or higher	2	7.7	1	5	
Occupation					
Labor	9	34.6	5	25	0.73
Trader	4	15.4	2	10	
Government employee	3	11.5	2	10	
House wife	10	38.5	11	55	
Income					
< 5,000 baths	8	30.8	6	30	0.772
5,000 – 10,000 baths	7	26.9	8	40	
10,000 – 15,000 baths	8	30.8	4	20	
> 15,000 baths	3	11.5	2	10	

p < 0.05

Table 2. Personal data of the study participants (N = 46) that included age, maternity leave, postpartum time of first contact and suckling, and duration of exclusive breastfeed.

Personal Information	Early suckling and contact (N = 26)			Late suckling and contact (N = 20)			p-value
	Min-Max	Mean	SD	Min-Max	Mean	SD	
Age (year)	17-33	22.73	4.14	18- 34	24.40	5.06	0.197
Maternity leave (month)	1-3	2.17	0.937	1-3	2.29	0.951	0.794
Postpartum time of first contact and suckling (minute)	4-29	10.27	5.06	36-172	79.75	34.70	0.000***
Duration of breastfeed (month)	1-6	3.15	1.91	1-6	2.40	1.63	0.166

p < 0.05, p < 0.001***

Table 3. Comparison of Rate of exclusive breastfeed between the mothers of early contact (N = 26) and suckling group and the mothers of late contact and suckling group (N = 20).

Duration of Breastfeed (month)	Average Exclusive Breastfeed (%)	Early suckling and contact (n = 26)		Late suckling and contact (n = 20)		p - value
		Number	Percent	Number	Percent	
1	100	26	100	20	100	-
2	67.4	19	73.1	12	60	0.481
3	60	15	57.7	8	40	0.151
4	26.1	9	34.6	3	15	0.300
5	21.7	7	26.9	3	15	0.603
6	17.4	6	23.1	2	10	0.492

p < .05

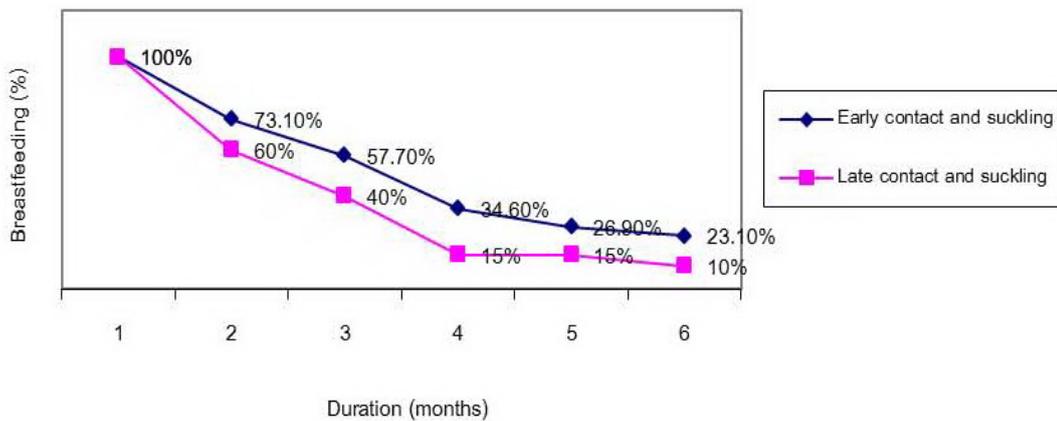


Fig. 2. Comparison of Rate of exclusive breastfeed between the mothers of early contact (N = 26) and suckling group and the mothers of late contact and suckling group (N = 20).

Table 4. Reasons to stop exclusive breastfeeding

Personal data	Early suckling and contact (n = 26)		Late suckling and contact (n = 20)		Total (n = 46)	
	Number	Percent	Number	Percent	Number	Percent
Exclusive Breastfeed	6	23	2	10	8	17.4
Inadequate breast milk	12	46.1	7	35	19	41.3
Return to work	6	23	7	35	13	28.3
Nipple crack	1	3.8	3	15	4	8.7
Infant has diarrhea	1	3.8	1	5	2	4.3

Conclusion

No statistically significant difference between early contact and suckling and late contact and suckling in the rate and duration of exclusive breastfeeding. This study found that the main reasons for the decline in the rate of exclusive breastfeeding were that the mothers have to return to work and inadequate lactation.

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ผลของการให้บุตรสัมผัสและดูคนนมเร็วต่ออัตราการให้นมบุตรด้วยนมแม่อย่างเดียว ในคณะแพทยศาสตร์วชิรพยาบาล มหาวิทยาลัยกรุงเทพมหานคร

ภรณนที ลิมปรัชตามร, เกษมสิษฐ์ แก้วเกียรติคุณ

วัตถุประสงค์: เพื่อศึกษาเปรียบเทียบอัตราการเลี้ยงลูกด้วยนมแม่อย่างเดียว ระหว่างกลุ่มแม่ที่เริ่มให้บุตรสัมผัสและดูคนนมแม่ภายใน 30 นาที เปรียบเทียบกับกลุ่มแม่ที่เริ่มให้บุตรสัมผัสและดูคนนมแม่ภายใน 30 นาทีหลังคลอด

วัสดุและวิธีการ: หญิงตั้งครรภ์ ครรภ์แรกครบกำหนดจำนวน 50 คน ที่คลอดบุตรปกติ ที่ภาควิชาสูติศาสตร์-นรีเวชวิทยา คณะแพทยศาสตร์วชิรพยาบาล มหาวิทยาลัยกรุงเทพมหานคร ถูกคัดเลือกเข้าร่วมการศึกษา โดยแบ่งผู้เข้าร่วมการศึกษากออกเป็นกลุ่มที่บุตรสัมผัสและดูคนนมแม่ภายใน 30 นาที และกลุ่มที่บุตรสัมผัสและดูคนนมแม่หลังจาก 30 นาทีหลังคลอด กลุ่มละ 26 และ 24 รายตามลำดับ จากนั้นจะมีการเก็บข้อมูลอายุ, การศึกษา, อาชีพ, รายได้, วิธีการคลอด, วันลา รวมทั้งบันทึกเวลาคลอดบุตร และเริ่มให้สัมผัสและดูคนนมแม่โดยใช้การติดตามกลุ่มตัวอย่างโดยโทรศัพท์สัมภาษณ์ที่เวลา 1, 2, 3, 4, 5 และ 6 เดือนหลังคลอด

ผลการศึกษา: ผู้เข้าร่วมทั้งหมด 50 คน แต่ไม่สามารถติดตามได้จำนวน 4 คน จึงเหลือผู้เข้าร่วมการวิจัย 46 คน เป็นกลุ่มที่สัมผัสและดูคนนมแม่ภายใน 30 นาที 26 ราย (56.5%) และกลุ่มที่สัมผัสและดูคนนมแม่หลังจาก 30 นาที 20 ราย (43.5%) พบว่าในเดือนแรกทั้งสองกลุ่มมีอัตราการให้นมบุตรอย่างเดียวยิ่ง 100% และอัตราการให้นมบุตรลดลงเรื่อยๆ ในแต่ละเดือนตามลำดับ ($p=0.481, 0.151, 0.300, 0.603$ และ 0.492 ที่ 2 ถึง 6 เดือนหลังคลอด)

สรุป: ไม่พบความแตกต่างกันอย่างมีนัยสำคัญทางสถิติของอัตราและระยะเวลาการเลี้ยงบุตรด้วยนมแม่อย่างเดียว ระหว่างกลุ่มแม่ที่ให้บุตรสัมผัสและดูคนนมแม่ภายใน 30 นาทีหลังคลอด และกลุ่มแม่ที่ให้บุตรสัมผัสและดูคนนมแม่ภายใน 30 นาทีหลังคลอด
