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ORIGINAL RESEARCH

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EFFECT OF COMBINATION OF BREAST CARE AND OXYTOCIN MASSAGE ON BREAST MILK SECRETION IN POSTPARTUM MOTHERS

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Abstract

Background: Optimal nutrition from an early age can be achieved through exclusive breastfeeding. Lack of milk production is one reason why mothers decide to give formula milk to their babies. In fact, 60% of mothers were unable to breastfeed optimally, thus, breast care and oxytocin massage are proposed to increase milk secretion in postpartum mothers.

Objective: To examine the effect of combination of breast care and oxytocin massage on breast milk secretion in postpartum mothers.

Methods: This was a quasi-experimental study with non-randomized control trial with pretest-posttest control group, conducted in the working area of the Community Health Center of Batealit of Jepara Indonesia from December 5, 2016 to January 15, 2017. There were 44 postpartum mothers recruited in this study using purposive sampling, which 22 assigned in the experiment and control group. Data were analyzed using dependent t-test and Mann Whitney test.

Results: There was a significant increase of breast milk secretion in the experiment and control group with p-value 0.000 (<0.05). In the experiment group, there was an increase of breast milk secretion from 17.09 to 220.91 cc, and in the control group there was also an increase from 17.09 to 72.00 cc. The mean difference of breast milk secretion between pretest and posttest in the experiment group was 203.82 and in the control group was 54.90 with p-value 0.000 (<0.05)

Conclusion: There was a significant increase of breast milk secretion in postpartum mothers after given the combination of oxytocin massage and breast care in the experiment group compared with the education and counseling about breast care in the control group. Thus, this result can be used as an evidence to perform oxytocin massage and breast care to increase the secretion of breast milk in postpartum mothers.

Keywords: breast care; oxytocin massage; breast milk secretion

INTRODUCTION

Adequate nutrition during infancy will promote rapid growth and development during the golden period ([Dewey, 2013](#)). Good nutritional support should be supported by opportunities for social, psychological, and educational interaction between parents and their babies. Provision of optimal nutrition from an early age can be given through the

provision of breast milk exclusively for newborns ([Dewey, 2013](#)).

Data from the United Nations Children's Fund (UNICEF) indicated that the coverage rate of early initiation of breastfeeding practices in the world was 42% ([World Health & Unicef, 2014](#)). The prevalence of early breastfeeding

initiation in Indonesia is still lower at 39%. This figure is still very low when compared to other countries in some Southeast Asian countries such as Myanmar (76%), Thailand (50%), and Philippines (54%). This indicates that early initiation of breastfeeding programs in Indonesia has not been fully implemented ([World Health & Unicef, 2014](#)).

Early lactation or breastfeeding in the first hour after birth will stimulate an increase in prolactin in the blood and peak in the first 45 minutes. If breast-milk is discharged or emptied thoroughly, it will increase milk production. Early breastfeeding may affect breastfeeding in infants up to 6 months of age (exclusive breastfeeding) ([Geneva, 2001](#)).

The results of a study in Kuwait conducted on 373 breastfeeding mothers after returning from the hospital revealed that only 111 (29.8%) of breastfeeding mothers who succeeded in breastfeeding at the beginning of labor, 205 mothers (55.0%) mixed breast milk and breastfeeding, and the rest of 57 mothers or 15.3% were given only complementary feeding ([Arora et al., 2017](#)). Other studies conducted on breastfeeding mothers in Arab showed that there was 57% of early initiation of breastfeeding, 18.9% of <6 months exclusive breastfeeding, and 49.9% of breastfeeding mothers up to one year age ([Al-Kohji, Said, & Selim, 2012](#)); while in Uganda breastfeeding in the first hours after delivery averaged 46% - 56% ([Bbaale, 2014](#)).

Chairman of Lactation Center of Indonesia (SLI), Dr. Utami Roesli said that the possibility of infant death due to various infectious diseases would be higher if a new mother does not immediately give breast milk to her baby after labor. One of the causes of infant and under-five mortality is the nutritional factor due to poor exclusive breastfeeding ([Yasmin, 2016](#)). Based on Basic Health Research (Riskesdas), the coverage rate of exclusive breastfeeding in Indonesia was only 42 percent. This is clearly below the WHO target, which requires minimum breastfeeding coverage of 50 percent ([MOH, 2013](#)).

Based on the profile of Health Office of Central Java Province showed that the

coverage of exclusive breastfeeding has increased from year to year, from 45.86% in 2011 to 49.96% in 2012, and increased to 57.67% in 2013 and 2014. However, exclusive breastfeeding coverage in Central Java is very far from the target of 80%. While according to Department of Health of Jepara showed that the coverage of exclusive breastfeeding in 2013 amounted to 66.8%, increased to 71.3% in 2014 and decreased to 69.39% in 2015. Initial breastfeeding data assessed from the implementation of early breastfeeding initiation in 2013 was 95%, and in 2014 was 99%, which has already been good because the coverage target of the initiation of breastfeeding in 2016 was 41%. Of 21 community health centers in Jepara regency, Batealit Community Health Center is the third lowest coverage of initial breastfeeding with 45.80% ([Dinkes, 2014](#)).

Based on the preliminary study at Batealit Public Health Center in April 2016, of 10 postpartum mothers, six postpartum mothers said they were not able to breastfeed maximally in the first three days after birth because milk was not released so it was assisted with formula milk, while four others stated that only a little milk production. From the results of further interviews, it was found that six postpartum mothers can breastfeed smoothly on the fourth and fifth day, while the other four postpartum mothers have been able to breastfeed from the first day postpartum.

Lack of milk production is one reason why mothers decide to give formula milk to their babies. UNICEF confirmed that infants who use infant formula have the possibility of dying in the first month of their birth, and the possibility of formula-fed infants is 25 times higher in mortality rates than breastfed infants exclusively. Research conducted at Kilimanjaro Tanzania shows that exclusive breastfeeding is effective to prevent toddler mortality up to 13% -15% ([Mgongo, Mosha, Uriyo, Msuya, & Stray-Pedersen, 2013](#)).

Failure in the breastfeeding process is often caused by several factors, such as maternal factors, infant factors, psychological factors, socio-culture, and health personnel factors. One of the main maternal factors is lack of

breast milk production, which is strongly influenced by psychological factor. Mothers who are depressed, sadness, lack of confidence and various forms of emotional tension will decrease the volume or even stop breast milk production. Lack of milk production in the first days after delivery can be caused by a lack of stimulation of prolactin and oxytocin hormones, which play a role in the smooth production of breast milk ([Widayanti, 2014](#)).

Techniques to increase breast milk production include breast care, breast gymnastics, breast massage and oxytocin massage. Breast care is the maintenance of breast to facilitate breast milk and avoid difficulties when breastfeeding by doing massage. Breast care stimulates the receptor in the ductal system, causing the duct to become wide and soft, thus releasing oxytocin from the posterior pituitary gland ([Sutrisminah & Alfiyati, 2015](#)). In addition, oxytocin massage is one solution to overcome the insufficiency of milk production. The oxytocin massage is a massage along the side of the spine to the fifth-sixth costae bone and is an attempt to stimulate the hormone prolactin and oxytocin after delivery. This massage works to increase the hormone oxytocin that can calm the mother, so that milk is also automatically out ([Suwondo & Wahyuni, 2015](#)). Previous studies showed that normal postpartum mothers who were given oxytocin massage had a faster breast milk production (6.21 hours after delivery) compared with mothers who did not receive an oxytocin massage (8.93 hours after delivery). Another study found a significant influence of oxytocin massage therapy in increasing milk production that is equal to 72% ([Ummah, 2014](#)). The results of research in Central Java showed a combination of marmet technique and oxytocin massage can increase milk production ([Karuniawati, Fauziandari, & Wulandari, 2014](#)). According to research in South Korea, the postpartum mother who performed breast care can reduce breast pain and increase milk production so as to increase the intensity of breastfeeding in infants ([Ahn, Kim, & Cho, 2011](#)). While research in China revealed that breast care through breast massage and aloe vera compresses in postpartum mothers can reduce breast pain and is more effective in increasing

milk production ([Meng, Deng, Feng, Pan, & Chang, 2015](#)).

Therefore, with the phenomena explained above and the effect of breast care and oxytocin massage, this study aimed to examine the effectiveness of breast care and oxytocin massage in increasing breast milk production in postpartum mothers in the working area of the community health center of Batealit Jepara.

METHODS

Study design

This was a quasi-experimental study with pretest-posttest control group design.

Setting

The study was conducted in the working area of the Community Health Center of Batealit of Jepara from December 5, 2016 to January 15, 2017. The area of the Community Health Center spread in 11 villages, namely: Beringin village, Bate village, Bawu village, Mindahan village, Ngasem village, Geneng village, Raguklampitan village, Samosari village, Rajekwesi village, Bantrung village and Pekalongan village.

Population and Sample

There were 44 postpartum mothers recruited in this study using purposive sampling, which 22 assigned in the experiment and control group. The inclusion criteria of the samples included: 1) A postpartum mother at the first day (1 x 24 hours), 2) Babies only got breast milk alone without any additional drinks or food, 3) Good baby suction reflexes, 4) Baby's weight > 2500 gr, and 5) Mothers did not consume herbs or breast milk supplements. The inclusion criteria included: 1) Mothers with unhealthy or emergency conditions, 2) Mothers who were smoking, and 3) Mothers with chronic energy deficiency (upper arm circumference <23.5 cm). From 11 villages in Batealit Jepara Sub-district, there were 8 villages with the number of postpartum mothers: Bringin village (6 mothers), Batealit village (9 mothers), Bawu village (5 mothers), Manti village (7 mothers), Ngasem village (5 mothers), Geneng village (3 mothers), Raguklampitan village (4 mothers), and Samosari (5 mothers).

Intervention

Intervention was given to the experiment group was the combination of breast care and oxytocin massage. Breast care was performed with soft massage techniques, and compressing and sorting on the breast and in the areola area, while oxytocin massage is a circular massage performed from the neck, scapula, until the spine (costae 5-6), performed in the morning and evening, with duration 15-20 minutes for three days conducted by researchers and enumerators. The control group was given an education and counseling about breast care.

Instrument

To measure the volume of breast milk production, breast milk pump was used manually. The volume of breast milk (cc format) was then recorded in the observation sheet developed by the researcher.

Demographic data of the mothers were also recorded including name (initials), age, education, employment and parity.

Ethical consideration

The ethical approval of the study was obtained from the Health Research Ethic Committee of Poltekkes Kemenkes Semarang with number: 031 / KEPK / Poltekkes-SMG / EC / 2017. Prior to data collection, informed consent was signed by each respondent.

Data analysis

Shapiro Wilk test was used for testing normality of data. Dependent t-test was performed for normal data distribution and Mann Whitney for non-normal data distribution. To identify difference of breast milk secretion between the experiment control group, Independent t-test was performed.

RESULTS

Characteristics of respondents

Table 1 Characteristics of respondents

Variable	Experiment group	Control group	P-value
Age (year)			
Minimum	20	18	0.758
Maximum	36	36	
Mean(SD)	27.18 (5.252)	26.68 (5.446)	
Education (year)			
Minimum	6	6	0.784
Maximum	16	16	
Mean(SD)	11.77 (2.776)	11.50 (3.036)	
Occupational status			
Employed	12	14	0.544
Unemployed	10	8	
Parity (Total)			
Minimum	1	1	0.831
Maximum	4	4	
Mean(SD)	1.91 (0.868)	1.95 (0.844)	

Table 1 shows that the average of age of the respondents was 27.18 years on the experiment group and 26.68 in the control group. The mean of education of respondents in the intervention group was 11.77 years and in control group was 11.50 years, with minimum 6 years (Elementary school) and 16 years (university level). The majority of them were employed, and multiparity with minimum 1 and maximum 2.

All variables showed p-value >0.05, which indicated that there was no significant difference of the characteristics of the respondents between the experiment and control group. It could be said that both groups were homogeneous.

Breast milk secretion in the experiment and control group

Table 2 shows that there was a significant increase of breast milk secretion in the experiment and control group with p-value

0.000 (<0.05). In the experiment group, there was an increase of breast milk secretion from 17.09 to 220.91 cc, and in the control group there was also an increase from 17.09 to 72.00

cc. It could be said the secretion of breast milk in the experiment group was better than the secretion in the control group.

Table 2 Breast milk secretion in the experiment and control group using paired t-test

Variable	Experiment group	Control group
Pretest (cc)		
Mean(SD)	17.09 (SD 5.032)	17.09 (SD 5.032)
Posttest (cc)		
Mean(SD)	220.91 (SD 54.328)	72.00(SD 28.947)
t count	18.603	8.633
P-value	0.000	0.000

Mean difference of breast milk secretion in the experiment and control group

Table 3 shows that the mean difference of breast milk secretion between pretest and posttest in the experiment group was 203.82

and in the control group was 54.90 with p-value 0.000 (<0.05). It can be concluded that the experiment group showed the higher increase of breast milk secretion compared with the control group.

Table 3 Mean difference of breast milk secretion in the experiment and control group using Mann Whitney

Variable	Experiment group	Control group	P-value
Mean difference of breast milk secretion (cc)			
Mean	203.82	54.90	0.0001
(SD)	(51.389)	(29.83)	

DISCUSSION

Findings of this study showed that there was a significant increase of breast milk secretion after given breast care and oxytocin massage. It proved that the combination of these interventions showed a significant effect on breast milk secretion. In fact, the breast milk secretion in the experiment control was higher than its secretion in the control group.

mothers 0-3 months, with average amount of milk production of 40.83 ml, with minimum of 18 ml and maximum of 65 ml (Muliani, 2013).

The combination of breast care and oxytocin massage is a combination of two methods of massage on the breast through the provision of stimuli to the muscles of the breast and back of the mother in order to provide stimulation to the mother's milk glands in order to produce milk and trigger the hormone oxytocin or let down reflex and give comfort and create a sense of relaxation in the mother. The combination of these two methods leads to increased breastfeeding production through touch stimulation of the breast and the mother's back, which will stimulate the production of oxytocin causing a contraction of myophitel cells (Muliani, 2013). This is in line with research in Tegal revealed that front and back massage of the breast can affect the increase of breastfeeding production in

This is also consistent with the previous study showed that most of postpartum mother have a very good breast milk secretion after given breast care (Safitri, Wijayanti, & Werdani, 2016). This was supported by research that there was a significant relationship between breast care in postpartum mother with the smooth breast milk secretion (Rosita, 2017). In addition, the movement in breast care is very effective to increase the volume of breast milk, but it is useful to launch reflexes of breast milk secretion, and prevent dam in the breast. It proves that breast care can increase milk production (Latifah, Wahid, & Agianto, 2015). In addition to breast care, oxytocin massage gives another positive effect on breast milk secretion in this study. It is in line with the previous study showed that there was an increase of breast milk secretion (283.73 ml) in the mothers who were received oxytocin massage compared with those who were not received oxytocin massage (221.35

ml) ([Widiyanti, Setyowati, Sari, & Susanti, 2014](#)). Another study revealed that the oxytocin massage for at least 2 hours could accelerate breast milk secretion. It was also found that the amount of colostrum released by postpartum mothers after given oxytocin massage was 5.333 cc in average while in the control group was 0.0289 cc in average ([Wulandari, Aminin, & Dewi, 2016](#)). Study in Makassar revealed that there was a significant correlation between oxytocin massage and breast milk secretion in c-section mothers ([Gustriani, 2015](#)).

In this study, there was also an increase of breast milk production in the control group, which is in line with the theory stated that from the first until the third day of postpartum, the breast milk secretion is still lack because of high level of estrogen and progesterone, and the next days these hormones will be lower thus the breast milk will be more produced. Biochemical markers indicate that the lactogenesis II process begins about 30-40 hours after delivery, but usually new mothers feel full breasts about 50-73 hours (2-3 days) after delivery ([Soetjijingsih, 2007](#)). Thus, it is the true that breast milk is not directly produced after childbirth.

Limitations of the study

This study did not control the psychological factor of the mothers, the frequency of breastfeeding babies, nutrition patterns in postpartum mothers, and the enumerator that might affect the outcome of the intervention.

CONCLUSION

There was a significant effect of the combination of oxytocin massage and breast care in increasing breast milk secretion in postpartum mothers in the working area of the Community Health Center of Batealit of Jepara. Thus, this result can be used as an evidence to perform oxytocin massage and breast care to increase the secretion of breast milk.

Declaration of Conflicting Interest

None declared.

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Author Contribution

All authors contributed equally in this study.

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