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Research Paper

THE EFFECTIVENESS OF NECK MASSAGE IN INCREASING PUERPERAL MOTHERS' BREAST MILK QUANTITY FROM DAY ONE TO DAY THREE IN BANTUL

Lisa Putri Utami Damanik || Department of Applied Midwifery of Stikes Guna Bangsa Yogyakarta Indonesia.

ABSTRACT **Objectives: The common problem is that the mother experiences interrupted production of breast milk during day one to day three. Neck massage and pectoralis major muscles massage muscles massage have been proven to be effective in milk production but there is yet any information explaining about which of neck massage and pectoralis major muscles massage that is more effective in increasing the quantity of breast milk. The study is to investigate the effectiveness of neck massage in increasing the number of puerperal mother's milk during day one to day three in Bantul using pre-experiment, the static group comparison design research method. The samples of the research are 27 respondents in the group of neck massage, 27 respondents in the group of pectoralis major muscles massage. Methods: The sampling technique used Propotionate Systematic Random Sampling. The massage was done once a day in 15 minutes for 3 days. The data were analyzed using Mann Whitney. The sampling results of this study discovered that the majority of respondents are 21-23 years old with normal nutritional status and have more than one child. Results: It was obtained that p-value of 0.000 ($p<0.05$) shows that neck massage has a significant effect on increasing the quantity of puerperal mother's milk on day one to day three in Bantul. This research discovered that neck massage is more effective than pectoralis major muscles massage in increasing puerperal mother's milk from day one to day three in Bantul. Conclusion: After researched that neck massage is effective in increasing the quantity of puerperal mother's milk in Bantul. And neck massage is more effective than pectoralis major muscles massage in increasing puerperal mother's milk production from day one to day three in Bantul.**

KEYWORDS :Knowledge; Attitude; Baby Massage.

INTRODUCTION

Breast milk is the most perfect baby food in terms of quality and quantity through proper breastfeeding management. Breast milk as a single food will be sufficient to satisfy the needs of normal infant growth until the age of six months. Breast milk given 30 minutes after birth upto 6 months without additional liquids is called exclusive breastfeeding, due to its protective factors and appropriate nutrients in breast milk that ensures nutritional status of the baby and declines infant mortality rate and illnesses [1]. According to the data of Central Bureau of Statistics (BPS) in 2013, Infant Mortality Rate (IMR) in world is 34 per 1000 live births, in developing countries the IMR is 37 per 1000 live births and in developed countries the IMR is 5 per 1000 live births. While in East Asia, the IMR is 11 per 1000 live births, in South Asia the IMR is 43 per 1000 live births, in Southeast Asia the IMR is 24 per 1000 live births and in West Asia the IMR is 21 per 1000 live births [2]. In Indonesia, the IMR in 2016 is 25.5 per 1000 live births. Sustainable Development Goals (SDGs) targeted that until 2030, the IMR will be 12 per 1000 live births. One of the main causes of infant mortality rate and illnesses in Indonesia is diarrhea and infection, whereas diarrhea and infectious diseases can be prevented by breast feeding the baby. Colostrum is the breast milk produced on the first day until the third day after the birth of the baby. Colostrum is consumed by the baby before consuming the actual breast milk. Colostrum contains white blood cells and antibodies which is higher than the actual breast milk, especially high in the level of passive A (IgA), which help encapsulate baby's tensile bowels and prevent germs from attacking the baby [3]. Based on the report of Indonesia Demographic and Health Survey (IDHS) in 2015, exclusive breastfeeding rate in Indonesia was 55.7%. A report from Yogyakarta Provincial Health Office in 2015 revealed that the rate was 71.6%. In Bantul, one of the regencies in D.I Yogyakarta, the exclusive breastfeeding rate was 74.73%, this breastfeeding coverage still has not reached the national target of 80% as expected by the government.

From the research conducted by Permana, it was discovered that one of the causes that leads to the failure of exclusive breastfeeding is due to the breast milk adequacy [4]. The common problem is that the mother experiences interrupted production of breast milk during day one to day three. In a preliminary study conducted in a Maternal and Child Health Hospital (MCHH) Ummi Khasanah Bantul and Local Public Hospital (LPH) Panembahan Senopati Bantul, it was discovered that there are 19 puerperal mothers. Fifteen out of nineteen mothers complain about interupted breast milk production especially on day one to day three, all the while, MCHH Ummi Khasanah Bantul and RSUD Panembahan Senopati Bantul has been applying breast care technique. Ipang Suryani conducted a research and found that neck massage and pectoralis major muscles massage have benefits for breast milk production of puerperal mothers [5]. A research conducted by Nurcahayati [6] revealed that there are benefits of massage the neck for breast milk production of puerperal mothers. From the Intarti's research results, it was also revealed that there is the effectiveness of muscles strengthening therapy of the pectoralis major and pectoralis minor in breast massage in milk production of the puerperal mothers [7]. Neck massage and pectoralis major muscles massage have been proven to be effective in milk production but there is yet any information explaining about which massages is more effective in increasing the quantity of breast milk. Theoretically speaking, neck massage is more effective in breast milk production [8]. Based on the above phenomenon, we are interested to do a research entitled "the effectiveness of neck massage in increasing puerperal mothers' breast milk quantity on day one to day three in Bantul". Thus, the research results can be analyzed and made as a reference in which neck massage is more effective than pectoralis major muscles massage in increasing the quantity of puerperal mothers' milk from day one to day three so that the production of mother's breast milk is uninterrupted and the baby receives exclusive breastfeeding.

Methods

Tools and materials

The data were collected using SOP neck massage and SOP pectoralis major muscles massage, breast pump and syringe (1 cc, 3 cc, 5 cc).

Research Procedures

This research is a quantitative type research using pre- experimental method with static group comparison design [9]. The respondents consist of two groups divided into experimental group (the respondents are given neck massage for 15 minutes) and comparison group (the respondents are given pectoralis major muscles massage for 15 minutes). The study was conducted at two hospitals, namely Maternal and Child Health Hospital Ummi Khasanah Bantul and Local Public Hospital Panembahan Senopati Bantul from December 2017 to February 2018. The study was conducted for three days and each of the respondents was given massage one time for the duration of 15 minutes. On a monthly average, the population of puerperal mothers at MCHH Ummi Glossary Bantul is 25 persons after

cesarean birth and an average population of puerperal mothers at RSUD Panembahan Senopati Bantul is 55 persons after cesarean birth. By using equations from the calculation results, the sample size obtained is 52 respondents and the sample per group is 26 respondents. The sampling technique used in this research is Systematic Proportionate Random Sampling [10]. The independent variable (free) in this research is neck massage and pectoralis major muscles massage [10]. The dependent variable (bound) is the production of breast milk of puerperal mothers. While the disturbing variable is the mother's characteristics such as her age, nutritional status and parity (number of children). The data were analyzed in two stages; first is univariate analysis which is aimed at investigating the frequency distribution of each respondent. Second, bivariate analysis which is aimed at discovering the effectiveness of neck massage in increasing the quantity of puerperal mother's milk from day one to day three. The statistical test used was Mann Whitney test.

Results and Discussion

Based on the number of respondents of 54 breastfeeding moms from day one to day three, the respondents' ages from both groups are between the ages of <25 years and >35 years and in majority the total respondents at the age of 21-35 years (healthy reproduction) are 39, where the age of 21-35 is a safe age to control fertility for the processes of pregnancy, childbirth and lactation and to get healthy babies. Based on the nutritional status of 54 respondents, the average number of respondents with normal nutritional status is 31 respondents where it means that the needs of maternal nutrition during pregnancy is adequately fulfilled and 18 respondents were classified into thin category. Based on parity distribution from 54 respondents, it was discovered that on average 31 respondents reported to have children more than 1 and 23 respondents reported to have 1 child. Based on the research results of the effect of neck massage in increasing the quantity of puerperal mother's milk from day one to day three based on data analysis of experiment group and comparison group, it was obtained that the get p-value is 0,000, thus concluding that neck massage is more effective than pectoralis major muscles massage in increasing the production of puerperal mother's breast milk from day one to day three. The production of breast milk under the controls of neuroendocrine, tactile stimuli on the breast which also stimulates oxytocin causes the shrinking of myoepithelial cells [11]. Massage carries many benefits for people with extreme fatigue since its effects are soothing, sedative and provides stimuli on the nerves and increase muscles activity [12]. Neck massage provides relaxation to puerperal mothers when lactating, in a relaxing state, the hypothalamus will produce endorphin hormone where it gives soothing effect on breastfeeding mothers which allow them to maintain milk production so as to ensure sufficient food for baby, with massage nerves cells are stimulated, simpathetic nervous and parasympathetic nervous system are activated, the massage also stimulates hypothalamus and anterior pituitary to remove the prolactin hormone and oxytoxin in the blood. Where the oxytocin hormone has a role in increasing breastmilk production [3]. Neck massage can reduce pain for lactating mothers and help muffle emotional stress, with neck massage stimulates soothing endorphins so that oxytocin and prolactin are generated. Prolactin stimulates breast milk production, but another hormone is required in order to discharge milk to the nipple's surface. Areolar mecanoreseptor stimulation will activate nerves pathways up to the hypothalamus paraventricular nucleus and supraoptic nucleus, through lateral cervical nerves of brainstem. This nerve path secretes magnocelluler neuron to discharge oxytoxin pulsatilla into the blood at the interval of 10-20 minutes [13]. Neck muscles (suboccipital muscles) is nerved by suboccipital nerve branch of cervical nerves and breast muscles (Musculus pectoralis major) is nerved by medial pectoral lateral nerve (pleksus brakialis pars infraklafikularis (C5-T1). The close proximity of neck to head and chest with the action of semispinalis muscles causing simultaneous contraction will accelerate blood supply that carries oxytocin and prolactin. The blood is supplied to neurohypophysis through two inferior hypothalamic arteries which are the branches of internal carotid artery, then entering neurohypophysis and forming capillary webs. The vein flows through hypothalamic vein into the dural sinuses. The blood supply to the hypothalamic is not directly through superior hypothalamic artery (branch of internal carotid artery) then entered the middle part of hypothalamus buldge and infundibulum stalk to form the first capillary webs. Through this system, the hormone produced in the hypothalamus is directly transferred into adenohipofisis without entering big blood circulation. Neurohipotalamus secretes two neurohormons, namely oxytocin and antidiuretic (ADH) which are directly transported along the axon and stored in neurohipofisis. The pituitary does not have direct nerve relation with hypothalamus. Anterior pituitary hormone is released based on a signal from hypothalamus, but through vascular relationship [14]. The hypothalamus controls the secretion of prolactin by sending prolactin-inhibiting factor to pituitary through portal circulation. Basal section of hypothalamus secretes dopamine to portal system and affects anterior hypophysis. Dopamine is tied to lactotropic cells and supprreses the secretion of prolactin to circulation, without this dopamine, the prolactin will still be secreted. Dopamine is tied to G protein-coupled receptor which is long and short, but only the receptor D2 (long) is located on lactotrof. When the neck is given the massage, then suboccipital nerves will stimulate the hypothalamus to suppress dopamine excretion so that the anterior hypophysis produces prolactin and oxytoxin hormones. Anatomically, the chest has pectoralis major muscles. The role of this muscle is to bring blood circulation to the smallest muscles in the breast. By strengthening this muscle, the muscles around blood vessels are slackening (relaxed) and the diameter of the blood vessels is widened, as a result the blood flow that carries nutrients for breast milk production is uninterrupted [8]. If we see the difference of anatomical layout between neck and pectoralis major muscles, when neck massage is given, a stimuli is delivered to the hypothalamus through lateral cervical nerves of brainstem, while massage given in pectoralis major muscles is through portal system of blood vessels. It is therefore recommended to respondents at MCHH Ummi Khasanah Bantul and Local Public Hospital Panembahan Senopati Bantul that it is important to keep lactating their babies as often as possible and give self- massage to the neck at home in order to improve milk quantity and quality so that milk supply for the baby is adequate and the baby can get exclusive breastfeeding **(Tables 1-5)**.

Table 1 Respondents' characteristics in Bantul.

Characteristics	Experiment	Comparison	P
N	%	N	%
	Healthy reproduction		

		21	38.50%			
		Age				
				Old reproduction		

Nutritional status	Thin	9	16.70%
	Normal	16	29.60%
	Fat	2	3.80%
Parity	Primipara	16	29.60%
	Multipara	11	20.40%

6 11.10% 9

The majority of respondents with healthy reproduction is on the experiment group as many as 21(38.5%) respondents while the comparison group is 18 (33.3%) respondents. In terms of nutritional status, the majority of each group with normal nutritional status is the experiment groups as many as 16 (29.6%) respondents and the comparison group is as many as

with 15 (27.8%) respondents. Based on parity of experimental group primipara majority is as many as 16(29.6%) respondents and in comparison group, multipara majority is as many as 20(37%) respondents

group is 1.317, the quantity of breast milk on day two is 10,79537, the quantity of breast milk on day three is 28.719. Mean or an average value of the quantity of breast milk on day one after pectoralis major muscles massage is given is 0.481, the quantity of breast milk on day two is 0.6111 and the quantity of breast milk on day three is 2.081. The standard deviation on the experimental group namely, the quantity of breast milk on day one is 0.05798, the quantity of breast milk on day two is 0,51986 and the quantity of breast milk on day three is 1.3223.

Table 2 Normality test results.

Variables	Mean	SD	P-value
The quantity of breast milk day 1	0.4519*	1	0
The quantity of breast milk day 2	3.7731	8.2151	0
The quantity of breast milk day 3	16.3017	24.72	0

*Kolmogorov-Smirnov Test. 0.05 level of significant.

Normality test results using Kolmogorov-Smirno, it was obtained that the quantity of breast milk day 1 is p-value=0,000 <sig 0.05, the quantity of breast milk day 2 is p-value=0,000 <sig 0.05, the quantity of breast milk day 3 is p- value=0,000 <sig 0.05, thus it can be concluded the data are not normally distributed.

Table 3 A v er ag e br eas t milk quantity on experimental group and comparison group in Bantul.

Group	N	The quantity of breast milk day	The quantity of breast milk day 2	The quantity of breast milk day 3
	Mean	SD	Mean	SD	Mean
Neck massage neck	27	0.856	1.317	6.9352
Pectoralis major muscles massage	27	0.481	0.05798	0.6111

The quantity of breast milk production on day one after neck massage is given is 0.856, the quantity of breast milk on day two is 6.9352 and the quantity of breast milk on day three is 30,5259. The Standard deviation for the quantity of breast milk on day one by the experimental

Table 4 The difference between experimental group and comparison group.

Group	Average breast milk quantity	P-value
Experimental	27	39.44
Comparison	27	15.56

*Mann Whitney test. 0.05 level of significant.

The analysis results in this research is p-value= 0<sig 0.05, which means that there is a significant difference between neck massage and pectoralis major muscles massage. It is concluded that neck massage is more effective than pectoralis major muscles massage in increasing breast milk production of puerperal mothers from day one to day three.

Table 5 Bivariate analysis of confounding variable.

Confounding Variable	Average breast milk quantity	P-value
Mean	Std	
Age		
Healthy reproduction	27.92	0.452
The reproduction of the elders	26.4	
Nutritional status		
Thin	28.5	
Normal	26.81	0.612
Fat	28.2	
Parity		

Primipara	27.26	0.499
Multipara	27.68	
*0.25 level of significant. It was obtained that the age variable has p-value 0.71 > sig 0.25, nutritional status variable has p-value 0.955 > sig 0.25 parity variable has p-value 0.911 > sig 0.25. Therefrom, it can be concluded that the variables of age, nutritional status and parity did not confound with increasing the quantity of puerperal mother's milk from day one to day three in Bantul.		

CONCLUSION

After conducting a research entitled "The Effect of neck massage on increasing the quantity of puerperal mother's milk from day one to day three in Bantul", based on the analysis, it is concluded that neck massage is effective in increasing the quantity of puerperal mother's milk in Bantul. And neck massage is more effective than pectoralis major muscles massage in increasing puerperal mother's milk production from day one to day three in Bantul.

ref_str

1. **Walyani ES, Purwoastuti E (2015)** Midwifery care during childbirth and breastfeeding. Yogyakarta: New Library Press.
2. **Statistics Center,** National Family Planning Coordinating Board, Ministry of Health, & Macro International (2013) 2012 Indonesia Demographic and Health Survey.
3. **Roesli U (2009)** Know Exclusive ASI. Jakarta: Puspa Swara.
4. **Central Statistics Agency (2015)** Infant mortality rate.
5. **Suryani I (2014)** Benefits of nape and massage pectoralis major muscle for expulsion of breast milk in postpartum mothers. pp:41-45.
6. **Nurchayati (2012)** Benefits of massaging nape on the expulsion of ASI in postpartum mothers in cilacap hospital.
7. **Intarti WD, Savitri NPH (2015)** The effectiveness of adding pectoralis major and minor muscle strengthening therapy to breast massages on breastmilk production. Midwifery Scientific J 6: 1-11.
8. **Ganong FW (2013)** Medical physiology textbook: Review of medical physiology. Bram U. Pendit. (N. Andita, Ed.) Jakarta: EGC.
9. **Sulistiyaningsih (2012)** Quantitative-qualitative midwifery research methodology. Yogyakarta: Graha Ilmu.
10. **Sugiyono (2012)** Quantitative Research Methods Qualitative and R & D (17th edn.). Bandung: Alfabeta.
11. **Myles (2009)** Midwifery Textbook: Myles Textbook for Midwives. (14th edn.). Fraser D, Karyuni PE (Eds.). Jakarta: EGC.
12. **Trisnowiyano B (2014)** Basic massage skills. Yogyakarta: Nuha Medika.
13. **Ward PJ, Clarke RW, Linden RW (2007)** At a glance physiology: physiology at a galance. Safitri A, Astikawati A (Eds.). Jakarta: Erlangga.
14. **Sloane (2003)** Anatomy and physiology for beginners. Jakarta: EGC.

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