

INCREASING PRODUCTION OF BREAST MILK WITH OXYTOCYN MASSAGE USING INNOVATIONAL MASSAGE

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INCREASING PRODUCTION OF BREAST MILK WITH OXYTOCYN MASSAGE USING INNOVATIONAL MASSAGE

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ABSTRACT

Background: Global commitment to the 2015-2030 Sustainable Development Goals (SDGs) program which is a continuation of the 2000-2015 MDGs (Millennium Development Goals) program. In the 3rd program goal, which is to ensure a healthy life and promote well-being for all people at all ages, the 2nd achievement indicator targets by 2030, ending preventable infant and under-five mortality, with all countries trying to reduce the Neonatal Mortality Rate by at least up to 12 per 1000 KH and Toddler Mortality Rate 25 per 1000 KH. Infant mortality cases caused by nutritional factors reached 53%. Some diseases that arise due to malnutrition include pneumonia (13.2%), diarrhea (17.2%) and perinatal problems (36%). Breast milk is the best food for babies and has the right balance of nutrients, is bioavailable, easy to digest, protects babies from disease, and has anti-inflammatory properties.

Subjects and Method: This study uses a quasi-experimental method (Quasi Experiment) with a one group pre and post test design. Measurements were made using an observation sheet (milk production) then given intervention (oxytocin massage) with a combination method of innovative massage tools in the treatment group and conventional efflurage methods in the control group, followed by evaluation using an observation sheet (milk production). The results of this evaluation were then compared with the results of measurements before the intervention was given.

Results: Characteristics of respondents based on age most are in the range of 20 - 30 years as many as 27 respondents (90%) with normal BMI criteria in the range 18.5 - 22.9 as many as 23 respondents (76%) the majority of delivery status is primiparous as many as 20 respondents (66%). Screening of respondents' psychological stress levels using the Perceived Stress Scale (PSS) obtained the majority of respondents, namely 17 respondents (56%) experiencing moderate stress. The frequency of breastfeeding respondents in 24 hours on average is 8-12 times breastfeeding as many as 21 respondents (70%). The statistical results of measuring the volume of breast milk before and after oxytocin massage with the oxytocin massage method, respectively, using the innovative massage tool method, the conventional Efflurage method, obtained P values of 0.002 and 0.005 with 95% CI.

Conclusion: Many methods can be used to stimulate milk production in postpartum mothers. One of the most commonly used methods is lactation massage, also known as oxytocin massage. Oxytocin massage that is done properly and correctly is proven to increase milk production through the let down reflex mechanism. Stimulus of breast milk production given early in the post partum period has been shown to increase milk production in the early weeks of post partum.

Keywords: Oxytocyn Massage, Breast Milk Production, Innovative Massage Tools

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BACKGROUND

The Infant Mortality Rate (IMR) in Indonesia continues to decline every year. However, there is still a long way to go to combat AKB. The results of the Indonesian Demographic and Health Survey (IDH¹⁹) show that from year to year the IMR ¹⁹ decreased significantly. From 68 deaths per 1,000 live births in 1991, to ¹⁷ 2 deaths per 1,000 live births in 2017. Global commitment to the 2015-2030 Sustainable Development Goals (SDGs) program which is a continuation of the 2000-2015 MDGs (Millennium Development Goals) program. In the third program goal, which is to ensure a healthy life and promote well-being for all people at all ages, the second achievement indicator is targeting by 2030 to end preventable infant and under-five mortality, with all countries trying to reduce the Neonatal Mortality Rate ³⁰ by at least up to 12 per 1,000 live births and the Toddler ³ Mortality Rate 25 per 1,000 live births. [1]

The infant mortality rate in Indonesia is mostly related to nutritional factors, reaching 53%. Some diseases that arise due to malnutrition include pneumonia (13.2%), diarrhea (17.2%) and perinatal problems (36%). Statistics also show that more than 70% of under-five deaths are caused by diarrhea, pneumonia, measles, malaria and malnutrition. According to data from the Indonesian Ministry of Health in 2018 as many as 78.5% of neonatal deaths occurred aged 0-6 days with most of the causes of death preventable and treatable. [2]

Exclusive breastfeeding (ASI) is able to ²⁶ reduce infant morbidity and mortality in cases of infant mortality that occur in both low- and middle-income countries. Optimal breastfeeding can prevent 1.4 million deaths worldwide in children under five every year and reduce deaths due to acute respiratory infections and diarrhea by 50–95%. Suboptimal breastfeeding causes 45% of neonatal deaths due to infectious infections, 30% of deaths due to diarrhea, and 18% of deaths due to acute respiratory distress in children under five years of age ¹⁶ in developing countries. [3][4][5]

Oxytocin massage is one solution to overcome the inability to produce breast milk. Oxytocin massage is done by massaging the back area along both sides of the spine so it is hoped that with this massage the mother will feel relaxed and fatigue after giving birth will disappear. If the mother feels

comfortable, relaxed, and not tired, it can help stimulate the release of the hormone oxytocin and milk will come out quickly. Oxytocin massage is an act of spinal massage starting from the 5-6th nerves to the scapula which will accelerate the work of the parasympathetic nerves to convey commands to the back of the brain so that oxytocin comes out. Oxytocin massage is done to stimulate the oxytocin reflex or let down reflex. In addition to stimulating the let down reflex, the benefits of oxytocin massage are to provide comfort to the mother, reduce swelling, reduce breast milk blockage, stimulate the release of the hormone oxytocin, and maintain milk production. [6][7][8][9]

Oxytocin can trigger anti-stress-like effects such as lowering blood pressure and cortisol levels. It raises the pain threshold, exerts an anxiolytic-like effect and stimulates various types of positive social interactions. The hormone oxytocin is a hormone that can be stimulated by physical activity in the form of touching the skin in the form of warm gentle pressure such as in the mother's back massage or during breastfeeding. The release of the hormone oxytocin in nursing mothers is characterized by the following: 1. There is a throbbing sensation in the breast when the mother feeds her baby, 2. Milk that automatically flows from the other breast when the mother feeds the baby, 3. The milk that flows profusely when the breastfeeding process suddenly stops, 4. The baby calmly sucks the nipple and swallow breast milk slowly, 5. Breast milk that automatically drips or flows from the breast when the mother relaxes by remembering her baby or hearing the baby cry, 6. The mother feels a pain sensation in the uterus because of the smooth blood flow, 7. The mother feels thirsty when she is breastfeeding her baby.[8]

By doing proper oxytocin massage and according to needs, a very favorable condition will be obtained for both mother and baby because the effect of oxytocin release not only increases the feeling of relaxation in the mother but also feels comfortable in the baby because proper nutrition can be fulfilled properly. In the end, the condition of the mother and baby will be much calmer, the mother's pain threshold will increase, the mother's cortisol level will decrease, there will be a good emotional closeness between the mother and baby.[10] The purpose of this study was to analyze the difference in breast milk volume before and after mothers received oxytocin massage with the Effleurage technique and using innovative massage tools.

SUBJECT AND METHODS

1. Study Design

This type of research is a quasi experiment with a non-RCT design, pretest posttest design. Analysis of the data per treatment and control groups using a different test T-Test with 95% CI.

2. Population and Sample

The subjects in this study were all post partum women on days 1 to 14 in the city of Kediri, East Java. The research subjects were obtained by using purposive

sampling technique. The inclusion criteria in this study were all post partum women on days 1 to 14 with the condition of term babies and the age range of 20-35 years to get a homogeneous group. While the exclusion criteria in this study were postpartum mothers with psychiatric disorders and babies died.

13 Study Variables

The dependent variable in this study is the amount of milk production. The independent variable is the type of oxytocin massage treatment effleurage technique, and combination of oxytocin massage effleurage technique and innovative massage tool.

4. Operational Definition of Variables

Type of treatment oxytocin massage effleurage technique, and combination oxytocin massage effleurage technique and massage tools innovation is defined as treatment of postpartum mothers day 1 to 14 with oxytocin massage method conventional efflurage and with a combination of tools massage innovation that done by practitioners as much as 1x a day with duration of each 10 minutes. Breast milk volume is defined as the amount of milk that generated within 24 hours, measured before the baby breastfeeding or at least 2 hours after feeding previously used restore production breast milk in volume before feeding to the baby, both breasts are pumped for ± 30 minutes @ ± 15 minutes or until the milk is no longer dripping with an additional time of ± 2 minutes.

5. Study Instruments

Oxytocin massage treatment data was measured by a record form. Massage using conventional efflurage is done in the morning or evening with the mother relaxed, not hungry and allows oxytocin massage for 10 minutes. It was carried out once in the 4th to 14th day post partum and controlled by respondents who received oxytocin massage using an innovative massage tool.

The results of pumping breast milk are measured using a measuring tube in ml and then the results are entered into the record form. Breast milk pumping was not carried out on the first day until the 3rd day postpartum because it was related to the lactogenesis period I. Breast milk was pumped when the breasts were full after oxytocin massage, both for respondents who had conventional massage or using innovative massage tools. In each respondent, both groups who received oxytocin massage with the conventional efflurage method and used massage tools, their milk production was also measured when not given massage treatment so that they could compare the volume of breast milk before and after the oxytocin massage action.

6. Data analysis

Analysis of data per treatment and control groups using a different test T-Test with CI 95%.

7. Research Ethics

This research proposal has been presented in front of the examiners of the research ethics committee and received approval from the ethics committee of the Karya Husada Pare Health School – Kediri in July 2020.

RESULT ²⁷

1. Sample Characteristics

The characteristics of the subjects in this study are described in table 1 below. Subjects consisted of 30 post partum women on days 1 to 14 with an age range from 20 to 35 years.

Table 1. Characteristics of the Study Subject

Characteristics	Criteria	Efflurage conventional		Innovative massage tool		Control	
		n	%	n	%	n	%
Age (year)	20- 30	9	90%	9	90%	9	90%
	> 30	1	10%	1	10%	1	10%
Education	SD	2	20%	0	0%	1	10%
	SMP	4	40%	2	20%	4	40%
	SMA	4	40%	5	50%	3	30%
	PT	0	0%	3	30%	2	20%
Profession	Employee	2	20%	4	40%	3	30%
	Unemployment	8	80%	6	60%	7	70%
BMI	< 18,5	1	10%	2	20%	2	20%
	18,5 – 22,9	6	60%	5	50%	7	70%
	≥ 23	3	30%	3	30%	1	10%
Parity	Primipara	4	40%	5	50%	5	50%
	Multipara	6	60%	5	50%	5	50%
Perceived Stress Scale (PSS)	Light	5	50%	4	40%	4	40%
	Moderate	5	50%	6	60%	6	60%
	Heavy	0	0%	0	0%	0	0%
Breastfeeding frequency	8-12 x	7	70%	6	60%	8	80%
	> 12 x	3	30%	4	40%	2	20%

Based on the table of respondent characteristics above, it was found that there were respondents with a total number of 30 respondents who were divided into 10 groups of massage treatment with the conventional Efflurage method, 10 groups with massage treatment using a combination of innovative massage tools and 10 control groups of respondents. Each group of respondents received pre and post treatment. Based on the respondent's characteristic table which includes criteria, number and percentage, the majority of respondents are aged in the treatment group (conventional Efflurage and innovative massage tools) and the control group, 90% of respondents are aged between 20 - 30 years. While the education of the majority of respondents in all groups is high school graduates with the predominance of work as housewives. Body Mass Index (BMI) of the majority of respondents in the range 18.5 – 22.9, which means that the majority of respondents have good nutritional status. 60% of the respondent groups treated using conventional Efflurage massage techniques were multiparous, while the treatment group using conventional massage tools and the control group were evenly distributed both primiparas and multiparas.

2. Bivariate Analysis

Differences in breast milk production between ²³ treatment group (conventional Efflurage and innovative massage tools) and the control group will be shown in table 2. From the results of the analysis of the 1 group

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 difference test in each method, it is found that the difference in milk production in the massage group using the conventional and Innovative massage tools were obtained P value 0.05, which means that massage treatment using the conventional Efflurage method and the innovative massage tool had an effect on increasing breast milk production in both groups. However, statistical testing in these two treatment groups showed that the upper and lower Post values in the massage group using innovative massage tools were higher than the post values in the conventional Efflurage group with differences in milk production up to 50cc in expressing breast milk after massage. While the pre and post milk production in the control group obtained P value = 0.256 or not significant.

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Table 2. Bivariate analysis of breast milk production between treatment and control groups

Variable	Efflurage Conventional			Innovative massage tool			Control		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Pre	10	108,70	10,7	10	101,3	29	10	107	24,5
Post	10	150	18,9	10	161,4	74	10	110	19,5
Scor p*	0,001			0,005			0,256		

(*testing using T-test)

Table 3. Comparison of the average milk production in the Efflurage, Innovative massager and control groups

Uji	Efflurage Conventional				Innovative massage tool				Control			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Pre - post	42	5,29	62,8	21	60	51,8	97	23	3,4	8,8	9,7	2,9

(*testing using T-test)

DISCUSSION

The results of this study indicate that both respondents who received oxytocin massage treatment with the conventional Efflurage method and a combination of innovative massage tools obtained significant results on breast milk production. in the lactation process because it has been shown to increase milk production.

Massage therapy is known as the most ancient therapy in the world of medicine which is then included in complementary therapy in nursing and midwifery practice. This therapy is very popular to be applied because it is a non-pharmacological therapy that is easy to implement, safe for patients and relatively inexpensive and is not an invasive action to clients. Massage can affect the central nervous system by releasing substance B in the nervous system such as endorphins and encephalins and preventing the release of substance P (neurotransmitters) so that it can reduce stimulation of the sympathetic nervous system and increase stimulation of the parasympathetic nervous system as a result, heart rate and respiratory rate become reduced and regular so that circulation blood and lymph system becomes smoother. Decreased sympathetic nerve activity after childbirth can cause a feeling of relaxation and comfort in the mother, reduce anxiety, reduce pain due to childbirth, prevent post partum blues and increase the emotional bond between mother and baby.[13][14][15]

Oxytocin hormone has an important role in the lactation process, especially in the process of expulsion of breast milk through contraction of myoepithelial cells in breast tissue. The presence of oxytocin receptors on each epithelial cell indicates that the hormone oxytocin has its own role in mammalian breast organs. Oxytocin is a small peptide compound consisting of only 9 amino acids which is usually associated with the process of childbirth and breastfeeding. Oxytocin is not only a hormone but is a neurotransmitter and paracrine substance in the brain. During the breastfeeding process, this substance will be released by the brain in both the mother and baby due to stimulation and stimulation.[9][8]

Oxytocin massage is an act of spinal massage starting from the 5th-6th ribs to the scapula or shoulder blade which will accelerate the work of the parasympathetic nerves to convey commands to the posterior pituitary to release the hormone oxytocin. Oxytocin massage is done to stimulate the oxytocin reflex or let down reflex and can be done with the help of the family, especially the husband. In general, massage can significantly affect the peripheral nervous system, increasing the excitability and conduction of nerve impulses, weakening and stopping pain and increasing blood flow to tissues and organs and making muscles flexible so that they feel comfortable and relaxed. Therefore, after the oxytocin massage, it is hoped that the mother will feel relaxed so that she does not experience stress conditions that can inhibit the oxytocin reflex.[7]

This study was conducted on 30 spontaneous postpartum mothers, both primiparous and multiparous, with an age range of 20-35 years. Researchers made 3 visits to each respondent. The first visit was carried out on the first day after postpartum at the health facility where the respondent gave birth, the second visit was carried out on the 5th day postpartum or the range of days 5-14 Post partum where mature milk production has begun to form (Lactogenesis Phase II) to measure Breastmilk production Pre-massage and the 3rd visit were conducted on the 6th day to perform oxytocin massage therapy and measure post-action breast milk production. The visit was carried out while still observing and implementing health protocols during the COVID-19 pandemic.

From the results of the study, it was found that the milk production of respondents after oxytocin massage using the conventional efflurage method increased an average of 42 ml. Meanwhile, respondents who received a combination massage using innovative massage tools experienced an average increase of 60 ml. Meanwhile, in the control group, the average pre and post milk production value also increased by 3 ml. Both methods in the massage treatment group were equally statistically significant with a P value of 0.009 while in the control group, pre and post breast milk production obtained a P value of 0.005.

Based on the T-Test, the mean \pm Standard Deviation value of the pre test and post test in the oxytocin massage treatment group using the conventional Efflurage method was 42 ± 29 while in the massage treatment group using an innovative massager 60 ± 51 , this was very different in the control group. namely 3.4 ± 8.8 and the difference in the two groups was very significant with a P value of 0.005. So it can be said that oxytocin massage performed on postpartum mothers can increase milk production.

This shows that H₁ is accepted and H₀ is rejected. The increase in breast milk production in the massage treatment group using innovative massage tools at pre and post was higher than in the massage treatment group using the conventional Efflurage method. The increase in breast milk production can be seen through the results of pumping breast milk using a standardized manual pump before and after oxytocin massage, from 101 ml to 161 ml at week 2 postpartum.

Breast milk production is the volume of breast milk produced when the breasts are full again after feeding the baby. The oxytocin massage method used is either using the conventional efflurage method, namely completely skin to skin contact between the therapist and client and using a combination of skin to skin and innovative massage tools, in principle, both are media to stimulate the activity of the parasympathetic nervous system so as to increase the feeling of comfort in the mother, reduce fatigue and stimulate milk production. Breast milk is released by the breast due to the contraction of the muscles around the breast which is stimulated by the hormone oxytocin through the let down reflex mechanism. Massage therapy performed by the therapist must be tailored to the needs of each client. Correct massage movements can stimulate nerve fibers in the skin which then affect a person's body and mind because of the activity of the nervous and hormonal systems. Movement that is regular and controlled and creates a feeling of comfort can improve blood circulation. So that the use of massage methods must adjust to the client's physical condition, whether it is enough with skin to skin movements from the therapist or the help of massage tools needed so that the client really feels comfortable and relaxed.

Based on the results of this study, respondents who received oxytocin massage therapy using the conventional Efflurage method and the combination method of innovative massage tools gave different reactions. Respondents who were given massage using massage tools felt that the massage provided was deeper and more comfortable than massage using only the therapist's hand. They revealed that therapists who have a smaller body than respondents tend to be less strong in applying pressure to the back properly so that respondents feel less satisfied with the pressure given by the therapist. This innovative massage tool can be used easily by all family members including the respondent's husband. Therefore, as a therapist, it is very important to pay attention to the client's needs according to the physical condition of both the therapist and the respondent. If the client's body tends to be fatty, then of course, strong pressure and stronger energy from the therapist are needed so that both the therapist and client can achieve the expected results.

The oxytocin massage technique which is carried out by adjusting the mother's physical condition with the method used by the therapist and also emphasizing the right massage points can increase comfort in postpartum mothers thereby increasing the release of oxytocin and stimulating milk production through the let-down reflex mechanism. In addition, the right effect of oxytocin massage also reduces the psychological stress scale of postpartum mothers in both primiparas and multiparas. Oxytocin massage should be a part of midwifery care for postpartum mothers, especially for mothers who have lactation problems. Oxytocin massage can be done by anyone, both health workers, therapists and family members of postpartum mothers. The use of innovative massage tools helps the implementation of oxytocin massage to be

easier for anyone, including the patient's family, so that it is hoped that there will be no more nutritional problems for newborns related to the lack of breast milk production.

Massage on the back causes stimulation of the spinal cord which functions as a nerve liaison between the brain and the peripheral nervous system. All communication up and down the spinal cord is located in ascending tracts that transmit signals from afferent input to the brain. The gray matter located in the middle of the spinal cord contains the interneurons that lie between afferent input and efferent output and the cell bodies of efferent neurons. Afferent and efferent fibers, which carry signals to and from the spinal cord, respectively, unite into spinal nerves. These nerves attach to the spinal cord in pairs along the cord. Inhibitory neurons and excitatory cholinergic neurons make synaptic contacts with neuro-secretory oxytocin neurons in the paraventricular and supraoptic nuclei. Then the hypothalamus produces the hormone oxytocin and flows to the posterior pituitary. Oxytocin goes to the breast, releasing the hormone oxytocin. Furthermore, the hormone oxytocin will trigger the smooth muscles around the milk-making cells to secrete milk. These muscles will contract and expel milk. This process is called the let down reflex. In addition, this spinal massage will relax tension and relieve stress, therefore it will launch the process of releasing the hormone oxytocin.[16]

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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