



## The Effect of Oxytocin Massage on Breast Milk Production in Ciledug Health Center Cirebon Regency

Ani Minarni, Vianty Mutya Sari, Nur Aliah, Nisa Rizki Nurfiti<sup>1</sup>

E mail: [viantyummukayyisa@gmail.com](mailto:viantyummukayyisa@gmail.com)

<sup>1</sup>STIKes Muhammadiyah Cirebon, West Java, Indonesia, ani.minarni@gmail.com

**Abstract.** Stunting is an increasingly common problem in developing countries, including Indonesia. In Cirebon Regency, especially in Ciledug District, stunting cases amounted to 13.6% in 2018. The magnitude of the benefits of breastfeeding is not offset by an increase in breastfeeding behavior. According to WHO, more than 40% of babies are introduced too early to complementary foods. One way to increase production is oxytocin massage. Oxytocin massage is performed to stimulate the oxytocin reflex or letdown reflex. The increase in the number of breastfeeding mothers globally has the potential to save the lives of more than 820,000 children under five years old and could prevent an additional 20,000 cases of breast cancer in women each year. This study used the pre-experiment method using one group pretest-post test design, a design experiment that uses one group of subjects and takes measurements before and after giving treatment to subjects. The milk production of postpartum mothers before oxytocin massage has an average of 23.10 ml, while after oxytocin massage the milk production of postpartum mothers has an average of 61.43 ml. The paired sample T test results were obtained significantly by 0.000 (p-value < 0.05). The results of the study found that there was an effect of oxytocin massage on breast milk production. There is a difference in milk production before and after oxytocin massage. It is expected to be able to apply the implementation of oxytocin massage to postpartum mothers in health services.

**Keywords:** Postpartum Women; Breast Milk; Oxytocin Massage

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### INTRODUCTION

Stunting is an increasingly common problem in developing countries, including Indonesia. According to the United Nations International Children Emergency Fund (UNICEF), one in three children is stunted. About 40% of children in rural areas experience stunted growth. Based on the results of Riskesdas in 2018 the stunting rate in Indonesia was 30.8%, this result is somewhat down from Riskesdas in 2013 of 37.2%. In Cirebon Regency, especially in Ciledug District, stunting cases occurred at 13.6% in 2018 (Kemenkes, 2013; 2018).

The magnitude of the benefits of breast milk is not offset by an increase in breast-feeding behavior so that babies do not get breast milk properly. Several factors are thought to be the cause of babies not getting breast milk properly, one of which is the mother's knowledge factor. The mother's reluctance to breastfeed due to pain during breastfeeding, fatigue during breastfeeding, as well as the mother's concern about breast changes after breastfeeding. Socio-cultural factors, lack of family and environmental support in the breastfeeding process are also very influential on the process of breastfeeding. Not all post-partum mothers directly release breast milk because breast milk production is a very complex interaction between mechanical, nervous and various hormone stimuli that affect oxytocin production.

There are several ways to deal with breast milk that is not smooth, one of which is breast milk massage or oxytocin massage. Oxytocin massage is one way to stimulate the hormone oxytocin and increase comfort by massaging along the spine (vertebrae) to the fifth or sixth costal bone. Oxytocin massage can be done with the help of the baby's father or grandmother. Oxytocin massage is done to stimulate the oxytocin reflex or reflex let down. Some of the benefits of oxytocin massage are providing comfort to the mother, reducing swelling (engorgement), reducing breast milk blockage, stimulating the release of the hormone oxytocin, and maintaining breast milk production when mother and baby are sick (Dewi 2011).

The global increase in breastfeeding has the potential to save the lives of more than 820,000 children under five years old and could prevent an additional 20,000 cases of breast cancer in women each year. However, in Indonesia only 1 in 2 infants under 6 months of age receive exclusive breast milk, and only slightly more than 5% of children still receive breast milk at the age of 23 months. This means that almost half of all Indonesian children do not receive the nutrition they need during the first two years of life. More than 40% of babies are introduced too early to complementary foods before they reach 6 months of age, and the foods given often do not meet the nutritional needs of babies (WHO, 2020).

According to recommendations from the World Health Organization (WHO) and (UNICEF), mothers are encouraged to give breast milk to their babies in the first 1 hour after giving birth and continue until the first six months of the baby. When the baby is 6 months old, he can continue to breastfeed for up to 2 years or more and provide complementary foods. The recommendation to breastfeed until the age of 2 years is contained in the Quran Surat Al-Baqarah verse 233 which means that a mother is encouraged to breastfeed her child

for two years, if unable not to force it because there is a mother who feels her milk is lacking and affects the mother's confidence to breastfeed, causing the perception of insufficient breast milk which further affects the mother's mind and oxytocin secretion.

Breastfeeding is a precious and very special moment. In addition, breastfeeding is also very good for the health of mothers and babies. However, not a few breastfeeding mothers experience problems when giving breast milk to their babies. Problems that are often encountered when breastfeeding mothers include insufficient or insufficient breast milk, breast swelling, flat nipples, chafed nipples, blocked breast milk ducts, and mastitis (Pujiastuti, N., 2018). Oxytocin secretion is seen to increase breast milk production, this is reported by several studies conducted previously. Therefore, it is important to see if oxytocin massage techniques have a significant effect on breast milk production.

## **LITERATURE**

The puerperium or postpartum period is also called puerperium which comes from Latin, namely from the word "Puer" which means baby and "Parous" means childbirth. Puerperium is blood that comes out of the uterus due to childbirth or after childbirth (Anggraeni, 2010). The puerperium lasts about 6 weeks. Puerperium (puerperium) lasts for 6 weeks or 42 days, is the time needed for the recovery of the uterus to normal conditions (Ambarwati and Wulandari, 2010). Puerperium The stages of puerperium are as follows: (1) Puerperium; (2) Intermedial Puerperium; (3) Remote Puerperium (Anggraeni, 2010).

Breast milk is a type of food that meets all elements of the baby's needs physically, psychologically, socially, and spiritually. Breast milk contains nutrients, hormones, growth immune elements, anti-allergic, and anti-inflammatory. Nutrients in breast milk include almost 200 food elements (Hubertin, 2003). Breast milk is an unparalleled liquid created by God that meets the nutritional needs of babies and protects them against possible diseases. The balance of nutrients in breast milk is at the best level and the milk has the best shape for the young baby's body. At the same time, breast milk is also very rich in food juices that accelerate brain cell growth and nervous system development (Yahya, 2005).

According to Ambarwati and Wulandari (2010), breastfeeding is beneficial for babies, including: (1) Babies who get exclusive breast milk are healthier and stronger than those who do not get breast milk because breast milk contains antibody substances; (2) breast milk also contains the best docosa hexaenoic acid, in addition to lactose which functions for brain myelination, namely the process of brain maturation in order to function optimally; (3)

When breastfeeding, the baby is in the mother's arms. This will stimulate the formation of Emotional Intelligence. In addition, breast milk is a form of maternal outpouring of love for the baby. In addition to infants, breast milk is also beneficial for mothers, including: (1) The incidence of carcinomammae in mothers who breastfeed is lower than in mothers who do not breastfeed. Preventing cancer can only be obtained by mothers who exclusively breastfeed; (2) Exclusive breastfeeding can function as a contraceptive until the age of 6 months, because the baby's suction stimulates the hormone prolactin which can inhibit the maturation of eggs so that it can delay fertility (Rahayuningsih, T., 2020); (3) Mothers who breastfeed exclusively find it easier and faster to return to their pre-pregnancy weight; (4) Mother will feel proud and needed, a feeling needed by her fellow human beings.

According to Dewi (2011), a normal mother will produce breast milk of approximately 550-1000 ml per day, the amount of breast milk can be influenced by several factors as follows: (1) The production of breast milk is greatly influenced by the food eaten by the mother, if the mother's food regularly and contains enough nutrients needed will affect the production of breast milk; (2) The use of contraceptives, especially those containing estrogen and progesterone, is associated with a decrease in the volume and duration of breast milk, otherwise if the pill only contains progestins, there is no impact on breast milk production; (3) Breast care starting from 7-8 months of pregnancy plays an important role in breastfeeding the baby; (4) Conditions of fatigue due to activity and conditions of lack of rest will have a weak effect on the system involved in the lactation process so that the formation and expenditure of breast milk is reduced; (5) Physical conditions such as fatigue also affect breast milk production.

Oxytocin massage is one solution to overcome the unsmooth production of breast milk. Oxytocin massage is a massage along the spine (vertebrae) to the fifth-sixth costae bone and is an attempt to stimulate the hormones prolactin and oxytocin after childbirth. In addition to providing comfort to the mother and stimulating the oxytocin reflex, oxytocin massage also has other benefits, namely reducing breast swelling (engorgement), reducing the blockage of breast milk (plugged/milk, duct), and helping to maintain breast milk production when mother and baby are sick (Armini NW, Marhaeni GA, Sriasih GK. 2020).

Oxytocin massage is a massage of the spine in the 5-6th costa to the scapula which will accelerate the work of the parasympathetic nerves stimulating the posterior pituitary. Oxytocin massage is performed to stimulate the oxytocin reflexor let down reflex. This oxytocin massage is done by massaging the back area along both sides of the spine, so it is

expected that with this spinal massage, the mother will feel relaxed and fatigue after giving birth will soon disappear. If the mother is relaxed and not exhausted can help the secretion of the hormone oxytocin. Massage or back re-solidity, the neuro transmitter will stimulate the medulla oblongata directly send a message to the hypothalamus dihypofiseposterior to secrete oxytocin causing the breasts to release milk (Guyton, 2007). Oxytocin massage is effective on the first and second days post-partum, because on both days breast milk has not been produced quite a lot. Oxytocin massage can be done whenever the mother wants with a duration of  $\pm 15$  minutes, preferably done before breastfeeding or milking. So to get the optimal and good amount of breast milk, oxytocin massage should be done every day with a duration of  $\pm 15$  minutes (Sahal, Uhwah. 2022).



Source: Mardianingsih, 2010

**Figure 1. Langkah-langkah Pijat Oksitosin**

Oxytocin massage can be given at any time even when breast milk is smooth because in addition to facilitating breast milk, massage can provide comfort to mothers. The following are the steps of oxytocin massage (Armini NW, Marhaeni GA, SriasihGK, 2020): (1) Inform the mother about the actions to be taken, the purpose and how it works to prepare the mother's psychological condition; (2) Prepare equipment and mothers are encouraged to remove top clothes and put on towels, so as to take more efficient actions; (3) Set the mother in a sitting position with her head resting her arms folded forward and placing her folded hands on the table in front of her, with this position expected to make the spine easier to massage; (4) Smear both palms with oil or baby oil; (5) Massaging along both sides of the mother's spine using two fists, with thumbs pointing forward; (6) Pressing firmly on both sides of the spine to form small circular movements with both thumbs; (7) At the same time, massage both sides of the spine downward from the neck towards the shoulder blades; (8)

Repeat the massage up to 3 times; (9) Clean the mother's back with an alternating warm and cold water washcloth.

## METHOD

Research design is something vital in research that allows, maximizing a control of several factors that can affect the validity of a result (Nursalam, 2008). Based on the type, this researcher pre-experiment (experimental activities that aim to determine an influence that arises as a result of treatment) using one group pretest-post test design, which is a design experiment that uses one group of subjects and takes measurements before and after giving treatment to subjects. To test the relationship between the two variables in this study, the statistical analysis used in this observation is Test T. Data collection in this study is using observation sheets. In this study, the independent variable was oxytocy massage (X). The dependent variable in this study was breast milk production (Y).

In this study, the population used was postpartum mothers who carried out massage at the Poned Puskesmas Ciledug, Ciledug district, Cirebon regency, totaling 21 people. The research instrument used on oxytocin massage variables is with oxytocin massage implementation guidelines. As for the variable instrument, the smoothness of breast milk production uses observation sheets. The sample size in this study was determined using the formula Notoatmodjo (2012), namely:

$$n = \frac{N}{1 + Nd^2}$$

Information:

N : Population Size

n : Sample Size

d : Degrees of freedom (5%)

The use of the above formula is due to the number of population of 10,000 (Notoatmodjo (2010), Then it is calculated as follows:

$$\begin{aligned} n &= \frac{22}{1+22(0,0025)} \\ &= \frac{22}{1,055} \\ &= 20,8 \end{aligned}$$

Based on the results of the minimum sample calculation, the sample size is rounded to 21 people. The estimated percentage of drop out has been set at 10%, therefore the sample required in this study is 25 people. The inclusion criteria include: (1) Maternity mothers who

are willing to be respondents; (2) Maternity mothers who are conscious; (3) Mothers give birth with spontaneous partus. While the exclusion criteria include: (1) Mothers who post partum < 2 hours: (2) Mothers who feel uncomfortable or have problems when the intervention is carried out.

**DISCUSSION**

The research was carried out in the working area of the Ciledug Health Center. Starting from April to June 2023 with 21 postpartum mothers. This researcher used tools in the form of observation sheets and syringes to collect general data and specific data on the effect of oxytocin massage on breast milk production. The results of the study are presented in two parts, namely general data and special data. General data contained age, recent education, and occupation characteristics. Specific data consisted of breast milk production before and after oxytocin massage and a difference table describing the effect of oxytocin massage on breast milk production.

**Table 1. Distribution of Postpartum Mothers by Age, Education, Parity, and Occupation**

<b>Characteristics of Respondents</b>	<b>Frequency (N=21)</b>	<b>%</b>
<b>Age</b>		
<20 years	1	4,8%
21 – 35 years	19	90,4%
>35 years	1	4,8%
<b>Education</b>		
Elementary School	3	14,3%
Junior High School	11	52,4%
Senior High School	7	33,3%
<b>Paritas</b>		
Primipara	7	33,3%
Multipara	14	66,7%
<b>Occupation</b>		
Housewives	16	76,2%
Private	4	19%
Labour	1	4,8

Based on the results of the analysis, it was found that the majority of respondents had the age between 21 – 35 years as many as 19 people (90.4%). From the educational background, the majority of respondents had a junior high school education background of 11 people (52.4%). While the majority of respondents have multiparity as many as 14 people (66.7%). The majority of respondents have a working background of 16 housewives (76.2%). Based on the normality test data on the variable of breast milk production with the Shapiro Wilk test, the significance value before the intervention was 0.198 and after the

intervention was 0.470, thus the value was greater than 0.05. Therefore, it can be interpreted that the data is normally distributed. Furthermore, to see the effect of oxytocin massage on breast milk production, a paired t test was carried out, and the test results can be seen in table 2.

**Table 2. Breast milk production before and after oxytocin massage**

Breast milk production (ml)	Mean	SD	t	P-Value
Before	23,10	6,61	-27,49	0,000
After	61,43	7,93		

Table 2 shows that the average milk production before oxytocin massage was 23.10 ml with SD ± 6.61. While breast milk production after oxytocin massage as much as 61.43 ml with SD ± 7.93. The paired t test results show a p-value of 0.000 (p-value < 0.05), this shows that there is an effect of oxytocin massage on breast milk production. Breast milk production can be influenced by two factors, namely production and expenditure. Breast milk production is influenced by the hormone prolactin, while production is influenced by the hormone oxytocin. Benefits of oxotocin massage in addition to providing comfort to the mother and stimulating the oxytocin reflex, oxytocin massage also has other benefits, namely reducing breast swelling (engorgement), reducing the blockage of breast milk (plugged), and helping to maintain breast milk production when mother and baby are sick (Armini NW, Marhaeni GA, Sriasih GK. 2020).

Oxytocin massage is a massage of the spine in the 5-6th costa to the scapula which will accelerate the work of the parasympathetic nerves stimulating the posterior pituitary. Massage of the spine, neuro transmitter will stimulate the medulla oblongata directly send a message to the hypothalamus dihypofiseposterior to release oxytocin causing the breasts to release milk (Guyton and Hall, 2008). Oxytocin massage is effective on the first and second days post-partum, because on both days breast milk has not been produced quite a lot. Oxytocin massage can be done whenever the mother wants with a duration of ±15 minutes, preferably done before breastfeeding or milking. So to get an optimal and good amount of breast milk, oxytocin massage should be done every day with a duration of ±15 minutes (Sahal, 2022).

Research conducted by Eko (2011) shows that the combination of marmet technique and oxytocin massage can increase breast milk production. This is in line with research by Setiyowati, H. and Rofika, A. (2022) which shows that most of the lack of breast milk

expenditure is postpartum mothers who do not routinely do oxytocin massage. While postpartum mothers who release breast milk smoothly are postpartum mothers who routinely do oxytocin massage. According to Dewi (2011), breast milk production can be influenced by several factors, including food or nutrition. Breast milk production is greatly influenced by the food eaten by the mother, if the mother's food regularly and contains enough nutrients needed will affect breast milk production, because the breast milk-making glands cannot work perfectly without adequate food or nutrients. To form good breast milk production, the mother's diet must meet the number of calories, protein, fat, vitamins and minerals that are sufficient. In addition, mothers are recommended to drink more approximately 8-12 glasses per day. Get support from her closest family as this affects the increase in breast milk production. Maternal psychiatric factors that are always in a state of pressure, sadness, lack of confidence and in the form of emotional tension will reduce breast milk production.

## CONCLUSION

Oxytocin massage has a significant effect on breast milk production. The average amount of breast milk production increases after puerperal mothers are given oxytocin massage. Therefore, the application of oxytocin massage can be given to postpartum mothers in health care facilities to increase breast milk production.

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