


# The Effect Of Woolwich Massage On Breast Milk Production In Primiparous Postpartum Mothers In The UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency

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Article Info	ABSTRACT
<p><b>Keywords:</b> Breast milk, Primiparous postpartum mothers, Woolwich massage</p>	<p>In Indonesia in 2022, the achievement indicator for infants under 6 months receiving exclusive breastfeeding was 67.96%. However, this figure has not reached the National target of 80%. Low breast milk production or insufficient breast milk is the main reason mothers stop exclusively breastfeeding their babies. Low breast milk production is a condition where breast milk does not come out or very little milk production is released. Low milk production can be increased by performing Woolwich massage, which is massage performed on the lactiferous sinus area specifically 1-1.5 cm above the areola mammae to stimulate prolactin hormone. The purpose of this study was to determine the effect of Woolwich massage on increasing breast milk production in primiparous postpartum mothers. The research method was pre-experimental with a one-group pre-posttest design approach. The population in this study was 34 primiparous postpartum mothers. The sampling technique was purposive sampling, with a total sample of 30 primiparous postpartum mothers. This research was conducted in the Ulu Belu Health Center Area, Ulu Belu District, Tanggamus Regency in 2024. Data analysis used the Wilcoxon test. The research results showed the average breast milk production flow was 54.67 (less smooth) and after was 76 (smooth), with a p-value of 0.000 (&lt;0.05) meaning there is an effect of Woolwich massage on increasing breast milk production in primiparous postpartum mothers. The suggestion in this research is that postpartum mothers can perform Woolwich massage independently to help smooth breast milk production so they can meet breast milk needs for babies to achieve exclusive breastfeeding.</p>
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## INTRODUCTION

Exclusive breastfeeding means infants receive only breast milk with no other liquids or solids, not even water, except for oral rehydration solutions or drops/syrups of vitamins, minerals, or medicines. According to World Health Organization (WHO) data in 2021, countries providing

exclusive breastfeeding were only 42% and targeted to increase to 75% by 2020 (WHO, 2021).

In Indonesia, based on routine reports from the Directorate General of Public Health in 2022, the achievement indicator for infants under 6 months receiving exclusive breastfeeding was 67.96%. However, this figure has not reached the National target of 80%. The province with the lowest achievement was Aceh (18.29%), while the province with the highest achievement was DI Yogyakarta (147.91%) (Ministry of Health, 2022).

The number of infants who received exclusive breastfeeding in Lampung Province in 2021 was 43,077 (73.6%) out of a total of 58,520 infants aged < 6 months. This figure is higher than the set target of 60%. The highest inclusion rate of exclusive breastfeeding was found in Bandar Lampung at 4,621 or 88.9%, while the lowest rate was in Mesuji Regency at 1,141 or 55.3% (Lampung Province Health Office, 2021).

In 2022 in Tanggamus Lampung, there were 6,778 (73.4%) infants receiving exclusive breastfeeding out of a total of 9,234 infants. This figure has reached the target set by Lampung province of 60%, but exclusive breastfeeding achievement decreased by 1.8% from 2021 (Tanggamus Health Office, 2023).

Providing exclusive breastfeeding for the first 6 months of a child's life is part of implementing the gold standard for infant and child feeding (PMBA) recommended by WHO and UNICEF. Breast milk contains complete nutrients needed by an infant and is also easily digested by the infant's small and sensitive stomach. Providing breast milk alone is sufficient to meet the nutritional needs of infants under six months of age (Dini and Legina, 2021).

United Nations Children's Fund (UNICEF) and World Health Organization (WHO) recommend breastfeeding infants as soon as possible within one hour after birth, called early initiation of breastfeeding (IMD). During the IMD process, skin-to-skin contact will occur between Mother and Baby, and this will increase mother's confidence so it can support successful exclusive breastfeeding for 6 months. After that, it can be continued with breastfeeding along with complementary feeding until the child is 2 years old (Ministry of Health, 2022).

Breastfeeding is physiological, but mothers still need to prepare themselves completely both physically (body), mentally (mind) and soul preparation, physical preparation can be in the form of improving the quality of balanced nutritious intake, so the body has reserves to produce breast milk, besides that breastfeeding mothers must also learn lactation management which is how to position and attach correctly when breastfeeding (Dini and Legina, 2021).

Breast milk is the main nutrition that must be given to babies that is natural and healthy because it contains various substances needed by babies in the process of growth, baby development, baby health and baby immunity. Early breastfeeding has positive impacts for both mother and baby. For babies, breastfeeding has an important role to support growth, health, and baby survival because breast milk is rich in nutrients and antibodies. For mothers, breastfeeding can reduce mortality because the breastfeeding process will stimulate uterine contractions thus reducing postpartum bleeding (Rasniah, 2022).

Failure in the breastfeeding process is often caused by several problems, both maternal and infant problems. Maternal problems that arise during breastfeeding can start before delivery, early labor, and continued postpartum. Breastfeeding problems can also be caused by special circumstances. In addition, mothers often complain their babies cry that their milk is not enough or their milk is not good, often leading to the decision to stop breastfeeding (Sutanto, 2018). The impact that occurs if babies are not given exclusive breastfeeding is they will lack nutrition or malnutrition which will impact growth or height that is not appropriate for age called stunting (Ernawati, 2020).

Low breast milk production or insufficient breast milk is the main reason mothers stop giving exclusive breastfeeding to their babies. Low or insufficient breast milk is a condition where breast milk does not come out or very little milk production is released. This is because the oxytocin hormone is not released normally. Breast milk production is influenced by two hormones namely prolactin and oxytocin hormones. The oxytocin hormone affects the process of breast milk release (Dini and Legina, 2021).

Low milk production can be increased by both pharmacological and non-pharmacological methods. Pharmacological is by using medicines and using special formula milk for nursing mothers. As for non-pharmacological methods can be done with a balanced nutritional diet for nursing mothers, early mobilization, with lactation massage such as oxytocin massage and Woolwich massage, and breast care (Ernawati, 2020).

Woolwich massage is massage performed on the lactiferous sinus area specifically 1-1.5 cm above the areola mammae, with the aim to release breast milk in the lactiferous sinus. Woolwich massage will stimulate nerve cells in the breast. This stimulation will be forwarded to the hypothalamus and responded to by the anterior pituitary to release prolactin hormone which will be channeled by blood to breast myoepithelial cells to produce breast milk. (Sri, 2020).

Research conducted by Irawan et al (2024) titled effectiveness of Woolwich massage on breast milk production using total sampling of 20 post-partum mother respondents from day 1 to 4, performed Woolwich massage 2 times/day morning and evening for 3 days post-partum using breast milk adequacy assessment indicators found research results on day 4 Pearson correlation coefficient ( $r$ ) of 0.751, showing strong correlation and positive direction where Woolwich massage facilitates breast milk release in meeting baby needs with significance level ( $p$ ) 0.058 so it can be concluded that there is a very strong relationship between Woolwich massage and smooth breast milk release for breast milk adequacy in babies.

Preliminary survey results conducted in the Gunung Sari Health Center Area in April 2024, from 10 breastfeeding mothers there were 6 mothers who did not provide exclusive breastfeeding. Then from interview results with mothers who did not breastfeed exclusively, they said that their milk amount was insufficient so babies cried and slept shortly, this often made mothers give formula milk to babies, the effect was babies did not get exclusive breastfeeding until 6 months of age. Counseling conducted for postpartum mothers about

breast care and foods that help increase milk production is one solution done in the Gunung Sari Health Center Area and Woolwich massage has never been done.

Based on this background, researchers are interested in conducting research about "The Effect of Woolwich Massage on Increasing Breast Milk Production in Primiparous Postpartum Mothers in the UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency".

## METHODS

This research is a quantitative study with a pre-experimental design using a one group pre-posttest design approach with purposive sampling technique. The study population was 34 primiparous postpartum mothers with sampling technique using purposive sampling of 30 primiparous postpartum mothers who met the inclusion criteria. This research was conducted in the UPTD Ulu Belu Health Center Area, Ulu Belu District, Tanggamus Regency in September 2024. Data analysis used the Wilcoxon test. The operational definition of breast milk production is the amount of breast milk production of postpartum mothers before and after intervention for 7 consecutive days. The intervention is massage performed on the lactiferous sinus area specifically 1-1.5 cm above the areola mammae for 15 minutes twice/day in the morning and evening conducted for 7 days from day 11 to day 17. The instrument or measuring tool used in this study was an observation sheet containing research result data that will be used for data processing, Standard Operating Procedure (SOP) for Woolwich massage and breast milk adequacy observation sheet.

The researcher conducted research by performing pre-test on day 10 by observing from 10 criteria namely, abundant breast milk can seep out through the nipple, before breastfeeding the breast feels tense, after the baby nurses then the baby will sleep peacefully for 3-4 hours, baby urinates 6-8 times a day, baby defecates 3-4 times a day, baby nurses at least 8-10 times a day, mother can hear soft swallowing sounds when baby swallows breast milk, mother can feel tingling due to milk flow every time baby nurses, baby's urine color is clear yellow and in the first 24 hours baby passes dark, thick and sticky stool (meconium). Then conducting experiments for 7 days by providing intervention with Woolwich massage which is massage performed on the lactiferous sinus area specifically 1-1.5 cm above the areola mammae for 15 minutes morning and evening days 11-17. After intervention, on day 18 breast milk adequacy assessment was conducted again on respondents using breast milk production adequacy criteria. After that collecting obtained data, recorded with observation sheet, for then processing the data. Processing data using collected data with computer program. After statistical analysis then making discussion and conclusions arranged into research results report.

## RESULTS AND DISCUSSION

### Univariate Analysis

**Table 1.** Average breast milk production flow in postpartum mothers before Woolwich massage in the UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency

Breast Milk Production Flow	N	Mean	Min	Max	SD
Before Intervention	30	54.67	50	70	6.288

Based on table 1, from 30 primiparous postpartum mothers who were breastfeeding before Woolwich massage intervention, data showed average breast milk production flow was 54.67 (less smooth), minimum value of breast milk production flow was 50 (less smooth), maximum value of breast milk production flow was 70 (quite smooth) with standard deviation value of 6.288.

**Table 2.** Average breast milk production flow in postpartum mothers after Woolwich massage in the UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency

Breast Milk Production Flow	N	Mean	Min	Max	SD
After Intervention	30	75.83	65	85	6.575

Based on table 2, from 30 primiparous postpartum mothers who were breastfeeding after Woolwich massage intervention, data showed average breast milk production flow was 76 (smooth), minimum value of breast milk production flow was 65 (quite smooth), maximum value of breast milk production flow was 85 (smooth) with standard deviation value of 6.576.

**Tabel 3.** Normality Test

Breast Milk Production Flow	Shapiro-Wilk		
	Statistic	Df	Sig.
Before	0.743	30	0.000
After	0.903	30	0.010

Normality test was conducted to determine whether the studied sample was normally distributed or not. In this study the sample size was 30 primiparous postpartum mothers who were breastfeeding, with normality test used being Shapiro-Wilk. Normality test criteria is data is normally distributed if significance level  $> 0.05$ . Normality test results can be seen in table 3 above: From normality test analysis of 30 primiparous postpartum mothers who were breastfeeding, known significance value before given Woolwich massage intervention was 0.000 ( $<0.05$ ) and significance value after intervention was 0.010 ( $<0.05$ ), so it can be concluded that data is not normally distributed then bivariate data analysis uses Wilcoxon test.

### Bivariate Test

Bivariate analysis is statistical analysis used to determine relationship between two variables. In this study because data is not normally distributed then bivariate analysis uses

Wilcoxon test which aims to determine effect of Woolwich massage on increasing breast milk production in primiparous postpartum mothers in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency which can be seen in table 4.4 below:

**Table 4.** Effect of Woolwich massage on increasing breast milk production in primiparous postpartum mothers in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency

Breast Milk Production Flow	N	Mean	Mean Increase	SD	<i>P-value</i>
Before	30	54.67	21.16	6.288	0,000
After	30	75.83		6.576	

Analysis results from table 4 show that from 30 primiparous postpartum mothers who were breastfeeding, average breast milk flow value before intervention was 54.67 (less smooth) and after intervention was 75.83 (quite smooth) meaning there was an increase in average breast milk production flow of 21.16. Standard deviation value before intervention was 6.288 and after intervention was 6.576 meaning data distribution before was closer compared to data distribution after intervention. Bivariate analysis results with Wilcoxon test obtained p-value 0.000 (<0.05) meaning there is effect of Woolwich massage on increasing breast milk production in primiparous postpartum mothers in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency.

## Discussion

### Average breast milk production flow in postpartum mothers before Woolwich massage in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency

Based on research results, from 30 primiparous postpartum mothers who were breastfeeding before Woolwich massage intervention, data showed average breast milk production flow was 54.67 (less smooth), minimum value of breast milk production flow was 50 (less smooth), maximum value of breast milk production flow was 70 (quite smooth) with standard deviation value of 6.288.

Breast milk is the main nutrition that must be given to babies that is natural and healthy because it contains various substances needed by babies in the process of growth, baby development, baby health and baby immunity. Early breastfeeding has positive impacts for both mother and baby. For babies, breastfeeding has an important role to support growth, health, and baby survival because breast milk is rich in nutrients and antibodies. For mothers, breastfeeding can reduce mortality because the breastfeeding process will stimulate uterine contractions thus reducing postpartum bleeding (Rasniah, 2022).

Breast milk produced after childbirth on the first day is colostrum with a volume of about 150-300 ml / 24 hours. Breast milk production after 10 days onwards after delivery until the baby is three months old is called mature breast milk. Breast milk can produce about 300-800 ml/24 hours and breast milk will continue to increase in subsequent days or weeks (Sestu and Yuni, 2022).

Under normal conditions, on the second day after delivery the volume of breast milk released is approximately 100 ml, and the amount will increase to approximately 500 ml in

the second week. Normally effective and continuous breast milk production will be achieved approximately 10-14 days after delivery. If there are no abnormalities, from the first day since baby's birth it will continue to increase reaching 400-450 ml when the baby reaches two weeks of age. At one to three months of age, if the mother is healthy then breast milk production reaches 600 ml per day. Breast size has no relationship with the volume of breast milk that can be produced, although generally very small breasts especially those that do not change size during pregnancy, only produce a small amount of breast milk. Emotions, such as pressure (stress) or anxiety, are important factors affecting breast milk production in the first weeks of breastfeeding (Sarumi, 2022).

Failure in the breastfeeding process is often caused by several problems, both maternal and infant problems. Maternal problems that arise during breastfeeding can start before delivery, early labor, and continued postpartum. Breastfeeding problems can also be caused by special circumstances. In addition, mothers often complain their babies cry that their milk is not enough or their milk is not good, often leading to the decision to stop breastfeeding (Sutanto, 2018). The impact that occurs if babies are not given exclusive breastfeeding is they will lack nutrition or malnutrition which will impact growth or height that is not appropriate for age called stunting (Ernawati, 2020).

Low breast milk production or insufficient breast milk is the main reason mothers stop giving exclusive breastfeeding to their babies. Low or insufficient breast milk is a condition where breast milk does not come out or very little milk production is released. This is because the oxytocin hormone is not released normally. Breast milk production is influenced by two hormones namely prolactin and oxytocin hormones. The oxytocin hormone affects the process of breast milk release (Dini and Legina, 2021).

This aligns with research conducted by Eka et al (2021) where breast milk smoothness score before Woolwich massage was 55 (less smooth) with minimum value of 50 and maximum value of 60, then research conducted by Irawan et al (2024) before intervention breast milk production smoothness score was 55 (less smooth) with minimum value 50 and maximum value 65 (quite smooth).

According to researchers' assumptions, breast milk production smoothness is influenced by many factors, one of which is hormonal factors so alternatives are needed to help smooth breast milk production that can support baby's sufficiency in breastfeeding so babies get exclusive breastfeeding.

#### **Average breast milk production flow in postpartum mothers after Woolwich massage in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency**

Based on research results, from 30 primiparous postpartum mothers who were breastfeeding after Woolwich massage intervention, data showed average breast milk production flow was 76 (smooth), minimum value of breast milk production flow was 65 (quite smooth), maximum value of breast milk production flow was 85 (smooth) with standard deviation value of 6.576.

Low milk production is caused by several factors, one of which is hormonal factors namely the prolactin hormone. Prolactin hormone is a hormone secreted by the pituitary

gland, this hormone plays a role in enlarging alveoli during pregnancy. Prolactin hormone has an important role in producing breast milk, because this hormone levels increase during pregnancy. Prolactin hormone levels are inhibited by the placenta, during delivery and placenta exit progesterone and estrogen hormones begin to decrease until the level of prolactin hormone release and activation. Increased prolactin hormone will inhibit ovulation which is commonly said to have natural contraceptive function, prolactin levels are highest at night (Sestu and Yuni, 2022).

Low milk production can be increased by both pharmacological and non-pharmacological methods. Pharmacological is by using medicines and using special formula milk for nursing mothers. As for non-pharmacological methods can be done with a balanced nutritional diet for nursing mothers, early mobilization, with lactation massage such as oxytocin massage and Woolwich massage, and breast care (Ernawati, 2020).

Woolwich massage is massage performed on the lactiferous sinus area specifically 1-1.5 cm above the areola mammae, with the aim to release breast milk in the lactiferous sinus. Woolwich massage will stimulate nerve cells in the breast. This stimulation will be forwarded to the hypothalamus and responded to by the anterior pituitary to release prolactin hormone which will be channeled by blood to breast myoepithelial cells to produce breast milk (Sri, 2020).

Woolwich massage is given to postpartum mothers twice/day in the morning and evening. The procedure for performing Woolwich massage is circular massage using both thumbs on the lactiferous sinus area specifically 1-1.5 cm outside the areola mammae for 15 minutes (Kusumastuti, 2017).

This research aligns with research conducted by Mifta et al (2023) where breast milk production smoothness score after intervention was 93.11 (smooth), then research conducted by Eka et al (2021) research results showed breast milk smoothness score after Woolwich massage intervention was 83.93 (smooth).

According to researchers' assumptions, Woolwich massage becomes a good alternative to increase breast milk production smoothness, this can be seen from increased breast milk production smoothness scores in postpartum mothers. By performing massage routinely and regularly can provide maximum effect in increasing breast milk production smoothness in postpartum mothers.

#### **Effect of Woolwich massage on increasing breast milk production in primiparous postpartum mothers in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency**

Based on research results, from 30 primiparous postpartum mothers who were breastfeeding, average breast milk smoothness value before intervention was 54.67 (quite smooth) and after intervention was 75.83 (quite smooth) meaning there was an increase in average breast milk production smoothness of 21.16. Standard deviation value before intervention was 6.288 and after intervention was 6.576 meaning data distribution before was closer compared to data distribution after intervention. Bivariate analysis results with Wilcoxon test obtained p-value 0.000 (<0.05) meaning there is effect of Woolwich massage

on increasing breast milk production in primiparous postpartum mothers in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency.

Low milk production can be increased by both pharmacological and non-pharmacological methods. Pharmacological is by using medicines and using special formula milk for nursing mothers. As for non-pharmacological methods can be done with a balanced nutritional diet for nursing mothers, early mobilization, with lactation massage such as oxytocin massage and Woolwich massage, and breast care (Ernawati, 2020).

Woolwich massage is massage performed on the lactiferous sinus area specifically 1-1.5 cm above the areola mammae, with the aim to release breast milk in the lactiferous sinus. Woolwich massage will stimulate nerve cells in the breast. This stimulation will be forwarded to the hypothalamus and responded to by the anterior pituitary to release prolactin hormone which will be channeled by blood to breast myoepithelial cells to produce breast milk. (Sri, 2020).

Prolactin hormone is a hormone secreted by the pituitary gland, this hormone plays a role in enlarging alveoli during pregnancy. Prolactin hormone has an important role in producing breast milk, because this hormone levels increase during pregnancy. Prolactin hormone levels are inhibited by the placenta, during delivery and placenta exit progesterone and estrogen hormones begin to decrease until the level of prolactin hormone release and activation. Increased prolactin hormone will inhibit ovulation which is commonly said to have natural contraceptive function, prolactin levels are highest at night (Sestu and Yuni, 2022).

This aligns with research conducted by Eka et al (2021) research results showed p-value 0.000 so it was concluded that Woolwich massage affects breast milk production increase, then research conducted by Mifta et al (2023) research results showed p value = 0.000 meaning there are differences in breast milk production increase before and after given Woolwich massage to postpartum mothers.

According to researchers' assumptions, after performing Woolwich massage on postpartum mothers for 7 days done twice morning and evening proved able to increase breast milk smoothness, this can be seen from breast milk smoothness score before intervention was 60.38 (quite smooth) and breast milk smoothness score after intervention was 75.38 (quite smooth). Woolwich massage helps stimulate prolactin hormone production so breast milk released can meet baby's needs so baby can breastfeed exclusively. Nutrition fulfillment, rest patterns and calmness in breastfeeding also need to be maintained to help increase mother's milk production maximally. With this massage can stimulate nerve cells in the breast, this stimulation is forwarded to the hypothalamus and responded to by the anterior pituitary to release prolactin hormone which will be channeled by blood to breast myoepithelial cells to produce breast milk, increase breast milk volume, and prevent breast engorgement that causes breast swelling.

## CONCLUSION

Based on the research results, the following conclusions can be drawn: The average breast milk production flow in postpartum mothers before Woolwich massage in UPTD Gunung Sari

Health Center Area, Ulu Belu District, Tanggamus Regency was 54.67 (less smooth). The average breast milk production flow in postpartum mothers after Woolwich massage in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency was 76 (smooth). There is an effect of Woolwich massage on increasing breast milk production in primiparous postpartum mothers in UPTD Gunung Sari Health Center Area, Ulu Belu District, Tanggamus Regency with p-value 0.000 (<0.05)..

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