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# Optimization of Breast Milk Production in Postpartum Mothers: The Effectiveness of Marmet Massage in Enhancing Milk Expression

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Abstrak

Air Susu Ibu (ASI) penting bagi kesehatan bayi, dan frekuensi pemberian ASI eksklusif dapat mempengaruhi kualitas hidup generasi mendatang. Jika bayi tidak mendapat ASI pada 3-4 hari pertama, berat badannya akan menurun. Pijat marmet, teknik sederhana dua jari, dapat merangsang produksi ASI dengan aman dan terjangkau. Tujuan penelitian ini adalah untuk mengetahui pengaruh pijat Marmet terhadap produksi ASI pada ibu nifas di RSUD Alimuddin Umar Lampung Barat. Penelitian ini menggunakan metode Pre-Experimental dengan desain one-group pre-post design. Penelitian dilakukan pada bulan Juni 2024 dengan populasi seluruh ibu nifas di RSUD Alimuddin Umar yang berjumlah 20 orang. Sampel sebanyak 20 orang diambil dengan menggunakan purposive sampling. Analisis yang dilakukan pada penelitian ini melalui Uji Wilcoxon. Hasil penelitian menunjukkan bahwa sebelum dilakukan intervensi pijat pasar, rata-rata produksi ASI tercatat sebesar 34,50; setelah intervensi, rata-rata produksi meningkat menjadi 88,00. Analisis statistik menunjukkan nilai P sebesar 0,000 yang menunjukkan Pengaruh Pijat Marmet terhadap Produksi ASI pada Ibu Nifas di RS Alimuddin Umar Kabupaten Lampung Barat. Oleh karena itu, disarankan kepada tenaga kesehatan untuk menerapkan teknik ini dalam praktik kebidanan. Ibu nifas juga dapat melakukan pijat marmet secara rutin terutama pada awal masa menyusui untuk meningkatkan produksi ASI dan membantu kelancaran proses menyusui.

Kata Kunci: *Pijat Marmet, Air Susu Ibu, Ibu Nifas*

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Abstract

Breast milk (ASI) is important for the health of infants, and the frequency of exclusive breastfeeding can affect the quality of life for future generations. If a baby does not receive breast milk for the first 3-4 days, their weight will decrease. Marmet massage, a simple two-finger technique, can stimulate breast milk production safely and affordably. The purpose of this research is to determine the effect of Marmet massage on breast milk production in postpartum mothers at Alimuddin Umar Regional Hospital in West Lampung. This research uses a Pre-Experimental method with a one-group pre-post design. The research was conducted in June 2024 with a population of all postpartum mothers at Alimuddin Umar Regional Hospital, totaling 20 individuals. A sample of 20 individuals was taken using purposive sampling. The analysis conducted in this study is through the Wilcoxon Test. The results of the study show that before the market massage intervention, the average breast milk production was recorded at 34.50; after the intervention, the average production increased to 88.00. Statistical analysis showed a P value of 0.000, indicating the Effect of Marmet Massage on Breast Milk Production in Postpartum Mothers at Alimuddin Umar Hospital, West Lampung Regency. Therefore, it is recommended that health workers implement this technique in midwifery practice. Postpartum mothers can also do marmet massage routinely, especially at the beginning of the breastfeeding period to increase breast milk production and help smooth the breastfeeding process.

Keywords: *Marmet Massage, Breast Milk Expression, Postpartum Mother*

## INTRODUCTION

According to the Ministry of Health, breast milk (ASI) is the fluid secreted by the mother's mammary glands. Exclusive breastfeeding, referred to as ASI Eksklusif, is breast milk given to infants from birth for six months without adding or substituting with other foods or drinks. Early initiation of breastfeeding, with a minimum duration of one hour, can provide the infant with breast milk rich in maternal antibodies (Ministry of Health, 2021). Performing early initiation of breastfeeding (IMD) and exclusive breastfeeding can protect children from various diseases (WHO, 2017).

According to WHO data from 2020, more than 40% of infants are introduced to complementary foods too early, and often these foods do not meet their nutritional needs. The World Health Organization (WHO) has supported the goal of reaching a global target by 2025, where 50% of infants worldwide will be exclusively breastfed, as part of efforts to improve maternal, infant, and young child nutrition. Meanwhile, according to the 2021 Basic Health Research (Riskesdas) data, 52.5%—or only half of the 2.3 million infants under six months old—receive exclusive breastfeeding in Indonesia, a decline of 12%. The lack of frequency of exclusive breastfeeding can affect the future quality of life and well-being of future generations globally. If infants do not receive breast milk in the first 3-4 days, their

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weight will continue to decline until they adequately receive breast milk or other foods (WHO, 2020).

Mothers also face disadvantages if they are unable to produce breast milk, as breastfeeding can reduce the risk of osteoporosis, diabetes mellitus, and hypertension. Mothers will also miss out on the benefits of HAMLET cells, which can specifically kill 40 types of malignant cells without harming healthy ones (Putra F. & Rukayah S., 2020). Breast milk production and secretion is a physiological process of lactation, influenced by factors such as hormones, correct baby positioning and latching, breastfeeding frequency and duration, breast emptying, nutrition, the mother's physical and psychological condition, and breast condition.

Several efforts can be made to help initiate breast milk secretion in early breastfeeding, such as breast care, oxytocin massage, and Marmet massage. Marmet massage can be used for breast milk expression and can be practically applied by mothers. Marmet massage is a technique used to express breast milk. This technique provides a relaxing effect and reactivates the milk ejection reflex (MER), causing milk to start dripping. When MER is activated, breast milk will often spray out on its own.

Marmet massage is performed using two fingers. This method is often referred to as "back to nature" because it is simple and cost-free. Marmet massage is a safe technique that can stimulate the breasts to produce more breast milk (Misna et al., 2020). The Marmet breast milk expression technique aims to empty breast milk from the lactiferous sinuses located beneath the areola, and by emptying the milk from the lactiferous sinuses, prolactin release is stimulated. The release of prolactin hormone is expected to stimulate mammary alveoli to produce breast milk. The more breast milk is emptied from the breasts, the better the milk production will be (Murdiningsih et al., 2021).

In a study by Wasis Pujiati, Lilik Sartika, Liza Wati, and R. Alya Ramadinta (2021) titled Marmet Massage and Breast Milk Flow in Postpartum Mothers, the research results indicated that there was an effect of Marmet massage on breast milk flow in postpartum mothers, with a p-value of 0.000. The study recommended that Marmet massage is effective for promoting breast milk flow in postpartum mothers and can stimulate an increase in prolactin and oxytocin hormones, which have a relaxing effect on postpartum mothers (Pujiati et al., 2021).

Lactation problems occur due to various factors, including those related to the baby, the mother, and the environment (Indrayanti et al., 2017). One of the reasons for the failure to achieve exclusive breastfeeding is the lack of prolactin hormone secretion, which stimulates breast milk production, so the oxytocin hormone, which triggers the release of

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milk, is not optimally stimulated during breastfeeding (Shanti, 2018). Obstacles to exclusive breastfeeding that start with breastfeeding newborns are often due to the delay in milk production and low breast milk supply, which is caused by a lack of stimulation of prolactin and oxytocin hormones, which are crucial for smooth breast milk flow (Indrayanti et al., 2017). Often during the postpartum period, especially in the first 24 hours, breast milk does not flow or only flows in small amounts. This is due to poor lactation management (Ekawati, 2018).

According to data obtained from Lampung Province in 2021, the percentage of exclusive breastfeeding for infants under six months was 74.93%, still below the minimum annual target of 80%. Meanwhile, in West Lampung Regency in 2021, 55.44% of 285 infants under six months received exclusive breastfeeding (Lampung Provincial Health Office, 2021). Based on a preliminary study conducted at Alimuddin Umar Regional General Hospital from January to March 2024, there were 98 postpartum mothers. In March 2024, 11 postpartum mothers introduced formula milk to their infants, as their breast milk had not come in during the first day postpartum. Their babies slept restlessly, and the mothers were exhausted after delivery, which led to concerns about their babies not getting enough food, prompting the mothers to provide formula milk to prevent crying. Despite this, Marmet massage services, which can help stimulate breast milk production and provide support to postpartum mothers, were not available.

Marmet massage has been proven effective in stimulating breast milk production and providing both emotional and physical support to postpartum mothers. However, this service is still unavailable at Alimuddin Umar Regional General Hospital in West Lampung Regency. Marmet massage is a traditional practice widely recognized as an effective way to enhance breast milk production, accelerate postpartum recovery, and strengthen the bond between mother and baby. Therefore, the addition of Marmet massage services at Alimuddin Umar Regional General Hospital could be an important step in supporting exclusive breastfeeding and the well-being of mothers and infants in the region. The research purpose is to explore the potential effect of Marmet massage on breast milk production through a study titled The Effect of Marmet Massage on Breast Milk Production in Postpartum Mothers at Alimuddin Umar Regional General Hospital, West Lampung Regency.

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## RESEARCH METHOD

The study employs a pre-experimental design with a one-group pre-test-post-test approach to assess the impact of Marmet massage on breast milk production among postpartum mothers. This research is conducted at RSUD Alimuddin Umar, Lampung Barat Regency, from June 1 to June 30, 2024. The study population includes all postpartum mothers at the hospital, with a sample of 20 participants selected purposively. Inclusion criteria are mothers who are willing to participate, have no contraindications for Marmet massage, and are exclusively breastfeeding. Exclusion criteria include mothers who are not breastfeeding or those who are unable to attend the study. The intervention involves administering Marmet massage for three days, with pre-tests conducted on the first day to measure baseline breast milk output using observation sheets and post-tests on the fourth day to assess changes in breast milk production. Data collection methods include standardized observation checklists and standard operating procedures to ensure accurate measurement of milk output. Data are analyzed using SPSS, and both univariate and bivariate analyses are conducted. A paired T-test is used to compare breast milk production before and after the intervention, with a significance level set at 0.05 to determine the effectiveness of the Marmet massage.

## RESULTS AND DISCUSSION

Table 1 presents the characteristics of respondents at RSUD Alimuddin Umar, Lampung Barat Regency. The data shows that 25% of the respondents are in the risky age category (<20 years or >35 years), while 75% are in the not risky age category (20-35 years). Regarding parity, 40% of the respondents are primiparous (first-time mothers), and 60% are multiparous (having more than one child). In terms of education, 10% have a low level of education (Elementary), 15% have a medium level (Junior High to Senior High), and 75% have a high level of education (Bachelor's to Doctorate). Concerning occupation, 75% of the respondents are housewives, 5% are honorary staff, 15% are entrepreneurs, and 5% are civil servants. This distribution provides insight into the demographic profile of the respondents, indicating a predominance of women within the 20-35 age range, a higher level of education, and a majority engaged in household responsibilities.

Based on Table 2, the average breast milk output before the Marmet massage intervention at RSUD Alimuddin Umar, Lampung Barat Regency. The table indicates that the minimum breast milk output is 20, while the maximum output reaches 60. The average breast milk output is recorded at 34.50 with a standard deviation of 12.344. This reflects a significant variation in the amount of breast milk produced among breastfeeding mothers

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before the Marmet massage intervention.

Based on Table 3, the average breast milk output after the Marmet massage intervention at RSUD Alimuddin Umar, Lampung Barat Regency. The table indicates that the minimum breast milk output is 70, while the maximum reaches 100. The average breast milk output is recorded at 88.00 with a standard deviation of 8.335. This data suggests a significant increase in the amount of breast milk produced after the Marmet massage intervention, with relatively smaller variation among the breastfeeding mothers who received this intervention.

Table 1Characteristics of Respondents at RSUD Alimuddin Umar, Lampung Barat Regency

| Characteristics | Total | (%) |
|---|---|---|
| Age | | |
| Risky (<20 years, >35 years) | 5 | 25 |
| Not Risky (20-35 years) | 15 | 75 |
| Parity | | |
| Primiparous | 8 | 40 |
| Multiparous | 12 | 60 |
| Education | | |
| Low (Elementary) | 2 | 10 |
| Medium (Junior High - Senior High) | 3 | 15 |
| High (Bachelor's - Doctorate) | 15 | 75 |
| Occupation | | |
| Housewife | 15 | 75 |
| Honorary Staff | 1 | 5 |
| Entrepreneur | 3 | 15 |
| Civil Servant | 1 | 5 |

Table 2.Average breast milk output before the Marmet massage intervention at RSUD Alimuddin Umar, Lampung Barat Regency

| Variable | Min | Max | Mean | SD |
|---|---|---|---|---|
| The average breast milk output | 20 | 60 | 34.50 | 12.344 |

*Source: Primary Data*

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Table 3 Average breast milk output after the Marmet massage intervention at RSUD Alimuddin Umar, Lampung Barat Regency

| Variable | Min | Max | Mean | SD |
|---|---|---|---|---|
| The average breast milk output | 70 | 100 | 88.00 | 8.335 |

*Source: Primary Data*

Table 4. The Effect of Marmet Massage on Breast Milk Output in Postpartum Mothers at RSUD Alimuddin Umar, Lampung Barat Regency

| Variable | N | Min -Max | Mean | *P-Value* |
|---|---|---|---|---|
| Breast MilkOutput Before | 20 | 20-60 | 34.50 | 0,000 |
| Breast Milk Output After | 20 | 70-100 | 88.00 | |

*Source: Wilcoxon Test*

Based on Table 4, the effect of Marmet massage on breast milk output in postpartum mothers. It reveals a significant difference in breast milk output before and after the Marmet massage intervention. The statistical test results show a p-value of 0.000 < 0.05, leading to the rejection of the null hypothesis (Ho). Therefore, it can be concluded that Marmet massage has an effect on breast milk output in postpartum mothers at RSUD Alimuddin Umar, Lampung Barat Regency.

The results of this study demonstrate that Marmet massage significantly impacts breast milk output in postpartum mothers. Statistical analysis reveals a significant difference in breast milk output before and after the Marmet massage intervention, with a p-value of 0.000, indicating that these changes are not due to chance. The majority of respondents experienced an increase in breast milk output following the intervention. Breast milk production is influenced by the stimulation of prolactin and oxytocin hormones produced by the anterior pituitary gland in the brain. Factors such as parity, maternal psychological condition, comfort, and breastfeeding schedules also play a crucial role in milk production. Decreased milk production can occur due to insufficient hormone stimulation, such as when a baby is not breastfed within the first hour after birth. To address this, alternatives like hand expression and finger-pumping are recommended as practical, effective, and efficient methods to enhance breast milk production in postpartum mothers (Hanum, 2021).

Several issues often cause breastfeeding difficulties, including inadequate milk production, lack of understanding of proper lactation management, the desire to relocate after formula feeding, pre-lacteal feeding (such as sugar water or formula in the first days of birth), maternal conditions like sore nipples, nipple wounds, breast engorgement, mastitis,

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and abscesses, pregnancy while still breastfeeding, work commitments, and infant conditions such as illness or abnormalities (Hegar, 2018).

Marmet massage, which involves a simple technique using two fingers, is considered a safe and effective method to stimulate milk production without significant costs (Misna et al., 2020). Various studies show that Marmet massage positively impacts milk production in postpartum mothers. This study aligns with Oktaviani's (2023) research titled "The Effectiveness of The Marmet Technique Breast Massage is Comparable," which found a significant improvement in breastfeeding smoothness in mothers applying the Marmet technique. This technique significantly enhances the efficiency of breastfeeding, facilitating better milk flow. Marmet massage, involving specific breast massage techniques, helps address common breastfeeding issues, such as suboptimal milk output and breastfeeding difficulties. By facilitating milk emptying from the lactiferous ducts and stimulating the release of essential hormones like prolactin and oxytocin, this technique improves milk flow and aids the baby in breastfeeding.

Additionally, Wasis Pujiati and colleagues (2021), in their study "Marmet Technique and Smooth Milk Flow in Postpartum Mothers," confirm that Marmet massage is effective in improving milk flow. This study shows that the Marmet technique stimulates key hormones, prolactin and oxytocin, essential for lactation. Marmet massage, with its specific breast massage technique, stimulates receptors in the breast, affecting prolactin secretion from the pituitary gland. Prolactin increases milk production, while oxytocin facilitates milk ejection by stimulating the contraction of myoepithelial cells around the alveoli. Increased levels of both hormones contribute to better milk flow and volume, supporting postpartum mothers in the breastfeeding process.

Emilda and Juliastuti (2020) further support these findings in their study titled "The Effectiveness of Oxytocin and Marmet Massage on Increased Prolactin Hormone for Smooth Breastfeeding in Postpartum Mothers in Langsa City Health Office." This study demonstrates that the Marmet technique is more effective in increasing prolactin levels than other methods, such as oxytocin massage. The study compared the impacts of Marmet and oxytocin massage on prolactin levels, which are crucial for milk production. Results indicate that the Marmet technique, involving specific breast area massage, is more effective in stimulating prolactin production, which is essential for adequate milk production, thereby facilitating smooth breastfeeding.

Meanwhile, Sulistiawati (2020), in her study "The Effect of Marmet Technique on Mother's Satisfaction in Breastfeeding," reveals that the Marmet technique not only positively impacts milk production but also enhances maternal satisfaction during

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breastfeeding. This study shows that the Marmet technique helps mothers overcome common breastfeeding challenges, such as milk output issues and discomfort. By improving milk flow, the Marmet technique positively affects the breastfeeding experience, increasing maternal satisfaction. This satisfaction is important as it can influence mothers' motivation to continue breastfeeding and support the baby's overall health.

Based on the above explanations, the researcher assumes that respondents' breast milk output is influenced by the effect of Marmet massage, which leads to the emptying of milk from the lactiferous ducts under the areola. This emptying is expected to stimulate prolactin release, which in turn stimulates alveoli cells to produce more milk. The more milk emptied from the breast, the greater the likelihood of increased milk production within the breast. Additionally, the researcher assumes that prior to the Marmet massage intervention, mothers experienced tension that may impede the breastfeeding process and milk production. This tension could be due to psychological or physical factors affecting milk flow. After Marmet massage, mothers feel more relaxed and comfortable, positively impacting milk flow. This massage technique helps reduce tension and increase maternal comfort, effectively stimulating milk output. The significant increase in milk output after the intervention supports this assumption.

Another assumption is that Marmet massage can stimulate the let-down reflex, or milk ejection, by increasing sensitivity and stimulation in the breast area. This technique may activate receptors related to oxytocin release, which is crucial for milk ejection. Increased oxytocin levels can facilitate milk ejection and enhance production volume. Additionally, by manually stimulating the breast area, Marmet massage may reduce the likelihood of milk duct congestion or blockage, improving milk flow and making breastfeeding more comfortable for mothers.

## CONCLUSION

The study concludes that Marmet massage significantly affects breast milk output in postpartum mothers at RSUD Alimuddin Umar, Lampung Barat Regency. Prior to the intervention, the average breast milk output was 34.50, which increased to 88.00 after the Marmet massage intervention. Statistical analysis shows a significant effect between breast milk output before and after the intervention, with a P value of 0.000, confirming that Marmet massage has a substantial impact on increasing breast milk production.

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