



Differences in Effectiveness Between Breast Massage and Combination Massage in Breast Milk Production in Postpartum

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A B S T R A C T

Various factors can predispose to the lack of exclusive breastfeeding in Indonesia. One of them is a lack of breast care and massage. This research aims to evaluate the effectiveness of a breast and back massage combination on increasing breast milk production in postpartum mothers in the Sorong Regency by comparing the breast and back massage combination group with the breast massage group. This study used a quasi-experimental design with a post-test approach involving two groups. The population was postpartum mothers with newborns aged 0 months in the Sorong Regency, West Papua Province. There were 37 respondents with accidental sampling. The authors provided a breast and back massage combination in the intervention group. In addition, we gave breast massage to the control group. Both groups had breast milk volume measurements after 14 days of treatment. Bivariate analysis used T-test to determine the difference between the two groups on breast milk volume in postpartum mothers. The mean breast milk volume in the breast and back massage combination was higher than in the breast massage group. T-test results obtained $p = 0.00$, indicating significant differences between both groups. Thus, respondents in the breast and back massage combination group had a significantly higher average breast milk volume than the breast massage group. In conclusion, the combination of breast and back massage is more effective in increasing breast milk production in postpartum mothers than breast massage only. Further research should explore combining massage methods to improve milk production.

INTRODUCTION

According to United Nations International Children's Emergency Fund (UNICEF), in 2012, only 20% of countries had exclusive breastfeeding for infants' percentage of 50%. Meanwhile, 80% practiced exclusive breastfeeding for babies <50%. Unfortunately, Indonesia is one of them, with an exclusive breastfeeding percentage of 39%. According to World Health Organization, 37% of children in Indonesia had stunting, a contributor to the fifth largest in the world. It was because of the lack of practice of exclusive breastfeeding (Irnawati & Sari, 2022).

Annually, child mortality in Indonesia was 823,000, and maternal mortality was 20,000. One of the causes is the lack of awareness of exclusive breastfeeding. The coverage of exclusive breastfeeding in Indonesia in 2018 was 68,74%, whereas breastfeeding is the most effective way to increase the quality of life in children (Darmasari et al., 2019).

In 2015, West Papua province had 331,000 children, or 38% of the population. In every 1000 live births, 35 infants died during the first 1,000 days, and 109 died before five years old. In addition, the exclusive breastfeeding percentage reached 39% or below the national average for breastfeeding in Indonesia.

Reducing child mortality due to no exclusive breastfeeding is one strategy to speed up the achievement of the SDGs (Sustainable Development Goals) 2030.

Breast massage and care is one of the efforts to stimulate prolactin and oxytocin in breastfeeding mothers. Another is through expressing breast milk (Hesti et al., 2017). Prolactin influences breast milk production, and oxytocin affects lactation secretion. This research aims to evaluate the effectiveness of a breast and back massage combination on increasing breast milk production in postpartum mothers in the Sorong Regency by comparing the breast and back massage combination group with the breast massage group.

METHOD

This study used a quasi-experimental design with a post-test approach involving two groups. The study was conducted in the work area of the Sorong Barat Public Health Center for over three months, from March to May 2022. Five student midwives and one midwife assisted in this study. The population was postpartum mothers with new-borns aged 0 months in the Sorong Regency, West Papua Province. There were 37 respondents with accidental sampling. The participants were informed of the study's purpose and consented before participating in the intervention. The authors provided a breast and back massage combination in the intervention group. In addition, we gave breast massage to the control group. Both groups had breast milk volume measurements after 14 days of treatment. Bivariate analysis used T-test to determine the difference between the two groups on breast milk volume in postpartum mothers. This study was conducted after obtaining a letter of permission and ethical clearance from the Commission of Ethics Health Polytechnic Ministry of Health Sorong.

RESULT

In the breast and back massage combination group, 27.1% of respondents were over 31 years old and had graduated from high school. Meanwhile, in the breast massage group, 24.3% of respondents were aged 21-30 and graduated from junior high school.

Table 1 Distribution frequency characteristics respondent based on age and education.

Characteristics variable	Massage combination		Massage breast	
	n	%	n	%
Age				
15-20 years	4	10.82	6	16.1
21-30	6	16.3	9	24.3
>31	10	27.1	2	5.5
Education				
Elementary School	5	13.6	1	2.7
Junior High School	3	8.2	13	35.2
Senior High School	11	29.8	4	10.82
University	1	2.7	-	-

The standard deviation of breast milk volume in the breast and back massage combination group was more significant, indicating that that group had a more considerable variation in breast milk production. The standard error in the breast and back massage combination group was also more significant, indicating a larger measurement error in this group. However, despite the variation and measurement error, the mean breast milk volume in the breast and back massage combination was higher than in the breast massage group. T-test results obtained $p= 0.00$, indicating significant differences between both groups. Thus, respondents in the breast and back massage combination group had a significantly higher average breast milk volume than the breast massage group.

Table 2 Bivariate analysis

Group	n	Mean	Std. Dev	Std. error mean
Breast Massage	17	33,65	7.697	1.867
Breast Massage combination	20	75,30	11.725	2.622

DISCUSSION

Our findings indicated that respondents in the breast and back massage combination group had a significantly higher average breast milk volume than the breast massage group. Thus, a breast and back massage combination was more effective than breast massage only in increasing breast milk production in breastfeeding mothers in the Sorong Regency. It aligns with a previous study by Albertina et al. (2015) that showed excellent and proper breast care was essential in increasing milk production. In Albertina et al.'s study, respondents had an average increase in breast milk volume after conducting breast care. Other studies also showed oxytocin massage could increase breast milk production in mothers with Cesarean delivery (Wulandari et al., 2020). Oxytocin massage for breastfeeding mothers can stimulate oxytocin or love hormone to facilitate lactation secretion by increasing convenience for mothers so that it will comfort breastfed babies. Thus, counseling and training on oxytocin massage can increase exclusive breastfeeding coverage (Harefa et al., 2020).

Oxytocin is produced by glands posterior pituitary (neurohypophysis). When a baby sucks areola, it will stimulate the neurohypophysis, producing and releasing oxytocin intermittently. Oxytocin will enter the maternal blood flow and stimulate muscles around the alveoli to contract. Back massage on the spine can cause reflex accelerated neurogenic to transmit signals to the brain, especially in nerve parasympathetic. Consequently, there is a potential action of oxytocin that releases into blood systemic from the posterior pituitary. Oxytocin is delivered to the alveoli and uterus, causing myoepithelial cell contraction (Nuampa & Payakkaraung, 2021). In addition, oxytocin is critical for uterine involution to prevent active bleeding in postpartum mothers.

Besides oxytocin massage, one effort to increase oxytocin is by stimulating mammary glands through breast massage. Breast massage causes myoepithelium cells around the alveoli to contract and push breast

milk into the ampulla (Aprilina & Lestari, 2022). Breast care on the first days postpartum can launch blood vessels in the breast. In addition, it reduces Intraductal pressure caused by breast milk accumulating in the lactiferous ducts. In addition, stimuli during breast massage are transmitted to the hypothalamus through the spinal cord and mesencephalon to stimulate the Prolactin-releasing hormone, stimulating the anterior pituitary to produce prolactin. Furthermore, the prolactin hormone stimulates alveolar cells to produce breastmilk (Pertami et al., 2020).

So, breast and back massage combination will increase milk production and secretion more effectively. It is because it can give stimulation of the mammary glands to produce breast milk and trigger oxytocin in the let-down reflex (LDR). In addition, it offers comfort and creates relaxation for the breastfeeding mother through hormone endorphin secretion because of the massage and social support (Utami & Rohuna, 2021).

Thoughts, feelings, and sensations in a mother will affect oxytocin as a love hormone. So, it causes increased breast milk production. Recent studies also showed that some massage methods could be combined to improve breast milk production, such as nape, endorphin, and Marmet massage methods (Mudrikatin & Wati, 2020).

Breast milk production in the first days after birth is essential for the mother and baby in successful exclusive breastfeeding. Infants do not need breast milk substitutes. When there is little breast milk production in the first days after birth, a mother fears the baby will be hungry. Whereas milk production in the first days after birth ranges from 2-20 cubic centimeters (cc) (Peranginangin et al., 2022).

Early breast milk production will allow the mother to breastfeed the baby exclusively and lower the risk of failure in exclusive breastfeeding. Enough breast milk volume can remove the perception of breast milk insufficiency. The perception of breast milk insufficiency potentially disturbs the psychological in breastfeeding mothers. Thus, a baby needs to get breast milk as soon as possible after birth until six months old. In addition, the Indonesian Pediatric Society states that exclusive breastfeeding for 4-6 months can lower disease incidents because there are antibodies in the breast milk (Manurung, 2022). Health facilities, especially Independent Midwifery Practices (IMP) and Public Health Centers (PHC) should apply breast care and oxytocin massage in breastfeeding mothers to increase milk production (Widaryanti et al., 2022). It is recommended to provide the mother with health education about breast care and oxytocin massage from pregnancy, especially in the third trimester. That education is essential to prepare for breastfeeding. So, the mother can perform breast care independently with support from her husband and family.

This study had several weaknesses that might affect the generalizability and reliability of the findings. The small sample size might not represent the postpartum mother's population. In addition, no control group provided any message to compare the effectiveness of intervention against no intervention. Thus, it limits

the efficacy of the interventions. Furthermore, the study was conducted in a specific district (Sorong Regency), which might limit the generalizability of the findings to other populations. The researchers also did not blind the participants or the outcome assessors to the intervention, which could bias the results. Last, the study only measured breast milk volume after 14 days of treatment. There was no long-term follow-up to assess the sustainability of the interventions and their effect on breastfeeding outcomes. These weaknesses highlight the need for caution when interpreting the findings of this study.

CONCLUSION

In conclusion, the combination of breast and back massage is more effective in increasing breast milk production in postpartum mothers than breast massage only. The combination stimulates the breast muscles to produce more milk volume and triggers the hormone oxytocin. Counseling and training on this massage method are critical to increasing the scope of exclusive breastfeeding. Further research should explore combining massage methods to improve milk production.

REFERENCES

- Aprilina, A., & Lestari, D. (2022). Effectiveness Of Dates Extract And Oxytocin Massage On Increasing Breast Milk Production For Breastfeeding Mothers. *Jurnal Kebidanan Dan Kesehatan Tradisional*, 95–107. <https://doi.org/10.37341/jkkt.v0i0.366>
- Darmasari, S., Putri, E., & Rahmadaniah, I. (2019). Effectiveness of the combination of marmet technique and oxytocin massage against the breast milk production of mother postpartum. *Jurnal Kedokteran Kesehatan : Publikasi Ilmiah Fakultas Kedokteran Universitas Sriwijaya*, 6, 110–114. <https://doi.org/10.32539/JKK.V6I3.9435>
- Harefa, J. K., Anwar, A. D., Novi, T., Wijayanegara, H., Septiani, L., & Garna, H. (2020). Influence Breast Care Massage Methods To Increase Production Oketani mother's milk (ASI) On Mother Post Partum In Puskesmas Gunungsitoli-Nias: Influence Breast Care Massage Methods To Increase Production Oketani mother's milk (ASI) On Mother Post Partum In Puskesmas Gunungsitoli-Nias. *Journal of Midwifery and Nursing*, 2(1), Article 1. <https://www.ejournal.iocscience.org/index.php/JMN/article/view/439>
- Hesti, K. Y., Pramono, N., Wahyuni, S., Widyawati, M. N., & Santoso, B. (2017). EFFECT OF COMBINATION OF BREAST CARE AND OXYTOCIN MASSAGE ON BREAST MILK SECRETION IN POSTPARTUM MOTHERS. *Belitung Nursing Journal*, 3(6), 784–790. <https://doi.org/10.33546/bnj.293>
- Irnawati, I., & Sari, L. P. (2022). Differences of the Effectiveness of Breast Care and Oxytocin Massage on the Smooth Production of Breast Milk in Postpartum Mothers. *Jurnal Ilmiah Kesehatan (JIKA)*, 4(1), 18–24. <https://doi.org/10.36590/jika.v4i1.209>
- Manurung, H. R. (2022). The Effectiveness of Neck Massage to Increasing the Total of Postpartum Breast milk on the First until Third Days at PMB Medan City. *Science Midwifery*, 10(4), Article 4. <https://doi.org/10.35335/midwifery.v10i4.852>
- Mudrikatin, S., & Wati, D. R. (2020). THE EFFECTIVENESS OF THE “BOMB” METHOD (BREASTCARE, OXYTOCIN MASSAGE, AND MARMET TECHNIQUE) ON INCREASING

BREAST MILK PRODUCTION IN BREASTFEEDING MOMENTS AGE 0-6 MONTHS AT PRAMBON PUBLIC HEALTH CLINIC, NGANJUK DISTRICT. *INTERNATIONAL JOURNAL OF NURSING AND MIDWIFERY SCIENCE (IJNMS)*, 4(3), Article 3. <https://doi.org/10.29082/IJNMS/2020/Vol4/Iss3/312>

- Nuampa, S., & Payakkarang, S. (2021). Effectiveness of Different Massage Techniques for Breastfeeding Mothers to Increase Milk Production: A Systematic Review. *Pacific Rim International Journal of Nursing Research*, 25(1), Article 1. <https://he02.tci-thaijo.org/index.php/PRIJNR/article/view/241405>
- Peranginangin, R. B., Ahmad, M., Usman, A. N., & Arsyad, N. A. (2022). THE EFFECT OF BREAST CARE AND GYMNASTICS ON MOTHERS WITH LESS BREAST MILK PRODUCTION: A LITERATURE REVIEW. *Nurse and Health: Jurnal Keperawatan*, 11(1), Article 1. <https://doi.org/10.36720/nhjk.v11i1.326>
- Pertami, S. B., Budiono, B., & Rahmawati, I. (2020). Optimizing the Endorphin and Oxytocin Massage to Increase Breast Milk Production among Postpartum Mother in Indonesia. *NurseLine Journal*, 5(1), Article 1. <https://doi.org/10.19184/nlj.v5i1.16825>
- Utami, R. B., & Rohuna, R. (2021). Loving Lactation of Massage Effectiveness to Accelerating Lactation Onset. *KEMAS: Jurnal Kesehatan Masyarakat*, 17(1), Article 1. <https://doi.org/10.15294/kemas.v17i1.25321>
- Widaryanti, R., Febriati, L., Setyaningsih, D., Yuliani, I., & Mustamu, A. (2022). *THE EFFECTIVENESS OF NEUROLINGUISTIC PROGRAMMING ON PERCEIVED INSUFFICIENT MILK*. <https://doi.org/10.47750/pnr.2022.13.04.125>
- Wulandari, S., Triharini, M., & Wahyuni, S. D. (2020). The Effect of a Combination of Oxytocin Massage and Music Therapy on Breast Milk Production and Breastfeeding Self Efficacy in Primipara Post Partum Mothers. *Pedimaternal Nursing Journal*, 6(1), Article 1. <https://doi.org/10.20473/pmnj.v6i1.19181>