
The Effectiveness Of Oxytocin Massage On Breast Milk Letdown In Postpartum Mothers In The Delivery Room Of Ampelgading Community Health Center

Qurota Akyuni¹⁾, Nila Widya Keswara²⁾

^{1,2)} Program Studi Sarjana Kebidanan, Fakultas Ilmu kesehatan, Institut Teknologi, Sains, dan Kesehatan RS dr. Soepraoen Kesdam V/Brw Malang

*Corresponding Author

E-mail: gakyuni38@gmail.com

Abstract

Babies get all the nutrients they need to grow and develop optimally from breast milk, making it the ideal food source. Breast milk secretion issues are frequent among new moms, especially in the first few days after giving birth. One non-pharmacological approach to increasing milk production and secretion is oxytocin massage, which works by stimulating the release of the hormone oxytocin. In 2025, the goal of 80% was not met at Ampelgading Public Health Center, Ampelgading District, where the coverage of exclusive breastfeeding remained at 72%. The purpose of this research was to find out whether postpartum women could increase their milk production by massaging their breasts with oxytocin. The researchers in this study used a one-group pretest-posttest design based on previous research. Thirty pregnant women who had just given birth were randomly selected using the complete sampling technique. For three days, we monitored the secretion of breast milk both before and after performing an oxytocin massage. The Wilcoxon-marked assessment test was used to evaluate the data, with a significance level of $\alpha = 0.05$ being used. According to the data, the majority of participants were between 26 and 30 years old, had experienced a termination of employment, had a minimum of Junior High School Education, were unemployed, and were among the youngest participants (10 respondents; 33.3%). After receiving oxytocin massage, the average amount of breast milk released increased from 6.93 cc to 24.83 cc. Statistically significant changes in breast milk secretion were seen before and after oxytocin massage administration, as indicated by a p value of 0.000 ($p < 0.05$) on the Wilcoxon Signed Rank test. Postpartum women who get an oxytocin massage report an increase in their milk production. Midwives may advise oxytocin massage as a postpartum intervention to help the mother secrete more breast milk.

Keywords: Oxytocin Massage, Breast Milk Secretion, Postpartum Mothers

INTRODUCTION

The World Health Organization recommends exclusive breastfeeding as the sole source of nutrition for infants during the first six months of life, followed by continued breastfeeding alongside appropriate complementary foods until the age of two years. This recommendation is consistently supported by the Indonesian Pediatric Society, the Academy of Breastfeeding Medicine, and the American Academy of Pediatrics, all of which emphasize exclusive breastfeeding for a minimum of six months.

Breast milk is the optimal source of nutrition for infants aged 0–6 months because it contains essential nutrients, including arachidonic acid (AA) and docosahexaenoic acid (DHA), which play critical roles in immune system development, physical growth, and brain maturation (Kemenkes RI, 2026). Breastfeeding also provides significant health benefits for both infants and mothers. According to Children's Hospital Los Angeles (2024), adequate intake of essential fatty acids, particularly DHA and AA, supports optimal gray matter development and enhances cognitive function. Furthermore, breastfeeding stimulates the release of endogenous oxytocin, promotes uterine involution, and reduces the risk of postpartum hemorrhage (PMC, 2024).

Optimal infant growth and development depend on the natural nutrients and protective antibodies contained in breast milk. Therefore, the WHO recommends exclusive breastfeeding during the first six months of life. However, many mothers continue to experience breastfeeding difficulties, particularly during the early postpartum period when milk production and milk ejection are often insufficient.

The postpartum period represents a critical transitional stage that requires substantial physical and psychological adaptation. Mothers who are emotionally or physically unprepared, lack confidence

in their parenting abilities, or experience excessive concern regarding infant care are more susceptible to anxiety and emotional distress. These psychological responses can directly interfere with the physiological processes involved in lactation.

Psychological stress activates the sympathetic nervous system, leading to increased secretion of stress hormones such as cortisol and adrenaline. Elevated levels of these hormones inhibit the synthesis and release of oxytocin from the posterior pituitary gland. Consequently, reduced oxytocin secretion suppresses the milk ejection reflex (let-down reflex), thereby impairing the release of breast milk.

Recent global data published by United Nations Children's Fund and the World Health Organization in the 2024 *Global Breastfeeding Scorecard* indicate that the global exclusive breastfeeding rate among infants younger than six months has reached approximately 48%. Although this achievement represents an increase of nearly 10% over the past decade and approaches the original World Health Assembly (WHA) target of 50%, WHO and UNICEF have established a new global target of 60% exclusive breastfeeding coverage by 2030.

In Indonesia, exclusive breastfeeding coverage reached 63.9% in 2023. To strengthen breastfeeding practices, the Ministry of Health established a national target of 80% coverage for 2024. Nevertheless, data from the Indonesian Health Survey (SKI, 2023) revealed that only 68.6% of Indonesian mothers successfully practiced exclusive breastfeeding. According to the Indonesia Health Profile (2023), exclusive breastfeeding coverage in East Java Province reached 73.59% among infants aged 0–6 months in 2024, remaining below the national target. Similarly, data from Ampelgading Community Health Center in 2025 reported an exclusive breastfeeding coverage of only 72%, indicating that further interventions are necessary to improve breastfeeding outcomes.

Oxytocin is a key hormone regulating milk ejection during breastfeeding through the let-down reflex. Maternal fatigue, psychological stress, and anxiety can suppress oxytocin secretion, resulting in delayed or inadequate breast milk release.

The mother's psychological condition during the postpartum period substantially influences the success of early breastfeeding. Emotional distress and anxiety stimulate sympathetic nervous system activity, increasing stress hormone production and subsequently inhibiting oxytocin secretion. This mechanism has been demonstrated by Astutik and Rahmawati (2023), who reported a significant negative association between postpartum anxiety and reduced breast milk production, accompanied by impaired milk flow. These findings highlight the importance of interventions capable of reducing maternal anxiety while simultaneously stimulating the physiological mechanisms responsible for lactation, including oxytocin massage.

Delayed onset of lactation during the early postpartum period is frequently associated with inadequate psychological readiness. Consistent with this finding, Maulina et al. (2023) reported that psychological factors, particularly fear of breastfeeding failure and emotional exhaustion experienced by first-time mothers during the first three postpartum days, were major contributors to delayed colostrum production. Psychological barriers suppress the milk ejection reflex, indicating the need for interventions that simultaneously improve maternal psychological well-being and stimulate lactation.

Oxytocin massage is a non-pharmacological intervention involving gentle massage along the vertebral column, specifically between the fifth and sixth thoracic vertebrae, to stimulate endogenous oxytocin secretion. Increased oxytocin levels enhance the contraction of myoepithelial cells surrounding the mammary alveoli, thereby facilitating breast milk ejection and improving breastfeeding success.

Based on these considerations, this study was conducted to investigate the effect of oxytocin massage on breast milk secretion among postpartum mothers in the maternity ward of Ampelgading Community Health Center. The findings are expected to provide scientific evidence supporting the implementation of oxytocin massage as an effective intervention to improve breastfeeding outcomes during the early postpartum period.

RESEARCH METHODS

This study employed a pre-experimental research design using a one-group pretest–posttest design. This design was used to evaluate breast milk secretion before the administration of oxytocin massage (pretest), provide the oxytocin massage intervention to all participants, and subsequently measure breast milk secretion after the intervention (posttest). Changes in breast milk secretion were determined by comparing the pretest and posttest measurements. Because the data were not normally distributed, differences between pre- and post-intervention measurements were analyzed using the Wilcoxon Signed-Rank Test with a significance level of 0.05.

The study was conducted in the maternity ward of Ampelgading Community Health Center from April to May 2026. A total of 30 postpartum mothers who met the inclusion criteria were selected using a purposive sampling technique. Oxytocin massage served as the independent variable, while breast milk secretion was the dependent variable.

Data were collected using an observation checklist to assess breast milk secretion before and after the intervention. The oxytocin massage was administered according to the established Standard Operating Procedure (SOP). Breast milk volume was measured using a breast pump, syringe, and graduated measuring cup to ensure accurate quantification.

This study adhered to research ethics principles, including obtaining informed consent, maintaining participant confidentiality, and ensuring the principles of beneficence and non-maleficence. Data processing included coding, editing, data entry, and data cleaning before statistical analysis.

RESULTS AND DISCUSSION

Respondent Characteristics

Table 1.1. Distribution of Respondents by Age

Umur	Frekuensi Persentase (%)	
<20 tahun	6	20,0
20–25 tahun	9	30,0
26–30 tahun	10	33,3
>30 tahun	5	16,7
Total	30	100

The age distribution indicated that most respondents (10 out of 30) were in the 26–30 years age group. Nine respondents (30.0%) were aged 20–25 years, six respondents (20.0%) were under 20 years, while the smallest proportion, five respondents (16.7%), were aged over 30 years.

Table 1.2. Distribution of Respondents by Gestational Age

Usia Kehamilan	Frekuensi Persentase (%)	
Prematur	0	0
Aterm	28	93,4
Postterm	2	6,6
Total	30	100

Based on the distribution of gestational age, the majority of respondents (28 respondents; 93.4%) had full-term pregnancies. Two respondents (6.6%) experienced post-term pregnancies, while no respondents (0%) had preterm pregnancies.

Table 1.3. Distribution of Respondents by Educational Level

Umur	Frekuensi Persentase (%)	
SD	6	20,0
SMP	14	46,7
SMA	10	33,3
Perguruan Tinggi	0	0
Total	30	100

The educational distribution showed that 6 respondents (20.0%) had completed elementary school, 14 respondents (46.7%) had completed junior high school, and 10 respondents (33.3%) had completed senior high school. None of the respondents had attained higher education.

Table 1.4. Distribution of Respondents by Occupation

No	Pekerjaan	Frekuensi	Persentase (%)
1	Ibu Rumah Tangga	26	86,7
2	Bekerja	4	13,3
Total		30	100

Most respondents, 26 (86.7%), were unemployed or housewives, whereas 4 respondents (13.3%) were employed.

Breast Milk Production Before and After Oxytocin Massage

Table 2. Breast Milk Production Before and After the Intervention

Variabel	Mean (cc)
Sebelum Pijat Oksitosin	6,93
Sesudah Pijat Oksitosin	24,83

Table 2 shows that the mean breast milk volume before oxytocin massage was 6.93 cc. Following the oxytocin massage intervention, the average breast milk production increased to 24.83 cc. Thus, the intervention resulted in an average increase of 17.90 cc in breast milk production.

This substantial increase demonstrates that oxytocin massage effectively facilitates breast milk secretion among postpartum mothers at the Ampelgading Community Health Center maternity ward.

Wilcoxon Signed-Rank Test Analysis

Table 3. Results of the Wilcoxon Signed-Rank Test

Variabel	Z	p-value
Pengeluaran ASI Sebelum dan Sesudah Intervensi	-4,78	0,000

The Wilcoxon Signed-Rank Test yielded a Z-value of -4.78 with a p-value of 0.000. Since the p-value was lower than the significance level ($\alpha = 0.05$), the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. These findings indicate that oxytocin massage had a statistically significant effect on increasing breast milk production among postpartum mothers at the Ampelgading Community Health Center.

The results confirm that oxytocin massage is an effective intervention for improving breast milk production during the postpartum period.

Results and Discussion

The findings demonstrated a significant increase in breast milk production among postpartum mothers following the oxytocin massage intervention. Before the intervention, the mean breast milk volume was only 6.93 cc, whereas after three consecutive days of oxytocin massage, the average volume increased markedly to 24.83 cc. This substantial improvement provides scientific evidence

that spinal oxytocin massage accelerates and enhances breast milk secretion during the postpartum period.

Physiologically, this improvement is associated with the optimization of the milk ejection reflex (let-down reflex). The first three days after childbirth represent a vulnerable period during which many postpartum mothers experience difficulty producing and releasing colostrum. Maulina et al. (2023) reported that postpartum mothers, particularly primiparous women, often experience delayed colostrum production due to physical fatigue and emotional anxiety related to breastfeeding. These findings are consistent with the present study, in which psychological stress inhibited early lactation. Stress stimulates the release of adrenaline, causing vasoconstriction of blood vessels surrounding the mammary glands and subsequently reducing milk secretion. Likewise, Mardiyarningsih (2020) found that postpartum mothers who received oxytocin massage experienced significantly greater increases in breast milk production than before the intervention.

In this study, oxytocin massage was applied to reduce psychological barriers to breastfeeding. Gentle tactile stimulation along the spinal region promotes relaxation, lowers maternal anxiety, and shifts autonomic activity from sympathetic dominance to parasympathetic dominance. This physiological response stimulates the posterior pituitary gland to release oxytocin into the bloodstream. Oxytocin subsequently induces contraction of the myoepithelial cells surrounding the mammary alveoli, facilitating the movement of breast milk into the lactiferous ducts and enhancing milk ejection.

The findings are further supported by Astutik and Rahmawati (2023), who demonstrated that successful breastfeeding is strongly influenced by the mother's psychological readiness. Their study showed that elevated anxiety suppresses hormonal responses necessary for lactation, resulting in reduced breast milk production. Consistent with established lactation theory, the present study indicates that oxytocin massage exerts a dual mechanism of action by stimulating neural mechanoreceptors along the spine while simultaneously reducing maternal psychological stress. This dual effect contributed to the significant increase in average breast milk production from 6.93 cc to 24.83 cc. Therefore, oxytocin massage represents an effective non-pharmacological intervention to improve lactation and may contribute to increasing exclusive breastfeeding coverage.

Based on these findings, oxytocin massage can be recommended as a safe, practical, and effective complementary midwifery intervention for postpartum mothers experiencing delayed or insufficient breast milk production.

CONCLUSIONS

A study involving 30 postpartum mothers in the maternity ward of the Ampelgading Community Health Center found that the majority of respondents were aged 26–30 years, with 10 participants (33.3%) belonging to this age group. Most respondents had completed junior high school education (14 respondents; 46.7%), while 26 respondents (86.7%) were unemployed or housewives. The mean breast milk volume before oxytocin massage was 6.93 cc, which increased significantly to 24.83 cc after the intervention. The Wilcoxon Signed-Rank Test revealed a p-value of 0.000 ($p < 0.05$), indicating a statistically significant difference in breast milk production before and after oxytocin massage.

These findings demonstrate that oxytocin massage effectively increases breast milk production among postpartum mothers at the Ampelgading Community Health Center. Therefore, oxytocin massage can be considered an effective non-pharmacological intervention to promote lactation and support successful breastfeeding during the postpartum period.

REFERENCES

- Astutik, P., & Rahmawati, A. (2023). Hubungan Tingkat Kecemasan dengan Produksi ASI pada Ibu Postpartum di Fasilitas Pelayanan Kesehatan. *Jurnal Ilmiah Kebidanan*, 11(2), 114-12
- Dinas Kesehatan Republik Indonesia. (2024). *Profil kesehatan Indonesia 2023*. Kementerian Kesehatan Republik Indonesia.
- Ikatan Bidan Indonesia. (2021). *Pedoman pelayanan kebidanan pada masa nifas*. Ikatan Bidan Indonesia.
- Kementerian Kesehatan Republik Indonesia. (2022). *Profil kesehatan Indonesia 2022*. Kementerian Kesehatan Republik Indonesia.
- Mardiyaningsih. (2020). Pengaruh pijat oksitosin terhadap kelancaran pengeluaran ASI pada ibu post partum. *Jurnal Kebidanan Indonesia*.
- Maryunani, A. (2015). *Asuhan ibu post partum dan menyusui*. Trans Info Media.
- Maulina, S., et al. (2023). Analisis Faktor Psikologis terhadap Keterlambatan Pengeluaran ASI pada Ibu Primipara Masa Nifas. *Jurnal Kesehatan dan Kebidanan*
- Ningtyas, D. W. (2020). *Buku saku pijat oksitosin*. Universitas Aisyiyah Surakarta.
- Nursalam. (2016). *Konsep dan penetapan metodologi penelitian ilmu keperawatan pendekatan praktis*. Salemba Medika.
- Roesli, U. (2018). *Inisiasi menyusu dini dan ASI eksklusif*. Pustaka Bunda.
- Sutanto, A. V. (2021). *Asuhan kebidanan nifas dan menyusui*. PT Pustaka Baru.
- UNICEF. (2023). *Breastfeeding recommendations and practices*. United Nations Children's Fund.
- UNICEF, & WHO. (2024). *Global Breastfeeding Scorecard 2024: Meeting the global target for breastfeeding*. Geneva: World Health Organization and United Nations Children's Fund.
- [UNICEF Indonesia](#). (2024). *Peningkatan Angka Pemberian ASI di Indonesia: Ibu Perlu Dukungan Lebih*. Jakarta: UNICEF Indonesia
- World Health Organization. (2023). *Infant and young child feeding guidelines*. World Health Organization.
- Wulandari, S. R., & Handayani, S. (2011). *Asuhan kebidanan ibu masa nifas*. Gosyen Publishing.
- Yuli, A. R. (2014). *Payudara dan laktasi*. Salemba Medika.
- Yusari, A. (2017). Pengaruh Pijat Oksitosin Terhadap Produksi ASI Pada Ibu Nifas. *Jurnal Keperawatan, XIII (2)*. 209-214.