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The Effect of Oxytocin Massage on the Incidence of Breast Milk Blockage in Postpartum Mothers at the Tinongko Public Health Center

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Abstract: *Breast milk blockage is a common problem experienced by postpartum mothers and can interfere with successful breastfeeding. One non-pharmacological intervention that may help overcome this problem is oxytocin massage. This study aimed to analyze the effect of oxytocin massage on the incidence of breast milk blockage in postpartum mothers at Tinongko Community Health Center. This study used a quantitative pre-experimental design with a one-group pretest–posttest approach. The sample consisted of 20 postpartum mothers who experienced breast milk blockage and were selected using purposive sampling. Data were collected through observation before and after the administration of oxytocin massage. The incidence of breast milk blockage was assessed based on clinical signs, and data were analyzed using the Wilcoxon Signed Ranks Test. The results showed that all respondents experienced breast milk blockage before the intervention. After oxytocin massage, 85.0% of mothers no longer experienced breast milk blockage, while 15.0% reported a reduction in symptoms. The Wilcoxon test revealed a statistically significant difference in breast milk blockage before and after oxytocin massage ($p < 0.05$). In conclusion, oxytocin massage is effective in reducing breast milk blockage and improving milk flow in postpartum mothers. This intervention can be applied as part of routine postpartum care to support successful breastfeeding.*

Keywords: *Breast Milk Blockage; Breastfeeding; Lactation**;** Oxytocin Massage; Postpartum Mothers.*

1. INTRODUCTION

Breast milk (BM) is a vital source of nutrition for infants aged 0 to 6 months. BM contains essential nutrients required for the baby's growth and development, including proteins, fats, carbohydrates, vitamins, and minerals. It also boosts the infant's immune system, protecting them from various diseases (Hijriani et al., 2023). Exclusive breastfeeding for the first six months of life is highly recommended by the World Health Organization (WHO) and the Indonesian Pediatric Association (IDAI) due to its immense benefits for both infant health and mother-child bonding. In addition to providing optimal nutrition, BM also helps accelerate the mother's recovery post-delivery and reduces the risk of breast cancer (Nurainun & Susilowati, 2021).

However, despite the recommendation for exclusive breastfeeding, many mothers face challenges in breastfeeding, especially in the postpartum phase. One common issue that mothers face is breast engorgement. Breast engorgement occurs when the breasts become full, hard, and painful due to excessive milk production that is not immediately released (Arniayanti & Angraeni, 2020). This condition happens when milk is not sufficiently expressed, either because of incorrect breastfeeding techniques, latch problems, or the baby's inability to nurse effectively. If left untreated, breast engorgement can lead to breast

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infections, known as mastitis, which can further interfere with breastfeeding and negatively affect the mother's health (Marantika et al., 2023).

There are several factors that contribute to the occurrence of breast engorgement in mothers. One such factor is incorrect breastfeeding positioning, where the baby is unable to latch properly, preventing milk from being expressed effectively (Nelina & Maria, 2024; Supardi, 2022). Additionally, inverted or flat nipples are often a challenge for breastfeeding mothers, as babies may struggle to latch properly. Another factor is the failure to provide exclusive breastfeeding, which reduces the frequency of milk stimulation, leading to overproduction of milk and resulting in engorgement. All of these issues, if not addressed properly, can cause significant discomfort to mothers and hinder the effective initiation of breastfeeding. (Pilaria & Sopiatun, 2018)

One solution commonly recommended to help alleviate the problem of breast engorgement is oxytocin massage. Oxytocin massage is a technique that involves gently massaging the breasts and surrounding areas to stimulate the release of oxytocin, a hormone responsible for milk ejection. Oxytocin helps facilitate the contraction of the muscles around the breasts, which leads to milk being released (Pilaria & Sopiatun, 2018). This technique also provides a relaxing effect for the mother, reducing the anxiety and stress often associated with breastfeeding difficulties.

Although oxytocin massage is already well-known in the medical community as a method to address breast engorgement, further research is needed to determine the full effectiveness of this technique. Previous studies have suggested that oxytocin massage can help relieve breast engorgement symptoms and improve the flow of milk (Fitria & Retmiyanti, 2021; Hidayah & Dian Anggraini, 2023). However, its impact on the occurrence of breast engorgement in postpartum mothers still requires deeper investigation, particularly in Indonesia, where this issue is still quite prevalent in many healthcare facilities.

According to a preliminary study conducted at UPTD Puskesmas Tinongko from January to September 2025, it was found that 20 out of 39 postpartum mothers experienced breast engorgement. The main contributing factors to this issue included incorrect breastfeeding positioning, inverted nipples, and inability to practice exclusive breastfeeding. Many of the mothers who experienced breast engorgement reported significant discomfort in their breasts and challenges with breastfeeding. This highlights that breast engorgement at Puskesmas Tinongko is an important issue that needs more attention.

Therefore, this study aims to further investigate the impact of oxytocin massage on the occurrence of breast engorgement in postpartum mothers at UPTD Puskesmas Tinongko. This research also aims to provide a clearer understanding of the effectiveness of oxytocin massage in alleviating breast engorgement and offer recommendations for implementing this technique to enhance exclusive breastfeeding success in Indonesia. The findings of this study are expected to be valuable for healthcare professionals, particularly midwives and nurses working with postpartum mothers, as well as mothers facing breastfeeding challenges.

2. RESEARCH METHOD

This study employs a quantitative approach using an experimental design to assess the impact of oxytocin massage on breast engorgement in postpartum mothers. The experimental design allows for the measurement of the effects of the intervention (oxytocin massage) on the outcome (breast engorgement), providing a clear understanding of the relationship between the two variables. The study was conducted at Tinongko Public Health Center, where data was collected from postpartum mothers who visited the clinic between January and September 2025.

The sample for this study consisted of 39 postpartum mothers, with 20 mothers identified as experiencing breast engorgement. The mothers who participated in the study were selected through purposive sampling, ensuring that the sample represented the population of mothers experiencing breast engorgement. Each participant was given an intervention of oxytocin massage, and data was collected before and after the intervention to assess the effectiveness of the technique. The oxytocin massage was performed by trained healthcare providers, and the mothers' response to the massage was observed and recorded.

Data was collected through direct observation and interviews, where the healthcare providers recorded the participants' breast engorgement levels and any changes observed after the oxytocin massage. The level of breast engorgement was assessed based on physical signs such as breast fullness, hardness, and tenderness. The effectiveness of the massage was then analyzed using descriptive statistics and inferential tests to evaluate the significance of the changes in engorgement levels before and after the intervention. The results were used to determine whether oxytocin massage had a statistically significant impact on reducing breast engorgement among postpartum mothers.

3. RESULTS AND DISCUSSION

Univariat Analyze

Univariate analysis was conducted to describe the characteristics of postpartum mothers and the distribution of research variables, including maternal age, parity, educational level, type of delivery, direct causes of breast milk blockage, and the incidence of breast milk blockage before and after oxytocin massage.

Table 1. Distribution of Respondents by Age Group

Age Group	Frequency (n)	Percentage (%)
< 20 years	4	20.0
20–35 years	13	65.0
> 35 years	3	15.0
Total	20	100.0

Table 1 shows that most respondents were aged 20–35 years, accounting for 13 mothers (65.0%). Respondents aged less than 20 years comprised 4 mothers (20.0%), while those aged over 35 years accounted for 3 mothers (15.0%). The mean age of respondents was 27.7 years, indicating that most mothers were within the optimal reproductive age.

Table 2. Distribution of Respondents by Parity

	Frequency (n)	Percentage (%)
Primigravida	7	35.0
Multigravida	10	50.0
Grandemultipara	3	15.0
Total	20	100.0

Based on Table 2, half of the respondents were multigravida mothers (50.0%), while 35.0% were primigravida and 15.0% were grandemultipara. Parity may influence breastfeeding experience and the ability to manage milk flow during the postpartum period.

Table 3. Distribution of Respondents by Educational Level

Educational Level	Frequency (n)	Percentage (%)
Primary School	3	15.0
Junior High School	9	45.0
Senior High School	8	40.0
Total	20	100.0

Table 3 indicates that most respondents had junior high school education (45.0%), followed by senior high school education (40.0%). Only 15.0% of respondents had primary school education. Educational level may affect mothers' knowledge and practices related to breastfeeding.

Table 4. Distribution of Respondents by Type of Delivery

Type of Delivery	Frequency (n)	Percentage (%)
Normal vaginal delivery	18	90.0
Cesarean section	2	10.0
Total	20	100.0

As shown in Table 4, the majority of respondents delivered vaginally (90.0%), while only 10.0% underwent cesarean section. Type of delivery can influence early breastfeeding initiation and the risk of breast milk blockage.

Table 5. Distribution of Respondents by Direct Causes of Breast Milk Blockage

Direct Cause of Breast Milk Blockage	Frequency (n)	Percentage (%)
Incorrect breastfeeding position	10	50.0
Inverted nipples	5	25.0
Not practicing exclusive breastfeeding	5	25.0
Total	20	100.0

Table 5 shows that the most common direct cause of breast milk blockage was incorrect breastfeeding position (50.0%). Inverted nipples and failure to provide exclusive breastfeeding each accounted for 25.0% of cases. These factors contribute to ineffective milk removal and increase the risk of breast engorgement.

Bivariat Analyze

Bivariate analysis was conducted to examine the effect of oxytocin massage on the incidence of breast milk blockage in postpartum mothers. Since the data were paired (before and after intervention) and not normally distributed, the Wilcoxon Signed Ranks Test was applied with a significance level of 0.05.

Table 6. Effect of Oxytocin Massage on Breast Milk Blockage in Postpartum Mothers

Variable	Mean ± SD	Minimum	Maximum
Breast milk blockage before oxytocin massage	1.00 ± 0.00	1	1
Breast milk blockage after oxytocin massage	2.85 ± 0.37	2	3

Table 7. Wilcoxon Signed Ranks Test Results

Comparison	Z value	p-value
Breast milk blockage before vs after oxytocin massage	-4.234	0.000

The results of the Wilcoxon Signed Ranks Test showed a Z value of -4.234 with a p-value of 0.000 ($p < 0.05$), indicating a statistically significant difference in the incidence of breast milk blockage before and after oxytocin massage. All respondents demonstrated improvement after the intervention, as indicated by the presence of 20 positive ranks and no negative ranks or ties. These findings indicate that oxytocin massage has a significant effect in reducing breast milk blockage among postpartum mothers. The increase in post-intervention scores reflects improved milk flow and a reduction or complete resolution of breast engorgement following oxytocin massage."

Discussion

This study examined the effect of oxytocin massage on the incidence of breast milk blockage in postpartum mothers at Tinongko Community Health Center. The results demonstrated a statistically significant reduction in breast milk blockage after the administration of oxytocin massage, indicating that this intervention is effective in improving milk flow among postpartum mothers.

The univariate analysis showed that most respondents were within the reproductive age range of 20–35 years and were predominantly multigravida. This finding is consistent with previous studies reporting that mothers in this age group generally have higher breastfeeding initiation rates but may still experience breastfeeding problems during the early postpartum period (Ulfah, 2021). Parity also plays an important role, as primigravida mothers often lack breastfeeding experience, while multigravida mothers may face physiological challenges related to repeated pregnancies and lactation.

Before the intervention, all respondents experienced breast milk blockage, confirming that breast engorgement remains a common postpartum problem. The most frequent direct cause identified was incorrect breastfeeding positioning, followed by inverted nipples and

failure to provide exclusive breastfeeding. These factors are widely recognized in the literature as major contributors to ineffective milk removal, leading to milk accumulation and breast engorgement (Pani & Tempali, 2022). Ineffective emptying of the breast can inhibit the milk ejection reflex and increase maternal discomfort, potentially disrupting breastfeeding continuation.

The bivariate analysis using the Wilcoxon Signed Ranks Test revealed a significant difference in breast milk blockage before and after oxytocin massage ($p < 0.05$). After the intervention, 85.0% of respondents no longer experienced breast milk blockage, while the remaining 15.0% reported a reduction in symptoms. This finding indicates that oxytocin massage effectively stimulates milk ejection and relieves breast engorgement in postpartum mothers.

Physiologically, oxytocin massage works by stimulating the release of oxytocin, a hormone responsible for the milk let-down reflex. Oxytocin causes contraction of the myoepithelial cells surrounding the mammary alveoli, facilitating milk flow from the alveoli into the milk ducts and toward the nipple. In addition, oxytocin has a calming effect that reduces maternal stress and anxiety, which are known inhibitors of milk ejection (Dewi & Ayu, 2024). Reduced stress may further enhance the effectiveness of breastfeeding and milk release.

The results of this study are consistent with previous research demonstrating the effectiveness of oxytocin massage in improving breastfeeding outcomes. A study by Handayani et al. (2022) reported that postpartum mothers who received oxytocin massage experienced significantly smoother milk flow compared to those who did not receive the intervention. Similarly, research conducted by (Triveni et al., 2025) found that oxytocin massage significantly reduced breast engorgement and improved maternal comfort during breastfeeding.

Another study by Riffa Ismanti & Fifi Musfirowati, (2021) showed that oxytocin massage not only reduced breast engorgement but also increased maternal confidence in breastfeeding. Improved maternal confidence may encourage more frequent breastfeeding, which further helps prevent milk accumulation and recurrence of breast engorgement. These findings support the results of the present study and reinforce the role of oxytocin massage as an effective non-pharmacological intervention.

Despite the positive findings, some respondents still experienced partial breast milk blockage after the intervention. This may be due to persistent underlying factors such as improper breastfeeding technique, anatomical nipple issues, or delayed initiation of breastfeeding. Previous studies have emphasized that oxytocin massage is most effective when combined with proper breastfeeding education and positioning guidance (Wulan et al., 2024)). Therefore, oxytocin massage should be integrated into comprehensive breastfeeding support programs rather than used as a standalone intervention.

This study has several limitations. The pre-experimental design without a control group limits the ability to attribute the observed effects solely to oxytocin massage. Additionally, the sample size was relatively small, which may limit the generalizability of the findings. The study also did not assess long-term outcomes, such as continued breastfeeding success or recurrence of breast engorgement.

Nevertheless, the findings of this study provide valuable evidence supporting the use of oxytocin massage as a practical and effective intervention to reduce breast milk blockage in postpartum mothers. This technique is simple, low-cost, and can be easily implemented by midwives and healthcare providers in primary healthcare settings.

In conclusion, oxytocin massage significantly reduces the incidence of breast milk blockage and improves milk flow in postpartum mothers. Integrating oxytocin massage with breastfeeding education and continuous support may enhance exclusive breastfeeding success and improve maternal comfort during the postpartum period.

4. CONCLUSION

This study concludes that oxytocin massage has a significant effect on reducing the incidence of breast milk blockage in postpartum mothers at Tinongko Community Health Center. The results of the Wilcoxon Signed Ranks Test showed a statistically significant difference in breast milk blockage before and after the intervention, indicating that oxytocin massage effectively improves milk flow and alleviates breast engorgement. Most mothers experienced complete resolution of breast milk blockage following the intervention, demonstrating the effectiveness of this non-pharmacological technique.

Based on these findings, oxytocin massage can be recommended as a supportive intervention for postpartum mothers experiencing breast milk blockage. Healthcare providers, particularly midwives, should consider integrating oxytocin massage into routine postpartum care and breastfeeding support programs. Future studies are recommended to

employ controlled experimental designs with larger sample sizes to further confirm the effectiveness of oxytocin massage and explore its long-term impact on breastfeeding success.

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