The Effect of Warm Rice Compresses on Breast Engorgement in Postpartum Womens

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Breast engorgement in postpartum breastfeeding mothers is a common problem frequently encountered. One management strategy that can be applied is a non-pharmacological method using warm rice compresses. This study aims to determine the effect of warm rice compresses on breast engorgement in postpartum breastfeeding mothers. The study design employed a quasi-experimental approach using a pretest-posttest model with a control group. The study sample consisted of 20 breastfeeding postpartum mothers who met the inclusion criteria and were selected using purposive sampling. The measurement tool used was the Six-Point Engorgement Scale (SPES) to assess the level of breast engorgement. The results showed a significant decrease in the level of breast engorgement in the intervention group after the application of warm rice compresses. Statistical analysis yielded a p-value < 0.05, indicating that warm rice compresses have an effect on breast engorgement in postpartum mothers.
Keywords: Breast Engorgement; Postpartum Breastfeeding Womens; Warm Rice Compresses.

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1. Introduction

The postpartum period is a phase lasting six to eight weeks following childbirth, during which the mother's body particularly her reproductive organs begins to return to its pre-pregnancy state [1]. Breast milk is the best source of nutrition for infants because it contains various minerals and nutrients that meet the infant's needs for the first six months of life [2].

One of the causes of barriers to exclusive breastfeeding is the occurrence of breastfeeding issues, particularly involving the breasts. The most commonly encountered issue is breast engorgement. Breast engorgement is a condition where venous and lymphatic flow in the breasts is obstructed, leading to disrupted milk ejection and increased pressure in the milk ducts and alveoli. This condition generally occurs due to the accumulation of breast milk that is not optimally expressed, leading to blockages. Common signs include breast swelling, a sensation of heat and firmness upon touch, and an increase in the mother's body temperature reaching 38°C [3].

Based on the report from the Indonesian Demographic and Health Survey (SDKI) in 2015, it is estimated that 38% of women in the world were found not to breastfeed their babies because they experienced breast engorgement (breast milk retention), and in Indonesia the exclusive breastfeeding coverage rate reached 32.3% of mothers who exclusively breastfeed their children. The Indonesian Demographic and Health Survey (SDKI) in 2016 showed that 55% of breastfeeding mothers experienced breast engorgement and mastitis, possibly due to lack of breast care during pregnancy [4].

Disruptions in milk production can trigger engorgement. This condition is influenced by various factors, including low breastfeeding frequency (47%), flat or non-protruding nipples (24%), not breastfeeding at night (9%), and maternal fatigue (2%) [5].

A warm compress is a therapeutic technique that uses heat to provide physiological effects on the body [6]. The purpose of a warm compress is to increase blood vessel dilation and help relax tense muscles in painful areas of the body. It also aims to soften fibrous tissue, relax muscles, reduce pain, improve blood circulation, and provide a calming effect. Based on these goals, it is known that a warm compress is a method for treating pain/swelling that usually uses warm water and is widely used. However, there are various types of warm compresses, one of which is using a warm rice compress [6].

The results of the study stated that the sig value (2-tailed) was 0.000 < 0.05, so there was an effect of warm breast compresses on the smooth flow of breast milk in postpartum mothers 1-7 days with a mean increase in the intervention class group (3.400) > from the mean of the control group (1.200) [7].

Several studies have proven the effectiveness of warm compresses using warm rice as a non-pharmacological intervention in reducing breast milk engorgement and pain in breastfeeding womens. [8] reported a decrease in pain scores from 4.5 to 2.6 after being given a warm rice compress, with the results of a paired t-test producing a p value = 0.000, which shows a statistically significant difference. [9] also showed that 90.9% of breastfeeding mothers who were given a warm rice compress experienced smooth milk flow, compared to only 18.2% in the control group, with a p value = 0.005. Meanwhile, [10] noted an increase in breast milk volume from an average of 18.5 cc to 40.5 cc after giving a warm rice compress, with the results of a statistical test p = 0.000.

In the Pangkalan Kerinci sub-district of Pelalawan Regency, reports from several health facilities indicate that cases of breast milk engorgement are still frequently encountered. Based on observations at community health centers and hospitals in the area, the incidence of breast milk engorgement reaches 35–45% of all postpartum mothers treated at these health facilities. There has been an increase in cases of breast engorgement at Efarina Hospital in Pangkalan Kerinci; since October 2024, there have been 30 cases, 25 cases in November, and 28 cases in December 2024. This indicates that nearly 28 cases of breast engorgement occur each month. This suggests that more effective non-pharmacological therapeutic strategies are still needed to reduce pain complaints resulting from breast engorgement [11].

A study by [12] demonstrated a significant reduction in breast engorgement pain following a combination of lactation education and warm rice compresses, with a p-value of 0.000. These findings reinforce that warm rice not only serves as a heat source that lasts longer than other media but is also effective in stimulating the oxytocin reflex, improving the flow of breast milk secretion, and preventing breast engorgement and pain in postpartum womens.

Therefore, this study aims to determine the effect of warm rice compresses on breast engorgement in postpartum mothers at Efarina Hospital in Pangkalan Kerinci. The results of this study are expected to provide insights for managing breast engorgement in postpartum womens.

2. Literature Review And Problem Statement

A warm compress is a therapeutic technique that uses heat to produce physiological effects on the body [6]. The purpose of applying a warm compress is to increase blood vessel dilation and help relax tense muscles in the area of the body experiencing pain. Additionally, it aims to soften fibrous tissue, relax the body's muscles, reduce pain sensations, improve blood circulation, and provide a soothing effect on the body. Based on these objectives, it is known that warm compresses are a common method for addressing

pain and swelling, typically using warm water, and are widely practiced. However, there are various types of warm compresses, one of which involves using a warm rice compress [6].

Several studies have demonstrated the effectiveness of warm rice compresses as a non-pharmacological intervention for reducing breast engorgement and pain in breastfeeding mothers. [8] reported a decrease in pain scores from 4.5 to 2.6 after the application of warm rice compresses, with a paired t-test yielding a p-value of 0.000, indicating a statistically significant difference. [13] also demonstrated that 90.9% of breastfeeding mothers who received warm rice compresses experienced improved milk flow, compared to only 18.2% in the control group, with a p-value of 0.005. Meanwhile, [10] noted an increase in breast milk volume from an average of 18.5 cc to 40.5 cc after the application of a warm rice compress, with a statistical p-value of 0.000.

A similar study by [9] also demonstrated a significant reduction in pain following a combination of lactation education and warm rice compresses, with a p-value of 0.000. These findings reinforce that warm rice not only serves as a heat source that lasts longer than other media but is also effective in stimulating the oxytocin reflex, improving the flow of breast milk secretion, and preventing breast engorgement and pain in postpartum mothers.

3. Method

This study employed a pre-experimental method with a one-group pretest-posttest design, involving a single randomly selected group. The respondent group first underwent a pretest to determine baseline conditions, followed by an intervention, and concluded with a posttest to assess the difference in the mean incidence of breast milk blockage before and after the intervention.The study was conducted at Efarina Hospital in Pangkalan Kerinci from December 2024 to May 2025. The study population consisted of 20 postpartum breastfeeding mothers experiencing breast engorgement, selected using consecutive sampling a non-probability sampling technique in accordance with the established inclusion criteria.

The variables in this study were warm rice compresses (independent variable) and breast engorgement (dependent variable). Breast engorgement was measured using the Six-Point Engorgement Scale (SPES) before (pretest) and after (posttest) the intervention warm rice compresses. Data were collected through observation and intervention after obtaining permission from the relevant parties. Respondents were provided with an explanation of the research objectives and the intervention to be conducted. The data then underwent editing, coding, and tabulation so they could be presented in the form of frequency distribution tables.Analysis was performed using univariate statistics to describe the characteristics of the research variables and bivariate statistics to analyze the mean of the variables before and after the intervention using the Wilcoxon Signed Rank test. The significance level used was 5% ($p < 0.05$), where if $p < 0.05$, it indicates a significant effect of warm rice compresses on breast milk engorgement.

4. Results And Discussion

Results

Univariate Analysis

The application of warm rice compresses consisted of three main components: a pre-test, the warm rice compress intervention, and a post-test. Based on these three stages, data were collected regarding respondent characteristics, respondent scores, and the number of correct answers on the questionnaire. The following are the research findings obtained by the author:

Table 1. Frequency Distribution of Respondent Characteristics by Age and Parity

Responden Characteristic	f	%
Age		
17–20 years	4	20
21-25 years	11	55
26-30 years	3	15
31-35 years	2	10
Total	20	100
Parity		
Primiparous	7	35
Multiparous	13	65
Total	20	100

Table 1 shows that the majority of respondents were aged 21–25 years (11 people, or 55%), and the majority were multiparous (13 people, or 65%).

Table 2. Frequency Distribution of Breastfeeding Duration Before and After Intervention at Efarina Hospital in Pangkalan Kerinci

SPES Category	f	%
Before		
1-2 (Mild)	0	0
3-4 (Moderate)	10	50
5-6 (Severe)	10	50
Total	20	100
After		
1-2 (Mild)	18	90
3-4 (Moderate)	2	10
5-6 (Severe)	0	0
Total	20	100

According to Table 2, the frequency distribution of breast milk blockages in the SPES category before the intervention showed that the majority were at levels 5–6 (severe), totaling 10 cases (50%); after the intervention, the majority of breast milk blockages decreased to levels 1–2 (mild), totaling 18 cases (90%).

Bivariate Analysis

Table 3. Frequency Distribution of SPES Scores for the ASI Dam Before and After the Intervention at Efarina Hospital in Pangkalan Kerinci

No	Variable	Pre-intervention Mean	Mean Post-intervention	Difference in Means	p-value	Decision	Conclusion
1	*SPES* before and after the intervention	4.50	1.35	3.15	0,000057	H_0 rejected	There is a significant difference

According to Table 3, there was a significant difference in the mean breast milk volume before the warm rice compress intervention (4.50) and after the intervention (1.35), with a mean difference of 3.15 and a p-value of 0.000057.

Discussion

Distribution of Respondent Characteristics by Age and Parity

This study involved 20 postpartum mothers experiencing blocked milk ducts at Efarina Hospital, Pangkalan Kerinci. Based on univariate analysis, the majority of respondents were in the 21–25 age group (55%), and the majority were multiparous (65%). This age group falls within the active reproductive age group, where mothers tend to be in the early stages of breastfeeding experience. Having given birth before does not guarantee optimal breastfeeding knowledge and skills.

Multiparous mothers are generally considered to have more breastfeeding experience than primiparous mothers. However, this is not always the case. Issues such as lack of family support, fatigue, stress, and incorrect breastfeeding techniques can still occur in multiparous mothers and lead to milk stasis. This aligns with research by [3], which states that not all mothers with previous breastfeeding experience are free from the risk of breast milk stasis. Environmental and psychological factors, as well as a lack of understanding of lactation management, also play a significant role.

Distribution of Breastfeeding Duration Before and After Intervention at Efarina Hospital in Pangkalan Kerinci

Before treatment, 50% of respondents were in the moderate category (SPES score 3–4) and 50% were in the severe category (SPES score 5–6). This indicates that all respondents experienced symptoms of breast engorgement that significantly interfered with breastfeeding, with complaints such as hard breasts, pain, tension, and difficulty breastfeeding. Severe breast engorgement was also often accompanied by fever and general discomfort.

After receiving treatment with warm rice compresses for seven consecutive days, twice daily, significant changes were recorded. The majority of respondents (90%) experienced improvement to the mild category (SPES score 1–2) and 10% experienced improvement to moderate (SPES score 3–4). No further cases of severe breast milk engorgement were found after the intervention.

The WHO states that breast milk ducts physiologically occur, starting on the third to sixth day after delivery. If the breasts are not emptied promptly after milk production begins, the milk volume will exceed the storage capacity of the alveoli, which can lead to breast milk duct retention, which in the long term can affect the sustainability of breast milk production [14].

A warm rice compress has a physiological effect that affects blood and lymph flow in the breast area. The heat from the rice causes blood vessels to widen (vasodilation), thereby increasing blood flow and improving local metabolism. Furthermore, the warm temperature helps relax tense breast tissue, open blocked milk ducts, and relieve pain. This relaxing effect also provides a sense of calm for the mother, which can increase the release of the hormone oxytocin. Oxytocin plays a key role in the let-down reflex, the process by which milk is released from the breast. When the mother is comfortable and relaxed, oxytocin release increases, resulting in smoother milk flow. This condition also increases the frequency and efficiency of breastfeeding, which ultimately helps optimally empty the breast and prevents milk accumulation in the alveoli [13].

The Effect of Warm Rice Compresses on Breast Engorgement in Postpartum Women

The results of the statistical analysis based on bivariate analysis using the Wilcoxon Signed-Rank Test indicate that warm rice compresses have an effect on breast engorgement in postpartum mothers at Efarina Hospital in Pangkalan Kerinci in 2025, where the mean breast engorgement pain score before the

intervention decreased to 1.35, with a mean difference of 3.15. The Wilcoxon Signed-Rank Test yielded a p-value of 0.000057; since this p-value is < 0.05, H0 is rejected and Ha is accepted.

This study aligns with previous research demonstrating the benefits of warm rice compresses as a non-pharmacological therapy for managing breast engorgement. In the study by [8], there was a decrease in pain scores from 4.5 to 2.6 following the warm rice compress intervention. This finding is similar to the decrease in SPES scores in this study from 4.5 to 1.35.

Research by [5] shows that mothers who were given warm rice compresses experienced a more effective natural stimulation of milk production compared to those who received no intervention. [10] found that the use of warm rice not only alleviates pain but also increases breast milk volume from 18.5 cc to 40.5 cc. This demonstrates that warm rice can facilitate optimal breast milk production, both through the oxytocin reflex and by stimulating breast tissue.

[15] also confirmed that the combination of lactation education with warm rice compresses yields significant results in reducing pain and increasing satisfaction among breastfeeding mothers. In this study, although lactation education was not included as an intervention variable, the mothers' increased knowledge of warm rice compress techniques and the frequency of their application still had a positive impact.

5. Conclusion

This study shows that warm rice compresses on postpartum womens who experience breast milk engorgement have a significant effect in reducing the SPES value on breast milk engorgement. Breast milk engorgement, which had a SPES score of 4.50 (moderate-to-severe) prior to the warm rice compress intervention, decreased to a SPES score of 1.35 (mild-to-moderate) following the intervention. The results analysis showed a p-value of 0.000057, meaning that $p < 0.05$, indicating that warm rice compresses had an effect on breast engorgement in postpartum womens at Efarina Hospital in Pangkalan Kerinci.

Based on these findings, it is recommended that these techniques be integrated into standard postpartum care to improve breastfeeding success. The results of this study serve as a valuable reference for the development of midwifery clinical practice and academic curricula, particularly regarding non-pharmacological pain management. Future research should consider including larger sample sizes, expanding the geographic location of the study, and comparing these techniques with other non-pharmacological modalities to achieve more comprehensive results and greater generalizability.

6. References

[1] A. Tri Kusumaningrum, Mk. Yayah Rokayah, S. M. Kes Ni Wayan Manik Parwati, Mk. Fatmawati, and Mk. Psiari Kusuma Wardani, *ASUHAN KEBIDANAN NIFAS DAN MENYUSUI*. Nuansa Fajar Cemerlang, 2023. [Online]. Available: www.nuansafajarcemerlang.com

[2] Dinas Kesehatan Provinsi Riau, *Profil Kesehatan Provinsi Riau Tahun 2023*. Dinas Kesehatan Provinsi Riau.

[3] N. Khaerunnisa, Hj. S. Saleha, and J. Inayah Sari, "MANAJEMEN ASUHAN KEBIDANAN PADA IBU NIFAS DENGAN BENDUNGAN ASI," *Jurnal Midwifery*, vol. 3, no. 1, pp. 16–24, Feb. 2021, doi: 10.24252/jmw.v3i1.20992.

[4] F. Rahmadani, "Faktor yang Menyebabkan Terjadinya Bendungan ASI pada Ibu Post Partum," 2025.

[5] S. nafara Kamelia and N. Sukesi, "Faktor yang Mempengaruhi Bendungan ASI pada Ibu Nifas di RSUD," *Jurnalllmiah Kedokteran dan Kesehatan*, vol. 4, no. 2, pp. 581–594, May 2025, doi: 10.55606/klinik.v4i2.4061.

[6] M. Hannan, I. Keperawatan, U. Wiraraja, E. Suprayitno, and H. Yuliyana, "PENGARUH TERAPI KOMPRES HANGAT TERHADAP PENURUNAN NYERI SENDI OSTEOARTHRITIS PADA LANSIA DI POSYANDU LANSIA PUSKESMAS PANDIAN SUMENEP," *Jurnal Kesehatan Wiraraja Medika*, p. 1.

[7] H. Nisa, V. Marbun, L. K. Telaumbanua, and P. Kresnawati, "PENGARUH KOMPRES HANGAT PAYUDARA UNTUK KELANCARAN ASI PADA IBU 1-7 HARI POST PARTUM DI POSYANDU CEMPAKA BEKASI," *Juenal Kesehatan Bidkemas*, vol. 16, 2025.

[8] J. Kesehatan Pertiwi Politeknik Kesehatan Bhakti Pertiwi Husada, R. Arieb Shintami, A. Atma Battya, H. Nur Rohaeni, P. Studi Kebidanan Politeknik Kesehaan Bhakti Pertiwi Husada Jalan Kampung Melati, and A. Kesambi Kota Cirebon, "Pengaruh Kompres Hangat terhadap Penurunan Nyeri Payudara pada Ibu Nifas," 2019.

[9] N. N. Kardini[1], H. Nisa[2], and R. S. Manullang, "Teknik Kompres Hangat Pada Ibu Nifas dengan Bendungan Asi Terhadap Kelancaran Produksi Asi di PMB Hj. Nani Yuningsih," *Jurnal Pustaka Medika*, 2025.

[10] R. Wahyuwihayanti *et al.*, "PENGARUH KOMPRES HANGAT PADA PAYUDARA TERHADAP PRODUKSI ASI PADA IBU NIFAS DI KLINIK GRAND RAYA HUSADA PANDANARUM," *Jurnal Ilmiah Obsgin*, 2024, [Online]. Available: https://stikes-nhm.e-journal.id/OBJ/index

[11] Rumah Sakit Efarina pangkalan kerinci, *Kasus Bendungan Asi*. 2025.

[12] P. S. Winarya, I. Jayatmi, and M. K. Dewi, "Efektivitas Kompres Hangat dan Kompres Daun Kol terhadap Bendungan Asi pada Ibu Post Partum," *Jurnal Ilmiah Kebidanan Indonesia*, vol. 15, no. 03, pp. 106–110, Sep. 2025, doi: 10.33221/jiki.v15i03.3289.

[13] Z. Shoulhuna, Yulizawati, Hardisman, Rauza Sukma Rita, and Henni Fitria, "Literature Review: Aplying Warm Compressed For Breast Engorgement," *JURNAL KEBIDANAN KESTRA (JKK)*, vol. 7, no. 2, pp. 149–157, Apr. 2025, doi: 10.35451/jkk.v7i2.2680.

[14] T. Nababan, W. Tini Hia, N. Rahmawi, T. Anggreni Haloho, and Y. Anita Hutagalung Fakultas Keperawatan dan Kebidanan, "EFEKTIVITAS PIJAT OKETANI TERHADAP PENCEGAHAN BENDUNGAN ASI PADA IBU POSTPARTUM DAN POST SEKSIO SESAREA," *Jurnal Penelitian Perawat Profesional*, [Online]. Available: http://jurnal.globalhealthsciencegroup.com/index.php/JPPP

[15] Solihah, "HUBUNGAN IMD, FREKUENSI MENYUSUI DAN PERAWATAN PAYUDARA TERHADAP KEJADIAN BENDUNGAN ASI PADA IBU NIFAS DI WILAYAH KERJA PUSKESMAS CIKALONG KABUPATEN TASIKMALAYA TAHUN 2023," *Jurnal Riset Ilmiah*.