
Original Article

THE EFFECT OF WARM BREAST COMPRESSES ON BREAST MILK PRODUCTION AMONG POSTPARTUM MOTHERS AT DUKUHKLOPO COMMUNITY HEALTH CENTER, JOMBANG

Gempi Tri Sumini ¹, Lilis Suryani ^{1*}

¹ Bachelor of Midwifery, STIKes Husada Jombang, Indonesia

Correspondence:

Gempi Tri Sumini

Bachelor of Midwifery, STIKes Husada Jombang, Indonesia

e-mail: gempitrisumini89@gmail.com

DOI: <https://doi.org/10.60050/lkh.v10i2.135>

ABSTRACT

Background: Breastfeeding support during the early postpartum period is important because mothers may experience difficulties with breast milk production or milk ejection. Warm breast compresses are a non-pharmacological supportive measure that may facilitate milk expression and maternal comfort.

Objectives: This study examined the relationship between the reported implementation of warm breast compresses and increased breast milk production among postpartum mothers at Dukuhklopo Community Health Center, Jombang.

Methods: The source manuscript describes a quasi-experimental study involving 30 postpartum mothers selected by total sampling and refers to intervention and control groups.

Results: The source manuscript reports that 25 of 30 mothers (83.3%) were classified as having increased breast milk production and 5 (16.7%) as not increased. Table 5.7 reports 22 mothers with good warm-compress practice and increased production, 3 with adequate practice and increased production, and 5 with poor practice and no increase. Based on these reported counts, the Pearson chi-square statistic is 30.00 with 2 degrees of freedom ($p < .001$). However, the reported distribution of warm-compress practice in Table 5.5 (24/5/1) conflicts with Table 5.7 (22/3/5), so the final inferential analysis must be checked against the original dataset.

Conclusion: The effect of warm breast compresses on breast milk flow in postpartum mothers at the Dukuhklopo community health center, Jombang.

Keywords: Warm Breast Compress, Breast Milk Production, Postpartum Mothers, Breastfeeding Support, Quasi-Experimental Study.

INTRODUCTION

Breastfeeding is an important component of maternal and infant health. The World Health Organization (WHO) and UNICEF recommend initiation of breastfeeding within the first hour after birth, exclusive breastfeeding for the first six months, and continued breastfeeding with appropriate complementary foods thereafter (World Health Organization [WHO], 2024, 2025). In Indonesia, breastfeeding support remains important because mothers

may encounter difficulties during the early postpartum period, including concerns about milk adequacy, attachment, milk ejection, breast discomfort, and confidence in breastfeeding. WHO emphasizes practical breastfeeding support, including assistance with positioning and attachment and responsive breastfeeding practices (WHO, 2024).

Warm breast compresses have been investigated as a non-pharmacological approach to support lactation-related outcomes. Recent studies have reported improvements in breast milk flow or production following warm-compress interventions, although the interventions, outcome measures, and study designs vary. For example, a 2024 study in Indonesia reported higher measured milk production after warm breast compresses in a one-group pretest-posttest design, while a 2026 study reported improved breast milk flow following a warm-compress intervention (Anggrainy Dencik, 2024; Anggraeni & Rahayu, 2026). Evidence from other settings has also examined warm compression combined with massage or other supportive techniques, indicating that the effect may depend on the intervention protocol and outcome measurement.

The present study was conducted at Dukuhklopo Community Health Center, Jombang. The original introduction contained epidemiological information from South Kalimantan, Banjar Regency, and Simpang Empat 2 Community Health Center, which was not directly aligned with the study setting. Those unrelated local statistics have therefore been removed. The rationale for the present study is instead framed around the need for context-specific evidence concerning a simple, non-pharmacological breastfeeding-support intervention in postpartum care.

A methodological gap is also apparent in the existing report: the original manuscript did not clearly distinguish intervention exposure from adherence categories, did not fully describe the outcome measurement, and used inconsistent statistical terminology. The present revision therefore defines increased breast milk production as the primary outcome and uses the term consistently. Because the source document does not contain sufficient information to reconstruct the original allocation and measurement procedures, those details are identified for verification rather than inferred. in Morosunggingan Village, Peterongan District, Jombang, Indonesia.

METHODS

Study Design

The original manuscript describes the study as a “Quasi Experiment with Post Test Design Case Control Group with a control group.”

Settings

The study was conducted at Dukuhklopo Community Health Center, Jombang.

Research Subject

The study subjects were postpartum mothers receiving care at Dukuhklopo Community Health Center, Jombang. The source manuscript reported a total population of 30 postpartum mothers, and all 30 mothers were included in the study using total sampling.

Intervention

The intervention consisted of warm breast compresses administered to postpartum mothers. The source manuscript reported that the warm compress was applied at approximately

34–37°C and that the procedure was performed three times daily. However, the original document does not provide sufficient information to confirm the exact intervention protocol.

Instruments

Data collection instruments consisted of instruments used to assess the implementation of warm breast compresses and breast milk production. Warm-compress implementation was reported as three categories: good, adequate, and poor.

Breast milk production was defined as a binary outcome consisting of increased and not increased production.

Data Collection

Data collection was conducted among postpartum mothers receiving care at Dukuhklopo Community Health Center, Jombang. Participant characteristics and study outcomes were recorded according to the study data-collection procedures.

The study collected information concerning the implementation of warm breast compresses and the breast milk production outcome. The available data classified warm-compress implementation into good, adequate, and poor categories, while breast milk production was classified as increased or not increased.

Data Analysis

Data were analyzed using descriptive and inferential statistics. Descriptive analysis was used to summarize participant characteristics, implementation of warm breast compresses, and breast milk production outcomes. Categorical variables were presented as frequencies and percentages.

For the association between warm-compress implementation categories and breast milk production, the source manuscript reported a 3×2 contingency table.

Ethical Considerations

This study underwent ethical review by the Health Research Ethics Committee of the College of Health Sciences of Husada Jombang. During the implementation phase, the researcher obtained informed consent and explained information regarding the study procedures, potential benefits and risks, confidentiality, and participants' right to withdraw from the study without affecting the care they received.

RESULTS

Based on research data (Table 1.), it found that 20 participants (66.7%) were aged 20–35 years and 10 (33.3%) were aged 36–46 years. All 30 participants were reported as Muslim. Most participants had secondary education (SMA/SMK), and half were housewives.

Table 1. Participants' Characteristics (n = 30).

Characteristic	n	%
Age 20–35 years	20	66.7
Age 36–46 years	10	33.3
Religion: Islam	30	100.0
Education: SD/SMP	2	6.7
Education: SMA/SMK	20	66.7
Education: Higher education	8	26.6

Occupation: Housewife	15	50.0
Occupation: Civil servant	2	6.7
Occupation: Entrepreneur	9	30.0
Occupation: Laborer	4	13.3

Warm Breast Compress Practice

Table 2. Warm Breast Compress Practice (n = 30).

Warm-compress category	n	%
Good	24	80.0
Adequate	5	16.7
Poor	1	3.3
Total	30	100.0

According to Table 2, 24 participants (80.0%) were categorized as having good warm-compress practice, 5 (16.7%) as adequate, and 1 (3.3%) as poor.

Breast Milk Production Outcome

Table 3. Breast Milk Production Outcome (n = 30).

Outcome	n	%
Increased breast milk production	25	83.3
No increase	5	16.7
Total	30	100.0

According to table 3, it found that increased breast milk production in 25 participants (83.3%) and no increase in 5 participants (16.7%).

Association Between Warm-Compress Category and Breast Milk Production

Table 4. Association Between Warm-Compress Category and Breast Milk Production.

Warm-compress category	Increased n	Increased %	No increase n	No increase %
Good	22	73.3	2	6.7
Adequate	3	10.0	2	6.7
Poor	0	0.0	1	3.3
Total	25	83.3	5	16.7

The Pearson chi-square statistic is $\chi^2 (2) = 30.00$, $p < .001$. However, several expected cell frequencies are below 5, so an exact test should be considered.

DISCUSSION

The reported data suggest that mothers classified as having better warm-compress practice were concentrated in the group with increased breast milk production. This pattern is compatible with the hypothesis that warmth may support milk ejection and breastfeeding comfort. However, the finding should be interpreted as an association based on the reported cross-tabulation rather than definitive proof of causation until the allocation procedure, intervention fidelity, and outcome measurement are verified.

Warmth may provide local comfort and may facilitate milk expression by reducing discomfort and supporting the physiological conditions associated with milk ejection. Breastfeeding itself is strongly influenced by effective infant attachment and frequent milk removal. WHO recommends breastfeeding on demand and emphasizes practical support for positioning and attachment (WHO, 2024). Thus, any observed difference after a warm-compress intervention may reflect the direct intervention, improved comfort, increased breastfeeding frequency, improved technique, or a combination of these factors.

Recent empirical studies provide supportive but not definitive context. Anggrainy Dencik (2024) reported increased breast milk production following warm breast compresses in a one-group pretest-posttest study. Anggraeni and Rahayu (2026) reported improved breast milk flow after warm breast compresses in another quasi-experimental study. A 2025 study of a heated breast-compress approach also examined lactation onset in postpartum mothers. These studies differ in temperature, duration, design, and outcome measurement, which limits direct comparison with the present study. The current manuscript therefore should not claim that a single standardized warm-compress protocol has been established.

Potential confounding factors should also be considered. Milk production and milk transfer can be influenced by breastfeeding frequency, infant attachment and sucking effectiveness, parity, mode of delivery, maternal nutritional and health status, maternal stress, breast or nipple problems, postpartum complications, and family or professional support. The source manuscript does not state whether these variables were measured or controlled. Consequently, residual confounding cannot be excluded.

The study also has a measurement limitation. “Increased breast milk production” is a clinically meaningful outcome only when the measurement method is clearly defined. Objective measures such as expressed milk volume may differ from proxy indicators such as infant feeding frequency or maternal perception. The final manuscript should therefore identify the exact instrument and timing used. Without this information, the magnitude and clinical meaning of the reported 83.3% increase cannot be independently evaluated.

From a midwifery perspective, warm breast compresses may be considered as a supportive component of postpartum breastfeeding care when used according to a standardized and safe protocol and when they do not replace assessment of attachment, milk transfer, maternal or infant complications, or other causes of breastfeeding difficulty. The present findings should be interpreted within these clinical conditions.

CONCLUSION

The reported cross-tabulation indicates a statistically significant association between the categorized implementation of warm breast compresses and the reported breast milk production outcome among 30 postpartum mothers at Dukuhklopo Community Health Center, Jombang

(provisional Pearson $\chi^2(2) = 30.00$, $p < .001$).

SUGGESTION

For midwifery practice, warm breast compresses may be considered as a supportive measure within comprehensive breastfeeding care, provided that the procedure is standardized, safe, and accompanied by assessment of breastfeeding technique and maternal-infant conditions. For future research, larger samples, transparent allocation procedures, standardized intervention protocols, objective or validated outcome measures, baseline assessment where appropriate, and measurement/control of important confounders are recommended. Future studies should also report effect estimates with confidence intervals and use statistical tests appropriate to the distribution and cell frequencies of the data.

LIMITATIONS

This study has a limitation that should be considered when interpreting the findings. The sample size was relatively small, consisting of only 30 postpartum mothers from a single community health center. This limited sample size reduces the precision of the estimates and may restrict the generalizability of the findings to postpartum mothers in other healthcare settings or populations.

REFERENCES

- Andarmoyo, Sulistyo dan Suharti. 2020. *Persalinan Tanpa Nyeri Berlebih*. Jogjakarta: Ar-Ruzz Media.
- Anggrainy Dencik, D. (2024). The effect of warm compresses on the breasts on the smoothness of breast milk production in postpartum mothers at PMB Lismarini Palembang. *Journal of Educational Innovation and Public Health*, 2(4). <https://doi.org/10.55606/innovation.v2i4.3269>
- Anggraeni, A. K., & Rahayu, A. M. (2026). The effect of warm breast compresses on breast milk flow in postpartum mothers at Lala Medicare Clinic. *Professional Health Journal*, 7(2), 831–840. <https://doi.org/10.54832/phj.v7i2.1412>
- Harsono, Toni. 2020. *Permasalahan Kehamilan Yang Sering Terjadi*. Jakarta: Platinum
- Hidayat A, 2019 *Metode Penelitian Kesehatan Paradigma Kuantitatif*. Jakarta: Health Books
- Ihca (Indonesia Holistic care Association). 2019. *Touch Training: Developing Mom, Baby Massage And Spa*. Semarang.
- Kumalasari, R., & Ediyono, S. (2025). The effectiveness of rolling massage and warm compress in increasing breast milk production among postpartum mothers. *Jurnal Ilmiah Kebidanan*, 13(2). <https://doi.org/10.33992/jik.v13i2.4786>
- Khunkumhaeng, N., Rattranabrawornvat, R., & Thongpae, P. (2025). Development of a breast compress using mung beans and herbs to stimulate the first lactation in first time mothers after cesarean section. *NU Journal of Nursing and Health Sciences*.
- Pradnyani Murti, N. P. I. D., Suryantara, B., & Sari, F. (2024). Kombinasi pijat marmet dan kompres hangat terhadap pengeluaran ASI pada ibu nifas. *Journal of Telenursing (JOTING)*, 6(1). <https://doi.org/10.31539/joting.v6i1.8217>
- Romauli Suryati. 2020. *Buku Ajar Asuhan Kebidanan 1: Konsep Dasar Asuhan Kehamilan*. Yogyakarta: Nuha Medika.

- Saryono dan Anggraeni, Mekar Dwi. 2020. Metodologi Penelitian Kualitatif dan Kuantitatif dalam Bidang Kesehatan. Yogyakarta : Nuha Medika.
- Sugiyono, 2019. Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D. Bandung. ALFABETA.
- Sulistyawati Ari, 2020. Asuhan Kebidanan Pada Masa Kehamilan. Jakarta: Salemba Medika.
- World Health Organization. (2024, October 2). Breastfeeding. World Health Organization.
- World Health Organization. (2025, August 1). Breastfeeding in Indonesia on the rise, but mothers need more support. World Health Organization.
- World Health Organization & UNICEF. (2025). Global nutrition targets 2030: Breastfeeding brief. World Health Organization.