

EFFECTIVENESS OF COLD COMPRESS METHOD ON BREAST PAIN IN POST-POST MOTHERS IN PMB RITA 2025

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ABSTRACT

Background: The postpartum period is a crucial time for maternal recovery, especially related to breastfeeding. Breast pain due to breast engorgement is a common complaint that can hinder exclusive breastfeeding. One of the safe and effective non-pharmacological interventions is the cold compress method. **Objective:** This study aims to determine the effectiveness of cold compress therapy in reducing breast pain among postpartum mothers at PMB Rita, Kampung Mesjid, North Labuhanbatu Regency, North Sumatra Province. **Methods:** This is a quantitative experimental study using a one group pretest-posttest design. The sample consisted of 30 postpartum mothers selected through total sampling. Breast pain intensity was measured using the Numeric Rating Scale (NRS) before and after applying cold compresses. Data were analyzed using univariate and bivariate statistics. **Conclusions:** The study showed that prior to the cold compress intervention, the majority of respondents experienced severe pain (33.3%), whereas post-intervention, most reported mild pain (50%). The average pain score decreased from 1.83 to 0.63. The statistical test yielded a p-value of 0.000, indicating a significant difference before and after the intervention. Cold compress therapy is proven effective in reducing breast pain among postpartum mothers. This method can be a cost-effective, simple, and safe non-pharmacological treatment option

Keywords: Cold compress, breast pain, postpartum, breast milk, breast engorgement

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INTRODUCTION

Breast engorgement is one of the most common breastfeeding problems. It disrupts breastfeeding by causing discomfort, leading to breast pain. The resulting pain is uncomfortable and disrupts daily activities, including psychological, physiological, and emotional (Zinindya, no date). More than 90% of mothers experience breast pain during the first week of breastfeeding, and nearly one-third of those affected seek medical care because the pain persists (Lucas, 2019).

According to the WHO, In the United States, the proportion of postpartum mothers who experienced breast milk engorgement in 2019 was averaged 7,345 (87.05%) out of a total of 15,760 postpartum mothers. In Indonesia, breast milk engorgement is most common among working mothers, reaching 16% of breastfeeding mothers. Furthermore, breast engorgement is 253 times (48%) more common in primiparous women (Sri Untari, 2021). Based on the latest data from the North Sumatra Provincial Health Office, 58% of new mothers experience difficulty breastfeeding their babies. Various factors are the main causes, including 23% of mothers experiencing breast milk engorgement or breast engorgement, 13% experiencing inverted nipples, 9% experiencing sore nipples, 7% suffering from mastitis, and 6% experiencing breast abscesses. These conditions significantly hinder the breastfeeding process, ultimately impacting the decline in breastfeeding. Breast pain is usually caused by breast engorgement, which occurs when the mother refuses or delays breastfeeding when her breasts feel full due to sore nipples, incorrect breastfeeding techniques, and inadequate suckling. Breast engorgement is caused by Enhanced venous and lymphatic circulation accompanied by constriction of the lactiferous ducts the accumulation of breast milk, which causes pain. It can also This may result from swelling of the mammary tissue, which causes the tissue to stretch to the point where it presses on pain receptor (Rezeki *et al.*, 2025)

Many methods for treating breast engorgement have been explored, including both non-pharmacological and pharmacological methods. Non-pharmacological approaches to addressing breast problems, such as engorgement, include the use of warm or cold compresses, cold cabbage leaf compresses, breast massage, and manual or instrumental breast milk expression. Pharmacological approaches typically involve administering anti-inflammatory medications to reduce inflammation and swelling (Machfudlatin, 2018)

Pain due to breast swelling in mothers after giving birth can be relieved by applying warm and cold compresses alternately before breastfeeding, which aims to reduce discomfort and facilitate the flow of breast milk" (Kemenkes, 2023)

Based on the results of an initial survey conducted through interviews with midwives at the Tanjung Leidong Community Health Center, there were 72 postpartum mothers in April, and 28 experienced pain. The majority of postpartum mothers worked in factories. Working mothers are at risk of experiencing breast pain. The purpose of this study, based on the explanation above, was to determine the effectiveness of cold compresses on breast pain in postpartum mothers

METHODS

This study employed a one-group pretest–posttest design without a control group. Subjects were observed before and after the intervention. The study was conducted at the Rita Kampung Mesjid Childbirth Center in North Labuhanbatu Regency from May to July 2025.

The population consisted of all postpartum mothers who gave birth at the Rita Kampung Mesjid Childbirth Center in North Labuhanbatu Regency, North Sumatra Province, in 2025. A total sampling technique was used to select 30 participants. Data were analyzed the Chi-square test was used to examine the association between the independent and dependent variables, with the level of statistical significance set at $\alpha = 0.05$.

RESULTS AND DISCUSSIONS

1. Analisis Univariat

Distribution of Pree Effectiveness of Cold Compress Method for Breast Pain in Postpartum Mothers at PMB Rita Kampung Mesjid Regency of North Labuhanbatu Province of North Sumatra in 2025

No	Category	Amount	Percentage (%)
1	Mild Pain	2	6.7
2	moderate pain	9	30
3	severe pain	10	33.3
4	moderate to severe pain	9	30
	Amount	30	100

Variabel	Mean	N	Std. Deviation	St. Error	Min	Max
Pree	1.83	30	0.950	0.173	0	3

Based on the table, it can be seen that the distribution of the cold compress method for breast pain in postpartum mothers at PMB Rita Kampung Mesjid, North Labuhanbatu Regency, North Sumatra Province in 2025 from 30 respondents (100%) is that the majority of severe pain in the breast is 10 (33.3%) respondents and the minority of mild pain in the breast is 2 (6.7%) respondents with a Mean value of 1.83, The data showed a standard deviation of 0.950, a standard error of 0.173, and a minimum–maximum range of 0–3.

Distribution of Post Effectiveness of Cold Compress Method for Breast Pain in Postpartum Mothers at PMB Rita Kampung Mesjid Regency of North Labuhanbatu Province of North Sumatra in 2025

No	Category	Amount	Percentage (%)
1	Mild Pain	15	50
2	moderate pain	11	36.7
3	severe pain	4	13.3
4	moderate to severe pain	0	0
	Amount	30	100

Variabel	Mean	N	Std. Deviation	St. Error	Min	Max
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Post	0.63	30	0.718	0.131	0	2
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Based on the table, it can be seen that the distribution of post-cold compress method for breast pain in postpartum mothers at PMB Rita Kampung Mesjid, North Labuhanbatu Regency, North Sumatra Province in 2025 from 30 respondents (100%) is that the majority of mild pain in the breast is 15 (50%) and at least severe pain in the breast is 4 (13.3%) respondents with a Mean value of 0.63, Standard Deviation value of 0.718, Standard Error value of 0.131 and Min-Max Value of 0-2

2. Analisis Bivariat

Distribution of the Effectiveness of the Cold Compress Method for Breast Pain in Postpartum Mothers at PMB Rita, Mesjid Village, North Labuhanbatu Regency, North Sumatra Province in 2025

Variabel	Mean	Std. Error	Std. Deviation	p-value	CI-95%
Pre-Post	1.200	0.222	1.215	0.000	0.746-1.654

Based on the research results in the table, it can be seen that the average of 30 respondents with a Mean of 1.200, Standard error of 0.222, and Standard Deviation of 1.215. The results of the statistical test obtained a p -value = 0.000, which means there is an effectiveness of the cold compress method for breast pain in postpartum mothers

Discussion

The Effectiveness of the Cold Compress Method for Breast Pain in Postpartum Mothers at PMB Rita, Mesjid Village, North Labuhanbatu Regency, North Sumatra Province in 2025

Based on the research results in the table, the average of 30 respondents was 1.200, with a standard error of 0.222, and a standard deviation of 1.215. The statistical test results showed a p -value of 0.000, indicating the effectiveness of the cold compress method for breast pain in postpartum mothers.

Breast engorgement occurs when breast milk is not immediately expressed, causing blockages in the venous and lymphatic vessels, impeding milk flow and causing pressure on the milk ducts, leading to increased venous and lymphatic flow. This occurs due to excessive milk production, unscheduled breastfeeding, inadequate breastfeeding, incorrect breastfeeding positioning, or flat/inverted nipples. It can also occur due to late initiation of breastfeeding, poor latch, or insufficient milk expression (EF Tarigan, SN Sinaga, 2024)

Breast engorgement is the retention of breast milk due to narrowing of the lactiferous ducts, incompletely emptied glands, or nipple abnormalities. Breast engorgement occurs due to obstruction of venous blood flow or lymphatic drainage due to breast milk accumulating in the breasts. This occurs due to excessive breast production, while the baby's needs are still low on the first day of life. According to (Syahrin, 2023), breast engorgement is breast swelling due to increased venous and lymphatic flow, resulting in breast milk engorgement and pain accompanied by an increase in body temperature. Breast engorgement is the increase in venous and lymphatic flow in the breasts in preparation for lactation. This is not due to overdilation of the lactation ducts. Breast engorgement occurs due to excessive lymphatic and venous congestion before lactation. Breast engorgement is caused by discontinued breastfeeding, resulting in residual breast milk accumulating in the ducts. This can occur as early as the third

day after delivery. In addition, wearing a tight bra and unclean nipples can cause blockages in the ducts (Walyani, 2020)

According to Haroen, a cold compress is a therapeutic technique used to regulate body temperature by applying a cooling substance or device to a specific body area. This intervention helps decrease the production of prostaglandins, which are responsible for increasing the sensitivity of pain receptors, while also suppressing the inflammatory response in the affected tissues. For optimal effectiveness, a cold compress should be administered as soon as possible after an injury occurs. The application of cold therapy can reduce body temperature, limit the spread of inflammation, minimize tissue congestion and localized bleeding, and relieve pain at the site of injury (Rukiyah, A. Y., & Yulianti, 2019). A cold compress is performed by cooling a pre-programmed solution to the desired temperature (15°C) by running cold water over a container or by placing the solution in a basin filled with ice (Smith, S. F., Duell, D. J. and C., 2018).

CONCLUSIONS

Researchers believe that cold compresses can effectively address breast engorgement issues. Therefore, breastfeeding mothers should complement breast care, such as cold compresses, to address and prevent engorgement issues. Based on this, it is recommended that breastfeeding mothers pay more attention to the health condition of their respective breasts so that problems with breast milk stagnation can be prevented and addressed properly and promptly.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

The authors declare that they have no conflicts of interest related to the publication of this article. Furthermore, this study did not receive any specific financial support from public, commercial, or not-for-profit funding agencies.

AUTHOR CONTRIBUTIONS

Please provide a description of each author's specific contributions to the preparation of this manuscript. Author contribution roles include conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing of the original draft, and writing review and editing

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