IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Effectiveness Of Lukewarm Water Compress On Breast Engorgement Among Primi Postnatal Mothers At Selected Hospital, Indore, Madhya Pradesh

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Abstract

Background: Breast engorgement is a common postpartum condition characterized by painful breast swelling, tenderness, and difficulty in breastfeeding. If unmanaged, it can lead to mastitis, breast abscess, and early cessation of breastfeeding. Non-pharmacological methods such as warm water compress are safe, cost-effective, and recommended for first-line management.

Aim: This study aimed to evaluate the effectiveness of lukewarm water compress in reducing breast engorgement among primi postnatal mothers.

Methods: A quasi-experimental one-group pre-test–post-test design was adopted. **200 primi mothers** within 3–5 days postpartum were selected using purposive sampling from a tertiary care hospital in Indore. The modified breast engorgement assessment scale (6-point scale) was used to assess engorgement before and after intervention. Lukewarm water compress (temperature 38–40°C) was applied for 20 minutes, twice daily, for two consecutive days. Data were analyzed using descriptive and inferential statistics.

Results: Mean pre-test engorgement score was **4.52 ± 0.85**, which significantly decreased to **1.42 ± 0.65** after intervention ($p < 0.001$). Paired *t*-test confirmed statistically significant improvement. No adverse effects were reported.

Conclusion: Lukewarm water compress was effective in reducing breast engorgement and can be recommended as a safe, cost-effective nursing intervention to promote breastfeeding.

Keywords: Breast Engorgement, Lukewarm Water Compress, Postnatal Mothers, Non-Pharmacological Therapy, Breastfeeding.

Introduction

Breastfeeding is universally recognized as the optimal nutrition for infants. However, during the early postpartum period, many mothers experience breast engorgement due to excessive milk production, vascular congestion, and inadequate milk removal. Engorgement causes pain, swelling, and difficulty in latching, which can discourage mothers from exclusive breastfeeding.

Evidence supports the use of local heat therapy to promote milk flow, soften breast tissue, and relieve discomfort. Lukewarm water compress is a simple, non-invasive, and inexpensive method that can be easily applied in hospital and home settings. However, there is limited research in Indian settings, especially among primi mothers, who are more likely to face breastfeeding challenges due to inexperience.

Need for the Study

Breastfeeding is the most natural and optimal method of infant feeding, providing complete nutrition and immunological protection during the first six months of life. The World Health Organization (WHO) and UNICEF recommend exclusive breastfeeding during this period to ensure healthy growth and development. However, many mothers face breastfeeding challenges in the early postnatal days, among which **breast engorgement** is one of the most common problems. It occurs due to vascular congestion, accumulation of milk, and interstitial edema, leading to swollen, tender, and painful breasts.

Breast engorgement, if left unmanaged, can cause severe pain, cracked nipples, poor milk ejection, and even mastitis or breast abscess. These complications often lead to early cessation of breastfeeding, depriving the infant of the benefits of breast milk and increasing the risk of malnutrition and infections. The emotional and psychological distress caused by engorgement can also interfere with mother–infant bonding and delay lactation success, especially in **primi mothers** who have no previous experience with breastfeeding techniques.

Objectives

1. To assess the level of breast engorgement before intervention among primi postnatal mothers.
2. To administer lukewarm water compress as an intervention.
3. To evaluate its effectiveness by comparing pre-test and post-test breast engorgement scores.
4. To find the association between pre-test scores and selected demographic variables (age, parity, mode of delivery, type of feeding).

Hypotheses

Research Hypotheses (H_1):

There will be a **significant reduction** in the mean breast engorgement scores among primi postnatal mothers after the administration of lukewarm water compress at $p \leq 0.05$ level of significance.

Null Hypothesis (H_0):

There will be **no significant reduction** in the mean breast engorgement scores among primi postnatal mothers after the administration of lukewarm water compress at $p \leq 0.05$ level of significance.

Methodology

Research Design

A **quasi-experimental one-group pre-test–post-test design** was adopted for this study. This design was chosen to evaluate the effectiveness of lukewarm water compress by comparing breast engorgement scores before and after the intervention within the same group of participants.

Setting of the Study

The study was conducted in the **postnatal wards of a selected tertiary care hospital in Indore, Madhya Pradesh.** The hospital was chosen for its high delivery rate, availability of postnatal mothers during the early postpartum period, and feasibility for researcher access and intervention delivery.

Population

The target population consisted of **primi postnatal mothers** who experienced breast engorgement within 3–5 days postpartum.

Sample Size

The sample size for the study was **200 primi postnatal mothers.** The sample size was determined based on prevalence estimates of breast engorgement in early postpartum days and to ensure adequate power (≥ 80%) to detect a statistically significant difference in pre-test and post-test engorgement scores at $p \leq 0.05$.

Sampling Technique

A **purposive sampling** technique was used to recruit eligible participants who met the inclusion criteria during the data collection period.

Inclusion Criteria

- Primi mothers within 3–5 days postpartum.
- Experiencing symptoms of breast engorgement such as swelling, pain, and difficulty in breastfeeding.
- Willing to participate in the study and provide informed consent.

Exclusion Criteria

- Mothers with mastitis, breast abscess, or any systemic infection.
- Mothers on analgesics/anti-inflammatory therapy that could interfere with pain perception.
- Mothers with contraindications for warm compress (skin lesions, burns, hypersensitivity).

Tool for Data Collection

The **Modified Breast Engorgement Assessment Scale** was used to measure the severity of breast engorgement. The scale consists of 6 points (1 = soft breast, 6 = severe engorgement with marked pain and tightness).

- **Validity:** Established through expert review by 7 nursing and obstetric specialists.
- **Reliability:** Inter-rater reliability (Cohen's kappa) was found to be 0.86, indicating good agreement.

Intervention

Lukewarm water compress was prepared by soaking clean cotton towels in water maintained at **38–40°C.**

- Applied to the affected breast for **20 minutes, twice daily, for two consecutive days.**
- Mothers were encouraged to breastfeed immediately after the compress to enhance milk flow and empty the breast.

Data Collection Procedure

1. **Pre-Test:** Baseline engorgement scores were assessed using the scale before administering the first compress.
2. **Intervention:** Lukewarm water compress was applied under supervision.
3. **Post-Test:** Engorgement scores were reassessed after completion of two days of intervention.

Data Analysis

- **Descriptive Statistics:** Frequency, percentage, mean, and standard deviation were calculated for demographic data and engorgement scores.
- **Inferential Statistics:**
  - **Paired *t*-test** was used to compare pre-test and post-test mean scores to assess the effectiveness of lukewarm water compress.
  - **Chi-square test** was used to determine the association between pre-test scores and selected demographic variables (age, mode of delivery, type of feeding, etc.). Significance was set at $p \leq 0.05$.

Tool: Modified breast engorgement scale (score 1–6: 1 = soft, 6 = severe engorgement). **Intervention:** Lukewarm water compress (38–40°C) applied for 20 minutes twice daily for 2 days.

Data Analysis:

- **Descriptive statistics:** Mean, SD, frequency, percentage.
- **Inferential statistics:** Paired *t*-test to evaluate effectiveness; Chi-square test to find associations.

Results

Engorgement Level	Pre-Test (f, %)	Post-Test (f, %)
Mild (1–2)	20 (10%)	155 (77.5%)
Moderate (3–4)	120 (60%)	35 (17.5%)
Severe (5–6)	60 (30%)	10 (5%)

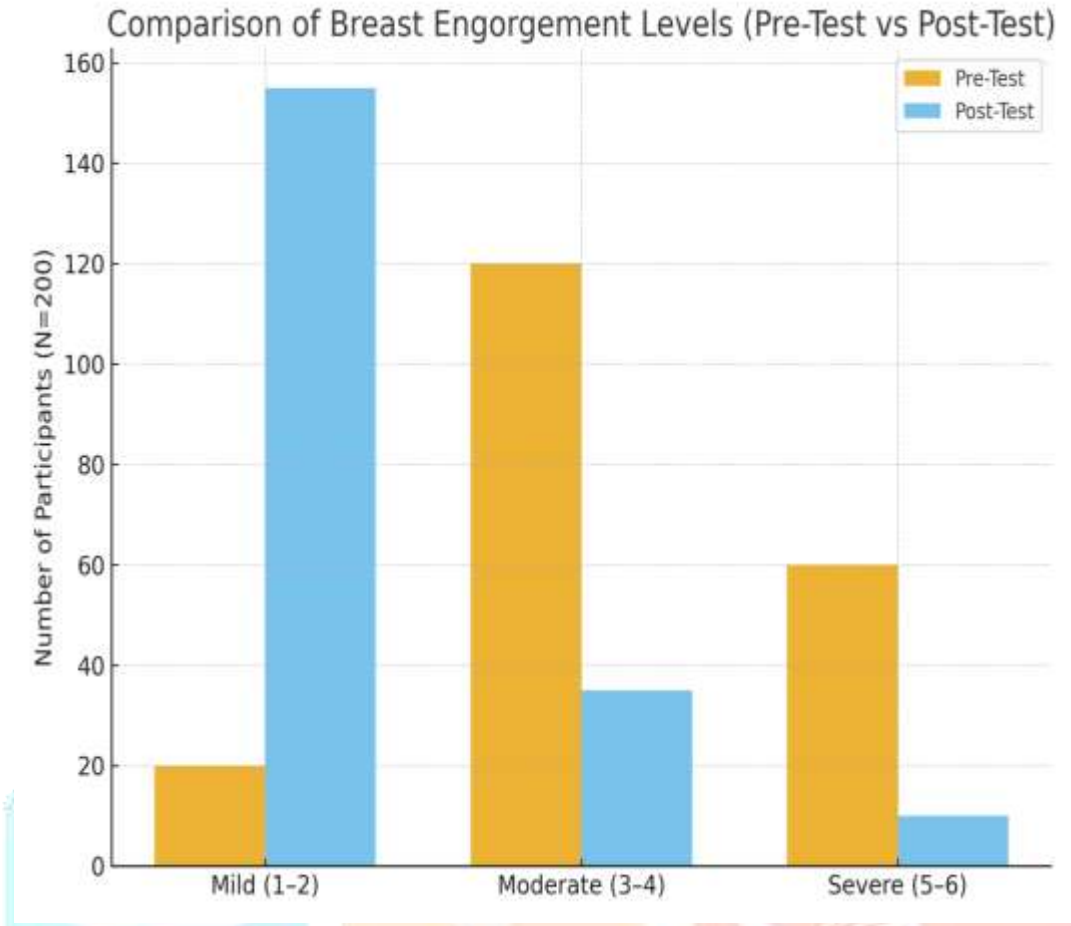
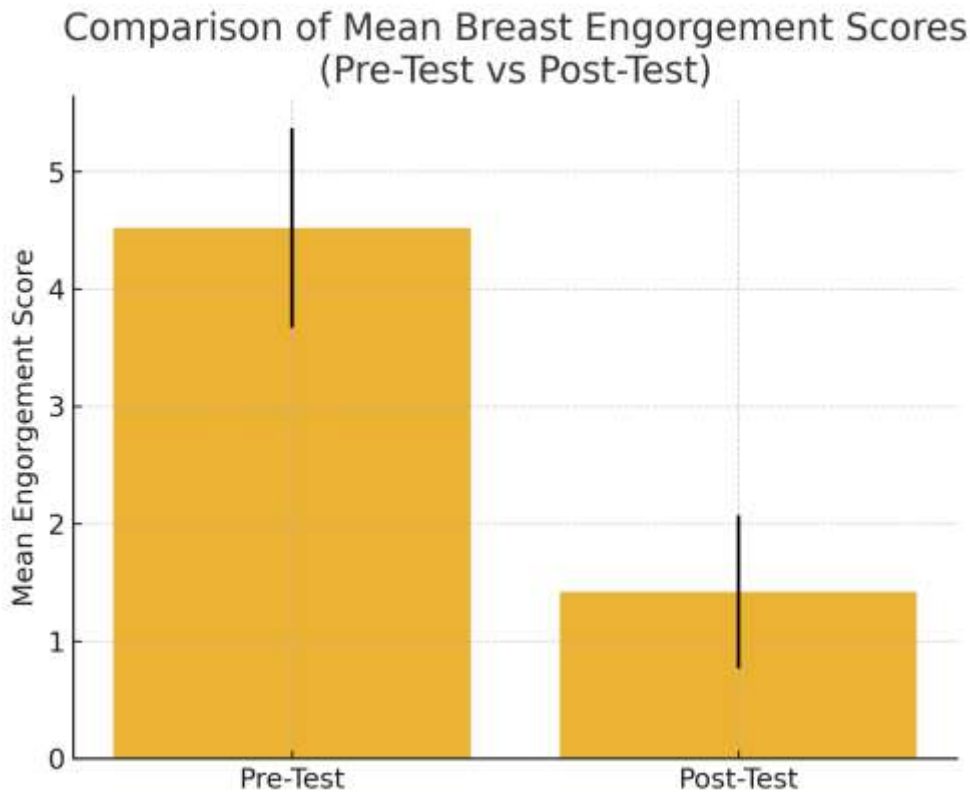


Table: Comparison of Mean Pre-Test and Post-Test Breast Engorgement Scores

Parameter	Result
Mean Pre-Test Score	4.52 ± 0.85
Mean Post-Test Score	1.42 ± 0.65
Paired t-value	t = 39.84 (p < 0.001)



- **Mean pre-test score:** 4.52 ± 0.85
- **Mean post-test score:** 1.42 ± 0.65
- **Paired *t*-value:** 39.84 ($p < 0.001$) – highly significant

Graphical representation indicates a sharp decline in engorgement levels after intervention.

Discussion

The study confirmed that lukewarm water compress effectively reduces breast engorgement among primi mothers. These results are consistent with studies by Dalia et al. (2022) and George et al. (2021), who found significant reduction in engorgement and improvement in milk flow using warm compress techniques.

Warm compress improves circulation, dilates milk ducts, and promotes oxytocin release, which aids milk ejection reflex. This non-pharmacological method is also free of side effects, making it an excellent nursing intervention for routine postnatal care.

Conclusion

Lukewarm water compress is a simple, cost-effective, and evidence-based intervention for managing breast engorgement. It enhances breastfeeding comfort and promotes mother-infant bonding. Nursing staff should be trained to incorporate this intervention into postnatal care protocols.

Recommendations

- **Clinical Practice:** Include warm compress therapy in standard postpartum care.
- **Education:** Train nurses and midwives to implement the procedure effectively.
- **Research:** Conduct randomized controlled trials to compare warm compress with other interventions (e.g., cabbage leaves, cold packs).
- **Policy:** Develop guidelines for non-pharmacological management of breast engorgement.

References

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