

## LUKEWARM WATER COMPRESS ON BREAST ENGORGEMENT: AN INTERVENTIONAL STUDY

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### Abstract

**Background:** Breast engorgement issues were frequent in the early stages of breastfeeding as well as weeks afterwards. Both lactating mothers who don't or are unable to breastfeed as well as those who do can experience this common issue. Postpartum engorgement is significant because it can be excruciatingly painful, it may increase the risk of breast abscesses and nipple fissures. **Objective:** The study aimed to assess the effectiveness of lukewarm water compress on breast engorgement among postnatal mothers. **Materials and methods:** An experimental pre-test and post-test design was adopted for the study. Purposive sampling technique was used to select 60 postnatal mothers with breast engorgement. Data was gathered by using structured questionnaires. Collected data were analysed by using descriptive and inferential statistics. **Results:** The level of breast engorgement score in experimental group was 2.07 in post test whereas in control group the score was 4.37. The pain score was 1.23 score in experimental group and in control was 4.97 score. The calculated 't' value shows that there was a statistically significant difference in the level of breast engorgement and pain at p<0.05 level. **Conclusion:** Overall, the findings of this study highlight the importance of addressing nipple pain and breast engorgement among postnatal mothers. Lukewarm water compression emerged as a feasible and effective intervention for reducing breast engorgement. Implementing lukewarm water compress as a routine practice in postnatal care can potentially improve the comfort and well-being of postnatal mothers.

**Keywords:** Breast engorgement, Pain, Postnatal mothers, Breastfeeding.

### INTRODUCTION

Breast engorgement occurred often throughout the early stages of nursing and for several weeks following. Engorgement is often caused by an imbalance between milk supply and baby demand. If not handled, it can lead to serious complications such as painful blebs, plugged milk ducts, and mastitis. Many nursing women develop breast engorgement.[1] A significantly engorged breast may make it difficult for an infant to latch on and feed properly. Engorgement, often known as milk fever, can cause a rise in body temperature of 99-100 degrees Fahrenheit.[2] The most common concerns that women have during the first postpartum week are the baby's difficulty to latch and adequately empty the breast, as well as breast engorgement.[3]

The global incidence rate of breast engorgement is 1:8000, with India at 1:65000. Over two-thirds of women experience signs and symptoms between days three and five. Tenderness began on day five, but continued until day nine or ten. The majority experience mild symptoms.[4] More time spent with breast engorgement. Breast engorgement affects around 20% of postnatal moms, particularly primigravida

mothers, between the first and fourth days of their postnatal period. Delayed breastfeeding might result in issues such as breast engorgement and abscess. Breast engorgement occurs between the third and fifth postnatal days, in varied degrees from mild to severe.[5]

Engorgement occurs in the first two weeks postpartum because the mother and her infant are adjusting to the process of demand and supply. For example, if milk production is raised too quickly, it may surpass the capacity of the breast alveoli to hold it. According to WHO (2013) [6], the global rate of exclusive breastfeeding is 37%. According to Indian statistics, 96% of children are breastfed, with only 29% of urban and 21% of rural populations being breastfed within an hour of delivery.[7] Postnatal breast issues are extremely common. Breast engorgement has an incidence rate of 1:8000 globally, and 1:6500 in India. Breast engorgement affects around 20% of postnatal moms, particularly primigravida mothers, within four days of the postnatal period.[8] Drugs have been proven to be beneficial in treating breast engorgement. However, non-medical treatments such as breast massage, cold cabbage leaves, cold gel packs, and lukewarm water application are gaining popularity since they are more widely available, generally simple to use, practical, and inexpensive. Lukewarm water is another way of relieving breast engorgement; the term "lukewarm" is derived from the Middle English word "lukewarme," where "luke" originates from "lew," which meaning "tepid" or "just mildly warm." Thus, lukewarm water is neither hot nor cold, and there is no predetermined temperature for it. Some consider lukewarm water to be between 98°F and 105°F (36.5°C and 40.5°C). Running warm water on the wrist should feel slightly warmer than the body temperature, but not hot. In the current study, the intensity of breast discomfort was significantly reduced in the lukewarm compresses group when compared to the cold gel packs group. This could be due to the fact that warm compresses applied to regions of tension and discomfort are thought to be effective in pain relief. Warm lowers muscle spasms induced by ischemia, which stimulates neurons that prevent the transmission of additional painful stimuli, resulting in vasodilation and improved blood flow to the compressed area.[10] With this background researcher felt that most of postnatal mothers are suffering from breast engorgement and unable to give feed properly. Hence the study was conducted to know the effect of lukewarm water compression method in reduction of breast engorgement.

## MATERIAL AND METHODS

The research approach used in this study was quantitative approach. An experimental pre-test and post-test design was followed in this study. Purposive sampling technique was used to select the samples. Totally 60 postnatal mothers with breast engorgement were selected. Independent variable was lukewarm water compress and dependent variable was breast engorgement. The study setting was Saveetha Medical College and Hospital Thandalam, Chennai. All post natal mothers with breast engorgement were considered as an accessible population. Postnatal mothers whose babies were admitted in SMCH and who were in the 2<sup>nd</sup> to 5<sup>th</sup> day of postpartum period were included in this study. Primiparaous mothers who were receiving lactation suppressants/stimulants and mothers who had any breast problems such as breast engorgement and nipple or with any antenatal or postnatal complications were excluded from the study. The data collection tool includes totally four sections. Demographic data, it consist of 6 items such as age, gender, marital status, religion,

type of work, educational status. Collect of clinical data; it consists of 3 items such as antenatal history, birth order, mode of delivery. A standardized tool used for to assess the breast engorgement to the postnatal mothers which consists of 6 point breast engorgement assessment tool. A standardized modified visual analogue scale with a total score of 10 was also used to collect details about pain. After pre test 30 participants in the experimental group were received lukewarm water compression three times a day for 2<sup>nd</sup> post natal day to 4<sup>th</sup> post natal day (3 days). Instructed the participants to do lukewarm water compression with the help of video clips. The compressions includes 20 minutes duration before and after breast feeding at a temperature of 95 degree F – 105 degree F with a sponge cloth over the breast (10 minutes before breast feeding and 10 min after breast feeding. For mothers in the control group intervention was not given. After completion of 5<sup>th</sup> postnatal day the post test assessment was done by using six point breast engorgement assessment scales and modified visual analogue scale in both experimental and control group. Confidentiality was maintained throughout the procedure. Data were analyzed by using descriptive and inferential statistics.

## RESULTS

**Table 1: Frequency and percentage distribution of obstetrical variables of the postnatal mothers.**

Demographic Variables:	Experimental group		Control group	
	n	%	n	%
<b>Type of delivery</b>				
Vaginal Delivery	19	63.3	17	56.6
Caesarian Section (CS)	11	36.6	13	43.3
<b>Gestational Age</b>				
36-37 weeks	9	30	10	33.3
38-39 weeks	12	40	11	36.6
40 and above	9	30	9	30
<b>Number of Postpartum days</b>				
1-3	10	33.3	8	26.6
3-5	20	66.6	22	73.3
<b>Time of first Breastfeed</b>				
30 minutes	7	23.3	6	20
30-60 minutes	8	26.6	7	23.3
After 60 minutes	15	50	17	56.6
<b>Duration of Breast feeding</b>				
10 minutes	11	36.6	12	40
20 minutes	14	46.6	14	46.6
30 minutes	5	16.6	4	13.3
<b>Frequency of feeding</b>				
1 hour	9	30	8	26.6
2 hour	13	43.3	14	46.6
3 hour	8	26.6	8	26.6
<b>Maternal Position for Feeding</b>				
Sitting	11	36.6	12	40
Side lying	19	63.3	18	60

Most of the postnatal mothers (19 (63.3)) had vaginal deliveries, 12 (40%) had gestational ages of 38–39 weeks, 20 (66.6) had 3-5 postpartum days, and 15 (50%) had after 60 minutes at time of first breastfeed, 14(46.6%) were duration of breast feeding of 20 minutes,13(43.3%) were 2 hours once frequency of breast

feeding, 19(63.3%) were sitting in maternal position of feeding in experimental group where as in control group 17(56.6%) were vaginal delivery, 11(36.6%) were gestational age of 38-39 weeks, 22(73.3%) were 3-5 postpartum days, 17(56.6%) were after 60 minutes at the time of first breastfeed, 14 (46.6%) had a duration of breast feeding of 20 minutes, 14 (46.6%) had a frequency of breast feeding of 2 hours, and 18 (60%) were sitting in the maternal position of feeding.

**Table 2: Comparison of pre and post test level of breast engorgement and pain in experimental group among postnatal mothers.**

Experimental group	Pretest		Posttest		Mean difference	Paired 't' test
	Mean	SD	Mean	SD		
Level of breast engorgement	4.63	0.96	2.07	0.73	2.56	t=10.17 p<0.05 <b>S</b>
Level of the pain	5.97	1.95	1.23	1.50	4.74	t=8.97 P<0.05 <b>S</b>

NS= Not Significant S=Significant

The comparison of pre-test and post-test level of breast engorgement and level of pain in experimental group reveals that lukewarm water had an effective in reducing the level of breast engorgement and pain in experimental group.

**Table 3: Comparison the pre and post test level of breast engorgement and pain in control group among postnatal mothers.**

Control group	Pretest		Posttest		Mean difference	Paired 't' test
	Mean	SD	Mean	SD		
Level of breast engorgement	4.57	1.25	4.37	1.06	0.2	t=0.59 P<0.05 <b>NS</b>
Level of the pain	6.17	2.33	4.97	2.02	1.2	t=2.25 P<0.05 <b>NS</b>

NS= Not Significant S=Significant

The comparison of pre-test and post-test level of breast engorgement and level of pain in the control group reveals that there was no statistically significant difference in control group.

**Table 4: Comparison the pre test level of breast engorgement and pain between experimental and control group among postnatal mothers.**

	Experimental group		Control group		Mean difference	Paired 't' test
	Mean	SD	Mean	SD		
Level of breast engorgement	4.63	0.96	4.57	1.25	0.06	t=0.22 P<0.05 DF=29 <b>NS</b>
Level of the pain	5.97	1.95	6.17	2.33	0.2	t=0.36 P<0.05 DF=29 <b>sNS</b>

NS= not significant DF= degree of freedom

The comparison of pre-test level of breast engorgement and level of pain between experimental and control group reveals that there was no statistically difference between experimental and control group in the pre test at P<0.05 level.

**Table 5: Comparison the post test level of breast engorgement and pain between experimental and control group among postnatal mothers.**

	Experimental group		Control group		Mean difference	Paired 't' test
	Mean	SD	Mean	SD		
<b>Level of breast engorgement</b>	2.07	0.73	4.37	1.06	2.3	t=8.59 p<0.05 DF=29 <b>S</b>
<b>Level of the pain</b>	1.23	1.50	4.97	2.02	3.74	T=8.70 p<0.05 DF=29 <b>S</b>

NS= not significant S=Significant DF= degree of freedom

The comparison of post test level of breast engorgement and level of pain between experimental and control group reveals that there was a statistically difference between experimental and control group in the post test at P<0.05 level.

## DISCUSSION

Breast engorgement is a common concern among postnatal women worldwide, with some using warm compresses to stimulate vasodilation, enhance circulation, and increase the amount of milk produced by the breasts. The current study found that lukewarm water was beneficial in reducing the level of breast engorgement and pain in the experimental group, as measured before and after the test. Kaur H, Saini P, Joshi U. (2017) found that the pre-test mean score of breast engorgement in group II (n=30) was  $2.80 \pm 0.66$  and fell to  $2.10 \pm 1.21$  after warm compresses ('t29'= 14.69, p=< 0.01). The present study concluded that heat compresses are more efficient than cold compresses in relieving breast engorgement.[9] Another study by Lamadah, Sahar. (2021) on the effect of lukewarm water compresses indicated that after the second intervention day, there was a highly statistically significant difference (P=0.000) between the two groups on the breast engorgement rating scale. Breast engorgement and pain severity were considerably reduced after the second intervention day in the lukewarm water compresses group when compared to the cold gel pack group.[10] As a result, the researcher suggests that nurses be educated to advise women during their discharge teaching plan regarding the use of lukewarm water compresses to reduce breast engorgement.

## CONCLUSION

The use of lukewarm water compression was found to considerably minimize breast engorgement among subjects. This suggests that lukewarm water compression can effectively manage breast engorgement in postnatal women. Implementing lukewarm water compresses as a common practice in postnatal care has the potential to increase postpartum moms' comfort and well-being.

### Conflict of interest:

Authors declare no conflict of interest.

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## References

1. Indrani D, Sowmya MV. A Study to Find the Prevalence of Breast Engorgement among Lactating Mothers. *Indian Journal of Public Health Research & Development* 2020;11:462. <https://doi.org/10.37506/v11/i2/2020/ijphrd/194845>.
2. Moon JL, Humenick, SS. Breast Engorgement: Contributing Variables and Variables Amenable to Nursing Intervention. *Journal of Obstetric, Gynecologic & Neonatal Nursing* 1989;18:309–15. <https://doi.org/10.1111/j.1552-6909.1989.tb01624.x>.
3. Dr. Tamilselvi S, Ananthi S and Rangila R. A study to assess the knowledge regarding breast engorgement and its associated risk factors among postnatal mothers. *International Journal of Obstetrics and Gynaecological Nursing* 2020;2:95–8. <https://doi.org/10.33545/26642298.2020.v2.i2b.53>.
4. Kaur V, Rani N. A quasi experimental study to assess the effectiveness of breast massage in reducing breast engorgement and pain among postnatal mothers admitted in regional hospital una 2022. *International Journal of Advanced Research* 2023; 11:356–60. <https://doi.org/10.21474/ijar01/16259>.
5. Sheelavathi, N., Nageshwari, R., & Dhivya, B. (2019). A study to assess the effectiveness of lukewarm water compression on nipple pain and breast engorgement among postnatal mothers at selected hospital, Namakkal. *TNNMC Journal of Obstetrics and Gynaecological Nursing*, 7(2), 14-17.
6. Lamadah S, Ahmed A, Kandeel H, Tayel A. Effect of lukewarm water compresses versus cold gel packs on breast engorgement among puerperal women. *Assiut Scientific Nursing Journal* 2021; 9:10–20. <https://doi.org/10.21608/asnj.2022.106384.1266>.
7. Anusha T, Leena Madhura N. Effectiveness of lukewarm water compress on breast engorgement among primi postnatal mothers at S.V.S Hospital, Mahabubnagar Telangana. *International Journal of Scientific Research* 2023:48–9. <https://doi.org/10.36106/ijsr/0404666>.
8. Resmy V, Juliet Jenifer. A study to assess the effectiveness of lukewarm water compress on prevention of nipple pain among primi parous mother. *International Journal of Research in Pharmaceutical Sciences* 2019; 10:2805–10. <https://doi.org/10.26452/ijrps.v10i4.1551>.
9. Kaur H, Saini P, Joshi U. Effectiveness of Cold vs. Warm compresses on reduction of Breast engorgement among primi postnatal mothers. *Nursing and Midwifery Research Journal*, 2017. <https://doi.org/10.33698/nrf0318>.
10. Lamadah, Sahar & Ahmed, Afaf & Kandeel, Hanan & Tayel, Anwaar. Effect of lukewarm water compresses versus cold gel packs on breast engorgement among puerperal women. *Assiut Scientific Nursing Journal*. 2021: 9. 10-20. [10.21608/asnj.2022.106384.1266](https://doi.org/10.21608/asnj.2022.106384.1266).