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Assessment of effect of reverse pressure softening technique on breast engorgement among postpartum women

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Abstract

AIM: The aim of study was to evaluate effect of reverse pressure softening technique on breast engorgement among postpartum women.

METHOD: Quasi-experimental design was employed. Target population for the study was postpartum women with the complaint or signs of breast engorgement. 80 participants were selected using non-probability convenient sampling technique and equally divided in two groups experimental group (40) and control group (40). Reverse pressure softening technique was performed on areola part to postpartum women in experimental group twice a day for consequently 3 days. The socio-demographic data was collected using self-structured tool and breast engorgement was assessed using standardized tool (six points breast engorgement scale) before intervention in experimental and control group as well as breast assessment was done on daily basis after intervention in experimental group. On day 3rd post-test was taken in both experimental and control group using six points breast engorgement scale.

RESULTS: Data analyzed through inferential and descriptive statistics. Paired t-test was done which suggests that the t-test value- 17.04 (df= 39) which was revealed to be significant 0.05 level. Results shows that there is reduction in breast engorgement after performing reverse pressure softening technique.

CONCLUSION: Study finding helps to improve breast feeding practices in immediate postpartum care.

Key words: Reverse pressure softening technique, Breast engorgement, Postpartum women

INTRODUCTION

All postpartum mothers should master the art and abilities of nursing or breastfeeding, not only to feed their baby but also to avoid breastfeeding related complications. Sometimes, mothers are not able to continue the practice of breastfeeding due to breastfeeding difficulties and complications. Breast engorgement is the most frequent breastfeeding issue for the postpartum or lactating mothers, following two weeks of delivery. Engorgement of the breasts can be extremely painful;

may increase the risk of nipple tenderness, fissures and abscesses; and can be the primary reason of hinderance in lactation. Breast engorgement develops in 72% to 85% women who delivered the baby for the first time. The mothers who are unable to provide breastfeeding and the mothers who do so, both can experience this problem. The National Family Health Survey (NFHS-5), 2019-21 had been stated out that In India, the secondary leading cause of breastfeeding cessation during the first two weeks following delivery is tender breasts.

There were many previous studies on treatment of breast engorgement, majority were on the different types of treatment modalities which require material or instrument to treat or prevent the problem. There is a need of certain kind of technique which doesn't require any material to be performed. The technique which is easy to perform so that mothers can also perform by themselves.

MATERIAL AND METHODS

Study Design

The study was conducted by using Quasi-experimental research design. The target population for the study was the postpartum women with the complaint or signs of breast engorgement.

Sample

80 participants were selected using non-probability convenient sampling technique and equally divided in two groups experimental group (40) and control group (40). Data collected from 1st May to 30th May 2023. Power estimation was used to calculate the sample size. Postpartum women in age group 21-35 years who delivered the baby for the first time through vaginal delivery or cesarean section and in the 0 to 10 days of postpartum period were included in the study. The primiparous women who are diagnosed with medical complications of breasts and who are receiving lactation suppressants/stimulants were excluded.

Data Collection Forms

Self-structured tool

The socio-demographic data was collected using self-structured which includes Age, educational status, occupational status, monthly income of family (in rupees), living locality, type of family, gestational weeks at the time of childbirth, mode of delivery, duration of breastfeeding in each session, source of information regarding the management and prevention of breast engorgement.

Six-point breast engorgement scale

the level of breast engorgement was assessed using standardized tool. Standardized tool (six-point breast engorgement scale) was used to assess the severity of breast engorgement. The reliability has been recorded to be 0.84 by Hill and Humenick, 1994. The researcher tested the reliability of the tool by using of Pearson correlation formula. The reliability computed was $r=0.83$. Structured and standardized rating scale which was developed by Hill and Humenick in 1994 to measure the level of breast engorgement and this tool is available freely.

Content Validity

The tool and the content were validated by 6 nursing experts, 2 consultants of obstetrics and gynecological department. The tool was also validated by a Gujarati language expert for the translation of tool.

Data Collection

The selected samples were allocated in two groups experimental group (40) and control group (40). Participant

information sheet was given to the participants explaining the purpose of the study, duration, intervention and benefits. Verbal as well as written informed consent was taken from participants. Data collected through sociodemographic data collection tool & six point breast engorgement scale. Reverse pressure softening technique was performed on areola part consequently 3 days for twice a day to the participants of experimental group before breastfeeding. The level of breast engorgement was assessed before intervention in experimental and control group as well as breast assessment was done on daily basis after intervention in experimental group. On day 3rd post-test was taken in both experimental and control group using six points breast engorgement scale. After taking the post-test data analysis was done.

Statistical Analysis: The data which was collected were analyzed using SPSS Software. The continuous data were represented as mean and standard deviation and categorical data were represented in frequency and percentages. Paired t-test was used to compare the efficacy of intervention between the groups (intervention group and control group). Probability p-value less than 0.05 was considered significant.

Ethical considerations

Study approval obtained Institutional Ethics Committee dated on 17/02/23. Approval was also taken from head of departments of organization prior to data collection. The study was conducted according to Institutional Ethics Committee guidelines.

RESULT AND DISCUSSION

Socio-demographic Assessment

The study population comprised postpartum women (n=80) between the age of 21 to 35 years of which majority of women belongs to the age of 26 to 30 years. Majority of the women completed higher secondary or secondary education. Most of the women perform breastfeeding for 10-15 minutes in each session.

TABLES AND GRAPHS

Table No. 1 Breast engorgement assessment and comparison between groups before and after intervention

Breast engorgement parameter	Experimental Group			
	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Soft, No changes in breast (score=1)	0	0%	20	50%
Slight firmness in the breast (score=2)	3	8%	16	40%
Firm, Non-tender breast (score=3)	6	15%	4	10%

Firm, beginning of tenderness (score=4)	18	45%	0	0%
Firm, tender breast (score=5)	7	18%	0	0%
Very firm and very tender breast (score=6)	6	15%	0	0%

Table no. 1 shows that in experimental group, 18 (45%) participants were having moderate breast engorgement and had rated score-4 (firm, beginning of tenderness) on six points breast engorgement scale before receiving reverse pressure softening technique (pre-test). Whereas the post-test score showed that majority 20 (50%) of participants were having mild breast engorgement and had rated score-1 (soft, breast remain unchanged) on six points breast engorgement scale after receiving the intervention.

Graph no. 1: The level of breast engorgement before and after administration of reverse pressure softening technique among experimental group.

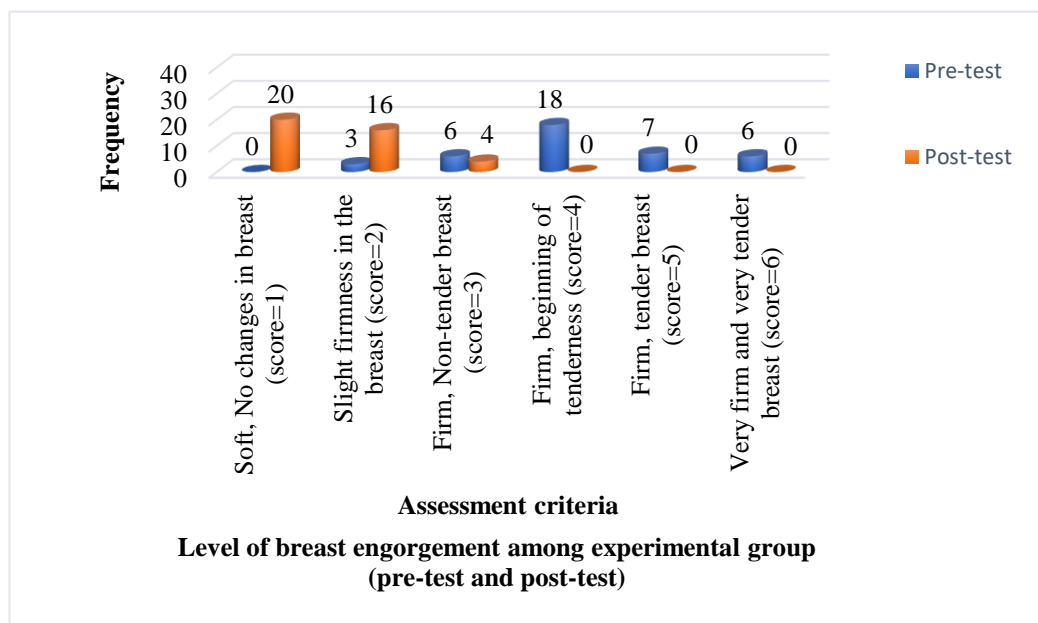


Table no. 2 Frequency and percentage distribution of postpartum women according to level of breast engorgement before and after reverse pressure softening technique among control group

Breast engorgement parameter	Control Group			
	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage

Soft, no changes in breast (score=1)	0	0%	4	10%
Slight firmness in the breast. (score=2)	3	8%	5	13%
Firm, non-tender breast (score=3)	5	13%	10	25%
Firm, beginning of tenderness (score=4)	9	23%	13	33%
Firm, tender breast (score=5)	10	25%	6	15%
Very firm and very tender breast (score=6)	13	33%	2	5%

Table No. 2 depicts that in control group, on assessment through six points breast engorgement scale, 13 (33%) participants were having severe breast engorgement and had rated score-6 (very firm and very tender breast) on pre-test. However, 13 (33%) of the participants were having moderate breast engorgement and had rated score-4 (firm, beginning of tenderness) during post-test (not received intervention).

Graph no. 2: Distribution of postpartum women based on the extent of breast engorgement after administration of reverse pressure softening technique.

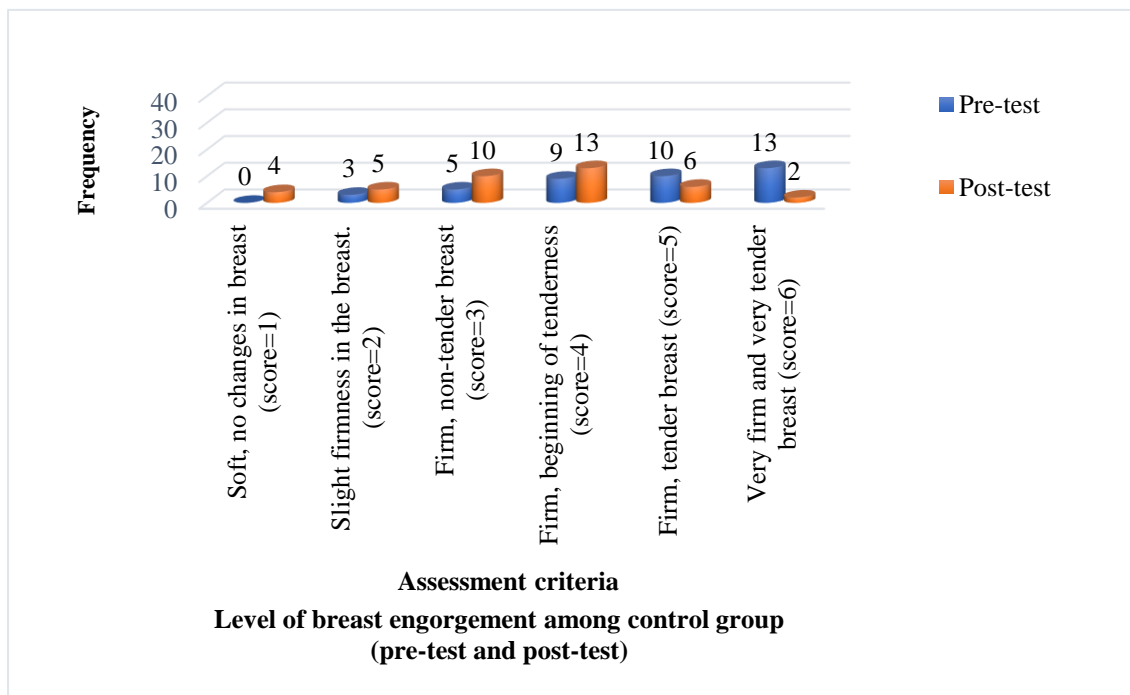


Table no. 3 Paired t-test analysis for the significance of pre-test and post-test level of breast engorgement before and after administration of reverse pressure softening technique among postpartum women in experimental and control group

Breast Engagement	Max Score	Mean Enhancement Score		Paired t-test	P-value
		Mean	SD		
Experimental Group	40	2.575	0.957	17.04** (S) df=39	P<0.05 Sig.=0.000
Control Group	40	1.17	0.984	7.551 (NS) df=39	P<0.05 Sig.=0.000

S - Highly significant, NS - Not significant**

Table no. 3 shows the results of the paired t-test analysis that was done in order to determine the statistical significance of pre-test and post-test mean score of breast engorgement before and after administration of reverse pressure softening technique among postpartum women in experimental group and control group.

In the experimental group the maximum score was (1 to 6), mean enhancement score was 2.57, standard deviation was 0.957, and paired t-test value was 17.04, df= 39 was found to be significant 0.05 level.

Hence, there exists significance efficacy of reverse pressure softening technique before and after administration regarding breast engorgement among postpartum women.

It evidenced that there was significant mean variation in the degree of breast engorgement after the intervention of reverse pressure softening technique among postpartum women. Hence, the research hypothesis H₄ was accepted as there is significant difference in effect of reverse pressure softening technique on breast engorgement among postpartum women in experimental and control group at the level of significance (p<0.05).

Significance between pre-test and post-test score of breast engorgement among experimental and control group.

- Paired t-test analysis is done which suggests that the t-test value- 17.04 (df= 39) which was found to be significant 0.05 level.
- The results shows that there is reduction in breast engorgement after performing reverse pressure softening technique.

CONCLUSION AND RECOMMENDATIONS

The study concluded that the postpartum women having breast engorgement requires additional care and support to relieve the symptoms of breast engorgement. Through the present study, reverse pressure softening technique was proved to be effective in managing breast engorgement and preventing its complications. Reverse pressure softening can be also used to improve breastfeeding practices among postpartum women. This technique can be a good measure & easy to apply as well as cost-effective treatment and preventive measure for reducing breast engorgement. Mothers can also perform this technique at home by themselves and it has no additional side effects. This technique doesn't require any instrument or

material. It can only require an application of simple & soft pressure using the pads of the finger tips and thumb on the areola of postpartum women.

The need for more robust randomized controlled trials, particularly in vulnerable groups such as mothers of preterm infants could be a focus in future with the expert advice. Also, Nurses can be trained in the reverse pressure softening technique to help breastfeeding mothers recover from childbirth and avoid problems related to nursing.

Ethics Committee Approval: Study approval obtained Institutional Ethics Committee dated on 17/02/23. Approval was also taken from head of departments of organization prior to data collection. The study was conducted according to Institutional Ethics Committee guidelines.

(Approval No: IEC/BU/141/Faculty/2/17/23)

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Declaration of Interests: The authors have no conflict of interest to declare.

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REFERENCES:

1. Ananthavarsheni, T. R. S. (2019). Study to Evaluate the Effectiveness of Reverse Pressure Softening Technique on the Level of Breast Engorgement and Breastfeeding among Postnatal Mothers in Selected Hospitals at Ranchi (Doctoral dissertation, Annai Meenakshi College of Nursing, Coimbatore).

Available from- repository-tnmgrmu.ac.in
2. Berens P., Brodribb W., (2016). The academics of breastfeeding medicine, 11(4), p 159-162

Available from- <https://abm.memberclicks.net/assets/DOCUMENTS/PROTOCOLS/20-engorgement-protocol-english.pdf>
3. Cotterman, K. J. (2004). Reverse pressure softening: a simple tool to prepare areola for easier latching during engorgement. *Journal of human lactation*, 20(2), p 227-237.

Available from- <https://journals.sagepub.com/doi/abs/10.1177/0890334404264224>
4. Chaudhary, P., Banu, T., & Farswal, A. (2019). A study to assess the effectiveness of olive oil massage in reducing breast engorgement and pain among postnatal mothers with LSCS admitted in selected hospital at Meerut. *International Journal of Nursing & Midwifery Research (E-ISSN: 2455-9318)*, 6(4), 13-21.

Available from- <https://medical.advancedresearchpublications.com/index.php/IntlJ-Nursing-MidwiferyResearch/article/view/84>

5. Eittah, H. F. A., & Ashour, E. S. S. (2019). Comparing warm compresses application vs. chilled cabbage leaves for relieving breast engorgement among post-natal mothers. *Clinical Nursing Studies*, 7(3), 58.

Available from- [researchgate.net/profile/ Hayam Fathey Ahmed Eittah, Eman Seif S. Ashour. "Comparing warm compresses application vs. chilled cabbage leaves for relieving breast engorgement among post natal mothers", Clinical Nursing Studies, 2019](https://researchgate.net/profile/Hayam-Fathey-Ahmed-Eittah)

6. Humenick, S. S., Hill, P. D., & Anderson, M. A. (1994). Breast engorgement: patterns and selected outcomes. *Journal of Human Lactation*, 10 (2), p 87-93.

Available from- <https://journals.sagepub.com/doi/abs/10.1177/089033449401000213>

7. Indrani, D., & Sowmya, M. V. (2019). A study to find the prevalence of breast engorgement among lactating Mothers. *Journal of reproductive medicine gynecology & obstetrics*, 4, p 23.

Available from- <https://pdfs.semanticscholar.org/25ee/ee917a03f3f2df55042f403248ab76bc5697.pdf>

8. Kothari C.R. *Research Methodology and Techniques*. (2nd edition Vol.1). India. New Age International publisher. pp.30,11

9. Kaur, S., & Singh, A. (2022). *Nursing Research in 21st Century* (1st edition, Vol. 1). CBS publisher & Distributor. pp.202,78

10. Mohamed, R. S. F., Shelil, M. E. I., & Abd-Allah, I. M. Comparing between the Effect of Breast Massage versus Cabbage Leaves Compress on Reduction of Breast Engorgement among Postpartum Women.

Available from- https://journals.ekb.eg/article_281297.html

11. Polit DF, Hungler BP. *Nursing research principles and methods*. 5th edition. Published by J.B, Lippincott Company. 1995. pp 505, 643, 765.

12. Pearson. (2013). *Nursing Research and Statistics* (1st edition Vol. 1). Dorling Kindersly. pp.312,322

13. Pednekar, P. S. (2021). Efficacy of Reverse Pressure Softening of Areola in Women with Postpartum Breast Engorgement. *Indian Journal of Physiotherapy & Occupational Therapy* Print-(ISSN 0973-5666) and Electronic–(ISSN 0973-5674), 15(2). p 50-58.

Available from- [https://ijpot.com/scripts/IJPOT_April-June%202021%20\(1\).pdf#page=55](https://ijpot.com/scripts/IJPOT_April-June%202021%20(1).pdf#page=55)

14. Salgaonkar, R. (2019). Chilled cabbage leaves: The possible remedy for breast engorgement. *International journal of nursing and medical investigation*, 4(1), p 1-3.

Available from- http://www.innovationalpublishers.com/Content/uploads/PDF/1741952347_IJNMI-03-JM- 2019-10%20Galley_REV_20201202_.pdf

15. Suresh k Sharma. Nursing research and statistics. 2nd edition. Published by Reed Elsevier India Private Limited. New Delhi 2014; pp 39, 40, 43, 71-73, 101-102, 121-124, 138, 151, 287, 290, 299, 394.
16. World Health Organization (2018). Guidance: counseling of women to improve breastfeeding practices. World Health Organization, 7(3), p 15-16.
Available from- <https://apps.who.int/iris/bitstream/handle/10665/280133/9789241550468-eng.pdf>