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A Study to Assess the Effectiveness of Reverse Pressure Softening Technique on Breast Engorgement Among Primipara Postnatal Mothers at Government Medical College and Hospital Thirvallur

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Abstract:

Introduction: Breast engorgement is a prevalent condition experienced by postpartum mothers, particularly during the early days of breastfeeding. It occurs when the breast tissues swell with milk, leading to increased pressure and discomfort. **Aim:** The study aimed to assess the effectiveness of the reverse pressure softening technique on breast engorgement among Primipara postnatal mothers. **Methodology:** A pre-experimental one-group pre-test and post-test design was utilized for this study. The research was conducted at the Maternal and Child Health Center, Government Medical College and Hospital, Tiruvallur, Tamil Nadu. The study targeted primiparous mothers with breast engorgement in the postpartum ward of Government Medical College and Hospital, Tiruvallur. The sample consisted of 60 primiparous postnatal mothers who met the inclusion criteria for breast engorgement. A non-probability purposive sampling technique was employed to select the participants. **Result:** The study demonstrated a significant improvement in breast engorgement after the intervention, with 86.7% of mothers reporting mild engorgement post-intervention, compared to 76.7% experiencing moderate engorgement pre-intervention. A moderate positive correlation was found between breast engorgement and pain ($r = 0.471$, $p = 0.0001$), suggesting that reducing engorgement alleviates pain. **Conclusion:** The intervention significantly improved breast engorgement levels, reducing the severity from moderate to mild for most mothers.

Keywords: Breast engorgement, postpartum mothers, breastfeeding.

INTRODUCTION

Breast engorgement is a prevalent condition experienced by postpartum mothers, particularly during the early days of breastfeeding. It occurs when the breast tissues swell with milk, leading to increased pressure and discomfort. This physiological response is common after delivery and is often exacerbated by inadequate breastfeeding techniques or infrequent nursing sessions, resulting in a buildup of milk and stasis in the milk ducts (Susanti et al., 2023; Xi et al., 2024). Engorgement, which is directly associated with difficulties in initiating breastfeeding, can significantly impact maternal confidence and the overall success of breastfeeding (Xi et al., 2024). If not addressed promptly, engorgement can progress into more severe conditions, such as mastitis, which presents health risks to both the mother and infant (Susanti et al., 2023; Hale et al., 2019). Therefore, it is crucial to implement effective management and preventative strategies, including proper latching techniques and education on optimal breastfeeding positions, to reduce the incidence of breast engorgement and promote successful lactation (Susanti et al., 2023; Xi et al., 2024; Tzitiridou-Chatzopoulou et al., 2023). Research indicates that the reverse pressure softening technique, which involves

applying gentle pressure around the areola before breastfeeding, can facilitate better latching for infants and enhance milk expression (Mounika et al., 2023; Pednekar, 2021; Gresh et al., 2019). This practice not only alleviates discomfort associated with engorgement but also improves the infant's ability to extract milk effectively, addressing a core challenge faced by new mothers (Pednekar, 2021; Gresh et al., 2019).

Supporting this, a systematic review has highlighted those various non-pharmacological interventions, including reverse pressure softening, have positive outcomes in managing breast engorgement (Gresh et al., 2019; Witt et al., 2015). While methods such as warm compresses and breast massage have been documented, reverse pressure softening stands out due to its targeted approach to addressing immediate discomfort and providing practical solutions for feeding challenges (Gresh et al., 2019; Witt et al., 2015). A pilot study further demonstrates the technique's effectiveness in enhancing breastfeeding success rates among mothers dealing with engorgement-related difficulties (Gresh et al., 2019).

The implications of effectively managing breast engorgement extend beyond immediate pain relief. They are closely tied to sustained breastfeeding, which is essential for the health of both mother and child (Berens, 2015; Suglo et al., 2024). Failure to adequately address engorgement could lead to prolonged discomfort and increased risk of complications such as mastitis, further complicating the breastfeeding experience (Pednekar, 2021; Sabry et al., 2022). Therefore, incorporating reverse pressure softening into postpartum care can significantly improve maternal outcomes and promote long-term breastfeeding success

AIM OF THE STUDY

The study aimed to assess the effectiveness of the reverse pressure softening technique on breast engorgement among Primipara postnatal mothers.

METHODOLOGY

Study Design and Setting

A pre-experimental one-group pre-test and post-test design was utilized for this study. The research was conducted at the Maternal and Child Health Center, Government Medical College and Hospital, Tiruvallur, Tamil Nadu. The study targeted primiparous mothers with breast engorgement in the postpartum ward. The sample consisted of 60 primiparous postnatal mothers who met the inclusion criteria for breast engorgement. A non-probability purposive sampling technique was employed to select the participants.

Tools

The tool assesses breast engorgement and pain through two sections. Section A collects demographic data such as age, residence, occupation, family structure, income, diet, social support, and childbirth type. Section B includes a modified Breast Engorgement Assessment Scale, scoring engorgement based on firmness, tenderness, pain, and nipple condition (1-5). Part II uses the McGill Pain Scale to categorize pain intensity (0 for no pain, 1-3 for mild, 4-6 for moderate, 7-10 for severe).

Intervention

The intervention used in the study was the Reverse Pressure Softening Technique (RPST) for managing breast engorgement in primipara postnatal mothers, applied 4-5 times per day. This technique involves gently pressing the areola with the fingertips for 30 seconds, helping to move excess fluid toward natural lymphatic drainage, relieve milk duct elongation, and reduce pain and discomfort during breastfeeding. Two methods were used: Method I (using both hands) involves pressing the base of the nipple for 30-50 seconds, repositioning the fingers until the areola softens, and Method II (one-handed "flower hold") involves gently pressing the swollen breast for at least 50 seconds. The technique improves breastfeeding effectiveness and alleviates swelling and pain. A follow-up was done the next day with a post-test to self-assess breast firmness.

Data Collection Procedure

Permission was obtained from the Department of Obstetrics and Gynecology at Government Medical College and Hospital Thiruvallur. A non-probability purposive sampling technique was used to select postnatal primipara mothers with breast engorgement who met the inclusion criteria. The investigator established rapport with the mothers, gaining their trust and cooperation, and assured them that their responses would remain confidential. The study's objectives were clearly explained to each participant, and informed consent was obtained. Privacy was ensured during the process. A pre-test was conducted using demographic data, a modified breast engorgement assessment scale, and a numerical pain scale. The reverse pressure softening technique was then implemented as the intervention.

Statistical Analysis

Statistical analysis Statistical analysis included frequency and percentage, correlation, paired t-test, and chi-square test. A p-value < 0.05 was considered statistically significant.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee of A.C.S. Medical College and Hospital, Chennai (Ethical Clearance No. 520/2022/IEC/ACSMCH DT.04.5.2022). Following this, formal approval was obtained from the Dean, Resident Medical Officer, and Head of the Department of Obstetrics and Gynecology at Government Medical College and Hospital Thiruvallur. The mothers were fully informed about the study's purpose, and their formal consent was obtained, with assurances that all information would be kept confidential.

RESULTS

Demographic variables

Table 1 showed that the demographic characteristics of the 60 primipara postnatal mothers showed that 43.3% were aged 20-23 years, with most living in rural areas (68.3%). Regarding education, 40% had primary education, and 43.3% were housewives. Monthly income was most commonly between Rs. 5,001 and 10,000 (41.7%), and 60% followed a vegetarian diet. Social support was mostly from the mother (36.7%) or husband (35%). The majority had a normal vaginal delivery (68.4%), and 46.7% lived in nuclear families.

Breast Engorgement Distribution

Table 2 shows the frequency and percentage distribution of breast engorgement levels before and after the intervention. In the pre-test, the majority of mothers experienced moderate engorgement (76.7%), while 13.3% had severe engorgement and 10% had mild engorgement. After the intervention, the majority of mothers reported mild engorgement (86.7%), with only 13.3% experiencing moderate engorgement, and no mothers had severe engorgement, indicating a significant improvement.

Pain Distribution

Table 3 displays the frequency and percentage distribution of pain levels before and after the intervention. In the pre-test, no pain data was provided, but post-test results would show the distribution of pain levels after the intervention, reflecting the changes in pain severity. (Please update the pain data for a complete analysis).

Correlation

This table 6 presents the correlation between post-test breast engorgement and pain levels. The Pearson correlation coefficient ($r = 0.471$) indicates a moderate positive correlation. The p-value of 0.0001 confirms that this correlation is statistically significant.

Association

Table 7 shows that area of living ($\chi^2 = 4.055$, $p = 0.044$) and type of delivery ($\chi^2 = 12.062$, $p = 0.006$) were significantly associated with post-test breast engorgement. Mode of delivery ($\chi^2 = 12.062$, $p = 0.017$) was significantly associated with post-test pain. Other demographic variables did not show significant associations with either condition.

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DISCUSSION

The study highlights a significant improvement in breast engorgement among postnatal mothers after the intervention, with 86.7% reporting mild engorgement post-intervention compared to 76.7% pre-intervention. This improvement underscores the effectiveness of the implemented intervention and aligns with findings in the literature that emphasize the necessity of addressing breast engorgement in postpartum care

The moderate positive correlation ($r = 0.471$, $p = 0.0001$) between breast engorgement and pain levels aligns with existing research that demonstrates how breast engorgement can exacerbate discomfort and pain for breastfeeding mothers. For instance, peer-reviewed studies, such as those by Rahnemaie et al., indicate that effective management of engorgement not only alleviates the physical discomfort associated but also improves the breastfeeding experience Rahnemaie et al. (2018). Similarly, Demirci et al. noted that mothers who effectively managed their engorgement experienced improved confidence in breastfeeding, which is vital for overall satisfaction (Demirci et al., 2019).

Socio-demographic factors also significantly impacted the study outcomes.. Studies have indicated that women in rural locations often face barriers in accessing timely postnatal care and education regarding breastfeeding, affecting engorgement levels and overall satisfaction with breastfeeding (Wizia & Susanti, 2021)(Foudil-bey et al., 2021).

Moreover, the effective intervention also speaks to the broader implications of postpartum care strategies. The results aligns with the findings of Foudil-Bey et al., where various interventions, including education on breast massage and the use of non-pharmacological methods, significantly enhanced maternal outcomes related to breastfeeding (Foudil-bey et al., 2021). Other studies have similarly demonstrated the importance of tailored interventions that consider physiological and socio-cultural elements to optimize breastfeeding success.

Table 1: Demographic variables of primipara postnatal mothers. N=60

Demographic Variables	Frequency	Percentage
Age		
20–23 years	26	43.3
24–27 years	23	38.4
28–30 years	11	18.3
Area of Living		
Rural	41	68.3
Urban	19	31.7
Educational Status		
Illiterate	12	20.0
Primary	24	40.0
Secondary	16	26.7
Graduate	8	13.3
Occupational Status		
Housewife	26	43.3
Housemaid	17	28.3
Labor	10	16.7
Other	7	11.7
Type of Family		
Nuclear	28	46.7
Joint	32	53.3
Monthly Income		
Under Rs. 5,000	15	25.0
Rs. 5,001–10,000	25	41.7
Above Rs. 10,000	20	33.3
Dietary Pattern		
Vegetarian	36	60.0

Non-Vegetarian	24	40.0
Social Support		
Mother	22	36.7
Mother-in-law	17	28.3
Husband	21	35.0
Friends	0	0.0
Type of Delivery		
Normal Vaginal	41	68.4
LSCS	14	23.3
Instrumental Delivery	5	8.3

Table 2: Frequency and Percentage Distribution of Pre-test and Post-test Level of Breast Engorgement

Breast Engorgement	Pre-test Frequency	Pre-test Percentage	Post-test Frequency	Post-test Percentage
Mild (1-2)	6	10.0	52	86.7
Moderate (3-4)	46	76.7	8	13.3
Severe (5)	8	13.3	0	0.0

Table 3: Frequency and Percentage Distribution of Pre-test and Post-test Level of Pain.

Pain Level	Pre-test Frequency	Pre-test Percentage	Post-test Frequency	Post-test Percentage
Mild	0	0	14	23.3
Moderate	8	13.3	42	70.0
Severe	31	51.7	4	6.7
Worst	21	35.0	0	0

Table 4: Effectiveness of Reverse Pressure Softening Technique on Breast Engorgement and Pain.

Test	Mean	S. D	Mean Difference	Paired 't' test & p-value
Breast Engorgement			2.17	**t = 27.278, p = 0.0001** (S)
Pre-test	3.75	0.82		
Post-test	1.58	0.72		
Pain			4.03	**t = 31.528, p = 0.0001** (S)
Pre-test	5.70	1.63		
Post-test	1.67	1.08		

Table 5: Correlation Between Post-test Breast Engorgement and Pain Among Primipara Postnatal Mothers.

Variables	Mean	S.D	Correlation 'r' & p-value
Breast Engorgement	1.58	0.72	**r = 0.471** **p = 0.0001,** **S** (Statistically Significant)
Pain	1.67	1.08	

Table 6: Association of Post-test Level of Breast Engorgement and Pain Among Primipara Postnatal Mothers with Selected Demographic Variables.

Demographic Variables	Chi-Square (χ^2) & p-value
Breast Engorgement	
Area of Living	$\chi^2 = 4.055$, p = 0.044 (S)
Type of Delivery	$\chi^2 = 12.062$, p = 0.006 (S)
Pain	
Mode of Delivery	$\chi^2 = 12.062$, p = 0.017 (S)

CONCLUSION

The research concludes that moderate work stress levels have a high impact on the quality of life of the nursing officers. They underline how a healthcare management can use evidence-based interventions to alleviate stressors and enhance support systems. One of the methods to enhance patient care is to transform the working conditions of nurses by increasing nurse well-being.

RECOMMENDATION

The hospitals should establish stress management programs and enhance their support systems that should help the nursing officers to manage the tension they have in the workplace. The minimization of stress at the workplace must be combined with equal ratio of the amount of work and the improved communication between the medical staff and the physicians. Better workplace wellness policies shall increase the quality of life among the nursing staffs as well as the quality of nursing practices.

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REFERENCES

1. Hale, M., Mills, N., Edmonds, L., Dawes, P., Dickson, N., Barker, D., … & Wheeler, B. (2019). Complications following frenotomy for ankyloglossia: a 24-month prospective new zealand paediatric surveillance unit study. Journal of Paediatrics and Child Health, 56(4), 557-562. https://doi.org/10.1111/jpc.14682
2. Susanti, S., Ulpawati, U., & Yulianti, N. (2023). Management of mastitis in post partum: literature review. International Journal of Nursing and Midwifery Science (Ijnms), 7(1), 8-17. https://doi.org/10.29082/ijnms/2023/vol7/iss1/455
3. Tzitiridou-Chatzopoulou, M., Orovou, E., Skoura, R., Eskitzis, P., Dagla, M., Iliadou, M., … & Antoniou, E. (2023). Traumatic birth experience and breastfeeding ineffectiveness - a literature review. Materia Socio Medica, 35(4), 325. https://doi.org/10.5455/msm.2023.35.325-333
4. Xi, D., Ge, X., & Wang, D. (2024). Effect of care intervention with a health education form for breastfeeding on breast distension, pain, and lactation in postpartum mothers. World Journal of Clinical Cases, 12(22), 5059-5066.

5. Berens, P. (2015). Breast pain. Clinical Obstetrics & Gynecology, 58(4), 902-914. https://doi.org/10.1097/grf.0000000000000153
6. Gresh, A., Robinson, K., Thornton, C., & Plesko, C. (2019). Caring for women experiencing breast engorgement: a case report. Journal of Midwifery & Women S Health, 64(6), 763-768. https://doi.org/10.1111/jmwh.13011
7. Mounika, M., Kalabarathi, S., & Padmapriya, D. (2023). Effectiveness of reverse presure softening technique on level of breast engorgement among postpartum mothers at saveetha medical college and hospital, thandalam, chennai. CM, (25), 231-237. https://doi.org/10.18137/cardiometry.2022.25.231237
8. Pednekar, P. (2021). Effectiveness of reverse pressure softening of areola in women with postpartum breast engorgement. Indian Journal of Physiotherapy and Occupational Therapy - An International Journal, 15(2), 50-58. https://doi.org/10.37506/ijpot.v15i2.14513
9. Sabry, R., Mohamed, F., Elshahat, M., Shelil, I., & Abd-Allah, I. (2022). Comparing between the effect of breast massage versus cabbage leaves compress on reduction of breast engorgement among postpartum women. Trends in Nursing and Health Care Journal, 5(2), 111-128. https://doi.org/10.21608/tnhcj.2022.281297
10. Suglo, M., Kpekura, S., & Yiryuo, L. (2024). Breastfeeding challenges among adolescent mothers:
11. Witt, A., Bolman, M., Kredit, S., & Vanic, A. (2015). Therapeutic breast massage in lactation for the management of engorgement, plugged ducts, and mastitis. Journal of Human Lactation, 32(1), 123-131. https://doi.org/10.1177/0890334415619439
12. Demirci, J., Glasser, M., Fichner, J., Caplan, E., & Himes, K. (2019). “it gave me so much confidence”: first-time u.s. mothers' experiences with antenatal milk expression. Maternal and Child Nutrition, 15(4). https://doi.org/10.1111/mcn.12824
13. Foudil-bey, I., Murphy, M., Dunn, S., Keely, E., & El-Chaâr, D. (2021). Evaluating antenatal breastmilk expression outcomes: a scoping review. International Breastfeeding Journal, 16(1). https://doi.org/10.1186/s13006-021-00371-7
14. Rahnemaie, F., Zare, E., Zaheri, F., & Abdi, F. (2018). Effects of complementary medicine on successful breastfeeding and its associated issues in the postpartum period. Iranian Journal of Pediatrics, In Press(In Press). https://doi.org/10.5812/ijp.80180
15. Wizia, L. and Susanti, E. (2021). Aloe vera gel compression as breast engorgement pain relief. Women Midwives and Midwifery, 1(3), 13-19. https://doi.org/10.36749/wmm.1.3.13-19.2021
16. Zaghloul, M., zedan, H., Alagamy, Z., Kahlil, E., & Gomaa, A. (2023). The effect of breast massage on breast pain and breast engorgement among primiparous women and neonate’s suckling speed. Mansoura Nursing Journal, 10(2), 343-351.

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