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Effectiveness of Reverse Pressure Softening Technique on Breast Engorgement and Breast Feeding among Postnatal mothers in Selected Hospital, Hyderabad, Telangana

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Abstract: ***Reverse Pressure Softening technique (RPST) is a simple manual technique used to temporarily soften the areola during breast engorgement. It helps move interstitial fluid backward into the breast tissue, reducing swelling around the nipple-areolar area and allowing the baby to latch effectively. The research approach selected for the study was Quantitative and Evaluative Approach with Pre experimental One group Pre and Post test research design. 41 postnatal mothers who all are had breast engorgement were selected at selected Hospital through Non probability Purposive sampling technique. Reliability of the tool was elicited by using Spearman Brown Co- efficient method and it was found to be r = 0.850. The data was collected by using Semi structured Questionnaire on level of breast engorgement and breastfeeding practices. The intervention of Reverse Pressure Softening Techniques was given to all samples with duration of 10 – 20 minutes 4 times per day for a period of 2 days. The results showed that, the mean breast engorgement score decreased from 3.44 ± 0.71 in the pre-test to 1.20 ± 0.40 in the post-test. The obtained t-value (26.726) is much higher than the table value (3.551) at df = 40, and the p-value (0.000) indicates a highly significant difference at p < 0.05. in regard with breastfeeding the mean pre-test score (4.93 ± 1.21) increased to a mean post-test score of (8.68 ± 0.79). The obtained t value (23.047) is greater than the table value (2.021) at df = 40, and the p value (0.000) indicates a highly significant difference at p < 0.05. This confirms that the Reverse Pressure Softening Technique was highly effective in improving breastfeeding among postnatal mothers. The Chi-square test revealed a statistically significant association between religion ($\chi^2 = 4.570$, $p < 0.05$) and parity ($\chi^2 = 5.611$, $p < 0.05$) with LATCH breastfeeding scores. The study attempted to assess the Effectiveness of Reverse Pressure Softening Techniques on level of Breast Engorgement and breast feeding among postnatal mothers and found the Reverse Pressure Softening Techniques were effective in reducing breast engorgement and improved the level of breastfeeding practices. The study concluded that, Reverse Pressure softening technique is highly effective in reducing breast engorgement and enhancing breastfeeding performance among postnatal mothers.***

Keywords: Reverse Pressure Softening Technique, Breast Engorgement, Breastfeeding

1.Introduction

Breast engorgement is characterised by the breasts becoming swollen, firm, hard, shiny, warm, and sometimes lumpy on palpation. Women may also experience pain, flattened or stretched nipples, and low-grade fever of approximately 38°C (100.4°F). Tender and mildly enlarged lymph nodes may also be present. Due to increased breast tension and nipple flattening, the infant may have difficulty latching, which can lead to sore and cracked nipples from improper attachment. If the breasts are not emptied effectively, blocked milk ducts may occur, increasing the risk of mastitis. Persistent pain may reduce feeding frequency and subsequently decrease milk supply. To prevent breast engorgement, the baby should be kept close to the mother immediately after birth and breastfed frequently. Infants should be allowed to feed as long as they desire during each feeding session. Mothers should alternate breasts at the start of each feed to ensure adequate milk removal from both sides. Breast engorgement usually happens when the breast switches off from colostrum to mature milk. Breast engorgement is a common issue among breastfeeding women. The global incidence rate of breast engorgement is approximately 1 in 8,000 the incidence rate in India is 1: 6500

Reverse Pressure Softening (RPS) is a simple manual technique used to temporarily soften the areola during breast engorgement. It helps move interstitial fluid backward into the breast tissue, reducing swelling around the nipple-areolar area and allowing the baby to latch effectively.

Objectives

1) To estimate the level of breast engorgement and breast feeding among postnatal mothers.
2) To evaluate the effectiveness of reverse pressure softening techniques on level of breast engorgement and breast feeding among postnatal mothers.
3) To find out the association between post-test levels of breast engorgement and breast feeding among postnatal mothers with their selected demographic variables.

Hypothesis

H_1: There is a significant difference between pre and post-test level of breast engorgement among postnatal mothers.
H_2: There is a significant difference between pre and post test scores of breastfeeding among postnatal mothers.
H_3: There is a significant association between the level of breast engorgement and breast feeding with their selected demographic variables.

2.Research Methodology

The research approach adopted in the present study was Quantitative and Evaluative approach and the research design is Pre experimental One group pre-test-post-test design. The sample comprised postnatal mothers with breast engorgement. Non-Probability Purposive Sampling technique was used. The Inclusion Criteria includes Postnatal mothers with engorged breasts, irrespective of age, parity, and mode of delivery, admitted in postnatal wards during data collection &willing to participate in the study. The study excluded that Postnatal mothers diagnosed with mastitis, inverted nipple, breast abscess, or malignant breast tumor, Mother of baby having sucking anomalies and undergoing medical treatment for breast engorgement. A semi-structured tool was developed to assess breast engorgement and breastfeeding practices. The tool consists of three sections Section I: Demographic Variables: Age, religion, residential area, educational status, type of family, parity, and mode of delivery. Section II: Six-Point Breast Engorgement Scale, Developed by Hill & Humenick (1994) to assess severity of breast engorgement. Section III: LATCH Breastfeeding Assessment Tool Developed by Jenson, Wallace, Kelsay (1994) – JOGNN. A formal permission obtained from the Resident medical officer {RMO} at Hospital. The total subjects 41 for the study were selected by Non probability purposive sampling technique, explained the purpose procedure and benefits of the study. A written consent was obtained from participants for their willingness to participate in the study. The investigator selected the samples based on the inclusion and exclusion criteria. Data was collected by using semi structured questionnaire. Pre-test was conducted to assess the level of Breast Engorgement and breastfeeding practices followed by Administration of Reverse pressure softening technique by the researcher to the samples for period of 10 – 20 minutes 4 times per day before each feed to the baby for 2 days. Post test was conducted on 4th day of postnatal day regarding the level of breast engorgement and breastfeeding practices.

Procedure Steps:

STEP: 1 One handed/ flower hold curved fingers place over the areola Apply firm pressure about 1-3 minutes, and move your hand to cover the areola, take few breaths and be calm if you feel soft enough just do it one more time.

STEP: 2 Two handed 3 fingers: Hold it from sides give pressure for 1 to 3 minutes, just see how it feels and do it again by placing three fingers each side inside of the nipple.

STEP: 3 Two handed using thumbs: Use thumbs one on each side of the nipple and then pressure in upward and put pressure for 1 to 3 minutes and then you have to move your thumbs around upward and downward.

STEP: 4 Two handed 2 to 3 fingers: Put pressure for 1 3 minutes sides and up and downward.

Ethical Consideration

The ethical clearance was obtained through Institutional Ethical Committee Clinical studies (IEC-CS) by the AIMSR. Written permission was obtained from concerned authorities of Hospital, Hyderabad. Informed consent was obtained from the samples who all are participating in the study before collecting the data.

3.Results

Part A. Sample Characteristics

Table 1: Frequency and Percentage Distribution of Level of Breast Engorgement and Breastfeeding According to their Demographic variables

n = 41

S. No.	Demographic variables	Frequency (f)	Percentage (%)
1	**Age in years**		
	a) 18 – 22 years	09	22.0%
	b) 23 – 26 years	20	48.8%
	c) 27 – 30 years	12	29.3%
2	**Religion**		
	a) Hindu	24	58.5%
	b) Muslim	17	41.5%
	c) Christian	0	0.0%
	d) Others if any……	0	0.0%
3	**Residential area**		
	a) Urban area	33	80.5%
	b) Rural area	08	19.5%
4	**Educational status**		
	a) No formal School	0	0.0%
	b) Primary education	04	9.8%
	c) Secondary education	14	34.1%
	d) Intermediate	16	39.0%
	e) Graduate	07	17.1%
5	**Type of family**		

	a) Nuclear family b) Joint family c) Extended family	12 28 01	29.3% 68.3% 2.4%
6	**Parity** a) Primi mothers b) Second parity Grand Multi parity	 23 15 03	 56.1% 36.6% 7.3%
7	**Mode of delivery** Normal vaginal delivery b) LSCS c) Instrumental delivery	 04 37 0	 9.8% 90.2% 0.0%

Part – B: Assess the pre test level of Breast engorgement among postnatal mothers

Table 2: Frequency and percentage distribution of pre test level of breast engorgement among postnatal mothers
n = 41

Level of Breast Engorgement	Frequency (f)	Percentage (%)
NORMAL (Score 1)	0	0.0%
MILD ENGORGEMENT (Score 2 & 3)	26	63.4%
MODERATEENGORGEMENT (Score 4 & 5)	15	36.6%
SEVERE ENGORGEMENT (Score 6)	0	0.0%

The above table shows the pre test level of breast engorgement out of 41 samples the majority 26 (63.4%) had mild breast engorgement 15 (36.6%) had moderate breast engorgement, and none of them had having normal and severe breast engorgement.

PART C: Assess the pre test scores of breast feeding among postnatal mothers

Table 3: Frequency and Percentage distribution on pre test level of breastfeeding among postnatal mothers
n = 41

Breast Feeding	Frequency (f)	Percentage (%)
Poor Latching (score 0 - 3)	04	9.8 %
Moderate Latching (score 4 - 7)	37	90.2 %
Good Latching (score 8 - 10)	0	0.0%

The findings reveal that before the intervention, most postnatal mothers had moderate latching ability, with 90.2% scoring between 4–7 on the LATCH scale. A smaller proportion (9.8%) exhibited poor latching (score 0–3), indicating difficulty in establishing effective breastfeeding. Importantly, no mothers (0%) demonstrated good latching (score 8–10), suggesting that effective breastfeeding techniques were lacking at baseline. Overall, the results show that a majority of mothers experienced suboptimal breastfeeding performance prior to the intervention**.**

Section II: Evaluate the Effectiveness of Reverse Pressure Softening Technique on level of Breast Engorgement

Test of Significance Showing the Difference Between Mean and Standard Deviation of Pre and Post-test Level of Breast Engorgement

Table 4: Mean and Standard Deviation of Pre and Post Test Level of Breast Engorgement
n = 41

Breast Engorgement	Mean	SD	Obtained "t" Value	df	Table Value	P Value
Breast engorgement pre – test	3.4390	0.70883	26.726	40	3.551	0.000
Breast engorgement post – test	1.1951	0.40122				

The findings reveal a significant reduction in breast engorgement levels after the intervention. The mean breast engorgement score decreased from 3.44 ± 0.71 in the pre-test to 1.20 ± 0.40 in the post-test. The obtained t-value (26.726) is much higher than the table value (3.551) at df = 40, and the p-value (0.000) indicates a highly significant

difference at $p < 0.05$. This demonstrates that the Reverse Pressure Softening Technique was highly effective in reducing breast engorgement among postnatal mothers.

H_1 accepted that there is a significance difference between pre and post test level of breast engorgement among postnatal mothers.

PART - C: Evaluate the Effectiveness of Reverse Pressure Softening Techniques on Level of Breast Feeding Among Postnatal Mothers

Table 6: Mean and standard deviation of pre and post test level of breast feeding.

n=41

Breastfeeding	Mean	SD	Obtained "t" value	df	Table value	P value
Pre – test	4.9268	1.21223	23.047	40	2.021	0.000
Post – test	8.6829	.78864				

The results show a significant improvement in breastfeeding scores after the intervention. The mean pre-test score (4.93 ± 1.21) increased to a mean post-test score of (8.68 ± 0.79). The obtained t value (23.047) is greater than the table value (2.021) at df = 40, and the p value (0.000) indicates a highly significant difference at $p < 0.05$.

This confirms that the Reverse Pressure Softening Technique was highly effective in improving breastfeeding among postnatal mothers.H2 accepted that there is a significance difference between pre and post test scores of breast feeding among postnatal mothers.

SECTION III: Association between post test levels of breast engorgement and Breast feeding among postnatal mothers with their selected demographic variables.

Table 7: Association between post test levels of breast engorgement among postnatal mothers with their selected demographic variables

n = 41

Demographic Variables		LEVEL OF BREAST ENGORGEMENT								Calculated $\chi 2$ value	df	Table value	Significance
		Normal (score 1)		Mild (Score2&3)		Moderate (Score4&5)		Severe (Score 6)					
		F	%	F	%	F	%	F	%				
Age in years	18 – 22	8	88.9%	1	11.1%	0	0.0%	0	0.0%	0.850	2	5.991	NS
	23 – 26	15	75.0%	5	25.0%	0	0.0%	0	0.0%				
	27 – 30	10	83.3%	2	16.7%	0	0.0%	0	0.0%				
Religion	Hindu	20	83.3%	4	16.7%	0	0.0%	0	0.0%	0.298	1	3.841	NS
	Muslim	13	76.5%	4	23.5%	0	0.0%	0	0.0%				
	Christian	0	0.0%	0	0.0%	0	0.0%	0	0.0%				
	Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%				
Residential area	Urban	26	78.8%	7	21.2%	0	0.0%	0	0.0%	0.311	1	3.841	NS
	Rural	7	87.5%	1	12.5%	0	0.0%	0	0.0%				
Educational status	No schooling	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2.568	3	7.815	NS
	Primary	4	100.0%	0	0.0%	0	0.0%	0	0.0%				
	Secondary	10	71.4%	4	28.6%	0	0.0%	0	0.0%				
	Intermedia te	14	87.5%	2	12.5%	0	0.0%	0	0.0%				
	Graduate or above	5	71.4%	2	28.6%	0	0.0%	0	0.0%				
Type of family	Nuclear	9	75.0%	3	25.0%	0	0.0%	0	0.0%	0.521	2	5.991	NS
	Joint	23	82.1%	5	17.9%	0	0.0%	0	0.0%				
	Extend	1	100.0%	0	0.0%	0	0.0%	0	0.0%				

Table 8: Association between the Post test scores of Breastfeeding among Postnatal Mothers with their Selected Demographic variables

n = 41

Demographic Variables		Latch Assessment Tool						Calculated $\chi 2$ value	df	Table value	Significance
		Poor latching (0 – 3)		Moderate Latching (4 – 7)		Good latching (8 – 10)					
		F	%	F	%	F	%				
Age in years	18 – 22	0	0.0%	2	22.2%	7	77.8%	4.546	2	5.991	NS
	23 – 26	0	0.0%	0	0.0%	20	100.0%				
	27 – 30	0	0.0%	1	8.3%	11	91.7%				
Religion	Hindu	0	0.0%	0	0.0%	24	100.0%	4.570	1	3.841	S
	Muslim	0	0.0%	3	17.6%	14	82.4%				
	Christian	0	0.0%	0	0.0%	0	0.0%				
	Others	0	0.0%	0	0.0%	0	0.0%				
Residential area	Urban	0	0.0%	2	6.1%	31	93.9%	0.394	1	3.841	NS
	Rural	0	0.0%	1	12.5%	7	87.5%				
Educational status	No schooling	0	0.0%	0	0.0%	0	0.0%	1.898	3	7.815	NS
	Primary	0	0.0%	0	0.0%	4	100.0%				
	Secondary	0	0.0%	2	14.3%	12	58.7%				
	Intermediate	0	0.0%	1	6.3%	15	93.8%				
	Graduate or above	0	0.0%	0	0.0%	7	100.0%				
Type of family	Nuclear	0	0.0%	1	8.3%	11	91.7%	0.098	2	5.991	NS
	Joint	0	0.0%	2	7.1%	26	92.9%				
	Extended	0	0.0%	0	0.0%	1	100.0%				
Parity	Primi	0	0.0%	0	0.0%	23	100.0%	5.611	2	5.991	S
	Multi	0	0.0%	2	13.3%	13	86.7%				
	Grand multi-Para	0	0.0%	1	33.3%	2	66.7%				
Mode of delivery	NVD	0	0.0%	0	0.0%	4	100.0%	0.350	1	3.841	NS
	LSCS	0	0.0%	3	8.1%	34	91.9%				
	Instrument al delivery	0	0.0%	0	0.0%	0	0.0%				

P - 0.06 Level of significance

The Chi-square test revealed a statistically significant association between religion ($\chi^2 = 4.570$, $p < 0.05$) and parity ($\chi^2 = 5.611$, $p < 0.05$) with LATCH breastfeeding scores.

4.Conclusion

The present study aimed to evaluate the effectiveness of Reverse Pressure Softening Technique (RPST) on breast engorgement and breastfeeding practices among postnatal mothers admitted at Selected Hospital, Hyderabad. RPST is a simple, non-invasive technique that can be easily administered to relieve breast engorgement and facilitate effective breastfeeding.

A pre-experimental one-group pre-test and post-test research design was adopted, and 41 postnatal mothers were selected using a non-probability purposive sampling technique. Data were collected using a semi-structured questionnaire, the Six-Point Breast Engorgement Scale, and the LATCH Breastfeeding Assessment Tool.

Findings of the study revealed that prior to the intervention, the majority of mothers exhibited mild (63.4%) and moderate (36.6%) breast engorgement, while none had normal or severe engorgement. After implementing RPST, 80.5% of mothers showed normal breast condition, and only 19.5% reported mild engorgement, with no cases of moderate or severe engorgement. Regarding breastfeeding practices, pre-test results indicated poor latching in 9.8% and moderate latching in 90.2% of mothers, with none showing good latching. Post-test analysis demonstrated significant improvement, with 92.7% achieving good latching, and only 7.3% showing moderate latching, and no cases of poor latching.

The results showed that, the mean breast engorgement score decreased from 3.44 ± 0.71 in the pre-test to 1.20 ± 0.40 in the post-test. The obtained t-value (26.726) is much higher than the table value (3.551) at df = 40, and the p-value (0.000) indicates a highly significant difference at $p < 0.05$. in regard with breastfeeding the mean pre-test score (4.93 ± 1.21) increased to a mean post-test score of (8.68 ± 0.79). The obtained t value (23.047) is greater than the table value (2.021) at df = 40, and the p value (0.000) indicates a highly significant difference at $p < 0.05$. This confirms that the Reverse Pressure Softening Technique was highly effective in improving breastfeeding among postnatal mothers. The Chi-square test revealed a statistically significant association between religion ($\chi^2 = 4.570$, $p < 0.05$) and parity ($\chi^2 = 5.611$, $p < 0.05$) with LATCH breastfeeding scores.

These results indicate that RPST is highly effective in reducing breast engorgement and enhancing breastfeeding performance among postnatal mothers. Therefore, this technique can be recommended as a beneficial nursing

intervention in maternity settings to promote successful breastfeeding and maternal comfort.

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