



PILOT STUDY ON EFFECTIVENESS OF BREAST MASSAGE ON REDUCTION OF SIGNS AND SYMPTOMS OF BREAST ENGORGEMENT AMONG MOTHERS UNDERGONE CAESAREAN SECTION ADMITTED IN TERTIARY LEVEL TEACHING HOSPITAL, DHARWAD.

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ABSTRACT

Introduction:- Breast massage is a technique introduced to reduce breast engorgement which includes specific kneading, rubbing, and squeezing strokes applied to the soft tissues of the breast to increase blood circulation and tissue fluid circulation which reduces accumulation of milk in breast causing lump or mass in the breast. Breast massage does not require intricate preparation and guidelines, as it is an evidenced based practice to minimize the occurrence of breast engorgement in postnatal period.

Research Approach: Quantitative evaluative research approach was used to conduct the study.

Research Design: A Quasi- experimental pre -test post-test control group design was used for the study.

Setting: The study was conducted in OBG ward of Tertiary level teaching Hospital, Dharwad.

Samples: Caesarean mothers with signs and symptoms of breast engorgement were enrolled in the study as samples.

Sampling procedure: Non-Probability Purposive Sampling Technique was used for the study.

Sample size: A total of 10 caesarean mothers who developed the signs and symptoms of breast engorgement were selected in which 5 were enrolled to experimental group and 5 were enrolled in control group.

Results: The mean post-test level of breast engorgement scores with Standard Deviation in the experimental group [2 ± 1] was significantly lower than in the control group [4 ± 0.7]. The mean post-test level of pain scores with Standard Deviation in the experimental group [2 ± 3] was significantly lower than in the control group [4.4 ± 0.4]. This implied that there was a significant difference between pre and post-test level of breast engorgement among postnatal caesarean mothers in experimental and control group at 0.05 level of significance.

Conclusion: There was a significant difference between the overall mean interventional scores of breast engorgement among experimental and control group. The study revealed that breast massage was effective in reducing signs and symptoms of breast engorgement among mothers undergone caesarean section

Key Words: LSCS, Breast Engorgement, Breast Massage, Six-Point Engorgement Scale, Visual Analogue Scale.

INTRODUCTION:

Breastfeeding is mother's love towards the newborn, there is no substitute for mother's milk. During initial stages of Breastfeeding, mothers breast produces colostrum in small amount which is a yellowish fluid that contains important nutrients and antibodies that a newborn needs right after the birth. But after a couple of days, there is increase in milk production, so breast becomes fuller and firmer.

During puerperium there is increased circulation of prolactin which acts upon the alveoli of the breast leading to stimulate milk production during first 3-4 days of puerperium where breast becomes heavy, hard, painful, engorged and sometimes flushed. The skin of the breast becomes tight and appears shiny and areola typically feels hard. The shape of the nipple also changes making breastfeeding a challenging process.

Breast massage is a technique which requires specific kneading, rubbing, and squeezing strokes applied to the soft tissues of the breast to increase blood and lymphatic flow. Gently massage towards the nipple before feeding which allows some milk to flow out and helps to soften the nipples for easier latch. Breast massage is an easy, accessible, cost effective inexplicable method to reduce the breast engorgement. It does not require intricate preparation and guidelines. It is an evidenced based practice to minimize the occurrence of breast engorgement in postnatal period.

NEED FOR THE STUDY:-

Increase in milk production leads to over distention of the alveoli causing the milk secreting cells to become flattened and occlude the capillary blood circulation surrounding the alveolar cell. Congestion of the breast contributes to edema and blocks the lymphatic drainage of the breast. Stagnation of the system that rid the breast toxins, bacteria and leading to mastitis. Numbness and tingling of the hand can be seen in very severe cases. The feedback inhibitor of lactation (FIL) a protein accumulates in the mammary glands during milk stasis acts

as a major trigger of apoptosis, occurring involution of the milk-secreting glands, collapse of the alveolar structure, and the cessation of milk production.

According to Global and Indian existing data which shows that breastfeeding promotes infant growth and development and also protects the infant from infection. However, women are benefitted by breastfeeding as it reduces breast complications which includes breast engorgement, inverted nipples, etc. A survey was conducted by National Family Health Survey on breast feeding pattern and breast complication, in which around 27% of the mother's initiated breast feeding within 1 hour after the delivery, 57% of the mothers gave pre-lacteal to their newborn. The study concluded that the early initiation of breastfeeding was helpful to prevent the breast engorgement. Effective steps have been taken for the promotion of breastfeeding from the 1970's as evidenced by Survey done by the National Nutrition Monitoring Bureau 1, 2003.

The breast engorgement occurs if the mother is unable to feed the baby regularly or completely enough to drain the breast in the initial days of postpartum. Breastfeeding at frequent interval is important even though only a small amount of milk is produced right after the delivery, engorged breast can be felt as hard, swollen, throbbing, lumpy, uncomfortably full or painful making it difficult for the baby to breast feed effectively.

REVIEW OF LITERATURE:

A quasi-experimental study was conducted at Tamil Nadu to assess the knowledge regarding breast engorgement and its associated risk factor among postnatal mothers. Convenient sampling technique was used to select 60 postnatal mothers as samples for the study. Data was collected by using semi-structured questionnaire. The study revealed that out of 60 samples, 30 samples (50%) had inadequate knowledge, 25 samples (42%) had moderate knowledge and 5 samples (8%) had adequate knowledge on breast engorgement. The study concluded that there was a significant improvement in the knowledge among postnatal mother at $p < 0.05$ level of significance.

A randomized clinical trial was conducted at Brazil to evaluate the effectiveness of intervention to improve breastfeeding technique on the frequency of exclusive breastfeeding and lactation related problem. Non-probability Purposive sampling technique was used to enrol 211 mother-infant dyad as samples in which 74 samples were allocated to experimental group and 137 for control group. The data was collected by using semi-structured interview and feeding assessment scale. The results of the study revealed that the frequency of exclusive breastfeeding among mother who had received intervention was similar to control group by 7 days (79.9% versus 82.5%) and 30 days (60.8% versus 53.3%) respectively. There was no difference between groups in the frequency of sore nipple at 7th and 30th day in breast engorgement, mastitis, and quality of breastfeeding technique at 30 days. The study concluded that single intervention was not sufficient to improve breastfeeding technique and to reduce the incidence of breastfeeding problem during the first month.

RESEARCH PROBLEM:

A study to evaluate the effectiveness of breast massage on reduction of signs and symptoms of breast engorgement among mothers undergone caesarean section admitted in Tertiary level teaching Hospital, Dharwad.

OBJECTIVE OF THE STUDY:

1. To evaluate the effectiveness of breast massage on reduction of signs and symptoms of breast engorgement among mothers undergone caesarean section in experimental group.
2. To compare the effectiveness of breast massage among mothers who underwent caesarean section and developed the signs and symptoms of breast engorgement between experimental and control group.

RESEARCH HYPOTHESIS:

H₁: Mean post interventional scores of breast engorgement will be significantly lower than pre-interventional scores among postnatal caesarean mothers of experimental group at 0.05 level of significance.

H₂: Mean post interventional scores of breast engorgement among postnatal caesarean mothers in experimental group will be significantly lower than control group at 0.05 level of significance.

METHODOLOGY:

Research Approach: Quantitative evaluative research approach was used to conduct the study.

Research Design: A Quasi- experimental pre-test post-test control group design was used for the study.

GROUPS	PRE-TEST	INTERVENTION	POST-TEST
Experimental Group	O ₁	X	O ₂
Control Group	O ₁	-	O ₂

Keys:

O₁- Pre interventional level of breast engorgement among control group and experimental group.

X - Breast massage

O₂- Post interventional level of breast engorgement among control group and experimental group.

Duration of pilot study: The pilot study was conducted for 1 week from 07/07/2021 to 13/07/2021.

Research Study Setting: The study was conducted in OBG ward of Tertiary level teaching Hospital, Dharwad.

Samples: Caesarean mothers with signs and symptoms of breast engorgement were enrolled in the study as samples.

Sampling procedure: Non-Probability Purposive Sampling Technique was used for the study.

Sample size: A total of 10 caesarean mothers who developed the signs and symptoms of breast engorgement were selected in which 5 were enrolled to experimental group and 5 were enrolled in control group.

INCLUSION CRITERIA:

Caesarean mothers who were

1. showing signs and symptoms of breast engorgement,
2. within the age group of 18-30 years.
3. willing to participate during the study.

EXCLUSION CRITERIA:

Caesarean mothers

1. who had six score on engorgement scale.
2. with obstetric complications and with any systemic illness.
3. who were immunocompromised.

STUDY INSTRUMENT:

The tool consists of following part

1. **Part I: Baseline Variables:** It includes selected demographic variable(Age, Education, Occupation, Area of Residence) and clinical variable (Parity, Newborn, Initiation of breastfeeding after delivery, Pattern of breastfeeding each time, Frequency of feeding) related to the caesarean mothers participating in the study.
2. **Part II: Six Point Engorgement Scale:** It is a standardised tool consisting of six criteria's to assess the level of breast engorgement.
3. **Part III: Visual Analogue Scale:** It is a standardised tool consisting of 11 point numeric scale ranging from 0 representing no pain to 10 representing worse pain.

RELIABILITY OF THE TOOL:

- The reliability of the Six Point Engorgement Scale was obtained by test-retest Method using Karl Pearson's correlation coefficient formula. The computed reliability was $r= 0.87$.
- The reliability of the Numeric Pain Rating Scale is obtained by test-retest Method using Karl Pearson's correlation coefficient formula. The computed reliability was $r= 0.91$.

- Hence the prepared tool was found to be reliable and feasible to conduct the main study.

DATA COLLECTION PROCEDURE:

- The investigator obtained permission and ethical consent from the Institutional Ethical Committee and the Obstetric and Gynaecological department of Shri Dharmasthala Manjunatheshwara College Of Medical Sciences And Hospital, Dharwad.
- Participants were selected according to the selection criteria and were assured for confidentiality of the data.
- Informed and written consent was obtained from all the participants who were willing to participate in the study.
- Samples were selected by using Non-probability Purposive Sampling technique.
- The investigator assigned the participants into Experimental group [Group 1] and Control group [Group 2].
- The pre-test level of signs and symptoms of breast engorgement was assessed on 2nd postpartum day by using Six Point Engorgement Scale and visual analogue Scale for both mothers in experimental and control group
- Group 1 mothers were given breast massage on both breasts for 10-15 minutes twice a day for 3 days.
- Group 2 mothers were subjected to routine care as per the hospital policy.
- The post-test level of signs and symptoms of breast engorgement was assessed on 3rd postpartum day by using six-point engorgement scale and visual analogue scale for both mothers in experimental and control group. The same procedure was followed for the consecutive days.

DATA ORGANIZATION AND ANALYSIS:

The data was collected and analysed by descriptive and inferential statistics.

Descriptive statistics

- Frequency and percentage distribution was used to analyse the baseline variables of the postnatal caesarean mothers in experimental and control group.
- Frequency and percentage distribution was used to assess the pre and post test level of breast engorgement among postnatal caesarean mothers.
- Mean and Standard deviation was used to evaluate the effectiveness of breast massage on reduction of signs and symptoms of breast engorgement among postnatal caesarean mothers.

Inferential statistics

- Paired t- test was used to compare the pre test and post test level of signs and symptoms of breast engorgement among postnatal caesarean mothers in experimental group.

- Unpaired t-test was used to compare pre test and post- test level of signs and symptoms of breast engorgement between experimental group and control group of caesarean mother.

RESULTS AND DISCUSSION:

Table 1 : Frequency and percentage distribution of Sociodemographic variables

n=10

S.NO	DEMOGRAPHIC VARIABLES	EXPERIMENTAL GROUP		CONTROL GROUP	
		f	%	f	%
1	Age				
	a. 20-25	2	40	2	40
	b. 26-30	3	60	3	60
	c. 31-35	-	-	-	-
2	Education				
	a. Primary	-	-	-	-
	b. Secondary	3	60	5	100
	c. Graduate	2	40	-	-
	d. Post- graduate	-	-	-	-
3	Occupation				
	a. Working	-	-	-	-
	b. Home maker	5	100	5	100
4	Area of residence				
	a. Rural	3	60	4	80
	b. Urban	2	40	1	20

Table 2 : Frequency and percentage distribution of Clinical variables

n=10

Sl.NO	CLINICAL VARIABLES	EXPERIMENTAL GROUP		CONTROL GROUP	
		f	%	f	%
1.	Parity				
	a. Primiparous	5	100	3	60
	a. Multiparity	-	-	2	40
2	Newborn				

	a. Term newborn	4	80	4	80
	a. Preterm newborn	1	20	1	20
3	Initiation of breastfeeding after delivery				
	a. With in 1 hour	-	-	-	-
	a. 1-2 hour	-	-	4	80
	a. 3 hours and above	5	100	1	20
4	Pattern of breastfeeding each time				
	a. Feeding on 1 breast at a time	4	80	2	40
	a. Feeding on both breasts	1	20	3	60
5	Frequency of feeding				
	a. On demand	4	80	2	40
	a. 2 nd hourly	1	20	3	60

II. Frequency and percentage distribution for Level of Breast Engorgement.

Table 3 : Frequency and percentage distribution of Level of Breast Engorgement

n=10

S.NO	LEVEL OF BREAST ENGORGEMENT	EXPERIMENTAL GROUP (5)		CONTROL GROUP (5)	
		Pre-test		Post-test	
		f	%	f	%
1	Normal	0	0	0	0
2	Mild	2	40	4	40
3	Moderate	3	60	1	10
4	Severe	0	0	0	0

Table 4 : Frequency and percentage distribution of level of pain

n=10

S.NO	LEVEL OF PAIN	EXPERIMENTAL GROUP (5)		CONTROL GROUP(5)	
		Pre-test		Post-test	
		f	%	f	%
1	No pain	0	0	0	0
2	Mild pain	1	20	5	100
3	Moderate to severe pain	4	80	0	0
4	Very severe pain	0	0	0	0
5	Worst pain	0	0	0	0

OBJECTIVE 1 : To evaluate the effectiveness of breast massage on reduction of signs and symptoms of breast engorgement among mothers undergone caesarean section in experimental group.

Table 5: comparison table for signs and symptoms of breast engorgement

n=5

Group	Mean	Standard deviation	Mean difference	Standard difference	Table value	df	Paired t value
Pre-test	3.6	1.1	1.6	0.1	2.78	4	6.55 S P < 0.05
Post-test	2	1					

S*= Significant.

- The pre-test mean value was 3.6 with standard deviation of 1.1 and post-test mean value was 2 with standard deviation of 1. The mean difference was 1.6. The calculated paired t test value was 6.55 which was greater than the table value. This shows that there was a significant difference between pre and post-test level of breast engorgement among postnatal caesarean mothers in experimental group at 0.05 level of significance .

Table 6: comparison table for level of Pain.

n=5

Group	Mean	Standard deviation	Mean difference	Standard difference	Table t value	df	Paired t value
PRETEST	4	1.2					6.3

POSTTEST	2	1.4	2	0.3	2.78	4	S P < 0.05
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S*= Significant.

- The pre-test mean value was 4 with standard deviation of 1.2 and post-test mean value was 2 with standard deviation of 1.4. The mean difference was 2. The calculated paired t test value was 6.3 which was greater than the table value. This shows that there was a significant difference between pre and post-test level of pain among postnatal caesarean mothers in experimental group at 0.05 level of significance .
- The calculated Paired t value was greater than the table value at Degree of Freedom 4 for 0.05 level of significance. Therefore **Objective 1 is Achieved** and **Research Hypothesis 1 is Accepted**.

OBJECTIVE 2 :To compare the effectiveness of breast massage among mothers who underwent caesarean section and developed the signs and symptoms of breast engorgement between experimental and control group.

Table 7 : Comparison table for signs and symptoms of breast engorgement n=10

Group	Mean	Standard deviation	Mean difference	Standard difference	Table value	df	Unpaired t value
Experimental group	2	1	-2	0.3	2.31	8	5 S P < 0.05
Control Group	4	0.7					

S*= Significant.

The pre-test mean value was 2 with standard deviation of 1 and post-test mean value was 4 with standard deviation of 0.7. The mean difference was -2. The calculated paired t test value was 5 which was greater than the table value. This shows that there was a significant difference between pre and post-test level of breast engorgement among postnatal caesarean mothers in experimental group at 0.05 level of significance.

Table 8 : Unpaired t table for level of pain n=10

Group	Mean	Standard deviation	Mean difference	Standard difference	Table value	df	Unpaired t value
Experimental group	2	1.3	-2.4	0.1	2.31	8	3 S P < 0.05
Control Group	4.4	1.4					

S*= Significant.

- The pre-test mean value was 2 with standard deviation of 1.4 and post-test mean value was 4.4 with standard deviation of 1.3. The mean difference was -2.4. The calculated paired t test value was 3 which was greater than the table value. This shows that there was a significant difference between pre and post-test level of pain among postnatal caesarean mothers in experimental group at 0.05 level of significance .
- The calculated Paired t value is greater than the table value at Degree of Freedom 4 for 0.05 level of significance. Therefore **Objective 2 is Achieved** and **Research Hypothesis 2 is Accepted**.

SUMMARY

- The data was collected according to the procedure and systematically arranged.
- The reliability of the tool was computed by test-retest method using Karl Pearson's correlation coefficient formula.
- The analysis and interpretation of data was done by using descriptive and inferential statistics.
- Descriptive statistics included frequency and percentage distribution table, mean and standard deviation and diagrams.
- Inferential statistics included paired and unpaired t test.
- Paired t test was used to evaluate the effectiveness of intervention within the group.
- Unpaired t test was used to evaluate the effectiveness of intervention between the groups.

CONCLUSION:

This study illustrated that there was significant difference in the pre-test and post-test level of breast engorgement. Hence, the study proved that breast massage was effective in reducing breast engorgement.

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