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## A STUDY TO ASSESS THE EFFECTIVENESS OF WARM COMPRESSION ON BREAST ENGORGEMENT AMONG POST NATAL MOTHERS ADMITTED AT TERTIARY CARE HOSPITAL, VADODARA

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### ABSTRACT

**Background:** Breast engorgement can be severely painful that it can make it difficult or impossible to breastfeed which is needed for optimal growth and development of the newborns. Warm compression is a non medication way to increase breast milk production. Warm compression helps to increase blood flow to the breast, which can help to release milk from the breast. **Aim:** The study aimed to investigate the effectiveness of warm compression in reducing breast engorgement in postnatal mothers. **Material and Method:** A quasi experimental design with an evaluative approach was used to select 23 postnatal mothers in experimental group and 23 postnatal mothers in control group by using non probability purposive sampling technique. To assess the effectiveness of warm compression on breast engorgement among post natal mothers in both groups, The experimental group received warm compression using a warm water bottle (applied over clothing) at a temperature of 43-46°C, three times a day for 5-7 minutes.

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The data was collected among post natal mothers admitted at postnatal ward of tertiary care hospital, by using six point breast engorgement scale. **Results:** The severity of breast engorgement was significantly reduced in the experimental group after application of warm compression ( $p < 0.05$ ), suggesting that the intervention was effective. **Conclusion:** The study findings indicate that warm compression is effective on breast engorgement.

**Keywords: Effectiveness, warm compression, breast engorgement, postnatal mother**

## INTRODUCTION:

Becoming a mother is a journey that is both rewarding and challenging. From the moment a woman becomes a mother, her life changes forever. Motherhood is a role that requires patience, compassion and endless love, and is a role that women around the world cherish [1]. The birth of a baby is one of the happiest emotions in a couple's life. With each passing day, the woman's body changes and transforms into her mother. Some of these changes are physically obvious, while others are emotional and therefore unnoticeable [2]. Breastfeeding is widely encouraged in modern obstetric care. Despite the well-known benefits for both mothers and children, there are many problems that come with it. A common problem is breast engorgement, which makes it difficult to continue breastfeeding [3]. Some of factors which reduce the breast milk production are: Waiting too long to breastfeed, inadequate breastfeeding frequency, Breastfeeding assistance, Invalid locks, Women taking certain medications, previous breast surgery may affect milk

production [4]. One of the common problems is Breast engorgement. It causes the breast to become swollen, tender, and enlarged. It usually occurs within a few days from the 3rd day after the start of lactation to her 5th day, but it can occur as late as 9th day or 10th day. Moderately swollen breasts (breast engorgement) are hard, swollen, full, warm, tender, and painful. Breast milk may be delayed for a day or two after delivery by caesarean section because milk arrive late [7]. This is caused by increased blood flow, lymphatic fluid, and milk production, and begins in the first few days of life. A stuffed breast can make it difficult for a mother's baby to feed [5]. Continued breast engorgement can arise complications like blockage of the milk ducts, the mother may feel a small, soft bump on her chest, Mastitis- it is an infection of the breast tissue. It is caused by the accumulation of milk in the breast. Bacteria multiply in the trapped milk and cause infections [6]. Warm compression is the non pharmacological treatment which is used as an option for breast engorgement.

Before breastfeeding, using warm compression or hot showers can soften the breasts and promote milk flow and it reduces the pain and opens the blood vessels and increases blood flow to the area [7-10]. The physiological effects of heat consist of vasodilatation, increased capillary permeability, increased cell metabolism, sedation, increased blood flow to the site of infection, introduction of antibodies, leukocytes, oxygen nutrients, and accelerated tissue healing [11-14].

#### **MATERIALS AND METHODS:**

The research approach adopted for present study was quantitative research approach and quasi experimental with two group research design were used. Postnatal mothers with breast engorgement were the focus of the study and it was conducted at tertiary care hospital, Vadodara. Non probability Purposive sampling technique was used in this study. 46 samples were selected for this study. The inclusion Criteria includes postnatal mother who had breast engorgement, postnatal mothers within 5 days of a postnatal period with the complaints of breast engorgement, who are admitted in selected tertiary care hospital of Vadodara, Postnatal mothers who are present at the time of data collection and exclusion Criteria includes The postnatal mothers who

had post natal complications, having any Medical or Psychiatric disorder, who receiving lactation suppressants, Postnatal mothers with infection of breast, breast abscess, mastitis, cracked nipples and who were not giving the consult for data collection. Data collection tools were used in this study was socio demographic and maternal Variables, six point breast engorgement scale. Socio demographic variables includes Age (In years), Religion, Educational status, food habit, type of family, Occupation of mother, family income (in Rs.), and residential area. Maternal Variables: includes Parity, body mass index, mode of delivery, gestational age, condition of nipple, initiation of feeding, and frequency of feeding, duration of feeding from each breast. Six point engorgement scale used to assess the degree of breast engorgement which given the scoring ranges from 1 to 6. The data were analyzed using various statistical methods. Frequency and percentage distribution were used to describe the socio-demographic and maternal data. Mean, mean difference and standard deviation were used to describe the level of breast engorgement. Chi-square was used to determine the association between the posttest level of breast engorgement score with socio-demographic and maternal

variables. Paired t-tests were used to assess the effectiveness of warm compression on breast engorgement among postnatal mothers of experimental. While unpaired t-tests were used to compare level of breast engorgement score among postnatal mothers of experimental and control group.

#### **Data collection Procedure:**

The study obtained permission from the medical superintendent of tertiary care Hospital. Data was collected from the postnatal ward for four weeks, from Monday to Saturday, between 9 am and 5 pm. The investigator introduced her to eligible postnatal mothers (Inclusion Criteria includes postnatal mother who had breast engorgement, postnatal mothers within 5 days of a postnatal period with the complaints of breast engorgement, who are admitted in selected tertiary care hospital of Vadodara, Postnatal mothers who were present at the time of data collection and obtained their consent to participate. Participants were randomly assigned to either the experimental or control group. A pretest was conducted using the six-point breast engorgement scale. The intervention of warm compression with a warm water bottle (applied over clothing) at a temperature of 43-46°C for 5-7 minutes, three times a day every three hours, was given on the same day

as the pretest. The posttest was conducted on the third day of the intervention using the same scale.

#### **RESULTS:**

**Table 1** depicts the frequency and percentage distribution of socio demographic variables of postnatal mothers. According to their age in Experimental group majority 11(47.8%) postnatal mothers were between 18-22 years of age. while in the control group, majority 14(60.9%) postnatal mothers were in 23-27 years of age. Regarding religion of postnatal mothers, majority postnatal mother were Hindu in both group, 21(91.3%) in experimental group and 22 (95.7%) in the control group. Regarding educational status of postnatal mothers in the experimental group, 17(73.9%) had primary education and in control group 16 (69.6%) having primary education. As per food habit in the experimental group, majority 14(60.9%) postnatal mothers having mixed diet and in the control group 12(52.2%) postnatal mothers was vegetarian. With regard to type of family of postnatal mothers in both the groups, 3(13%) postnatal mothers were from nuclear family and 20(87%) postnatal mothers were from joint family. According to the occupation of postnatal mothers in the experimental group majority 21(91.3%) postnatal mothers were housewives while in

the control group 22 (95.7%) postnatal mothers were housewives. As per monthly income (in Rs.) in the experimental group majority 12(52.2%) postnatal mothers had income between 10000-20000 and in the control group, majority 15(65.2%) postnatal mothers having income less than 10000, 6(26.1). According to their area of residence there were majority 17(73.9%) postnatal mothers living in rural area in experimental group while there were 19(82.6%) postnatal mothers living in rural area in control group.

**Table 2** depicts the frequency and percentage distribution of maternal variables of postnatal mothers. With regard to parity in the experimental group there were majority 12(52.2%) postnatal mothers were primi para while in the control group, there were 13(56.5%) postnatal mothers were primi para. According to the body mass index of postnatal mothers, In the experimental group 11(47.8%) postnatal mothers had BMI between 18.5 to 24.9, majority 14(60.9%) postnatal mothers had BMI between 18.5 to 24.9. With regard to mode of delivery, in the experimental group, 14(60.9%) postnatal mothers had lower segment cesarean section while in the control group there were 13(56.5%) postnatal mothers having normal vaginal delivery, 9(39.1%) postnatal mothers had lower segment cesarean section and

1(4.3%) postnatal mother had assisted vaginal delivery. According to the gestational age of postnatal mothers majority 13(56.5%) postnatal mothers had completed 37 weeks. In the control group 22(95.7%) postnatal mothers had completed 37 weeks of gestational age. Regarding condition of the nipple, in the experimental group majority 16(69.6%) postnatal mothers had protruded nipple, while in control group majority 17(73.9%) postnatal mothers had protruded nipple. With regard to initiation of feeding in the experimental group there were majority 10(43.5%) postnatal mothers who initiated feeding first day after delivery, while in the control group there were 9(39.1%) postnatal mothers who initiated feeding first day after delivery. According to the frequency of feeding, in the experimental group there were majority 16(69.6%) postnatal mothers fed whenever baby cried while in the control group there were 11(47.8%) postnatal mothers fed whenever baby cried. Regarding the duration of feeding from each breast, there were majority 19(82.6%) postnatal mothers who fed the baby for less than 10 to 30 minutes in experimental group while in the control group, majority there were 22(95.7) postnatal mothers who fed the baby for less than 10 to 30 minutes.

**Table 4** depicts the effectiveness of warm compression on breast engorgement among postnatal mothers of experimental group which was tested by using Paired ‘t’ test. In experimental group mean SD pre-test score was  $4.13 \pm 1.32$  and mean SD post-test score  $2.0 \pm 0.90$  with mean difference of 2.13 with obtained ‘t’ value (‘t’=4.156 at df=22) was statistically significant as  $p < 0.005$ .

**Table 5** shows the comparison of level of breast engorgement score among postnatal mothers of experimental and control group

which was tested by using unpaired t test. In experimental group mean SD pre-test score was  $4.13 \pm 1.32$  and mean SD post-test score  $2.0 \pm 0.90$  with mean difference of 2.13 with obtained ‘t’ value (t=4.156 at df=22) was statistically significant as  $p < 0.05$ . In control group mean SD pre-test score was  $3.96 \pm 1.29$  and mean SD post-test score  $3.83 \pm 1.23$  with mean difference of 0.13 with obtained ‘t’ value (t=0.826 at df=22) was statistically non significant as  $p > 0.05$ .

**Table 1: Frequency and percentage distribution of socio-demographic variables of postnatal mother’s in experimental and control group.**

Sr. No	Socio-demographic Variables	Experimental Group (n=23)		Control Group (n=23)	
		f	%	f	%
1.	Age (in years)				
	a. 18-22	11	47.8	8	34.8
	b. 23-27	10	43.5	14	60.9
	c. 28-32	1	4.3	1	4.3
	d. 33-37	1	4.3	0	0
2	Religion				
	a. Hindu	21	91.3	22	95.7
	b. Muslim	2	8.7	0	0
	c. Christian	0	0	0	0
	d. Other	0	0	1	4.3
3	Educational status				
	a. No formal education	2	8.7	1	4.3
	b. Primary education	17	73.9	16	69.6
	c. Secondary education	2	8.7	5	21.7
	d. Higher education	1	4.3	1	4.3
	e. Graduation and above	1	4.3	0	0
4	Food habit				
	a. Vegetarian	8	34.8	12	52.2
	b. Non vegetarian	1	4.3	0	0
	c. Mixed	14	60.9	11	47.8
5	Type of family				
	a. Nuclear family	3	13.0	3	13.0
	b. Joint family	20	87.0	20	87.0

6	Occupation of mother				
	a. House wife	21	91.3	22	95.7
	b. Working	2	8.7	1	4.3
7	Family monthly income (in Rs.)				
	a. less than 10,000	10	43.5	15	65.2
	b. 10,000-20,000	12	52.2	6	26.1
	c. 21,000-30,000	1	4.3	0	0
	d. More than 30,000	0	0	2	8.7
8	Area of Residence				
	a. Rural	17	73.9	19	82.6
	b. Urban	6	26.1	4	17.4

Table 2: Frequency and percentage distribution of maternal variables of postnatal mother's in experimental and control group (N=46)

Sr. No	Maternal Variables	Experimental Group (n=23)		Control Group (n=23)	
		f	%	f	%
1	Parity				
	a. Primi para	12	52.2	13	56.5
	b. Multi para	11	47.8	10	43.5
	c. Grand multipara	0	0	0	0
2	Body mass index				
	a. below 18.5	5	21.7	4	17.4
	b. 18.5-24.9	11	47.8	14	60.9
	c. 25.0-29.9	6	26.1	4	17.4
	d. 30.0 and above	1	4.3	1	4.3
3	Mode of delivery				
	a. Normal vaginal delivery	9	39.1	13	56.5
	b. LSCS	14	60.9	9	39.1
	c. Assisted vaginal delivery	0	0	1	4.3
4	Gestational age				
	a. Less than 37 weeks	2	8.7	0	0
	b. 37 completed weeks	13	56.5	22	95.7
	c. More than 37 weeks	8	34.8	1	4.3
5	Condition of the nipple				
	a. Protruded	16	69.6	17	73.9
	b. Inverted nipple	1	4.3	0	0
	c. Flat nipple	6	26.1	6	26.1
6	Initiation of feeding				
	a. Within 8 hrs of delivery	6	26.1	6	26.1
	b. 9-12 hrs	5	21.7	3	13.0
	c. Above 12 hrs	2	8.7	5	21.7
	d. First day after delivery	10	43.5	9	39.1
7	Frequency of feeding				
	a. Every 1 hr	4	17.4	4	17.4
	b. Every 2 hr	3	13.0	8	34.8
	c. whenever baby cry	16	69.6	11	47.8
8	Duration of feeding from each breast				
	a. Less than 10-30 minutes	19	82.6	22	95.7
	b. 10-30 minutes	3	13.0	0	0
	c. More than 10-30 minutes	1	4.3	1	4.3

Table 3: Effectiveness of warm compression on breast engorgement among postnatal mothers of experimental group (N=23)

Breast Engorgement		Mean	SD	Mean difference	't' value	df	p-value
Experimental group	Pre-test	4.13	1.32	2.13	4.156	22	0.001*
	Post-test	2.0	0.90				

\*P<0.05 level of significance

NS-Non significance

Table 4: Comparison of level of breast engorgement among postnatal mothers between experimental and control group. N=46

Comparison Breast Engorgement		Mean	SD	Mean difference	't' value	df	p-value
Experimental group	Pre-test	4.13	1.32	2.13	4.156	22	0.001*
	Post-test	2.0	0.90				
Control Group	Pre-test	3.96	1.29	0.13	0.826	22	0.418 <sup>NS</sup>
	Post-test	3.83	1.23				

\*P<0.05 level of significance

NS-Non significance

## DISCUSSION

**The first objective of the present study was to assess the level of breast engorgement among postnatal mothers of experimental and control group.**

In experimental group, after conducting pre-test majority 15(65.2%) postnatal mothers had severe engorgement and 8(34.8%) postnatal mothers had mild engorgement. In control group, after conducting pre-test majority 12(47.8%) postnatal mothers had severe engorgement and 11(47.8%) postnatal mothers had mild engorgement.

**The second objective was to evaluate the effectiveness of warm compression on breast engorgement among postnatal mothers of experimental group.**

The effectiveness of warm compression on breast engorgement among postnatal mothers of experimental group which was tested by using Paired't' test. In experimental group

mean SD pre-test score was 4.13±1.32 and mean SD post-test score 2.0±0.90 with mean difference of 2.13 with obtained 't' value ('t'=4.156 at df=22) was statistically significant as p<0.05.

**The third objective was to compare the level of breast engorgement among postnatal mothers of experimental and control group.**

The comparison of level of breast engorgement score among postnatal mothers of experimental and control group which was tested by using unpaired t test. In experimental group mean SD pre-test score was 4.13±1.32 and mean SD post-test score 2.0±0.90 with mean difference of 2.13 with obtained 't' value (t=4.156 at df=22) was statistically significant as p<0.05. In control group mean SD pre-test score was 3.96±1.29 and mean SD post-test score 3.83±1.23 with mean difference of 0.13 with obtained 't'

value ( $t=0.826$  at  $df=22$ ) was statistically non significant as  $p>0.05$

**The fourth objective was to associate the level of breast engorgement posttest score among postnatal mothers with their sociodemographic variable.**

The association between post-test level of breast engorgement score among post natal mothers with socio-demographic variables in experimental group which was tested by using chi-square test. Result showed that age, religion, educational status, food habit, type of family, occupation, family monthly income, area of residence were not significantly associated as  $p>0.05$  with post-test level of breast engorgement score among post natal mothers in experimental group.

The association between post-test level of breast engorgement score among post natal mothers with maternal variables in experimental group which was tested by using chi-square test. Result showed that parity, body mass index, mode of delivery, gestational age, condition of the nipple, initiation of feeding, frequency of feeding, duration of feeding were not significantly associated as  $p>0.05$  with post-test level of breast engorgement score among post natal mothers in experimental group.

The association between post-test level of breast engorgement score among post natal

mothers with socio-demographic variables in control group which was tested by using chi-square test. Result showed that age, religion, educational status, food habit, type of family, occupation, family monthly income, area of residence were not significantly associated as  $p>0.05$  with post-test level of breast engorgement score among post natal mothers in control group.

The association between post-test level of breast engorgement score among post natal mothers with maternal variables in control group which was tested by using chi-square test. Result showed that parity, body mass index, mode of delivery, gestational age, condition of the nipple, initiation of feeding, frequency of feeding, duration of feeding were not significantly associated as  $p>0.05$  with post-test level of breast engorgement score among post natal mothers in control group.

**SUMMARY**

The study was conducted to assess the effectiveness of warm compression on breast engorgement among postnatal mothers admitted at tertiary care hospital, Vadodara. And found that warm compression is effective on breast engorgement among postnatal mothers. Breast engorgement is a painful condition that affects a huge number of postnatal mothers. Nurses should be

trained to include warm compression in nursing care for managing breast engorgement in their discharge teaching plan. If nurses are advising for warm compression to the breast engorgement mothers by the time of hospital discharge and providing them adequate information regarding warm compression then they can increase self care measure adherence and reduced cost of care in patients.

## CONCLUSION

Based on the findings of the present study, an application of warm compression was effective for relieving breast engorgement. In addition, there was a statistically significant difference between the pretest and posttest level of breast engorgement score in experimental group.

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