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Research Article

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

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I N F O

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A B S T R A C T

Background: Breast feeding problems are encountered in up to 80% of mother and infant.

Objective: 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".

Materials and Methods: A quantitative approach with Quasi experimental, Non randomized control group design was selected as a research design. A total no of 60 postnatal mothers with LSCS who are suffering from breast engorgement and pain were purposively selected. 30 for experimental group and 30 for control group. Breast engorgement intensity was assessed by using six-point engorgement scale and breast pain intensity by a numerical pain rating scale. Olive oil massage was applied on an engorged and painful breast area for twice a day ,for duration of 10-15 min in experimental group. For control group no intervention was given. Posttest was assessed after 30 min of second intervention from both the group.

Result: The mean post-test score of experimental and control group for both right and left breast shows 79% reduction in engorgement score, this is statistically significant as evident from $p<0.001$ at 0.05 level and 71% reduction in pain score, this is statistically significant as evident from $p<0.001$ at 0.05 level. Posttest breast engorgement score of experimental groups with selected demographic variables shows significant association as evident from $P<0.05$. No association was found with posttest breast pain as $P>0.05$.

Conclusion: Based on the findings the following conclusion can be drawn that application of olive oil massage is found effective in reducing breast engorgement and breast pain among postnatal mothers with LSCS.

Keywords: Olive Oil Massage, Breast Engorgement, Pain, Postnatal Mother with LSCS

Introduction

Breastfeeding, problems are encountered in up to 80% of mother-infant. Breast engorgement occurs in 72% to 85% in post-natal mothers. Among every 10 mothers, 6 mothers suffer with breast engorgement.

Postnatal mothers suffer much distress after child birth during first week, due to breast engorgement and pain is most commonly associated with engorgement. In a hospital setting, engorgement is often seen in mothers who had operative or cesarean births. The incidence rate of breast engorgement all over the world is 1:8000 and in India it is 1:6500.

Breast engorgement can occur due to common reasons such as a suddenly increased milk production, delayed initiation of breastfeeding, infrequent feeds, ineffective suckling , sudden change in breast feeding routine and suddenly stopping breastfeeding.[1]

LSCS mothers need more care and attention than vaginal delivery mothers in a hospital setting, engorgement is seen often in mothers who have had operative or cesarean births so feedings are often delayed due to pain or reluctance to hold the baby in a position near the incision. Sometimes breastfeeding is delayed due to misinformation about medications the mother is receiving.[2]

A study was conducted to determine the barriers to timely initiation of breast feeding among mothers in WHO hospital. 500 consecutive health mother-infant both vaginally and by cesarean section were selected. Information was obtained using a structured questionnaire. Approximately 34% of the vaginal delivery mothers initiated breast feeding in early stage while no mother with cesarean section had early initiation of breast feeding. The mean time of breast-feeding initiation was 3.35±2.6 hours. In mother who had vaginal delivery, 6.50±3.4 hours and 5.9±1.9 hours in those who had cesarean section with general or spinal anesthesia respectively.[3]

La Leche League, (2013). Massage is defined as the technique entails specific kneading, rubbing, and or squeezing strokes applied to the soft tissue of the breast to increase breast milk quantity and quality.

An experimental study was conducted on the effect of breast massage on the subjective discomfort of mother, the skin surface temperature changes in breast & breast engorgement in Oita prefectural university of nursing in Japan. The subjects were 35 mothers & midwife measured breast engorgement using visual analogue scale rating from 0-10. The breast skin surface temperature measurement was assessed by infrared thermometer after 1 minutes, 3 minutes & 5 minutes after breast massage. They concluded that breast massage is good for blood circulation and is considered to be an effective way to ease the discomfort of breast engorgement.

Olive oil contain MUFA (Mono Unsaturated Fatty Acids) enriches the body with good fat and lower the effect of bad cholesterol, Vit E strengthen immunity and Vit K aids in faster healing. It acts as sensual massage oil, it reduces bad cholesterol levels, makes your blood vessels more elastic, help fight breast cancer. Olive oil breast massage is a simple (and it has not any side effect) cost effective and easy method of treating breast engorgement and pain and also effective for sore nipples.

Statement of the Problem

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".

Objectives

- To assess the level of breast engorgement and pain among postnatal mothers with LSCS in experimental and control group.
- To evaluate the effectiveness of olive oil massage in reducing breast engorgement and pain among postnatal mothers with LSCS in experimental group.
- To compare the effectiveness of olive oil massage in reducing breast engorgement and pain in experimental group with control group.
- To find the association between the posttest of breast engorgement and pain score of experimental groups with selected demographic variables.

Materials and Method

A quantitative approach with Quasi experimental, non-randomized control group design was selected as a research design. Data were collected over the period of six weeks 10.2.2015 to 20.3.2015.Researcher selected a total number of 60 postnatal mothers with LSCS who are suffering from breast engorgement and pain was purposively selected from Dufferin district women hospital at Meerut. 30 for experimental group and 30 for control group. After obtaining ethical permission from institutional ethical committee of Subharti University, Meerut, a formal permission was obtained from Dufferin district women hospital, Meerut to conduct the final study. The tools were given for content validation to 9 experts from the field of nursing, clinical and naturopathy. Assessment of the tool reliability was done by conducting pilot study, in result the reliability coefficient was 0.50 and tools were found reliable. Pretest is assessed for breast engorgement intensity by using six-point engorgement scale and breast pain intensity by numerical pain rating scale. To apply Olive oil massage on engorged and painful breast for twice a day with six hours interval for duration 10-15 min for one day in Experimental group, in control group no intervention was given Posttest

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was assessed after 30 min of second intervention in both experimental and control group to reassess the level of breast engorgement and pain. Descriptive and inferential statistics were used for the data analysis.

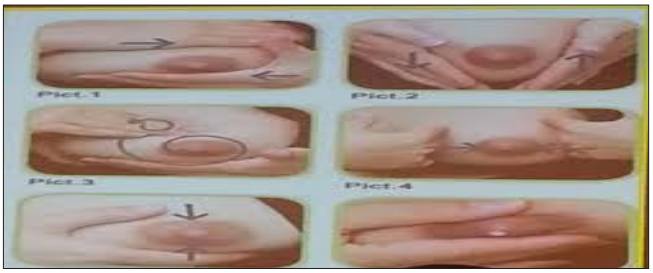

Figure 1.Steps of Breast Massage

Inclusion Criteria

Post Natal Mothers

- Those who are willing to participate in the study.
- Those who are available at the time of data collection.
- Those who are complaining suffering from breast engorgement and pain.
- Those who are undergone LSCS.

Exclusion Criteria

Postnatal Mothers

- With Gestational diabetes Mellitus.
- Who are not willing to participate in the study.
- Suffering from Mastitis, breast abscess.
- With died baby.

Description of Tool

Section A: Socio-demographic Performa of postnatal mothers with LSCS

It consists of interview schedule seeking personal information like: age, education, occupation, parity, baby delivered gestational week, engorgement started day, baby status, previous knowledge, time interval of breast feeding, frequency of breast feeding, self-care method used and top feed/supplement given to neonate.

Section B: Six-point engorgement scale to assess the level of breast engorgement among postnatal mothers with LSCS

Score	Description
Score-1	Soft no change in breast
Score-2	Slight change in breast
Score-3	Firm, non-tender breast
Score-4	Firm, beginning tenderness in breast
Score-5	Firm, tender
Score-6	Very firm, very tender

Total score: 6; Max score-6, Min score-1

Section C: 11-point numerical pain rating scale to assess the level of pain among postnatal mothers with LSCS

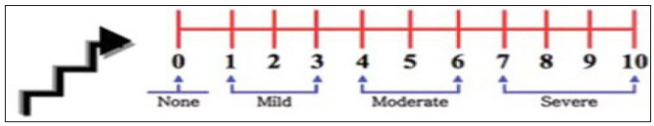

Figure 2.Numerical Rating Scale

The Numerical Rating Scale (NRS-11) is an 11-point scale for patient self-reporting of pain.

Rating	Pain Level
0	No Pain
1-3	Mild Pain
4-6	Moderate Pain
7-10	Severe Pain

Descriptive and inferential statistics were used for the data analysis.

Section A

Table 1.Distribution of the Subjects according to demographic variables by frequency and percentage

(N=60)

Sociodemographic variables	Experimental group		Control group	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Age				
18-23 years	9	30	10	33.33
24-29 years	16	53.33	16	53.34
30-35 years	5	16.67	4	13.33
Above 35 years	0	0	0	0
Educational status				
No formal education	4	13.33	4	13.33

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Primary school	9	30	7	23.34
High school	7	23.33	12	40
Higher secondary	6	20	4	13.33
Graduate and above	4	13.34	3	10
Occupation				
Employed	4	13	7	23
Self employed	5	17	5	17
House wife	21	70	18	60
Parity				
Primipara	18	60	16	53.34
Multipara	10	33.34	11	36.66
Grand multipara	2	6.66	3	10
Baby delivered at gestational week				
<36 weeks (Preterm)	6	20	8	26.66
At 37-40 weeks (Term)	20	66.66	18	60
>40 weeks (Post term)	4	13.34	4	13.34
Engorgement started from the day of delivery				
2^{nd}-3^{rd} day	17	57	15	50
4^{th}-6^{th} day	13	43	15	50
After 7^{th}day	0	0	0	0
After delivery baby status				
With mother	19	63.34	20	66.66
In NICU	11	36.66	10	33.34
Previous knowledge about breast feeding practice				
Yes	8	26.66	5	16.66
No	22	73.34	25	83.34
Interval of breast feeding per day				
Every 2 hourly	9	30	5	16.66
Every 3 hourly	6	20	9	30
Every 4 hourly	8	26.66	12	40
Demand feed	7	23.34	4	13.34
Frequency of breast feeding per day				
<6 times	14	46.66	13	43.34
9-12 times	16	53.34	17	56.66
>12 times	0	0	0	0
Self-care method used for treatment of breast engorgement				
Yes	5	16.66	7	23.34
No	25	83.34	23	76.66
Any top feed/ supplement being given to neonate				
Yes	4	13.34	6	20
No	26	86.66	24	80

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Section B

Mean, S.D and mean percentage of pretest breast engorgement and pain Score of subjects among experimental and control group

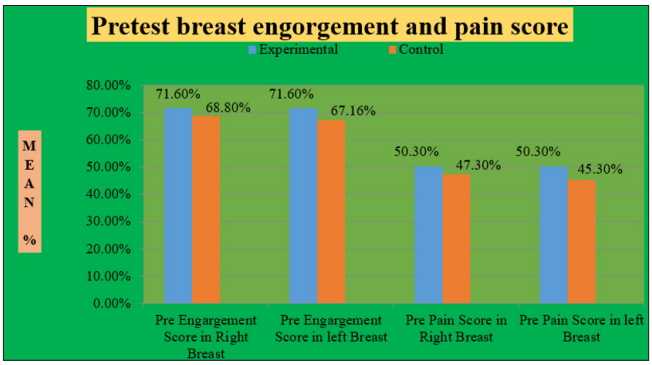

Figure 3.The multiple bar diagram showing mean percentage of pre test breast engorgement and pain Score in right and left breast in Experimental and Control group

The pretest mean engorgement score in right breast is slightly 3% higher in experimental group as compared to control group. A similar trend can be seen for the left breast 4.8% high as compared to control group. The pretest mean pain score in right breast is slightly higher 3% in experimental group as compared to control group. A similar trend can be seen for the left breast 5% high as compared to control group.

Mean, S.D and mean percentage of post-test engorgement and pain score of subjects among experimental and control group

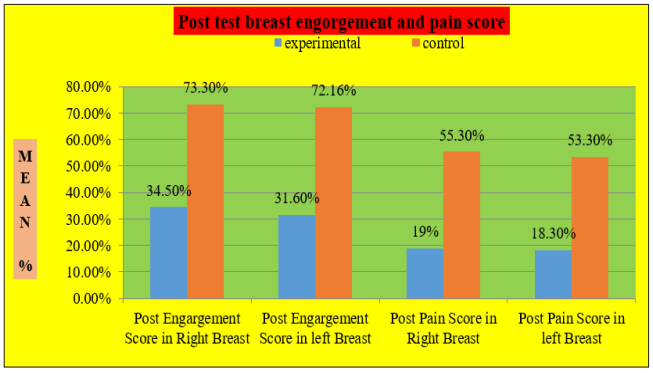

Figure 4.The multiple bar diagram showing mean percentage of Post-test breast engorgement and pain Score in right and left breast in Experimental and Control group

The mean posttest engorgement score for right breast was found 38.8% reduction in intensity of the right breast engorgement while for the left breast was found 40.56% reduction in the intensity of left breast engorgement. This was found statistically significant as evident from p<0.001. The 'Mean' of the posttest pain score for the right breast was found 36.3% reduction in intensity of right breast pain and 35% reduction in the intensity of left breast pain. This found statistically significant as evident from p<0.001.

Table 2.Comparison of pretest and posttest breast engorgement score in experimental group with control group by 'unpaired t' test

(N=60)

Parameter		Breast engorgement score				
		Experimental group Mean±SD	Control group Mean±SD	% reduction/ increment	Prob. Value's of unpaired 't' test	p-value
Pre-test	Right Breast	4.30±1.02	4.13±0.90	3%	t=0.9686 p=0.3407	>0.001 (Non sig)
	Left breast	4.30±1.02	4.03±0.99	4.8%	t=1.0461 p=0.3111	>0.001 (Non sig)
Post-test	Right breast	2.07±0.79	4.40±1.04	-39%	t=8.726 P=0.000	<0.001 (Sig)
	Left breast	1.90±0.80	4.33±1.21	-40.50%	P=0.000 t=9.229	<0.001 (Sig)

Table 3.Comparison of Pretest and Posttest breast pain score in experimental group with control group by 'unpaired t' test

Parameter		Breast pain score				
		Experimental group Mean±SD	Control group Mean±SD	% reduction/ increment	Prob. Value's of unpaired 't' test	p-value
Pre-test	RT Breast	5.03±1.67	4.73±1.44	2.7%	t=0.748 P=0.779567	>0.001 (NS)

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	LT Breast	5.03±1.71	4.53±1.63	5%	t=1.627 P=0.251952	>0.001 (NS)
Post-test	RT Breast	1.90±1.58	5.53±1.74	-36%	t=8.465 P=0.001	<0.001 (Sig)
	LT Breast	1.83±1.39	5.33±1.94	-35%	t=8.045 P=0.001	<0.001 (Sig)

Table 4.Presenting association between the posttest breast engorgement score of experimental group with selected demographic variables. By used ANOVA

(N=30)

Type of variables	Mean breast engorgement score					
	Rt breast			Lt breast		
	mean±SD	F	p-value	mean±SD	F	p-value
Age 18-23 years	1.67±0.50	14.1	<0.001 (Sig)	1.67±0.50	8.57	0.001 (Sig)
24-29 years	2.56±0.62			2.31±0.79		
30-35 years	1.20±0.44			1.00±.00		
Above 35 years	-			-		
Educational status						
No formal Education	2.50±0.57	8.92	<0.001 (Sig)	2.00±0.6	2.28	0.04 (Sig)
Primary school	2.67±0.70			2.33±0.70		
High school	2.14±0.37			1.86±0.69		
Higher secondary	1.50±0.54			1.83±0.75		
Graduate and above	1.00±0.00			1.00±0.00		
Occupation						
Employed	1.00±0.00	15.41	<0.001 (Sig)	1.25±0.50	6.24	0.006 (Sig)
Self employed	1.40±0.54			1.20±0.44		
House wife	2.43±0.59			2.19±0.75		
Parity						
Primipara	2.50±0.61	13.30	<0.001 (Sig)	2.22±0.73	5.04	0.014 (Sig)
Multipara	1.50±0.52			1.50±0.70		
Grand multipara	1.00±0.00			1.00±0.00		
Baby delivered at gestational week						
<36 weeks (Preterm)	1.00±0.00	13.90	<0.001 (Sig)	1.17±0.40	4.36	0.023 (Sig)
At 37-40 weeks (Term)	2.40±0.68			2.15±0.81		
>40 weeks (Post term)	2.00±0.00			1.75±0.50		
Engorgement started from the day of delivery						
2^{nd}-3^{rd} day	2.29±0.77	3.58	0.06 (N.S)	1.88±.78	0.018	0.89 (N.S)
4^{th}-6^{th} day	1.77±0.72			1.92±.86		
>7^{th} day	-			-		
After delivery baby status						
With mother	1.74± 0.653	12.90	<0.001 (Sig)	1.58±0.69	11.19	0.002 (Sig)
In NICU	2.64±0.67			2.45±0.68		

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Previous knowledge about breast feeding practice						
Yes	1.12±0.35	33.05	<0.001 (Sig)	1.25±0.46	9.15	0.005 (Sig)
No	2.41±0.59			2.14±0.77		
Interval of breast feeding per day						
Every 2 hourly	1.67±0.50	10.07	<0.001 (Sig)	1.56±0.72	2.96	0.05 (Sig)
Every 3 hourly	1.83±0.40			2.00±0.63		
Every 4 hourly	3.00±0.53			2.50±0.75		
Demand feed	1.71±0.75			1.57±0.78		
Frequency of breast feeding per day						
<6 times	2.57±0.64	16.75	<0.001 (Sig)	2.14±0.86	2.52	0.03 (Sig)
9-12 times	1.62±0.61			1.50±0.70		
>12 times	-			-		
Self-care method used for treatment of breast engorgement						
Yes	2.80±0.44	6.17	0.09 (N.S)	2.40±0.54	2.44	0.12 (N.S)
No	2.2±0.75			1.80±0.81		
Any top feed /supplement being given to neonate						
Yes	2.00±0.81	0.032	0.85 (N.S)	1.75±0.95	0.156	0.69 (N.S)
No	2.08±0.79			1.92±0.79		

It is evident from Table 2, the mean post-test engorgement score of experimental and control group for right breast was shown 39% reduction of the engorgement score. This statistically significant. And for left breast was shown 40.50% reduction in engorgement score, this was found statistically significant as evident from p<0.001.

It is evident from table 3, the mean post-test breast pain score of experimental and control group for right breast was shown 36% reduction of the pain score. This statistically significant and for left breast was shown 35%reduction in pain score. This is statistically significant as evident from p<.001

It is evident from table 4, Posttest breast engorgement score of experimental groups with selected demographic variables shows significant association with age in years, education, occupation, parity ,gestational weak, after delivery baby status, previous knowledge, interval of breast feeding/day and frequency of breast feeding /day P<0.05.

Posttest breast engorgement score of experimental group is not found associated with Engorgement started from the day of delivery, self care method used for treatment of breast engorgement and any top feed/supplement being given to neonate.

Table 5.Presenting association between the posttest breast pain score of experimental group with selected demographic variables.by used ANOVA

S. No.	Type of variables	Mean breast Pain Score					
		Rt breast			Lt breast		
		mean±SD	F	p-value	mean±SD	F	p-value
1.	**Age**						
	18-23years	1.22±1.4	2.76	.08 (N.S)	1.11±1.3	3.04	.06 (N.S)
	24-29 years	2.50±1.6			2.38±1.3		
	30-35 years	1.20±.83			1.40±1.1		
2.	**Educational status**						
	No formal Education	2.75±1.7	.841	.51 (N.S)	2.50±1.7	1.07	.39 (N.S)
	Primary school	1.89±1.6			1.67±1.1		
	High school	2.14±1.9			1.86±1.4		

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	Higher secondary	1.83±1.1			2.33±1.6		
	Graduate and above	.75±.95			.75±.95		
3.	**Occupation**						
	Employed	1.00±1.1	3.00	.06 (N.S)	.75±.95	3.51	.04 (sig)
	Self employed	.80±.83			1.00±1.2		
	House wife	2.33±1.6			2.24±1.3		
4.	**Parity**						
	Primipara	2.39±1.7	2.36	.11 (N.S)	2.17±1.4	1.39	.26 (N.S)
	Multipara	1.20±.91			1.40±1.1		
	Grandmultipara	1.00±1.4			1.00±1.4		
5.	**Baby delivered at gestational week**						
	<36 wks (Preterm)	1.17±.98	1.68	.20 (N.S)	1.17±1.1	.204	.32 (N.S)
	At 37-40 wks(Term)	1.980±1.5			1.90±1.3		
	>40 wks (Postterm)	3.00±2.1			2.50±1.9		
6.	**Engorgement started from the day of delivery**						
	2^{nd}-3^{rd} day	1.71±1.6	.58	.45 (N.S)	1.59±1.4	1.22	.27 (N.S)
	4^{th}-6^{th} day	2.15±1.4			2.15±1.3		
	$>7^{th}$ day	-			-		
7.	**After delivery baby status**						
	with mother	1.79±1.6	.246	.62 (N.S)	1.58±1.3	1.77	.19 (N.S)
	In NICU	2.09±1.5			2.27±1.4		
8.	**Previous knowledge about breast feeding practice**						
	Yes	1.25±1.1	1.89	.18 (N.S)	1.38±1.5	1.19	.28 (N.S)
	No	2.14±1.6			2.00±1.3		
9.	**Interval of breast feeding per day**						
	Every 2hrly	2.11±1.8	1.13	.35 (N.S)	2.11±1.7	.551	.65 (N.S)
	Every 3hrly	1.00±.89			1.33±1.0		
	Every 4hrly	2.50±1.9			2.12±1.6		
	demand feed	1.71±1.1			1.57±.78		
10.	**Frequency of breast feeding per day**						
	<6 times	2.00±1.7	.101	.75 (N.S)	1.86±1.4	.007	.93 (N.S)
	9-12 times	1.81±1.5			1.81±1.4		
	>12 times	-			-		
11.	**Self care method used for treatment of breast engorgement**						
	Yes	3.20±2.0	4.53	.77 (N.S)	.2.80±1.6	3.10	.08 (N.S)
	No	2.6±1.3			1.64±1.2		
12.	**Any top feed /supplement being given to neonate**						
	Yes	2.25±2.2	.219	.64 (N.S)	1.25±.95	.805	.37 (N.S)
	No	1.85±1.5			1.92±1.4		

It is evident from table 5, Post test breast pain score of experimental group with selected demographic variables is found non significant P>0.05.

Discussion

The present study revealed that the application of olive oil massage was very effective in breast engorgement and pain

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reduction among postnatal mothers who undergone LSCS with mean post-test engorgement score of experimental and control group for right breast was 2.07±0.79 and 4.40±1.04, there was 39% reduction of the engorgement score, this statistically significant as 't' value 8.726 is higher than the table value at 0.001 level of significance. And for left breast was 1.90±0.80 and 4.33±1.21, there was 40.50% reduction in engorgement score, this is statistically significant as 't' value 9.229 is higher than the table value at 0.001 level of significance. The mean post-test breast pain score of experimental and control group for right breast was 1.90±1.58 and 5.53±1.74 which shows 36% reduction of the pain score, this statistically significant as 't' value 8.465 is greater than the table value at 0.000 level of significance and for left breast was 1.83±1.39 and 5.33±1.94, there was 35% reduction in pain score, this is statistically significant as 't' value 8.045 is higher than the table value at 0.000 level of significance. The finding of this study was in conformity to another study conducted by Ms. P. Krishnaveni.[4] It was a quasi experimental study to assess the effectiveness of breast massage on reduction of breast engorgement and pain among mother undergone caesarean section admitted in Balaji and Nallamuthusamy hospital at M.G.R Medical University, Tamilnadu.[4] Purposive sampling used to select 60 mothers, 30 for experimental group and 30 for control group. The result of the study concluded that the breast massage is effective in reduction of breast engorgement and pain among mother undergone cesarean section there was a significant difference between mean pretest posttest level of breast engorgement among mother undergone cesarean section in experimental group ($t=5.76$, $p<0.05$). The present study was also supported by the findings of Jeongsug C et al.[5] Conducted a study to test the effect of oketani breast massage in the reduction of breast pain, the breast milk pH of mothers and the sucking speed of the neonates. The application of oketani massage by oketani massage therapist was the experimental treatment. The collected data were analysed using a x^2 –test and t-test with the SPSSWIN12.0 program. The result of the study concluded that Breast pain ($t=8.384$, $p<.001$) was significantly relieved, and breast milk Ph ($T=4.793$,$P<.001$) was significantly increased in the experimental group compared to the control group. The sucking speed of neonate in experimental group was significantly increased compared to the control group ($t=9.920$,$p<.001$). These finding indicate that oketani breast massage is effective in relieving breast pain and increasing breast milk pH as well as the sucking speed of neonates.

Conclusion

The pretest score of breast engorgement and pain was measured by six point engorgement scale and numerical pain rating scale, It was found slightly higher in experimental group as compared to control group, also application of olive oil massage on breast engorgement and pain was found to be effective in reducing breast engorgement scoreless up to 79% for both right and left breast and breast pain scoreless up to 71% for both right and left breast. Thus we can conclude that olive oil massage on engorged and painful breast helpful in reducing breast engorgement and pain intensity and it is effective, non-pharmacologic, accessible, cost-effective and noninvasive technique.

Recommendation for Further Study

- The olive oil massage is cost effective, safe, noninvasive, non-pharmacologic and effective method and can be utilized effectively without any side effects.
- A similar study can be conducted without using control group.
- A comparative study can be done by comparing olive oil massage with other intervention.
- A similar study can be done on postnatal mothers with normal vaginal delivery with using control group.

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Conflict of Interest: None

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