

Effectiveness Of Demonstration On Knowledge Regarding Manual Expression of Breast Milk Among Postnatal Mothers Admitted In Selected Hospitals: A Quasi Experimental Study

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Abstract

Introduction: Breast milk is a dynamic, perfectly adapted substance providing essential nutrients and bioactive components for infant growth, immunity, and overall health. Initially, colostrum, rich in nutrients and antibodies, is produced to nourish and protect the newborn. Manual expression is a valuable, age-old technique for extracting breast milk using hand movements instead of a pump. It empowers mothers to manage milk flow, relieve engorgement, and feed their infants even when separated or when pumps are impractical. This skill offers flexibility, intimacy, and efficiency, and with practice, mothers can master it to provide nourishment and comfort.

Methodology: The study employed quantitative approach, this study evaluate the knowledge regarding manual expression of breast milk among postnatal mothers using quasi experimental study and one group pretest post test design conducted at selected hospitals with 70 postnatal mothers . The subjects are selected using non probability purposive sampling technique. The tool consists of semi- structured questionnaire on demographic variables and self-administered questionnaire consist of 25 questions on knowledge and observational checklist consist of 20 questions on manual expression of breast milk. The research tool was reliable with a correlation coefficient (r) value of 0.870, the pilot study was conducted on 10 samples and study was feasible.

Results: Assessment of knowledge regarding manual expression of breast milk among postnatal mothers using self-administered knowledge pretest result revealed that 41(58.57%) of the mothers had good level of knowledge score, 15 (21.43%) of the mothers had average level of knowledge score, 11(15.71%) of them had very good level of knowledge score, 3(4.29%) of the mothers had poor level of knowledge score, none of the mothers had excellent level of knowledge score. After the demonstration , 36(51.43%) of the mothers had very good level of knowledge score , 31(44.29%) of the mothers had excellent level of knowledge score, 3(4.29%) of the mothers had good level of knowledge score , none of the mothers had poor and average level of knowledge score. The study reveals Mean knowledge score in pretest was 12.62 and standard deviation (SD) is 3.30 and mean percentage of knowledge score in pretest was 50.51 and standard deviation 13.20. and knowledge score in posttest was 15 and maximum knowledge score in posttest was 24. Mean knowledge score in posttest was 19.90 and standard deviation (SD) is 2.31 and mean percentage of knowledge score in post test was 79.60 and standard deviation 9.26. Assessment of practice regarding manual expression of breast milk among postnatal mothers using checklist pretest result revealed that 27(38.57%) of the mothers had good level of practice score, 42(60%) mothers had average level of practice score, 1(1.43%) mothers had poor level of practice score, none of the mothers had very good level of practice score. After demonstration 45(64.29%) of mothers had very good level of practice score, 24(34.29%) of the mothers had good, 1(1.43%) of the mothers had average level of practice score, none of the mothers had poor level of practice score. The study reveals Mean practice score in pretest was 10.08 and standard deviation 2.20 and mean percentage of practice score in pre test was 50.42 and standard deviation 11.02. and Mean practice score in posttest was 16.01 and standard deviation 2.10 and mean percentage of practice score in post test was 80.07 and standard deviation 10.51. Mean, standard deviation and mean difference values are compared and student's paired 't' test is applied at 5% level of significance. The tabulated 't' value was 1.98 and the calculated 't' value was 25.13, which is much higher than the tabulated 't' value at 5% level of significance for overall knowledge score of postnatal mothers which is statistically acceptable level of significance.

Conclusion: The study concluded that the pre-test level of knowledge was at average level which simultaneously gets improved to very good level in post-test after providing demonstration on manual expression of breast milk. Thus it is interpreted that demonstration regarding manual expression of breast milk was effective.

Keywords: *manual expression of breast milk, demonstration, knowledge, practice postnatal mothers.*

INTRODUCTION:

Breast milk is a remarkable substance, uniquely tailored to meet the nutritional and developmental needs of infants. Its composition changes over time to adapt to the changing needs of the growing baby, providing not only essential nutrients but also a range of bioactive components that support immune function and overall health. It's fascinating how breast milk serves as a dynamic source of nutrition and protection for new borns, fostering their growth and well-being.¹ During the first few days after delivery, breasts will produce colostrum. This special milk is full of nutrients and antibodies for your baby. Most newborns have a very good feeding at the breast immediately after delivery and then sleep for several hours. It is common for babies to be sleepy for most of their first day of life. If infant is experiencing a sleepy phase and is not ready to breastfeed at least every 3 hours, recommend hand expression as an effective technique for removing colostrum.² Manual expression is a skill that empowers mothers to control their milk flow, relieve engorgement, and ensure their babies receive nourishment even when separated. While modern breast pumps offer convenience, manual expression remains a valuable alternative, especially in situations where pumps are unavailable or impractical.³

Background of the study:

A quantitative evaluative approach with a pre-experimental one-group pre-test and post-test design was conducted to evaluate the effectiveness of a video-assisted teaching program on the knowledge levels regarding manual expression of breast milk among postnatal mothers of NICU neonates in selected hospitals in Namakkal. Non-probability purposive sampling was used to select 60 postnatal mothers of NICU neonates. Before the teaching program, a pre-test was administered using a structured knowledge questionnaire. The video-assisted teaching lasted for 25-30 minutes, and a post-test was given after 7 days. The pre-test results showed that 44 (73.3%) of the participants had poor knowledge, 12 (20%) had average knowledge, and 4 (6.7%) had good knowledge. In contrast, in the post-test, 28 (46.7%) had good knowledge, 26 (43.3%) had average knowledge, and 6 (10%) had poor knowledge. The mean knowledge score in the post-test was 20.80 (69.33%), with a standard deviation (SD) of 4.75, while in the pre-test, it was 12.33 (41.11%) with an SD of 4.62. This indicates a significant improvement in knowledge scores post-intervention. The paired 't' test value of 11.99 was greater than the table value at the 0.0001 level of significance, confirming the effectiveness of the teaching program. The study demonstrates the effectiveness of the video-assisted teaching program in enhancing knowledge levels regarding manual expression of breast milk among postnatal mothers of NICU neonates, with significant improvements observed post-intervention.⁴

Need of the study:

Manual expression of breast milk can be beneficial for various reasons. It can help relieve discomfort from engorgement and assist with breastfeeding challenges, such as difficulty latching or milk let-down problems. Manual expression can also stimulate milk production and allow for storage of breast milk for later use. It can provide relief from mastitis and help mothers monitor their milk production. Additionally, it can support feeding for premature babies, babies with Down syndrome, and babies with acute or chronic health conditions. Structural issues, like tongue-tie or cleft lip/palate, may require specialized feeding methods.⁵ A pre-experimental research study was conducted in a specific government hospital in Dehradun, Uttarakhand, to assess the effect of a Video Assisted Teaching (VAT) module on the knowledge and application of breast massage for the expression and volume of breast milk among sixty primiparous mothers. An observational checklist and a structured knowledge questionnaire were used to collect data in order to assess the knowledge and practice of breast massage among primiparous moms. Descriptive and inferential statistics were used for data analysis. According to the findings, 97% of primiparous moms had mediocre pre-test knowledge, 3% had poor knowledge, and 0% had excellent knowledge. All primiparous moms obtained 100% outstanding knowledge during pre-test practice, according to their post-test knowledge score. 93% of scores, or the bulk, fall into the terrible category, and 7% belong to the average. Only 2% of mothers showed mediocre practice after taking the test, compared to 98% who showed good practice. The knowledge paired t-test result was calculated to be 30.32. For practice, the paired t-test result was 56.30. It showed how effectively the VAT module enhanced the knowledge and skills of primiparous mothers regarding breast massage. The only demographic factor that showed a statistically significant relationship with the knowledge and practices of primiparous mothers was educational status.⁶

On the basis previous studies, mothers don't know about manual expression of breast milk so there is need to provide knowledge regarding manual expression of breast milk so the researcher would like to demonstrated the manual expression of breast milk for postnatal women so they can prevent the further complication, improve knowledge and it will be helpful for maintaining healthy wellbeing of mothers as well as their child.

ETHICAL ASPECT

Permission was obtained by the concerned authorities before conducting the study. Consent letter was obtained by individual samples after explaining them the research process in their own language. Confidentiality regarding the samples information was maintained by using code numbers by the investigator. The title was approved by institutional ethical committee.

CONCEPTUAL FRAMEWORK

The conceptual framework selected for the study was based on modified Roy's adaptation model.

REVIEW OF LITRATURE

In the present study the literature review is classified into the following sections.

1. Literature related to importance of breast milk
2. Literature related to knowledge regarding manual expression of breast milk among postnatal mothers.
3. Literature related to effectiveness of demonstration on knowledge regarding manual expression of breast milk among postnatal mothers.

METHODOLOGY:

Objectives of the study Primary objective:

To assess the effectiveness of demonstration on knowledge regarding manual expression of breast milk among postnatal mothers admitted in selected hospitals.

Secondary objective:

1. To assess the pretest practice regarding manual expression of breast milk among postnatal mothers admitted in selected hospitals.
2. To assess the posttest practice regarding manual expression of breast milk among postnatal mothers admitted in selected hospitals.
3. To assess the effectiveness of Demonstration on knowledge regarding manual expression of breast milk among postnatal mothers admitted in selected hospitals.
4. To assess the effectiveness of Demonstration on practice regarding manual expression of breast milk among postnatal mothers admitted in selected hospitals.
5. To associate the posttest knowledge score regarding manual expression of breast milk among postnatal mothers admitted in selected hospitals with their demographic variables.
6. To associate the posttest practice score regarding manual expression of breast milk among postnatal mothers admitted in selected hospitals with their demographic variables.

HYPOTHESIS

Hypothesis will be tested at 0.05 level of significance.

H0 - There will be no significant difference between pre-test and post-test knowledge score regarding Manual Expression of Breast Milk among Postnatal Mothers Admitted in Selected Hospitals.

H1- There will be significant difference between pre-test and post-test knowledge score regarding Manual Expression of Breast Milk among Postnatal Mothers Admitted in Selected Hospitals.

RESEARCH APPROACH: In this study quantitative research approach is used.

RESEARCH DESIGN: The research design selected for the present study was Quasi-experimental One group pre-test post- test design.

SETTING OF THE STUDY

The present study was conducted in selected hospitals after obtaining permission from concerned authority.

VARIABLES

Independent Variables

The independent variable in this study is Demonstration on manual expression of breast milk.

Dependent Variables

The dependent variable in this study is knowledge regarding manual expression of breast milk among postnatal mothers admitted in selected hospitals.

Demographic Variables

In the present study demographic variables include Age of mother (in years), Educational qualification, area of residence, occupation, type of family, Gravida, Parity.

POPULATION

Target Population:

In this study the target population include postnatal mothers admitted in selected hospitals.

Accessible Population:

In the present study the accessible population selected for the study comprises of postnatal mothers who are admitted in selected hospitals and are available at the time of data collection and who were fulfilling the inclusion criteria.

SAMPLING TECHNIQUE

In the present study non-probability purposive sampling technique was used.

SAMPLE SIZE

In this study, sample size consisted of 70 postnatal mothers admitted in selected hospitals, who were available during the time of data collection.

VALIDITY AND RELIABILITY

The correlation coefficient 'r' of the tool was 0.870, and reliability was 0.9389, which was more than 0.87 and hence the tool was found to be reliable.

DESCRIPTION OF TOOL

Section A-Questionnaire on demographic Variable.

It includes total 7 demographic variables like Age of mother (in years), Educational qualification, area of residence, occupation, type of family, Gravida, Parity.

Section B-Self-administered Knowledge Questionnaires

The questionnaire consisted of 25 questions on knowledge about manual expression of breast milk Total score was 25. Each question carries 1 mark and 0 for the wrong answer.

Section C- Observational Checklist

The observational checklist consisted of 20 questions on demonstration about manual expression of breast milk Total score was 20. Yes means 1 and no means 0.

PILOT STUDY

Permission was taken from concerned authority. A sample of 10% post-natal mothers was selected from a hospital. The pilot study was feasible in terms of man money and resources.

RESULT

Table No. 1: Table showing the frequency and percentage wise distribution of postnatal Mothers according to their demographic characteristics.

n=70

Demographic Variables	Frequency(f)	Percentage(%)
Age(in years)		
18-28	36	51.4
29-39	29	41.4
≥40	5	7.1
Education		
Primary	12	17.1
Secondary	23	32.9
Higher Secondary	23	32.9

Graduate	8	11.4
Postgraduate	4	5.7
Area of residence		
Rural	33	47.1
Urban	33	47.1
Semi Urban	4	5.7
Occupation		
Govt Service	0	0
Private Service	8	11.4
Self Employed	6	8.6
Homemaker	53	75.7
Other (labour)	3	4.3
Type of family		
Nuclear	42	60.0
Joint	26	37.1
Extended	2	2.9
Gravida		
Primigravida	43	61.4
Multigravida	27	38.6
Parity		
Primipara	43	61.4
Multipara	27	38.6

Table No 2 : Showing assessment with level of pretest knowledge among postnatal mothers regarding manual expression of breast milk.

n=70

Level of pretest knowledge	ScoreRange	Level of Pretest Knowledge Score	
		No of Mothers	Percentage
Poor	0-20%(0-5)	3	4.29
Average	21-40%(6-10)	15	21.43
Good	41-60%(11-15)	41	58.57
Very Good	61-80%(16-20)	11	15.71
Excellent	81-100%(21-25)	0	0
Minimum score		4	
Maximum score		20	
Mean knowledge score		12.62±3.30	
Mean% Knowledge Score		50.51±13.20	

Table No 3: Showing assessment with level of posttest knowledge among postnatal mothers regarding manual expression of breast milk.

n=70

Level of posttest knowledge	ScoreRange	Level of Posttest Knowledge Score	
		No of Mothers	Percentage
Poor	0-20%(0-5)	0	0
Average	21-40%(6-10)	0	0
Good	41-60%(11-15)	3	4.29

Very Good	61-80%(16-20)	36	51.43
Excellent	81-100%(21-25)	31	44.29
Minimum score	15		
Maximum score	24		
Mean knowledge score	19.90±2.31		
Mean % Knowledge Score	79.60±9.26		

Table No 4: Showing assessment with level of pretest practice among postnatal mothers regarding manual expression of breast milk.

n=70

Level of pretest practice	ScoreRange	Level of Pretest Practice Score	
		No of Mothers	Percentage
Poor	0-25%(0-5)	1	1.43
Average	26-50%(6-10)	42	60
Good	51-75%(11-15)	27	38.57
Very Good	76-100%(16-20)	0	0
Minimum score	5		
Maximum score	15		
Mean practice score	10.08±2.20		
Mean % Practice Score	50.42±11.02		

Table No 5 : Showing assessment with level of posttest practice among postnatal mothers regarding manual expression of breast milk.

n=70

Level of posttest practice	Score Range	Level of Posttest Practice Score	
		No of Mothers	Percentage
Poor	0-25%(0-5)	0	0
Average	26-50%(6-10)	1	1.43
Good	51-75%(11-15)	24	34.29
Very Good	76-100%(16-20)	45	64.29
Minimum score	10		
Maximum score	19		
Mean practice score	16.01±2.10		
Mean % Practice Score	80.07±10.51		

Table IV 6 (A) : Table showing significance of difference between knowledge score in pretest and posttest of postnatal mothers

n=70

Test	Mean	SD	Mean Difference	Calculated value	t, df	Table value	pvalue
Pretest	10.08	2.20	9.81±3.26	25.13	69	1.98	0.0001 S,p<0.05
Posttest	19.90	2.31					
*significant(p<0. 05 level)							

Figure no. IV- 1: Bar diagram showing significance of difference between knowledge score in pre test and post test of postnatal mothers

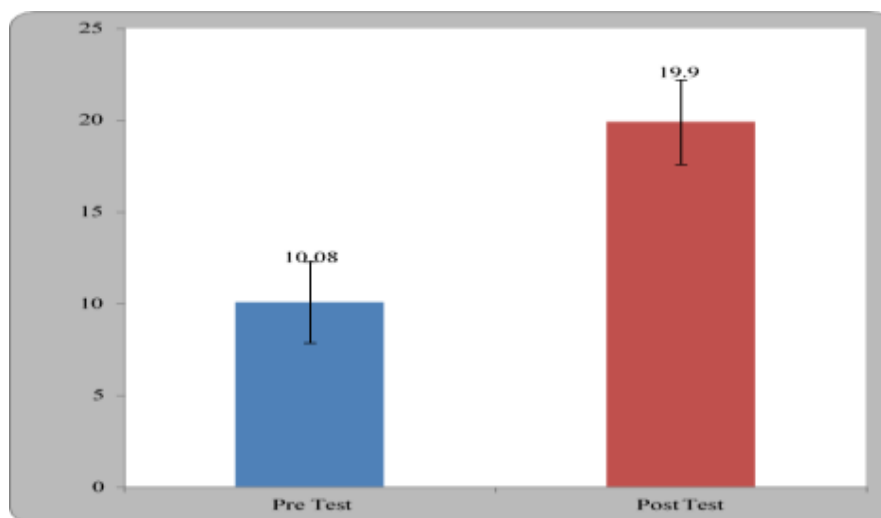


Table IV 6 (B) : Table showing significance of difference between practice score in pre test and post test of postnatal mothers

n=70

Test	Mean	SD	Mean Difference	Calculated value	t,df	Table value	p-value
Pretest	10.08	2.20	5.92±2.99	16.55	69	1.98	0.0001 S,p<0.05
Posttest	16.01	2.10					

*significant(p<0.05 level)

Figure no. IV- 2: Bar diagram showing significance of difference between practice score in pre test and post test of postnatal mothers.

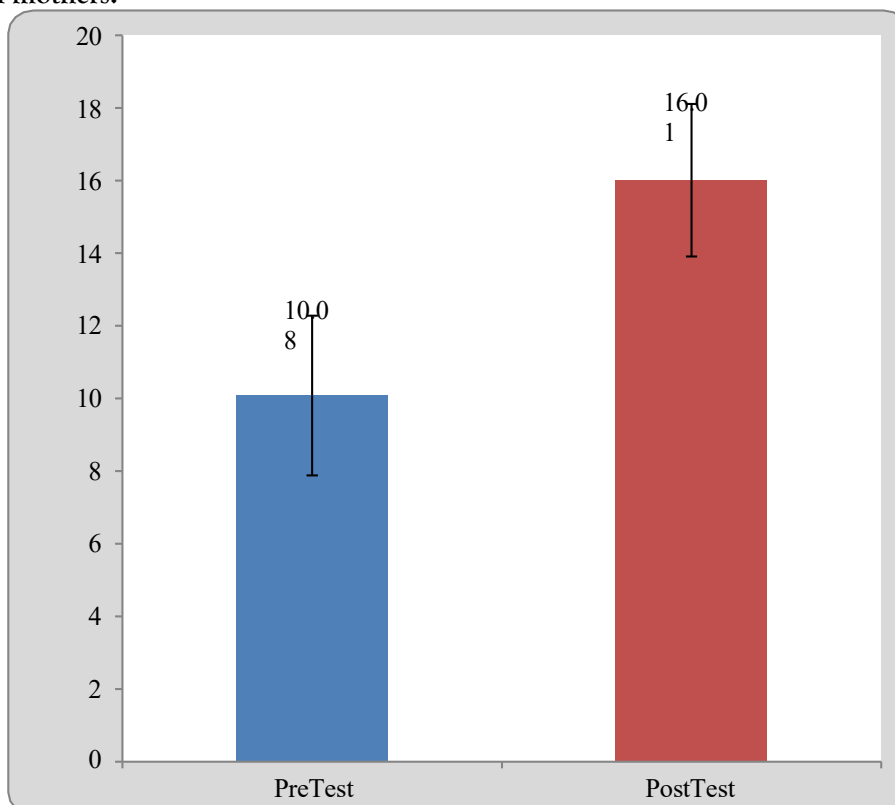


Table no. 7: Showing that association of post test knowledge score in relation to selected demographic variables regarding manual expression breast milk among postnatal mothers
n=70

Demographic Variable	Calculated value			Df	Table value	Level of significance $p \leq 0.05$	Significance
	tvalue	Fvalue	pvalue				
Age in years	-	10.77	0.0001	2,67	3.07	≤ 0.05	S
Educational Status	-	8.31	0.0001	4,65	2.45	≤ 0.05	S
Area of Residence	-	0.20	0.81	2,67	3.07	≥ 0.05	NS
Occupation	-	0.98	0.40	3,66	2.68	≥ 0.05	NS
Type of family	-	1.10	0.33	2,67	3.07	≥ 0.05	NS
Gravida	0.24	-	0.80	68	1.98	≥ 0.05	NS
Parity	0.24	-	0.80	68	1.98	≥ 0.05	NS

S - Significance

NS - Not Significant

Table no. 8: Showing that association of post test practice score in relation to selected demographic variables regarding manual expression breast milk among postnatal mothers
n=70

Demographic Variable	Calculated value			Df	Table value	Level of significance $p \leq 0.05$	Significance
	tvalue	Fvalue	pvalue				
Age in years	-	2.63	0.079	2,67	3.07	≥ 0.05	NS
Educational Status	-	0.69	0.59	4,65	2.45	≥ 0.05	NS
Area of Residence	-	7.94	0.001	2,67	3.07	≤ 0.05	S
Occupation	-	0.64	0.59	3,66	2.68	≥ 0.05	NS
Type of family	-	1.50	0.23	2,67	3.07	≥ 0.05	NS
Gravida	0.07	-	0.79	68	1.98	≥ 0.05	NS
Parity	0.07	-	0.79	68	1.98	≥ 0.05	NS

S - Significance

NS - Not Significant

DISCUSSION

The finding of the study was discussed with reference to the objectives and the findings of the other studies in this section. The present study was undertaken to assess the effectiveness of demonstration on knowledge regarding manual expression of breast milk among postnatal mothers admitted in selected hospital.

In the present study post-test knowledge score regarding manual expression of breast milk postnatal mothers was higher than pre-test. In present study result reveals that 36(51.43%) of the mothers had very good level of knowledge score, 31(44.29%) of the mothers had excellent level of knowledge score, 3(4.29%) of the mothers had good level of knowledge score, none of the mothers had poor and average level of knowledge score. Minimum knowledge score in posttest was 15 and maximum knowledge score in posttest was 24. Mean knowledge score in posttest was 19.90 and standard deviation (SD) is 2.31 and mean percentage of knowledge score in posttest was 79.60 and standard deviation 9.26. In the present study post-test practice score regarding manual expression of breast milk postnatal mothers was higher than pre-test. In present study result reveals that 45(64.29%) of mothers had very good level of practice score, 24(34.29%) of the mothers had good, 1(1.43%) of the mothers had average level of practice score, none of the mothers had poor level of practice score.

Minimum practice score in posttest was 10 and maximum practice score in posttest was 19. Mean practice score in posttest was 16.01 and standard deviation 2.10 and mean percentage of practice score in post test was 80.07 and standard deviation 10.51.

In a 2008 pre-experimental study by Hemalatha, the effectiveness of a lecture-demonstration program on breast milk expression and storage knowledge was evaluated among 60 mothers of infants in a Neonatal Intensive Care Unit at a selected hospital in Bangalore. The initial assessment revealed that 35% of mothers possessed average

knowledge, while 65% demonstrated poor knowledge. Following the educational intervention, a significant improvement was observed, with 45% of mothers attaining good knowledge, 43% exhibiting average knowledge, and only 12% displaying poor knowledge. The study concluded that mothers initially had inadequate knowledge regarding breast milk collection and storage, and the lecture- demonstration method effectively enhanced their knowledge and subsequent practices.⁷

CONCLUSION

In this chapter, aspect of the study in terms of analysis and interpretation and discussed the study reveals that pretest mean knowledge score 10.08 with SD 2.20 and mean percentage knowledge score was 50.51% with SD 13.20 and the post-test mean knowledge score was 19.90 with SD was 2.31 and mean percentage knowledge score was 79.60 % with 9.26. the mean difference is 9.81 ± 3.26 and pretest mean practice score 10.08 with SD 2.20 and mean percentage knowledge score was 50.42% with SD 11.02 and the post-test mean practice score was 16.01 with SD was 2.10 and mean percentage knowledge score was 80.07 % with SD 10.51. the mean difference is 5.92 ± 2.99 . The study reveals that there was significance association of knowledge score with age in years, educational status, and no association of knowledge found with area of residence , occupation , type of family, gravida, parity and significant association of practice found with Area of Residence and not significant association of practice found with Age in years, Educational Status, Occupation, Type of family, Gravida, Parity. At last this is proved that the demonstration regarding manual expression of breast milk was effective.

RECOMMENDATION

1. A similar study can be replicated on a larger population for a generalization of findings.
2. Similar study can be conducted to evaluate the effectiveness of self- instructional module on knowledge regarding manual expression of breast milk.
3. A comparative study can be done to assess the knowledge on manual expression of breast milk among postnatal mothers and family members.
4. A descriptive study can be conducted on the awareness regarding manual expression of breast milk among postnatal mothers.
5. Similar study can be carried out to evaluate the effectiveness of video assisted teaching on manual expression of breast milk among postnatal mothers.

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