

# Incidence of Breast Milk Expression and Evaluate the Effect of Self Instructional Module on Working Lactating Mothers Regarding Expression and Storage of Breast Milk

Amol Deep, Gayatri Yadav, Hiteshi Thakur, Jatinder Kaur, Jenish Kumar, Jyotsna Sharma, Kavita Chaudhary, Komal Bhisht, Kritika Dulal, Lalit, Manisha Manda

M.M. College of Nursing, Mullana, Ambala, Haryana

Corresponding Author: Amol Deep

## ABSTRACT

**Background:** Expressing breast milk has become more common and introduces an opportunity for others to feed the baby. Expression of milk is a way of taking milk from the breast of mother without suckling of baby, including expression by hands and breast pump. Breast milk expression and storage is an alternate to exclusively breast feed.

**Aims:** The overall aim of the study was to assess the incidence of expression of breast milk and assess the effect of self instructional module on knowledge and expressed practices of working lactating mothers regarding expression and storage of breast milk.

**Materials & methods:** The present study was adopted a quasi- experimental, one group pre- test post -test research design undertaken during a period of 1 year from September 2016 to June 2017 in 100 working lactating mothers. Purposive sampling technique was acquired in selective community areas and selective institutions to identify working lactating mothers

**Result:** There was a significant difference in knowledge and practice before and after the administration of self instructional module at a level of 0.05. The findings of the study revealed that there was significant association of practice with demographical variable i.e. working hours of mother (0.041) and storage of breast milk (0.044). In addition to this, no significant association of knowledge with selected demographical variables. There was a weak significant correlation between knowledge and expressed practices of working lactating mothers.

**Conclusion:** The incidence of practice of expressed breast milk and storage was expressed only in 21% of working lactating mothers. Only 29% of working lactating mothers had informed about the provision of private place to breast feed. Employment appears to have a less deleterious effect on initiation of breastfeeding but continuation of expressing breast milk focus only on premature or unwell infants

**Index terms:** self instructional module, working lactating mothers, expression and storage of breast milk

## INTRODUCTION

Brest feeding is the most effective way to provide nutritional, emotional as well as psychological needs of the infants. Breast milk is often referred to as liquid gold, *shastras* called it as 'Peeyusha' which is equal to 'Amrit' the liquor of life.

<sup>[1]</sup> Expression of milk is a way of taking milk from the breast of mother without suckling of baby, including expression by hands and breast pump. <sup>[2]</sup> Breast milk expression is widely practiced by mothers as an important dimension of breastfeeding behaviour. Nowadays, expressing breast

milk has become increasingly prevalent. Breast pumps play an important role in promoting breastfeeding among working mothers.<sup>[3]</sup> Many experts and lactation consultants believe that breast milk expression is a helpful alternative for mothers to feed their babies breast milk when direct breastfeeding is not convenient or feasible, thereby allow mothers to continue breastfeeding and achieve their breastfeeding goals. A large proportion of mothers rely on breast pumps to feed their infants for health-related reason, early returning to work, and more importantly, convenience sake.<sup>[4]</sup> Feeding a premature or unhealthy infant had been the main reason for using a pump to express breast milk in the past.<sup>[5]</sup>

UNICEF stated that every year over 1 million infants die and millions of others are impaired, because they are not adequately breast fed. Breast fed children have at least 6 times greater chance of child survival in the early months than not breast fed children.<sup>[6]</sup> World health organisation estimates that around 2,20,000 children could be saved every year with exclusive breast feeding. Exclusive Breast feeding drastically reduces death from respiratory infection and diarrhoea as well as other infectious diseases.<sup>[7]</sup> The WHO and UNICEF jointly recommended that women should exclusively breast feed their infants and continue into the second year of life.

The appropriate use of expressed breast milk allows a mother to achieve exclusive breastfeeding while at work or study.<sup>[8]</sup> As evidence by Japanese study expression of milk by hand is simplest and most effective method. Hand expressing however, was associated with increased reports of local pain compared to electric breast pumping.<sup>[9]</sup> Risk of later fed breast milk includes loss vitamin content, infection.<sup>[10,11]</sup> Freezing, defrosting and reheating and microwaving all have the potential to compromise milk quality and safety.<sup>[12,13]</sup> Breast milk should be stored in clean container with lid at 26° C for 6-8 hours or at 4°C for 72 hours. Mother can

express 30 ml of milk from each breast.<sup>[14]</sup> Employment of mothers outside the home, especially full-time employment, has a negative influence on duration of breastfeeding.<sup>[15-17]</sup> Therefore, improving the ability of working mothers to express and store milk in the workplace would likely contribute to higher breastfeeding rates and reduces the incidences of infections. In the present study, investigate the effect of self instructional module on knowledge and expressed practices of working lactating mothers regarding expression and storage of breast milk in selected areas of Ambala, Haryana. It involves assessment of knowledge and practice by using paper and pencil technique in structured knowledge and practice questionnaire. Researcher hypothesized that knowledge and practices were better performed after administration of module.

#### **AIMS**

The overall aim of the study was to assess the incidence of expression of breast milk and assess the effect of self instructional module on knowledge and expressed practices of working lactating mothers regarding expression and storage of breast milk

#### **MATERIALS & METHODS**

This was a quasi- experimental, one group pre- test post -test research design. The study was conducted at Ambala district that includes selective community areas and selective colleges to identify 100 working lactating mothers. Mothers were selected by using purposive sampling technique. Working lactating mother assessments were undertaken at their home and at institution based on their preferences. Data collection tool was structured knowledge questionnaire and expressed practices questionnaire. The reliability coefficient for the structured knowledge questionnaire was calculated by using split half method it was found to be 0.80. The reliability of coefficient of expressed practices questionnaire was calculated by split half method it was found

to be 0.75, thus the tools were found to be reliable. Investigator explains the nature, purpose and assured confidentiality to obtain free and frank responses. Self-instructional module was the independent variable in the study and dependent variable were knowledge and expressed practices of working lactating mother regarding expression and storage of breast milk. Self instructional module was formulated for enhancing the knowledge and practice regarding expression and storage of breast milk. Self instructional module includes the components of breast milk, advantages of breast milk expression, indications and contraindication of expression of breast milk, procedure of breast milk expression and storage of expressed breast milk. After obtaining formal permission from the administrative heads of institutions and selective community area study was conducted. The written consent was taken from working lactating mothers and pre test was conducted. Knowledge and practice assessments were carried out from 14 to 18 April 2017. The average time occupied to administer tool was about 25 minutes and then self-instructional module was offered to the mothers. After 5 days the post test was taken.

### Statistical Analyses

Chi square tests, paired t test and Karl Pearson coefficient of correlation were used to analyse the data. Analyses were performed using SPSS and at 95% confidence intervals (CIs).

## RESULT

### Working lactating mother characteristics

Table 1 reveals that most of the working lactating mothers (50%) belongs to the age group of 25-29 years whereas 34% of mothers are post graduate and above. Further the table shows that maximum number of mothers belongs to Hindu religion (77%) and most of the mothers were involved in their self-business (34%) and maximum of mother's works for 5-6 hours in a day (45%). Further the findings

reveal that majority of mothers (45%) provides exclusive breast feeding to their baby and majority of mothers do not store breast milk (79%). In addition to this, only 29 % had reported about the provision of private place to breast feed. The mothers who store breast milk were 21%, out of these 13% store in *katori* and maximum of them store milk for 1-2 hours (13%).

**Table 1: Frequency and percentage distribution of selected demographic variables of working lactating mothers regarding storage and expression of breast milk.**

N= 100	
Demographic variables	f (%)
<b>1.Age</b>	
20-24	15 (15%)
25-29	50 (50%)
30-34	32 (32%)
>35	03 (3%)
<b>2.Educational Status</b>	
Secondary Education	10 (10%)
Senior Secondary	16 (16%)
Diploma	12 (12%)
Graduate	28 (28%)
Post Graduate And Above	34 (34%)
<b>3.Religion</b>	
Hindu	77 (77%)
Muslim	01 (1%)
Sikh	22 (22%)
<b>4.Occupation</b>	
Teacher	32 (32%)
Medical professional	23 (23%)
Clerk	11 (11%)
Business	34 (34%)
<b>5.Working hours of mother</b>	
<5 hours	09 (09%)
5-6 hours	45 (45%)
7-8 hours	31 (31%)
>8 hours	15 (15%)
<b>6.Monthly income of mother</b>	
<5000 rupees	27 (27%)
5001-10000 rupees	46 (46%)
10001-15000 rupees	19 (19%)
>15001 rupees	08 (8%)
<b>7.Providence of private place</b>	
Yes	29 (29%)
No	71 (71%)
<b>8.Type of feeding of baby</b>	
Exclusive breast feeding	45 (45%)
Complete bottle feed	11(11%)
Bottle cum breast feed	44 (44%)
<b>9. Do you store breast milk?</b>	
Yes	21 (21%)
No	79 (79%)
<b>10.Article used for storage of breast milk</b>	
Do not store	79 (79%)
Katori	13(13%)
Bottle	07 (7%)
Any other equipment	01 (1%)
<b>11. Duration of storage of breast milk</b>	
Do not store	79 (79%)
1-2 hours	13 (13%)
3-4 hours	07 (7%)
5-6 hours	01 (1%)

## Results of Knowledge regarding expression of breast milk

Table: 2 Paired t- test analysis of structured knowledge score of working lactating mothers regarding storage and expression of breast milk

Structured knowledge	Mean	Median	Standard deviation	N =100	
				T-test	P-value
Pre-test	11.92	13	3.91	-18.581	0.0001*
Post-test	19.55	21	2.43		

\*Significant at 0.05 level

In pre -test majority of women belongs to average category in terms of knowledge (52%) and in post-test majority of women to very good category in terms of knowledge (75%). There was significant difference in pre – test and post-test knowledge score of working lactating mothers. (Table 2)

## Assessment results for practice of expression of breast milk

Table: 3 Paired t- test analysis of expressed practices of working lactating mothers regarding storage and expression of breast milk.

Expressed practices	Mean	Median	standard deviation	N=100	
				t- test p value	
Pre Test	15.59	17	4.207	-6.375	0.0001*
Post Test	18.15	21	2.31		

\*Significant at 0.05 level

In pre- test majority of women belongs to good category in terms of expressed practices (33%) and in post- test majority of women belongs to very good category in terms of expressed practices (81%). There was significant difference in mean pre-test and post-test expressed practices score of working lactating mothers. (Table 3)

## Factors influencing knowledge and practice level

Table: 4 Association between post-test expressed practices among working lactating mothers and selected demographic variables

Demographic variables	Expressed practices score			d.f	Cal value	P value
	Average	Good	Very good			
<b>Age</b>				06	2.092	0.911
20-24	00	02	13			
25-29	01	10	39			
30-34	00	06	26			
>35	00	00	03			
<b>Educational status</b>				08	3.844	0.871
Secondary education	00	01	09			
Senior secondary	00	02	14			
Diploma	00	02	10			
Graduate	01	06	21			
Post graduate and above	00	07	27			
<b>Religion</b>				04	0.958	0.961
Hindu	01	15	61			
Muslim	00	00	01			
Sikh	00	03	19			
<b>Occupation</b>				06	1.978	0.922
Teacher	00	06	26			
Medical professional	00	04	19			
Clerk	00	02	09			
Business	01	06	27			
<b>Working hours of mother</b>				06	13.124	0.041*
< 5 hours	01	01	07			
5-6 hours	00	11	34			
7-8 hours	00	03	28			
>8hours	00	03	12			
<b>Monthly income of mother in rupees</b>				06	9.074	0.169
<5000	01	03	23			
5001-10000	00	06	38			
10001-15000	00	03	16			
>15001	00	04	04			
<b>Providence of private place for feeding</b>				02	2.865	0.239
Yes	00	08	21			
No	01	10	60			

<b>Type of feeding of the baby</b>				04	6.118	0.191
Exclusive breast feeding	01	04	40			
Complete bottle feed	00	02	09			
Bottle cum breast feed	00	12	32			
<b>Do you store breast milk?</b>				02	6.235	0.044*
Yes	00	00	21			
No	01	18	60			
<b>Article used for storage</b>				06	6.235	0.397
Do not store	01	18	60			
Katori	00	00	13			
Bottle	00	00	07			
Any other equipment	00	00	01			
<b>Duration of storage</b>				06	6.235	0.397
Do not store	01	18	60			
1-2 hours	00	00	13			
3-4 hours	00	00	07			
5-6 hours	00	00	01			

\*Significant at 0.05 level

Analysis of table 4 shows that there is an association between post- test of expressed practices among working lactating mothers and selected demographic variables i.e. working hours of mothers and storage of breast milk. Analysis also explains that there was no association between post test knowledge score and selected demographic variables.

## DISCUSSION

This study assesses the effectiveness of Self Instructional module on working lactating mothers regarding the storage and expression of breast milk. The incidence of reporting breast milk expression was 21% which is comparable to the study by Zheng J et.al. [18] In this study, incidence of breast milk expression is 28.11% and after the introduction of breast pump it was increased significantly to 53.3%. The figure found in present research study, less may be because of ignorance or shyness to express breast milk. In addition to this many of the lactating mothers were unknown about expressed breast milk practices. The result of study indicates that working lactating mothers of Ambala district belong to average category in terms of knowledge before the administration of self instructional module. This was also comparable to the observations of study by Shinde E. [1] In this study out of 60 mothers that is about 43.3% were in the age group of 30-34 years and most of the working mothers that is 56.7% were graduates. Out

of these 60 mothers 56.7% belongs to joint family and 40% working mothers had monthly income <5000 rupees.

In present study there was significant difference in mean knowledge score of working lactating mothers regarding expression of breast milk before and after the administration of self instructional module. A second finding was significant difference in practice of working lactating mothers in comparison to pre and post analysis. So hypothesis of study was accepted as significant difference was found at 0.05 levels in terms of knowledge and practice. Similar finding was observed in lakshami V, [19] CP Sarojama. [20] There was a weak significant correlation between knowledge and expressed practices of working lactating mothers. In present study, there was an association between post- test of expressed practices among working lactating mothers and selected demographic variables i.e. working hours of mothers and storage of breast milk. Comparable to present study Samuel S [21] et al reported that educational status, type of family and occupation had significant association.

In summary, researcher believes that self instructional module was quite effective in improving the knowledge and practices of working lactating mothers regarding expression of breast milk.

Implications Health education is an important tool of health care agency and it is one of the most effective interventions. Nurses working in the hospital as well as in

community should be equipped with knowledge to promote the expression and storage of breast milk practices. Health workers in the community area should be involved in increasing the awareness among antenatal mothers, postnatal mothers and their families regarding expression and storage of breast milk through the use of various awareness programmes. Involvement of mass media is also effective in increasing the awareness regarding expression and storage of breast milk.

**Limitations** The main limitation of the study was the inability to assess the actual practices of working lactating mothers as difficult to be available at mother home before expressing milk. As the sample size was small rather it difficult to find to working lactating mothers in institution and in community setting. Therefore results and findings may not be generalised to all working lactating mothers.

## CONCLUSION

Expressing breast milk has become more common and introduces an opportunity for others to feed the baby. The practice of expressing breast milk has increased along with the commercial availability of a range of infant feeding equipment. Employment appears to have a less deleterious effect on initiation of breastfeeding. Awareness programs and instructional module thus be considered in effective implementation of exclusive breast feeding practices.

Acknowledgement the author would like to thank the lactating mothers of selected area for their support and participation in study.

## REFERENCES

1. Shinde E: Effectiveness of self instructional module on expression & storage of breast milk. *Innov J Nurs and Health care*.2015;3:193-202
2. Fewtrell MS, Loh KL, Blake A, Ridout DA, Hawdon J. Randomised, double blind trial of oxytocin nasal spray in mothers expressing breast milk for preterm infants. *Arch Dis Child Fetal Neonatal Ed*.2006;91(3):F169–F174.
3. Win NN, Binns CW, Zhao Y, Scott JA, Oddy WH. Breastfeeding duration in mothers who express breast milk: a cohort study. *Int Breastfeed J*. 2006;1:28. doi: 10.1186/1746-4358-1-28.
4. Meier PP. Breastfeeding in the special care nursery: prematures and infants with medical problems. *Pediatr Clin North Am*. 2001;48:425–42. doi: 10.1016/S0031-3955(08)70035-X.
5. Hector DJ. Complexities and subtleties in the measurement and reporting of breastfeeding practices. *Int Breastfeed J*. 2011;6:5. doi: 10.1186/1746-4358-6-5.
6. UNICEF. Academy for educational development. USAID- Learning from large scale community based programs to improve Breast feeding practices. Geneva: WHO;2014
7. WHO. Global Strategy for Infant and young Child Feeding- Tool for Assessing National Practices. Policies and programs. Geneva: World health organisation.2009.
8. Binns CW, Win NN, Zhao Y, Scott JA. Trends in the expression of breastmilk 1993–2003. *Breastfeed Rev*. 2006;14(3):5–9.
9. Ohyama M, Watabe H, Hayasaka Y. Manual expression and electric breast pumping in the first 48 h after delivery. *Pediatr Int*. 2010;52(1):39–43. doi: 10.1111/j.1442-200X.2009.02910.x.
10. Geraghty SR. Photo album of expressed breast milk. *Breastfeed Med*. 2010; 6(6):433–434.
11. Boo NY, Nordiah AJ, Alfizah H, Nor-Rohaini AH, Lim VKE. Contamination of breast milk obtained by manual expression and breast pumps in mothers of very low birth weight infants. *J Hosp Infect*.2001;49(4):274–281. doi: 10.1053/jhin.2001.1117.
12. Hurst N, Meier P, Riordan J. In: Breastfeeding and human lactation. 4. Riordan J, Wambach K, editor. Sudbury, Massachusetts: Jones and Bartlett; 2010. Breast feeding the preterm infant; pp. 425–470.
13. Garza C, Johnson CA, Harrist R, Nichols BL. Effects of methods of collection and storage on nutrients in human milk. *Early Hum Dev*. 1982;6(3):295–303. doi: 10.1016/0378-3782(82)90123-2.

14. Datta P. Pediatric Nursing. 3<sup>rd</sup> ed. New Delhi Jaypee Brothers Medical Publishers; 2014;50-56
15. Blum LM. At The Breast: Ideologies of Breastfeeding and Motherhood in the Contemporary United States. Boston: Beacon Press; 1999. From Sacred to disembodied motherhood; pp. 19–62.
16. Jaeger MC, Lawson M, Filteau S. The impact of prematurity and neonatal illness on the decision to breast-feed. *J Adv Nurs*. 1997;25(4):729–737. doi: 10.1046/j.1365-2648.1997.1997025729.x.
17. Aarts C, Kylberg E, Hörnell A, Hofvander Y, Gebre-Medhin M, Greiner T, Umeå U. How exclusive is exclusive breastfeeding? A comparison of data since birth with current status data. *Int J Epidemiol*. 2000;29(6):1041–1046. doi: 10.1093/ije/29.6.1041.
18. Zheng J Geraghty SR, Khoury JC, Kalkwarf HJ. Human milk pumping rates of mothers of singletons and mothers of multiples. *J Hum Lact*. 2005;21(4):413–420. doi: 10.1177/0890334405280798.
19. Lakshmi VS, Raman AV. Breast feeding technique in prevention of nipple sore. *Nursing Journal of India*. Aug.2017
20. Sarojama CP. Effectiveness of self instructional module in knowledge on collection of practice of expressed breast milk among primi mothers. *Nightangle journal of nursing*:2008:32-38
21. Samuel S, Smith HD David. A cross sectional study to assess the knowledge, attitude and practice of mothers regarding breast feeding. Available at: <http://org/node/255945>

How to cite this article: Deep A, Yadav G, Thakur H et al. Incidence of breast milk expression and evaluate the effect of self instructional module on working lactating mothers regarding expression and storage of breast milk. *Int J Health Sci Res*. 2018; 8(6):203-209.

\*\*\*\*\*