

Effectiveness of Self Instructional Module in Knowledge on Collection and Storage of Expressed Breast Milk among Mothers of Infants at Selected Children Hospital in Chennai

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ABSTRACT

Background: Breast feeding is the natural step after the child birth and it is a very special gift from a mother to her baby. The use of expressed breast milk has been advocated as an effective way of encouraging and maintaining lactation when the mother is separated from the baby. However, prospects of storage of expressed breast milk for any considerable period of time is unavoidable in neonatal units and in many households, especially among working mothers who need to report back to work soon after delivery.

Aim: The aim of the study is assess the level of knowledge in Collection and Storage of Expressed Breast Milk among mothers of infants. To Evaluate the effectiveness of Self Instructional Module in knowledge on collection and Storage of Expressed Breast Milk among mother's of Infants .Associate selected demographic variables with post test level knowledge on collection and Storage of Expressed Breast Milk among mother's of infants .

Methodology: The research approach used in the study was quantitative approach by using pre experimental one group pre test and post test research design. The study was conducted at selected Children's hospital with 100 samples size. The samples were selected by using convenient sampling technique. The tool used for the study was demographic variable, and self instructional module. Data was analyzed by using descriptive and inferential statistics.

Results: In Pre-test out of 100 samples 15 (15%) were adequate Knowledge 35(35%) were in Moderate Knowledge, 50 (50%) were inadequate knowledge. In Post-test out of 100 samples 65 (65%) were adequate Knowledge 25(25%) were in Moderate Knowledge, 10(10%) were in adequate Knowledge the pretest mean value is 10.62.with 24.81 standard deviation and posttest mean value is 25.96with 0.98 standard deviation. Paired-t test reveals that there is effectiveness of self instructional module in knowledge on collection and storage of breast milk among mothers of infants at the level of $p < 0.05$. Chi square test reveals that is significant association between the level of Knowledge and demographic variables at the level of $p < 0.05$

Key words: Mothers, knowledge, expressed breast milk, Self instructional Module.

INTRODUCTION

Human breast milk provides infants with defensive factors against many illnesses. Infants who are breastfed appear to be less susceptible to certain infections than bottle-fed infants. There are many agents found in human milk that are important in imparting protection to infants;

these agents include lysozymes, lactoperoxidase, lactoferrin, interferon, complement components, leukocytes and immunoglobulin's. ^[1] These protective properties are particularly beneficial during the first few months of an infant's life, when an effective immune response against foreign organisms cannot be mounted.

Storage of human breast milk for limited periods of time is unavoidable in neonatal units and in many households, especially among working mothers who need to report back to work soon after delivery. [2] Many mothers who are certain of the importance of prolonged exclusive or complementary breast feeding, often express and store human milk for use during the period of separation. [3]

The World Health Organization's [4] definition of exclusive breastfeeding is that an infant receive only breast milk from its mother or expressed breast milk and no other liquid or solids with the exception of drops of syrups consisting of vitamins, mineral supplements or medicines. The practice of exclusive breastfeeding for six months is essential to the baby as well to the mother to promote maternal and child bonding. [5] Expressed breast milk is advised to be given to the baby if the mother is to stay away from the child for long period of time. However, the period of maternity leave in India lasts for only three months and at the same time crèches are not provided in the work places to promote exclusive breastfeeding. Mothers are thus encouraged to express breast milk and store it in containers. [6] If the nutritional value of the milk is to be conserved and infections prevented, it has to be stored within appropriate temperature range. [7] According to Indian academy of pediatrics (2010). [8] The length of time expressed breast milk can be stored at room temperature 4- 8 hours. Storage conditions may often not be optimal especially in a developing country like India, with tropical weather conditions. Storage (refrigeration and freezing) conditions may often not be optimal due to unreliable power supply especially in Chennai.

Breastfeeding mothers [9] may encounter unforeseen reasons for separation from their infants, but more often women need to express and store milk for planned events, lifestyle flexibility, and returning to work. Knowledge about appropriate human milk handling and storage is essential for

breast feeding success. Human milk is a fresh, living food with many antioxidant, antibacterial, prebiotic, probiotic, and immune-boosting properties in addition to nutrients. Although some of these nutrients and health properties change with storage, there is good evidence that human milk storage can be safe, allowing provision of optimal nutrition to the child when nursing or immediately expressed milk is not available. [10] Stored human milk maintains its unique qualities such that it continues to be the golden standard for the infant feeding, superior to artificial feeding.

According to California Pacific Medical center (2015) [11] states that it is possible for the baby to breast feed directly, by using mother's fresh or frozen milk ensures optimal nutritional and immunological benefits, Initially the mother is pumping to stimulate the hormonal response for milk production the first weeks are crucial for maintaining a regular pumping schedule to optimize for the milk production.

La leche league international (2012) [12] stated that mother's milk is a living substance so precious, it is also called as "white Blood" it is essential to store expressed milk properly to maximize its nutritional and anti infective qualities. Human Milk actually has anti bacterial properties that help to stay fresh. Giving the baby the fresh milk the mother has pumped ensures its high quality.

Malays J (2008) [13] conducted a study on to assess the knowledge on collection and storage of breast milk among mothers of infants. 100 mothers were selected by random sampling method. The results revealed that 66% mothers had inadequate knowledge, 30% had moderately adequate knowledge and 14% had adequate knowledge regarding the collection and storage of breast milk.

Willaiporn Rojjanasrirat Rao (2008) [14] conducted a descriptive study on working women's breast feeding practices and their experiences soon after child birth. The study findings concludes that 60.6%

mothers stress level increases after child birth and 40% mothers were moderately stressed, Most of the mothers were breast feed through expressed breast feeding method.

According to Bur Man (2009) conducted a study on determine ^[15] the method of processing and storage affected the properties of milk among 200 postnatal mothers. Data was collected for those who can't breast feed the babies and were reviewed. The results revealed that Pasteurization not only eliminates the pathogenic bacteria but also damages the bacteriostatic mechanisms, so making the milk more susceptible to later contamination.

Breast milk is the most important food for the newborn baby most of the time it is not able to feed continuously due to life style modification and working condition of the mother. Expressed breast milk is advised to be given to the baby if the mother is to stay away from the child for longer period of time, so it is important for the mother to have adequate knowledge about the collection and storage of breast milk which help the mothers to have adequate knowledge regarding the Expressed breast milk. Hence, the investigator felt to conduct the study to assess Effectiveness of self instructional module in knowledge on collection and storage of Expressed Breast Milk among mothers of Infants at selected Hospitals in Chennai. With the objectives to assess the knowledge on Collection and Storage of Expressed Breast Milk among mothers of infants, Effectiveness of self instructional module in knowledge on collection and storage of expressed breast milk among mother's of infants and to associate the pre and post level of knowledge with selected demographic variables.

MATERIALS AND METHODS

The research approach used in the study was quantitative approach by using pre experimental one group pre test and post test research design. The study was

conducted at selected hospital with 100 sample size. The samples were selected by using convenient sampling technique. The tool used for the study was demographic variable and self administered questionnaire which was printed in both languages Tamil English. The questionnaire which consist of 30 multiple questions which includes 3 parts collection and storage of breast milk, techniques of expressing breast milk, and composition of breast milk. The scores were interpreted as follows: 01- 15 - In adequate Knowledge, 16 -23 - Moderately Knowledge, 24-30 - adequate Knowledge. Explained the study to the samples and got the consent from the samples. Informed consent and oral consent was obtained from the mothers of infants for their participation in the study. Mothers of infants who know Tamil and English, Mothers who are willing to participate were included. Mothers who belong to medical professionals were excluded. Data were collected by interview method on one to one basis. Collected the socio demographic variables and Knowledge was assessed by the self administered multiple choice questionnaire which was printed in both languages Tamil/English on the same day self instructional module was given the module includes (composition of breast milk, techniques of breast feeding, Feeding Positioning, burping, advantages of Breast feeding, General principles of expressing breast milk, Steps involved in expression of breast milk, storing of expressed breast milk, thawing milk, Containers used for collection of expressed breast milk and cleaning and sterilization of breast milk) Teaching programme was also given. Doubts were clarified by the investigator; the post test was conducted by using same questionnaire after 7 days. The data were analyzed by using descriptive and inferential statistics.

RESULTS

In Pre-test out of 100 samples 15(15%) were adequate Knowledge 35(35%) were in Moderate Knowledge,

50(50%) were inadequate knowledge. In Post-test out of 100 samples 65(65%) were adequate Knowledge 25(25%) were in Moderate Knowledge, 10(10%) were in adequate Knowledge the pretest mean value is 10.62.with 24.81 standard deviation and posttest mean value is 25.96 with 0.98

standard deviation. Paired-t test reveals that there is a significant improvement in mothers knowledge on collection and storage of breast milk among mothers of infants at the level of $p < 0.05$ through the self instructional module.

Table I: Frequency and percentage distribution of pre test level of knowledge on collection and storage of breast milk on among mothers of infants.

S.No	Level of knowledge	Frequency Distribution (n)=100	Percentage Distribution (%)
1	Adequate knowledge	15	15%
2	Moderate adequate knowledge	35	35%
3	In adequate knowledge	50	50%

Table II: Frequency and percentage distribution of post test level of knowledge on collection and storage of breast milk among mothers of infants.

S.No	Level of knowledge	Frequency Distribution (n)=100	Percentage Distribution (%)
1	Adequate knowledge	65	65%
2	Moderate adequate knowledge	25	25%
3	Inadequate knowledge	10	10%

Table: 3 Distribution of Improvement Knowledge scores for pre test and post test on collection and storage of breast milk on knowledge among mothers of infants.

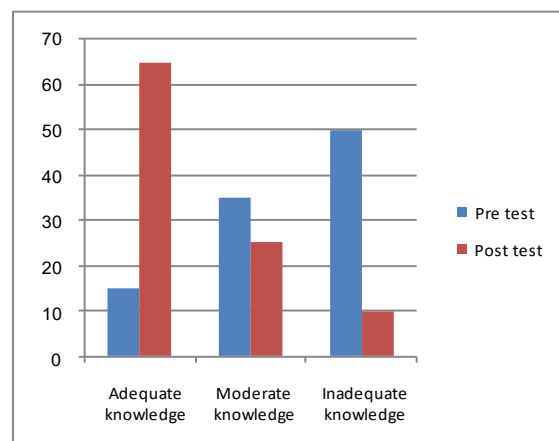
S.No	Improvement of Knowledge	Mean	Standard deviation	Paired 't' test p-value
1	Pre Test	10.62	4.259	24.81
2	Post Test	25.96	0.988	$P < 0.05$

Table 4: Frequency and Percentage distribution of demographic variables

S.NO	Demographic variables	Frequency (n)	Percentage Distribution
1.	Age of the Mother	20-25 years	35 35%
		26- 30 years	40 40%
		31-35	15 15%
		Above 35	10 10%
2	Educational status of the mother	Primary level	10 10%
		High school level	40 40%
		Graduate	40 40%
		Post graduate	10 10%
3	Family income	5000-10000	25 25%
		11000-15000	30 30%
		16000-20000	35 35%
		21000-25000	10 10%
4.	Child birth orders	1	68 68%
		2	26 26%
		3	6 6%
		4	- -
5.	Occupation of the Mother	Home Maker	25 25%
		Self employed	15 15%
		Private sector	40 40%
		Government sector	20 20%

Chi square test reveals that there is significant association between the post test level of Knowledge of mothers with selected demographic variables at the level of $p < 0.05$.

Comparison between Pre and post test level of Knowledge among the mothers of Infants on collection and storage of breast milk



DISCUSSION

Human milk is uniquely superior for infant feeding, in addition to its unique immunological, growth and developmental benefits. When it is not possible to breastfeed an infant in the postnatal period, expressed breast milk, fresh or frozen, may provide both nutritional and Immunological benefits.

The present study reported that In Pre-test out of 100 samples 15(15%) were adequate Knowledge 35(35%) were in Moderate Knowledge, 50(50%) were inadequate knowledge on collection and storage of expressed breast milk. This study was supported by

Robert (2009) ^[16] conducted a study on assess the level of knowledge on collection and storage of breast milk among working mothers of infants. He concluded that the maximum number of mothers 70% were not having adequate amount of knowledge regarding the collection and storage of breast milk. He also recommended that the best practices of collection and storage of breast milk. It should not exceed 24 hours in refrigerator temperature (4 to 10° c) 8 hours at room temperature (15-27°c) and 4 hours at room temperature (30-38°c).

The second objective of the study is to determine the effectiveness of Self Instructional Module in knowledge on collection and Storage of Expressed Breast Milk among mothers of infants. The study result revealed that in the pre test mean was 10.62 with standard deviation 4.2. In post test mean with standard deviation 0.98. The average improvement knowledge of pretest was 10.62 with standard deviation of 4.25<Improvement of knowledge post test group was 25.96 with standard deviation of 0.988 .The improvement was statistically tested by paired 't' value and result found to be significant at $p<0.001$ level. It indicates that the self instructional module was very effective in improvement of knowledge level of knowledge among the mothers on collection and storage of breast milk. This study was supported by Sarojamma C P

(2008)^[17] conducted a study on effectiveness of teaching programme on knowledge and practice of Expression breast milk among primi mothers. 179 mothers were selected by simple random sampling method. 16.8(30/179) had adequate Knowledge and 41.3% (74/179) had moderate adequate knowledge and 41.9% (75/179) had in adequate knowledge, the teaching program was highly effective at the level of $p<0.05$.

The third objective of study is to associate the post level of knowledge with selected demographic variables among mothers of infants on collection and storage of breast milk.

The Chi square test revealed that there was significant association with the demographic variables of the mothers such as age, education, birth order and there is no significant association with income and occupation.

The statistical value supported the research hypothesis that the post test knowledge score among mothers regarding collection and storage of breast milk. In Post-test out of 100 samples 65(65%) were adequate Knowledge 25(25%) were in Moderate Knowledge, 10(10%) were in adequate Knowledge the pretest mean Value is 10.62.with 24.81 standard deviation and posttest mean value is 25.96 with 0.98 standard deviation. Chi square test reveals that there is significant association between the post test level of Knowledge among the mothers with selected demographic variables at the level of $p<0.05$. The study was supported by Flecking et al (2007) ^[18] conducted cohort study on effect of socio-economic status on breast feeding duration among mothers of preterm and term infant. The result revealed that all socio-economic factors were strongly associated with breast feeding knowledge level among mothers.

CONCLUSION

Based on the data, this study has confirmed that self instructional module was more effective in improving the mothers knowledge on collection and storage of

breast milk The importance of hygienic practices should however be emphasized to mothers during milk expression to avoid the risk of contamination. Findings from this study would be useful particularly for working mothers who may go back to work after the maternity leave period. This would encourage them to express and store breast milk for their babies before going to work and still be sure of its safety. This would encourage the practice of exclusive breastfeeding, as well as help maintain and encourage lactation.

Recommendations

The same study can be done in large samples

The same study can be done by using True Experimental research design

Comparative study can be done among working and non working mothers.

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