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An experimental study to assess the effectiveness of video assisted teaching on knowledge regarding collection, storage and use of human breast milk among the staff nurses working in selected hospitals of Pune city

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Abstract
Purpose: To assess the effectiveness of video assisted teaching on knowledge regarding collection, storage and use of human breast milk.
Material and methods: The research approach adopted for the study is quantitative approach and the research design is pre experimental design. Using non probability purposive sampling technique 100 staff nurses were enrolled in the study. Data was collected using Self structured questionnaire. Pre-test followed by video assisted teaching was given and then after 7 days post-test was taken using same questionnaire. Data was analysed using mean, median, standard deviation, chi-square and fisher's exact test.
Results: The results showed that in pre-test 78% of staff nurses had poor knowledge scores which followed by the intervention was 50% had good knowledge score, 14% had excellent knowledge while 0% had poor knowledge in post-test. Age is associated with the pre-test knowledge scores (P=0.003).
Conclusion: The study findings reveal that video assisted teaching is effective to increase the knowledge of staff nurses regarding collection, storage and use of human breast milk.

Keywords: Effectiveness, video assisted teaching, knowledge, collection, storage, use, human breast milk, staff nurses

Introduction
After meeting the fundamental needs for establishing breathing and maintenance of body temperature, the subsequent efforts in the care of the new born babies should be directed towards the provision of adequate nutrition and prevention of infections. Breast milk is an opaque white liquid produced by the mammary glands of the female. It provides the primary sources of nutrition for new-born before they are able to digest other types of food. The early lactation milk is colostrum's, and carries the mother's antibodies to the baby. It can reduce the risk of many diseases in the baby [1].
Mothers often refer to breast milk as 'liquid gold,' therefore for mothers who express breast milk; storage is of a key concern -- regardless of their environment (home or hospital). There are many barriers to increased breastfeeding duration in the US, however, separation of the mother from her baby, for whatever reason, stands out as one of the more significant obstacles to overcome. At times of separation, expressed breast milk is the preferred feeding option for babies. Indeed, the act of expressing breast milk provides distinct benefits for both mother and baby. With regard to the mother, the regular and adequate removal of milk from the breast (in the absence of the infant) supports the 'supply and demand' relationship between milk synthesis and removal allowing for the continuation of lactation so that breastfeeding may last as long as the mother and baby mutually wish [2].
Expressing breast milk can maintain a mother's milk supply when she and her child are apart and the baby is unable or unwilling to latch on to the breast. Expression of breast milk is getting milk from the breast without your baby sucking on it.[1] Breast milk can be expressed using hands. This is called 'hand expression' or 'manual expression'. Breast pump can also be used to express milk from the breasts [3].

Malays J 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 [4].

The World Health Organization (WHO), American Academy of Pediatrics (AAP) and United Nations Children's Fund recommend that the best alternative to a mothers' own breast milk is milk from a healthy wet nurse or donor human milk (DHM) from a human milk bank (HMB). Many developed and developing countries around the world now have established HMBs or are considering the establishment of such institutions, and the number of HMBs are increasing worldwide [5].

2. Objectives

1. To assess the knowledge of staff nurses regarding collection, storage and use of human breast milk before administration of video assisted teaching.
2. To assess the knowledge of staff nurses regarding collection, storage and use of human breast milk after video assisted teaching.
3. To assess the effectiveness of video assisted teaching on knowledge of staff nurses regarding collection, storage and use of human breast milk.
4. To associate the pre findings with selected demographic variables.

3. Conceptual framework

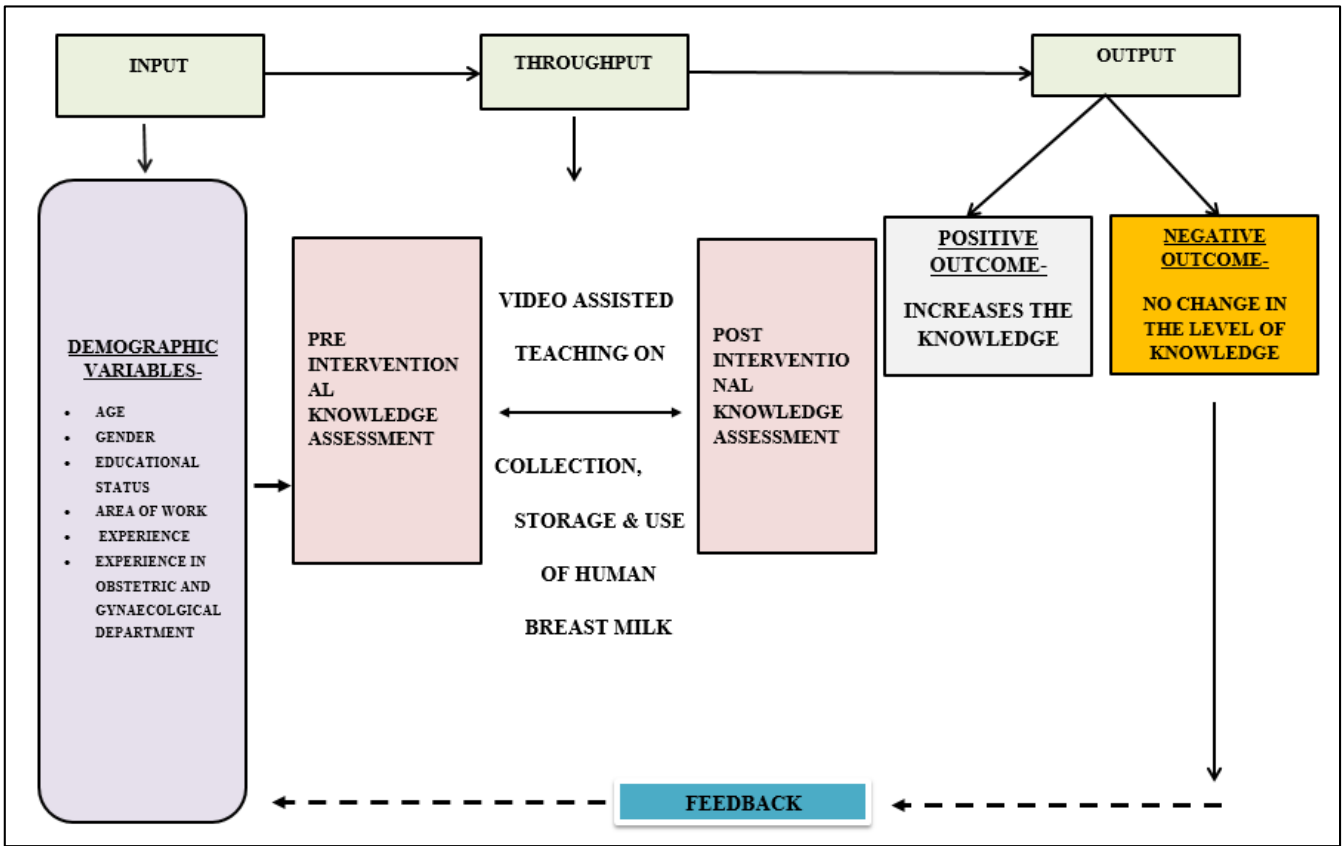

Fig 1: Conceptual Framework Based On General System Theory Of "Ludwig Von Bertalanffy"

4. Materials and method

Hypothesis

Hypothesis for effectiveness

H_0: There is no difference in the level of knowledge after the administration of video assisted teaching regarding collection, storage and use of human breast milk among staff nurses at 0.05 level of significance.

Hypothesis for association:

H_0: There is no association between the pre-test knowledge and the selected demographic variables among the staff nurses at 0.05 level of significance.

Methodology

In order to achieve the desired objectives of the study quantitative research approach with pre experimental one group pre-test post-test design was adopted for the present study. Using non-probability purposive sampling 100 staff nurses working in selected hospitals of pune city were enrolled for the study. After obtaining administrative approval and written consent from the participants, tool was administered for data collection. Data collection was accomplished by using tool comprised of,

- **Section I:** Demographic variables such as age, gender, educational status, area of work, experience and experience in Obstetrics and gynaecology department.
- **Section II:** Structured knowledge questionnaire it comprised of twenty five (25) knowledge items regarding collection, storage, use of human breast milk and also a few regarding human milk banking.

A pretest observation of knowledge is done before the implementation of the video assisted teaching, intervention is administered and then after 7 days post test was

conducted to assess the effect of intervention on the samples using the same questionnaire.

5. Results

Section I

Demographic characteristics of the samples

Table 1 a): Description of samples (staff nurses) based on their demographic characteristics in terms of frequency and percentages n=100

Demographic variables		*F*
Age	20 years – 25 years	34
	26 years – 30 years	28
	31 years -35 years	27
	36 years and above	11
Gender	Male	9
	Female	91
Education	ANM	25
	GNM	53
	PBBSC & Basic BSc Nursing	22
	MSc Nursing	0
Working Department	Medical-surgical wards	32
	Intensive care unit	18
	Pediatric ward	23
	Obstetrics and gynecology ward	19
	Others	8
Experience	1month to 12 months	19
	1 year to 3 years	32
	3 – 5 years	29
	More than 5 years	20
Experience In Obg Area	Less than 1 year	37
	1 year – 5 year	26
	More than 5 years	6
	No experience	31

Analysis of demographic profile revealed that 34% of the samples belongs to age class 20-25yrs, 28% belongs to age class 26-30yrs, 27% belongs to age class 31-35yrs and 11% belongs to age class 36yrs, and above. Distribution of samples according to their gender shows that the 9% were male and 91% were female. Distribution of samples according to their education shows that 25% studied ANM, 53% studied GNM Nursing and 22% basic PBBSC & BSc Nursing. Distribution according to working department shows that 32% were working in Medical-surgical wards, 18% working in intensive care ward, 23% in pediatric ward, 19% in Obstetrics and gynecology ward and 8% working in other than these wards. According to their experience 19% nurses had less than 1 month to 12 months of experience, 32% had 1-3 years, 29% had 3-5yrs. and 20% had more than 5yrs. of experience. Their experience in OBG area shows that 37% nurses had less than 1year of experience, 26% had 1-5 years, 6% had more than 5yrs. of experience in OBG area while 31% had no experience in OBG area.

Section II (A)

Pre interventional assessment of knowledge scores

Table 2: Mean, median and standard division of pretest knowledge scores of staff nurses before intervention n=100

Variable	Mean	Median	SD
Pre knowledge score	7.920	8.0	3.067

Table 2 depicts that pre test knowledge score before intervention mean is 7.920, median is 8.0 and SD is 3.076

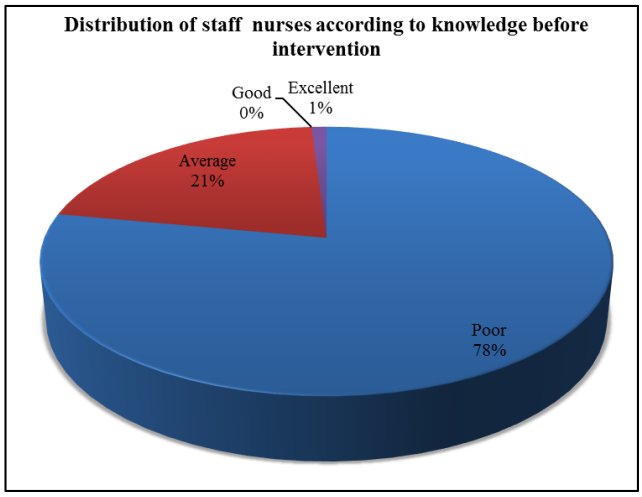

Fig 2: Frequency and percentage distribution of pretest knowledge level of staff nurses before intervention, n=100

Figure 2 depicts that before intervention 78% of nurses had poor knowledge of collection, storage and use of human breast milk, 21% had average knowledge and only 1% had excellent knowledge of collection, storage and use of human breast milk.

Section II (B)

Post interventional assessment of knowledge

Table 3: Mean, median and standard division of post-test knowledge scores after intervention**.** n=100

Variable	Mean	Median	SD
Post knowledge score	17.25	18.0	3.176

Table 3 depicts that mean score of post knowledge score is 17.25, median is 18.0 and SD is 3.176

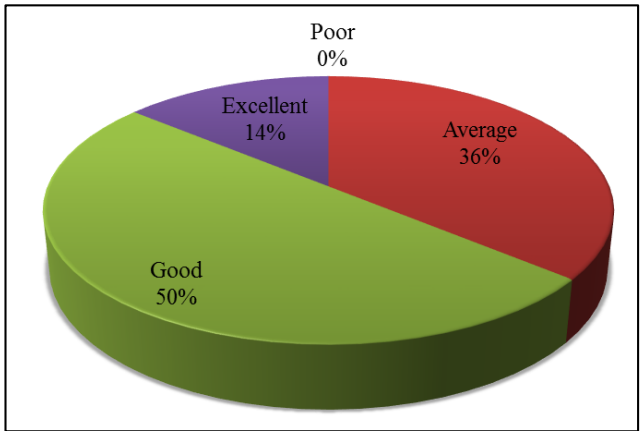

Fig 3: Frequency and percentage distribution of post-test knowledge score after intervention

Figure 3 depicts that after intervention no one had poor knowledge of collection, storage and use of human breast milk, 36% had average knowledge, 50% had good knowledge and 14% had excellent knowledge of collection, storage and use of human breast milk.

Section III

Effectiveness of video assisted teaching on knowledge of staff nurses regarding collection, storage and use of human breast milk.

Table 4: Mean, median, standard deviation and "z" value of pre-test and post-test knowledge scores of staff nurses n=100

Variable	Mean	Median	SD	Z	p-value
Pre knowledge score	7.92	8	3.067	8.59	0.000**
Post knowledge score	17.25	18	3.176		

**: Highly significant difference, Wilcoxon Matched Pairs Test (Z): standardized Test Statistic

Table 4 depicts that knowledge score before and after intervention, before intervention knowledge score was 8 with standard deviation 3.067 and after intervention it was 18 with standard deviation 3.176. As p-value of Wilcoxon Matched Pairs Test is very less (0.000) we will reject the null hypothesis (There is no significant difference in the level of knowledge after the administration of video assisted teaching regarding collection, storage and use of human breast milk among staff nurses) and conclude that after intervention score has been increased.

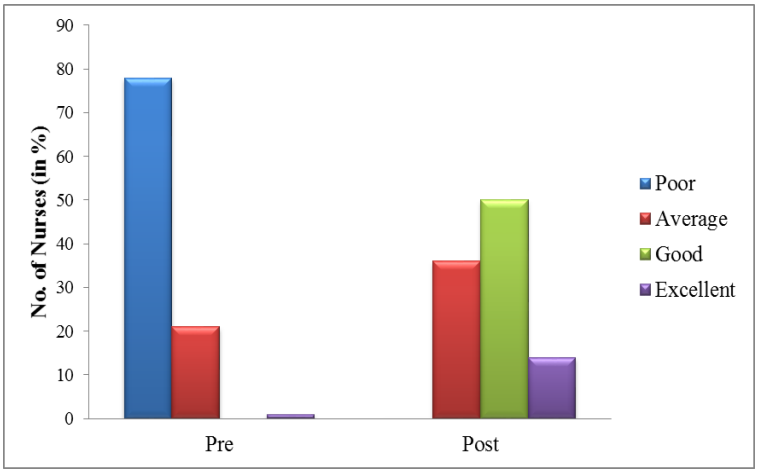

Fig 4: Frequency and percentage distribution of pre-test and post-test knowledge level of staff nurses

Figure 4 depicts that before intervention 78% of nurses had poor knowledge of collection, storage and use of human breast milk, 21% had average knowledge and only 1% had excellent knowledge of collection, storage and use of human breast milk.

While after intervention no one had poor knowledge of collection, storage and use of human breast milk, 36% had average knowledge, 50% had good knowledge and 14% had excellent knowledge of collection, storage and use of human breast milk.

Section IV

Association between the pre knowledge with selected demographic variables.

Table 5: Association of pre knowledge scores with selected demographic variables n=100

Demographic variables		Poor	Good or Excellent	Chi-square / fisher's exact test
Age	20 years – 25 years	20	14	Chi-Square = 11.972, DF = 2, P-Value = 0.003**
	26 years – 30 years	23	5	
	31 years and above	35	3	
\Gender	Male	9	0	0.200065^{NS}(Fisher's exact test)
	Female	69	22	
Education	PBBSc Nursing or basic nursing	22	3	0.264 ^{NS} (Fisher's exact test)
	RGNM	56	19	
Working Department	Medical-surgical wards or Intensive care unit	38	12	0.809 ^{NS} (Fisher's exact test)
	Pediatric ward or Obstetrics and gynecology ward or other	40	10	
Experience	Less than 4 years	38	13	0.472^{NS} (Fisher's exact test)
	More than 5 years	40	9	
Experience In Obg Area	Less than 1 year	31	6	Chi-Square = 2.443, DF = 2, P-Value = 0.295 ^{NS}
	More than 1 years	22	10	
	No experience	25	6	

NS: Not Significant Association, **: Highly significant Association, Chi-square test of association.

Table 5 depicts that Knowledge score associated with age of nurses as p-value is 0.003.

There is no association between other demographic variables and knowledge score.

6. Discussion

The findings of the study have been discussed with reference to the objective and hypothesis stated. In this section the major findings of the present study have been discussed with the reference to the results obtained by other researcher.

In this present study majority of the participants belongs to the age group of 20-25 years i.e. 34% and there was more representation of female staff i.e. 91%.

In educational qualification majority of study participants 53% were GNM staff nurses. And there were no any staff 0% in MSc nursing qualification.

The majority of staff nurses 32% were currently working in the medical surgical wards.
Most staff nurses i.e. 32% years of experience ranged from 1-3years.
The maximum staff nurses i.e. 37% had less than 1 year of experience in obstetrics and gynaecological departments. The video assisted teaching was found to be an effective intervention for increasing knowledge regarding collection, storage and use of human breast milk among staff nurses.
Vandana Thakur conducted a study on effectiveness of video assisted teaching on knowledge and practice regarding breast massage for breast milk expression and volume among primiparous mothers. A Pre-experimental research study was conducted on 60 Primiparous mothers wherein a structured knowledge questionnaire and observational checklist was prepared and used to collect the data. The results revealed that there was increase in the knowledge after comparing the pre-test and post-test knowledge scores.
The score before the intervention shows that maximum number of mothers 93% had poor knowledge while only 7% had average knowledge.
After the video assisted teaching as an intervention the score shows that the 98% of the mothers had good knowledge, 2% had average knowledge.

7. Conclusion

The present study was undertaken to find out the effectiveness of video assisted teaching on collection, storage and use of human breast milk among staff nurses working in selected hospitals of Pune city.
Motherhood is the most precious gift given to a woman. Giving birth to a new life and nurturing the little one is the most beautiful feeling in a woman's life. Being nurses it is very essential to make these newly mothers understand the importance of breast milk which would further encourage the practice of prolonged exclusive breastfeeding and allow the society to reap its multifold benefits. For the mothers who cannot breastfeed their babies it is important to know the collection, storage and use of expressed human breast milk at home. Proper methods of expressing milk, and collecting it so as to store in healthy condition is a vital part. The nurses as caregivers should impart this knowledge to the mothers so that they can provide their child with adequate and prolonged breastfeeding. The nurses should upgrade their knowledge so as to provide best quality care and provide fruitful knowledge to the patients. The following conclusions can be drawn from the study findings i.e, video assisted teaching is effective for increasing knowledge of staff nurses. Therefore this method of teaching can be used in hospitals to improve the knowledge of staff nurses, in community settings to impart knowledge to Asha and anganwadi workers as well as in educational institutes.

8. Recommendations

On the basis of the findings of the study, it is recommended that,

- A similar study can be conducted with different population, sample, settings and using a different teaching method.
- A similar study can be conducted on anganwadi workers in community settings.
- A study can be conducted on Human Breast Milk banking and its use for other babies.
- A study can be conducted on use of human breast milk on minor illnesses.

9. Limitations

- The duration of the study is limited to one month.
- Sample size consists of 100 staff nurses only. Hence generalization is not possible.

10. Acknowledgement

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