

Assess the effectiveness of structured teaching program regarding Human Milk Banking in terms of knowledge among BSc nursing students

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ABSTRACT

Background: Breastfeeding is the most effective way to feed infants since it is particularly tailored to the infant's needs. In Vienna, Austria, the first human milk bank was created in 1909. In 1989, Lokmanya Tilak Municipal Hospital established Asia's inaugural human milk bank. The "National guidelines on Lactation Management Centres in Public Health facilities" which were published in 2017, include guidelines for setting up Comprehensive Lactation Management Centres (CLMCs) for the purpose of collecting, storing, processing, and dispensing donor human milk for infants admitted to public health facilities as well as offering lactation support to mothers at all delivery points. Nursing students play a crucial role in addressing the complex needs of individuals with structured teaching program on human milk banking.

Methodology: A quasi- experimental one group pretest posttest design was employed for the sample was selected using a convenience sampling technique. The intervention consisted of structured teaching program on human milk banking. The analysis of the data was conducted using both descriptive and inferential statistics with SPSS version 20.

Result: The study included 80 BSc Nursing students. Pre-intervention knowledge scores ranged from 3 to 19, with a mean score of 11.5 ± 3.2 . Following the structured teaching program, post-test scores ranged from 9 to 20, with a significantly higher mean of 16.7 ± 2.4 . The mean difference of -5.1 was statistically significant ($t = -11$, $p < 0.01$), indicating substantial improvement in knowledge. Among demographic variables, only religion showed a statistically significant association with pre-test knowledge levels ($p = 0.01$); other variables such as age, gender, and prior exposure to human milk banking showed no significant influence.

Conclusion: Structured teaching program was effective in enhancing the competency knowledge on human milk banking of nursing students. As the study findings showed that the mean posttest scores of nursing students were higher rather than pre test.

Recommendations: A similar study can be conducted with large sample size in different settings should be conducted to determine the effect of structured teaching program on human milk banking on students competency.

INTRODUCTION

Well-being is prosperity. A healthy diet is essential for optimum health. Mother's milk provides nourishment for infants. The best and safest meal for babies is breast milk, which is also the best option for feeding sick or premature babies. It offers all of the nutrients needed for the first six months of life. Additionally, it shields the youngster from malnutrition and promotes healthy growth. The World Health Organization states that breastfeeding can reduce infant mortality by up to 80% since the baby receives the finest nourishment from the mother's milk. Breastfeeding helps families, communities, and countries improve socioeconomically and is essential for a child's survival, growth, and cognitive development. The United Nations International Children's Emergency Fund (UNICEF) and the World Health Organization (WHO) advise mothers to breastfeed their infants exclusively for the first six months of life and to

were measured using 5 wide mouth 2 L. flasks. Each flask continue doing so until the child is two years old and older than thirteen India has its own set of problems, with the greatest number of low birth weight newborns and high rates of death and morbidity among those with very low birth weights. Low birth weight newborns account for 20% of all hospital admissions in India, with a high rate of morbidity and mortality. In order to help thousands of low birth weight babies, government health specialists and civil society organizations must collaborate to promote the idea of human milk banking. A human milk bank is a facility for gathering, screening, testing, and storing donor milk from nursing mothers in good health. A human milk bank's main goal is to ensure that all infants, especially those who are born fragile, receive human milk as soon as feasible. Comprehensive Lactation Management Centers (CLMC) are the name given to these facilities in India. In Vienna, Austria, the first human milk

was created in 1909. In 1989, Lokmanya Tilak Municipal Hospital established Asia's inaugural human milk bank. In 1989, Sion Hospital became home to India's first Human Milk Bank. The nation had about 47 milk banks as of August 3, 2018, but as of right present, in an effort to guarantee that human neonates have access to breast milk, more than 60 human milk banks are operating nationwide. Since human milk is the safest and greatest food for babies, milk banks help babies who don't have access to their mothers' milk. Babies of mothers with postpartum disorders, preterm and unwell babies can all receive priority prescriptions for PDHM (Pasteurized Donor Human Milk). Breastmilk has been shown to provide therapeutic effects for sepsis, short-gut syndrome, post-surgical gut healing in cases of intestinal obstruction, gastroschisis, and omphalocele, intestinal fistulas. Donor milk may be provided for: insufficient or non-existent lactation, mothers who have several deliveries, who are unable to produce enough breast milk for their newborns at first, in cases where forced lactation is not feasible, as well as for infants of non-lactating moms who adopt newborns, neonates who are unwell or abandoned, a brief cessation of breastfeeding, babies whose mother passed away in the first few days after giving birth, infants at risk for health problems from the biological mother's breastmilk.

OBJECTIVES

- 1 To assess the level of pre-test knowledge score among BSc Nursing students.
- 2 To assess and compare the level of knowledge score of BSc Nursing students regarding human milk banking after the structured teaching program.
- 3 To assess the effectiveness of structured teaching programme in terms of level of knowledge score among BSc Nursing students.
- 4 To assess and compare the level of pre-test and post-test knowledge score of BSc Nursing students regarding human milk banking.

- 5 To find out the association of knowledge score of BSc Nursing students with their demographic variables.

ASSUMPTIONS

The study assumed that

- 1 Nursing students may have some knowledge on human milk banking.
- 2 Structured knowledge questionnaire may be an appropriate tool to assess the knowledge of nursing students.
- 3 Nursing students may give honest and reliable response to the questions of human milk banking.
- 4 Structured teaching program is acceptable teaching strategy.

HYPOTHESIS

In the study, hypothesis will be tested at 0.05 level of significance.

H1 There will be a significant difference in mean pre-test knowledge score and mean post-test knowledge score of nursing students on Human Milk Banking before and after administering structured teaching program.

H2 There will be a significant association of knowledge score of nursing students on Human Milk Banking with their selected variables.

H0 There will be no significant difference in mean pre-test knowledge score and mean post-test knowledge score of nursing students on Human Milk Banking before and after administering structured teaching program.

H0 There will be no significant association of knowledge score of nursing students on Human Milk Banking with their selected variables.

MATERIAL AND METHODS

RESEARCH APPROACH- Quantitative research approach

RESEARCH DESIGN- Quasi-experimental one group pretest posttest research design

Table 1 Schematic representation of research design

Group	Day 1	Day 2	Day 15
Nursing students N = 80	<ul style="list-style-type: none"> - Baseline data - Pretest of knowledge about human milk banking. 	Structured teaching program provided on human milk banking with the help of lecture cum discussion method through PPT.	Post test knowledge human banking. of on milk

VARIABLES UNDER STUDY

Independent variables: Structured teaching program regarding human milk banking.

Dependent variables: knowledge score among B.Sc. Nursing students

Student profile: Age, gender, religion, type of family, area of residence, Visit to human milk bank, previous knowledge regarding human milk banking.

SAMPLE- Students of BSc Nursing 3rd year.

SAMPLING TECHNIQUE-Convenience sampling technique

SAMPLE SELECTION CRITERIA

INCLUSION CRITERIA

- The study included nursing students who were enrolled in B.Sc. nursing 3rd year.
- Available at the time of data collection.

EXCLUSION CRITERIA

Exclusion criteria for the present study were:

- Who are not available at the time of data collection.

TOOL DECEPTION

Tools	Description	Techniques
Tool 1	Student profile	Self-report [Paper pencil technique]
Tool 2	Structure knowledge questionnaire	Self-report [Paper pencil technique]

RESULTS

The obtained data was analyzed, tabulated and interpreted by employing descriptive and inferential statistics. The data has been organized and presented under following sections.

Section-I: Frequency percentage distribution in terms of selected variables of nursing students.

TABLE-1

Frequency Percentage Distribution in terms of Selected variables of nursing students

N=80

Sr. No.	Selected variables	F	(%)
1	Age(year)		
1.1	17-19	7	8.8
1.2	20-22	66	82.5
1.3	more than 22	7	8.8
2	Gender		
2.1	Male	30	37.5
2.2	Female	50	62.5
3	Religion		
3.1	Hindu	68	85
3.2	Muslim	12	15
4	Type of family		
4.1	Nuclear	44	55
4.2	Joint	34	42.5
4.3	Extended	2	2.5
5	Area of residence		
5.1	Rural	34	42.5
5.2	Urban	46	57.5
6	Have you ever visited any human milk bank?		
6.1	Yes	2	2.5
6.2	No	78	97.5
7	Do you have previous knowledge regarding human mil banking?		
7.1	Yes	19	23.8
7.2	No	61	76.3

Section-II: Evaluating the effectiveness of structured teaching program on human milk banking in terms of knowledge among nursing students.

Section-III: Association of the pretest knowledge of nursing students with their selected variables.

8	If yes, then what is the source of information regarding human milk banking?		
8.1	Workshop	1	1.3
8.2	Seminar	2	2.5
8.3	Internet	15	18.8
8.4	Other	2	2.5

Table depicts the frequency and percentage distribution of nursing students according to their selected variables. The majority of students 66 (82.5%) were aged between 20-22 years. Out of 80 students, 50 (62.5%) were females and 30 (37.5%) were males. Regarding their religion, 68(85%) were Hindu. 44(55%) belonged to Nuclear family. Most students 46 (57.5%)

resides in urban area. In terms of visit to any human milk bank, 78(97.5%) had not visited any human milk bank. Concerning previous/prior knowledge of human milk banking, 61(76.3%) have no previous knowledge. 19 students (23.8%) have previous knowledge and the majority source of information was from internet (18.8%).

TABLE-2

Range, Mean, Standard Deviation and Median among Nursing students before and after providing Structured Teaching Program N=80

Variable		Range	Mean \pm SD	Median
Knowledge	Pre-test	3-19	11.5 \pm 3.2	12
	Post-test	9-20	16.7 \pm 2.4	18

Maximum score: 25

Data presented shows the range, mean, standard deviation and median of knowledge scores of nursing students on human milk banking. The data shows that the pretest mean knowledge score and the standard deviation was (11.5 \pm 3.2) with the obtained range 3-19

Minimum score:3

and median was 12 whereas in the posttest the mean knowledge score and standard deviation of nursing students was (16.7 \pm 2.4) with the obtained range of 9-20 and median was 18.

TABLE-3

Mean, Mean difference, Standard deviation, Standard error of mean difference And "t" value of knowledge scores of before and after providing Structured Teaching Program on Human Milk Banking.

Variable		Mean \pm SD	M _D	SE _{MD}	t value	Df	p value
Knowledge	Pre-test	11.5 \pm 3.2	-5.1	0.4	-11	79	0.01
	Post-test	16.7 \pm 2.4					

^{NS} Not significant (>0.05)

* Significant (p<0.05)

Data presented shows the mean, mean difference, standard deviation, standard error of mean difference and "t" value of pretest and post-test knowledge score of nursing student before and after providing structured teaching program on human milk banking. The mean pretest knowledge score was (11.5 \pm 3.2) was lower than the (16.7 \pm 2.4) in the post test with mean difference of -5.1 and standard error of mean

difference was 0.4. The difference in the mean scores between the pretest and the post test was computed by independent 't' test. The calculated 't' value(-11) was found to be statistical significance at 0.05 level of significance which shows that the mean difference in pretest and post test score was true difference not by chance

TABLE 4

Independent t-test and One-way ANOVA showing Association between Pre-test Knowledge Score of Nursing Students with student's Profile on Human Milk Banking N=80

Sr.No	Student's profile	Df	P value	t value
1	Age(year)	14	0.1	\pm 1.36
1.1	17-19			
1.2	20-22			
1.3	More than 22			
2	Gender	7	0.3	\pm 1.08
2.1	Male			
2.2	Female			
3	Religion	7	0.01	\pm 3.00 (significant)

3.1	Hindu	14	0.2	±1.30
3.2	Muslim			
3.3	Christian			
3.4	Sikh			
3.5	Other			
4	Type of family	7	0.1	±1.90
4.1	Nuclear			
4.2	Joint			
4.3	Extended	7	0.3	±1.08
5	Area of residence			
5.1	Rural			
5.2	Urban	7	0.5	0.0
6	Have you ever visited any human milk bank?			
6.1	Yes			
6.2	No	28	0.2	1.3
7	Do you have previous knowledge regarding human milk banking?			
7.1	Yes			
7.2	No	28	0.2	1.3
8	If yes, then what is the source of information regarding human milk banking?			
8.1	Workshop			
8.2	Seminar			
8.3	Internet			
8.4	Other			

Not significant ($p > 0.05$) significant ($p < 0.05$)

Presents the findings of an independent t-test and one-way ANOVA conducted to assess the association between the pre-test knowledge scores of nursing students and their demographic profile related to human milk banking. The variables analyzed include age, gender, religion, type of family, area of residence, and prior visit to a human milk bank. Among these, only religion showed a statistically significant association ($p = 0.01$), indicating that students' religious background may influence their knowledge levels. All other variables had p-values greater than 0.05, suggesting no significant impact on pre-test knowledge. This implies that demographic characteristics, except religion, may not significantly affect awareness of human milk banking.

DISCUSSION

The present study assessed the effectiveness of structured teaching program regarding human milk banking in terms of knowledge among BSc Nursing students of selected nursing colleges of Haryana. The findings revealed a significant improvement in post-test knowledge score, including that the structured teaching program was effective in enhancing student's understanding. These results are in line with the General Systems Theory, which emphasizes the positive impact of external input on system performance. Similar studies support these findings.

Patel et al. (2018) reported improved knowledge scores following an STP on human milk banking among nursing students. Sharma and Singh (2020) compared STP and video-assisted teaching, concluding that structured programs provided better comprehension. Choudhary et al. (2021) also found low baseline knowledge among ANMs, highlighting the need for structured interventions and practical exposure.

Overall, the present study and comparable research underscore the importance of incorporating human milk banking into nursing education through structured, validated, and interactive teaching methods.

RECOMMENDATION

1. A study can be replicated on a large sample in other setting to validate the findings and make generalization.
2. A comparative study can be done to assess and compare the effectiveness of structured teaching programs with other teaching strategy in terms of knowledge regarding human milk banking.
3. A study to evaluate the effectiveness on structured teaching program on human milk banking on practice, self- confidence or attitude

Conflicts of Interest

The author declares that they have no conflicts of interest

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