

A Study to Assess the Effectiveness of Self-Instructional Module on Knowledge Regarding Human Milk Bank Among Mothers with Newborn in A Selected Hospital at Erode

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Abstract

A **human milk bank** is a service that collects, screens, processes, and distributes donated breast milk to infants who cannot be breastfed by their own mothers. **Objectives:** To assess the pre-test and post-test level of knowledge on milk bank among mothers with new born before and after Self- instructional module. **Design:** Pre-Experimental One group pre-test and post-test design. **Setting:** Postnatal Ward, government head quarters hospital, Erode. **Selection criteria:** Mothers with new born were the age between 21 to 40 years, 3 days period of post- natal ward, who are able to read and write Tamil, who are willing to participate and concern and who are available during the time of data collection. **Methods:** purpose sampling technique used for selecting 60 mothers with new born. **Results:** The study revealed that in the pre-test, most mothers had average (53%) and poor (42%) knowledge, with only 5% showing good knowledge about human milk banking. After the self-instructional module, 97% of mothers demonstrated good knowledge, indicating a marked improvement. The paired t-test value (22.07) was significantly higher than the table value (2.15), confirming the effectiveness of the intervention. Overall mean scores increased from 43% in the pre-test to 93% in the post-test, showing a 50% improvement. These findings indicate that the self-instructional module was highly effective in enhancing knowledge among mothers with newborns. **Conclusion:** The study findings revealed that administration of self-instructional module was highly significant in improving the knowledge regarding human milk bank among mothers with new born.

Keywords: Self-instructional module, human milk bank, donated breast milk, low birth weight,

INTRODUCTION:

Breast milk thought to be best form of nutrition for neonates and infants who are unable to breastfeed are banked human milk or commercially available formula. The objective of breast milk banks is to ensure and enhance the supply to that every baby born or admitted to the hospital receives mother's milk, to avoid bottle, animal and formula feeding. To give support to breast feeding practices and to promote baby friendly hospital care. Breast milk donation is recommended as first alternative when it is not possible for the mother to breastfeed their hospitalized babies or if their mother do not have sufficient milk production and any other condition where mothers may not be able to feed their babies. **(Sukriti pandey 2025).**

Donor milk is defined as human milk in excess of an infant's current and future needs that is donated by a parent for use by another infant. Donor milk is offered voluntarily, typically without payment to the donor, and is provided to the recipient infant prioritized by clinical necessity. Recipients are typically preterm and or low birthweight infants. Donor milk is not an alternative to mother's/parent milk but is instead used as an alternative to formula serving as a bridge to ensure an exclusively human milk diet, as the family is provided lactation support to build milk supply. A human milk bank is a service established to recruit and screen human milk donors, collect and process donated milk and distribute the milk to meet infants' specific needs for optimal health. Ideally, human milk banks champion optimal lactation support within their community. **(Sharon L Unger 2024).**

Breastfeeding is one of the most effective ways to ensure child health and survival. Breast milk is the ideal food for infants. It is safe, clean and contains antibodies which help to protect against many common childhood illnesses. The ideal food for young infant is human milk which has the specific characteristics that match the growing infant's nutritional requirements during the first year of life. In India, though breastfeeding is universal but traditionally, initiation of breastfeeding is considerably delayed. The nutritional needs of a normal full-term baby have been found to be adequately met by the breast milk of a healthy mother for the first four to six months of life. **(Ms. Lalita Yadav.et.al, Nov- 2022).**

The first milk bank in Asia under the name of Sneha, founded by Dr.Armeda Fernandez, was started in Dharavi, Mumbai on November 27, 1989. Currently, the number of human milk banks (HMB) has grown to nearly 14 all over India but the growth of human milk banks has been very slow as compared to the growth of neonatal intensive care units. One of the major reasons for loss of interest in human milk banking was the promotion of formula milk by the industry. Keeping in mind the complications associated with formula feeding to the sick, tiny preterm neonates and mothers' inability to breastfeed in the initial period, there is a need to establish human milk banks in all level II and level III facilities. **(Bharadva, et al. 2014)**

STATEMENT OF PROBLEM

“A STUDY TO ASSESS THE EFFECTIVENESS OF SELF- INSTRUCTIONAL MODULE ON KNOWLEDGE REGARDING HUMAN MILK BANK AMONG MOTHERS WITH NEWBORN IN GOVERNMENT HEAD QUARTERS HOSPITAL, AT ERODE.”

OBJECTIVES

1. To assess the pre-test and post-test level of knowledge on human milk bank among mothers with new born before and after Self- instructional module.
2. To determine the effectiveness of self-instructional module on knowledge of human milk bank among mothers with new born.

3. To find out the association between pre-test knowledge score on human milk bank among mothers with new born with their selected demographic variables.

Materials and Methods.

In this study pre- experimental design was carried on 60 mothers with newborn admitted at postnatal ward in government headquarters hospital, Erode by using purposive sampling technique. Knowledge questionnaire were used to assess the knowledge and Self- instructional module were given regarding human milk bank among mothers with newborn.

The permission from the concerned authorities. which is 15 km distance from Dhanvantri College of nursing. The data were collected after obtaining the permission from concerned authority of hospital. Data were planned to analysis by using descriptive and inferential statistics analyzed by using Mean, Mean percentage, Standard deviation and paired t test and Chi-square.

DEVELOPMENT AND DESCRIPTION OF THE TOOL:

The data collection instrument was developed after extensive review of literature and expert guidance. The tool consisted of two sections.

Section A: Demographic variables

It includes Age, Education, Occupation, Religion, Type of family, Family income, Living area, No. of children, Type of delivery, and Earlier information about human milk bank.

Section B: Structured knowledge questionnaire

Structured knowledge questionnaire containing 25 questions to assess the knowledge of the mother regarding human milk bank.

Scoring procedure:

Based on the total score obtained, the level of knowledge was categorized as follows:

Level of knowledge assessment scale:

Level of knowledge	Actual score	Percentage
Excellent	21 – 25	85 – 100%
Good	16 – 20	65 – 84%
Average	11 - 15	45 – 64%
Poor	1 – 10	0 – 44%

Validity:

The content validity of the tools like demographic variables, structured knowledge questionnairere tool was validating in consultation with guide and field of experts. The expert was Nurse Specialist and Statistician. Tool was modified according to the suggestion and recommendation of the experts.

Reliability:

The reliability of self- instructional module and knowledge questionnaire were tested by the implementing tool on 6 mothers with newborn admitted in baby hospital, erode. The extent to which the instrument has the same results on repeated measures. R value was $r = \alpha > 0.7$.

Ethical consideration:

1. A written permission was obtained from the Board of Directors of Ethical Committee and Principal of Dhanvantri college of Nursing, Namakkal.

2. A written permission was obtained from the Medical Superintendent of Government Head Quarters Hospital, Erode.
3. A written consent was obtained from every sample (mother's with newborn) admitted in Government Head Quarters Hospital, Erode.

Data Collection Procedure

The data collection was carried out in the selected hospital of Government Head Quarters Hospital, Erode. After obtaining permission from Medical Superintendent, the investigator explained the purpose of the study and obtained informed consent from the participants. Pre-test was conducted using the structured knowledge questionnaire. Following the pre-test, the informative book materials were given (self-instructional module) for the duration of 30 minutes for second day. Post-test was done after 1 day of self-instructional module with the help of structured knowledge questionnaire.

Period of data collection:

The investigator collected the data from mothers with newborn regarding knowledge of human milk bank for the period from 30.06.2025 to 26.07.2025.

Plan for data analysis

1. Assess the level of knowledge among mothers with new born regarding human milk bank was analyzed by using knowledge assessment scale.
2. Determine the effectiveness of teaching strategies among mothers with newborn regarding human milk bank was analyzed by using Mean, Mean percentage, Standard deviation and paired t test.
3. Find out the association between the pre- test scores of knowledge among mothers with newborn with their demographic variables was analyzed by using Chi-square test.

Description of data analysis

Section A: Description of sample characteristics according to their demographic variables.

Section B: To assess the level of knowledge regarding human milk banking among mothers with newborn before and after self-instructional module.

Frequency and percentage distribution of the pre-test and post test scores of levels of knowledge regarding human milk bank among mothers with new-born.

Section C: To determine the effectiveness of self-instructional module on knowledge regarding human milk bank among mothers with new-born.

Paired 't' test value of pre and post test scores of knowledge regarding human milk bank among mothers with new-born.

Comparison of mean, standard deviation, and mean percentage of level of knowledge regarding human milk bank of pre and post test scores.

Section D: To find out the association between the pre-test scores of knowledge regarding human milk bank among mothers with new-born with their selected demographic variables.

Chi-square value of association between the pre-test scores of levels of knowledge regarding human milk bank among mothers with new-born with their selected demographic variables.

Section A - Description of sample characteristics
Frequency and percentage distribution of mothers with newborn according to their demographic variables (N₁= 60)

S.No	Demographic variables	Mothers with newborn	
		Frequency (N ₁)	Percentage (%)
1.	Age in years		
	a) 21- 25	13	22
	b) 26- 30	28	46
	c) 31 - 35	15	25
	d) Above 35 years	4	7
2.	Educational status		
	a) Primary	8	13
	b) High school	20	34
	c) Higher secondary	17	28
	d) Graduate	15	25
3.	Occupation		
	a) House wife	20	34
	b) Private job	23	38
	c) Government job	8	13
	d) Business	9	15
4.	Religion		
	a) Hindu	27	45
	b) Muslim	13	22
	c) Christian	19	31
	d) Others	1	2
5.	Type of family		
	a) Nuclear	26	43
	b) Joint	29	48
	c) Extended	5	9
6.	Residential		
	a) Urban	36	60
	b) Rural	24	40
7	No of children		
	a) 1	23	38
	b) 2	27	45
	c) 3	9	15
	d) More than 3	1	2
8	Mode of delivery		
	a) Normal vaginal	28	47
	b) LSCS	18	30
	c) Instrumental	14	23
9	Source of information		

S.No	Demographic variables	Mothers with newborn	
		Frequency (N ₁)	Percentage (%)
	a) Family	5	8
	b) Friends	32	53
	c) Social media	23	39

Section B: To assess the level of knowledge regarding human milk banking among mothers with new-born before and after self-instructional module.

Frequency and percentage distribution of the pre-test and post test scores of levels of knowledge regarding human milk banking among mothers with new-born.

(N = 60)

Level of knowledge regarding human milk banking	Mothers with new-born			
	Pre-test scores		Post test scores	
	Frequency (N ₁)	Percentage %	Frequency (N ₁)	Percentage (%)
Poor	25	42	0	0
Average	32	53	2	3
Good	3	5	58	97

Section C: To determine the effectiveness of self-instructional module on knowledge regarding human milk banking among mothers with new-born. **Paired ‘t’ test value of pre and post test scores of knowledge regarding human milk banking among mothers with new-born**

Mothers with new-born	Paired ‘t’ value	Table value	Level of significant (P)
Introduction	12.83	2.15	P < 0.05 significant
Purpose/ Importance	16.43	2.15	P < 0.05 significant
Donor criteria (health, life style and testing)	17.01	2.15	P < 0.05 significant
Collection methods, storage, processing and distribution of recipients	18.24	2.15	P < 0.05 significant
Total	22.07	2.15	P < 0.05 significant

Df =14 Table value=2.15 P<0.05 significant

Comparison of mean, standard deviation, and mean percentage of level of knowledge regarding human milk banking of pre and post test scores.

Mothers with new-born	Max scores	Pre-test			Post test			Difference in mean %
		Mean	SD	Mean %	Mean	SD	Mean %	
Introduction	3	1.33	1.16	38	2.87	1.06	96	58
Purpose/ Importance	3	1.67	1.78	43	2.47	1.54	82	39
Donor criteria (health, life style and testing)	7	2.41	0.88	34	5.68	0.41	81	47
Collection methods, storage, processing and distribution of recipients	12	4.01	1.07	33	11.01	1.34	92	59
Total	25	10.87	1.02	43	23.48	0.78	93	50

SECTION D: To find out the association between the post test scores of knowledge regarding human milk banking among mothers with new-born with their selected demographic variables

Chi-square value of association between the post test scores of levels of knowledge regarding human milk banking among mothers with new-born with their selected demographic variables

Demographic variables	DF	χ^2	Table value	Level of significance
Age	1	0.51	3.84	P > 0.05 Not significant
Education	1	0.51	3.84	P>0.05 Not significant
Occupation	1	1.36	3.84	P>0.05 Not Significant
Religion	1	0.51	3.84	P>0.05 Not significant
Type of family	1	2.03	3.84	P<0.05 Not significant
Residential area	1	0.46	3.84	P>0.05 Not significant
No of children	1	6.03	3.84	P<0.05 Significant
Mode of delivery	1	1.07	3.84	P>0.05 Not significant
Source of information	1	2.01	3.84	P>0.05 Not significant

DISSCUSSION:

Most mothers were aged 26–30 years (46%), In terms of education, 34% had high school education, most mothers were Hindus (45%), Nearly half lived in joint families (48%), A majority were from urban areas (60%), while 40% were from rural areas. Most mothers had two children (45%), followed by one child (38%), three children (15%), and only 2% had more than three children. The most common mode of delivery was normal vaginal delivery (47%), followed by LSCS (30%) and instrumental delivery (23%). Most mothers received information from friends (53%), followed by social media (39%) and family (8%). Paired ‘t’ test was calculated to analyse the effectiveness between pre and post test scores on level of knowledge regarding human milk banking among mothers with new-born. The paired ‘t’ test value was 22.07, when compared to table value (2.15) both are high. This shows that even though there was a

significant effectiveness between pre and post test scores on levels of knowledge regarding human milk banking.

Chi-square test was used to find the association between pre-test scores of mothers and their demographic variables. The results showed that there was a significant association ($p < 0.05$) only with the number of children. There was no significant association ($p > 0.05$) with other variables such as age, education, occupation, religion, type of family, residential area, mode of delivery, and source of information. Therefore, the differences in mean scores were due to chance and not a true difference.

CONCLUSION:

Based on this finding of the study the following conclusion were drawn. The study findings revealed that administration of self-instructional module was highly significant in improving the knowledge regarding human milk bank among mothers with new born. A self-instructional module on human milk banking can be implemented to improve knowledge among mothers of newborns at the Government Headquarters Hospital, Erode.

REFERENCES:

1. Sukriti pandey 2025 March 2025 IJSDR | Volume 10: Effect of Human Milk Banking on Immediate Neonatal Morbidity and Mortality: Medical Journal of Dr. D.Y. Patil Vidyapeeth 15(5):p 682-686, Sep–Oct 2022. | DOI: 10.4103/mjdrdypu.mjdrdypu_711_20
2. Yadav, L., et al. (2022, November). Breastfeeding practices and child health. *International Journal of Nursing Education and Research*, 10(4):2320- 2882
3. Bharadva, K., Tiwari, S., Mishra, S., Mukhopadhyay, K., Yadav, B., Agarwal, R., & Deorari, A. (2014). Human milk banking guidelines. *Indian Pediatrics*, 51(6), 469–474. <https://doi.org/10.1007/s13312-014-0449-x>
4. Chauhan, A. (2022). Knowledge and attitude regarding human milk banking among postnatal mothers in selected hospitals of Una, Himachal Pradesh. *International Journal of Obstetrics and Gynaecological Nursing*, 4(1 Part A)
5. Unger, S. L. (2024). Review of current best practices for human milk banking. *Maternal & Child Nutrition*. Advance online publication. <https://doi.org/10.1111/mcn.13657>
6. Gidrewicz, D. A., & Fenton, T. R. (2014). A systematic review and meta-analysis of the nutrient content of preterm and term breast milk. *BMC Pediatrics*, 14(216), 1–14. <https://doi.org/10.1186/1471-2431-14-216>.
7. Tyebally-Fang, M., Tan, P. T., Verma, A., & Wong, J. J. (2021). Pasteurization and fortification of donor human milk: A review of impact on nutrition and bioactivity. *Frontiers in Pediatrics*, 9, 717. <https://doi.org/10.3389/fped.2021.631717>
8. Human Milk Banking Association of North America (HMBANA). (2020). HMBANA Standards for Donor Human Milk Banking: An Overview (Public Version). HMBANA.
9. American Academy of Pediatrics. (2022). Breastfeeding and the use of human milk. *Pediatrics*, 150(1), e2022057988. <https://doi.org/10.1542/peds.2022-057988>.
10. World Health Organization. (2021). Infant and young child feeding. Geneva: WHO. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>.

11. World Health Organization, & United Nations Children's Fund. (2023). Global Breastfeeding Collective. Geneva: WHO and UNICEF. Retrieved from <https://www.globalbreastfeedingcollective.org>.
12. Jegannathan, S. (2023). Breastfeeding and child survival in India. [Unpublished manuscript/lecture note].
13. Kale, P. V., Saha, S., & Suryawanshi, P. (2021). Human milk banking in India: Need of the hour. *Medical Journal of Dr. D.Y. Patil Vidyapeeth*, 14(1), 11–16. https://doi.org/10.4103/mjdrdypu.mjdrdypu_134_20
14. Karacan, E., Tokuç, G., & Yalçın, S. S. (2023). Donor human milk and human milk banking. *Turkish Archives of Pediatrics*, 58(2), 104–111. <https://doi.org/10.5152/TurkArchPediatri.2023.23048>
15. Piccolo, O., Flax, V. L., Bentley, M. E., Ashorn, P., & Cheung, Y. B. (2022). Perceptions of human milk insufficiency among healthcare workers in Malawi. *International Breastfeeding Journal*, 17(1), 1–12. <https://doi.org/10.1186/s13006-022-00493-4>
16. Shahid, A. S. M. S. B., Chisti, M. J., Shahunja, K. M., Alam, T., Das, S. K., Faruque, A. S. G., ... Ahmed, T. (2019). Lack of breastfeeding is associated with dehydration in young infants with diarrhea: A case–control study. *PLoS ONE*, 14(7), e0219176. <https://doi.org/10.1371/journal.pone.0219176>
17. Quigley, M., Embleton, N. D., Meader, N., & McGuire, W. (2024). Donor human milk for preventing necrotising enterocolitis in very preterm or very low-birthweight infants. **Cochrane Database of Systematic Reviews**, (9), CD002971. <https://doi.org/10.1002/14651858.CD002971.pub6>
18. Anu Paul, Jeena K Babu, Anu Reji, et.al./A Study to Assess the Knowledge Regarding Human Milk Banking Among Women in Selected Hospital at Kottayam District /J Nurse Midwifery Matern Health. 2023;9(1):09–13.
19. World Health Organization. (2021). Infant and young child feeding. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>
20. Dr. D.Y. Patil Vidyapeeth. (2022). Effect of pasteurized donor human milk on neonatal outcomes: A short-term observational comparative study in NICU and HMB of a tertiary care hospital. Pune
21. Narayanan, E., et al. (2019, October). Impact of human milk bank on neonatal outcomes: A retrospective comparative analysis of pre and post human milk bank data (2015–2018).
22. Narayanan, E., et al. (2020). Impact of human milk bank on neonatal outcomes: A retrospective observational study in a tertiary care hospital, Chennai. *Indian Journal of Child Health*, 7(10), 450–456.
23. Aadithya Dileeswar Kumar.et.al 2025 International Journal of Community Medicine and Public Health Kumar AD et al. *Int J Community Med Public Health*. 2025 Aug;12(8):3492-3500 DOI: <https://dx.doi.org/10.18203/2394-6040.ijcmph20252161>
24. Srijan singh, Sushanth Mane. Knowledge, Attitude and Practice Towards Milk Banking and Lactation Aids – Similarities and Differences of Medical and Nursing Staff in a Tertiary Care Hospital in India. *Journal of Neonatology*. 2023;38(1):15-23. doi:10.1177/09732179231204777
25. Tende.F.K,et.al, A qualitative study among health workers in Greater Accra Regional Hospital, Ghana, *National Library of medicine*. Aug 2023: 3(8)
26. Yagmur Surmeli,et.al, Knowledge and opinion of Turkish Parents about human milk banking, *Mediterranean Nursing and Midwifery*, April 2023. 3(1): 10-17
27. Lavina Rodrigues, et.al, knowledge and attitude of postnatal mothers towards human milk banking, *International Journal of midwifery Nursing and practices*.2023; 1(2): 9-16

28. Muthu Kumaran, et.al, Cross sectional study to assess the knowledge on human milk banking among final year student. *International Journal of Advanced Research*.2022,8(6): 255-260
29. Ms. Roshani. A Study to assess the knowledge and attitude regarding Human milk Donation European Journal of Molecular and clinical Medicine. January 2020, 7(11): 6165-6176.
30. Dr Parmees Kaur, Assessment of Knowledge regarding Human Milk Banking among mothers. 2022; 6(2):99-104.
31. Shahid ASMSB,et.al (2019), Bangladesh, *Glob Pediatr Health*. 2019 May 30;6:2333794X19851431. doi: 10.1177/2333794X19851431. PMID: 31211183; PMCID: PMC6545663.
32. Punita Yadav,et.al, *JCMC* [Internet]. 2024 Jun. 17 [cited 2025 Aug. 29];14(2):2-5. Available from: <https://jcmc.com.np/jcmc/index.php/jcmc/article/view/1515>.
33. Ms. ShubhaShree Dhir,et.al. To assess the effectiveness of structured teaching programme on knowledge regarding human breast milk banking among antenatal mothers. *IJCRT*, Volume 11, January 2023 | ISSN 2321-2882, www.ijcrt.org.
34. Jaya Manik, A experimental study to assess the effectiveness of planned teaching program on knowledge regarding Human milk banking among GNM 3rd year student, *International Journal of Scientific Research*. April 2022.11(4).
35. P.Aparna,Dr.A.Padmaja. A study to assess the effectiveness of structured teaching programme on knowledge regarding human milk banking among mothers of infants at selected villages of Baireddipalle Mandal, Chittoor District. *International Journal of Creative Research Thoughts (IJCRT)* 2021, volume 9, Issue 1, January 2021/ ISSN 2320-2882, www.ijcrt.org.
36. Preeti Sahu and Dr. Dolly Jone Shiju. A study to evaluate the effectiveness of planned teaching programme on knowledge regarding human milk banking among staff nurses in selected hospitals, Bhopal. January 2022, **International Journal of Advance Research in Nursing** 5(1):28-32.
37. Miss. Vanshika Joshi, A study to assess the effectiveness of structured teaching programme on knowledge regarding human milk banking among students of B.Sc. Nursing from selected College of Dehradun, Uttarakhand. <http://www.sinhgad.edu/sinhgadnursingcollege-ejournal/volumeVIII-Issue1/14.pdf>