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Awareness about Expressed Breast Milk Storage and Feeding Among Nurses in a Tertiary Care Hospital of Coastal South India

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ABSTRACT

Introduction: Health personnel play a vital role in feeding baby with stored human milk and in educating mothers about expressed breast milk (EBM). Studies assessing nurses' knowledge about EBM are limited. We aimed to study the awareness about EBM storage and preparation for feeding among pediatric nurses.

Methodology: A cross sectional study was carried out in tertiary care hospitals of South India. Participants answered the pretested questionnaire. Mean awareness score percentages of the participants was calculated, and compared for age, years of experience and place of work.

Results: Study enrolled 105 paediatric nurses with mean age of 33.13 ±12.05 years. Majority of participants knew the reason for expressing breast milk, how to express breast milk. Regarding the storage temperature of EBM, less than 50 % of the nurses were aware and 34.3% of nurses knew the preparation for feeding. The mean awareness score percentage was 65.71 ±16.64. Age group >40 years, neonatal intensive care unit nurses and work experience >10 years had significant relation to awareness scores.

Conclusion: Knowledge of nurses regarding reasons for and technique of expressing breast milk, methods of storing of EBM was good. Knowledge about storage temperatures and preparation for feeding was inadequate. Age group >40 years, neonatal intensive care unit as place of work and more than 10 years' work experience related to the knowledge.

Keywords: Health personnel, human milk, knowledge, temperature

INTRODUCTION

Breastfeeding is the best feeding for the infant with proven health benefits to the baby and to the mother.[1,2] Breastfeeding is an essential public health strategy to reduce childhood mortality, improve maternal health and reduce healthcare expenditure.[3] World health organization (WHO) recommends exclusive breastfeeding for the first six months, the introduction of optimal complementary feeding after completion of six months, with continued breastfeeding for a minimum of 2 years and beyond.[4] It is important to continue feeding the baby with breast milk even if the infant is separated from the mother.[5] Despite initiatives by WHO and UNICEF to promote breastfeeding, the exclusive breastfeeding rate globally is only 41%.[3] Few factors contributing to low breastfeeding rates include maternal and child separation after birth, lack of health care workers' knowledge on breastfeeding.[6] Returning to work is one of the main reasons for discontinuation of breastfeeding. A simple solution to this is expressed breast milk (EBM) which can be fed by a caregiver.[7]Awareness of the

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technique of expressing breast milk, proper storage, and preparation for feeding among mothers is essential for optimal benefits.[8] Majority of nursing mothers seek support from health workers for acquiring information. Health personnel play a vital role in supporting the initiation of breastfeeding of neonates by their mother; as well they can motivate the mother to sustain breastfeeding. Health workers' knowledge can influence a mother's decision on breastfeeding.[9] Studies assessing the knowledge of nurses on various aspects of EBM storage and preparation for feeding are limited. Hence we aimed to study the awareness about EBM storage and feeding among pediatric nurses in a tertiary care hospital of Coastal South India.

MATERIAL AND METHODS

A cross-sectional study was conducted from June to August 2019, at Government Lady Goschen Maternity Hospital, the Regional advanced Pediatric care center (RAPCC), and KMC hospital Attavar, Mangalore affiliated to Kasturba Medical College Mangalore, Manipal Academy of Higher Education. Institutional ethics committee approval was obtained. The study was initiated after getting permission from the medical superintendent of Lady Goschen Hospital, District Medical Officer of RAPCC, and Medical Superintendent of KMC Hospital, Attavar. Nurses in the above hospitals who were involved in the care of neonates and pediatric patients – nurses working in pediatric general wards, pediatric intensive care units, neonatal intensive care units, and post-natal wards were included in the study after informed consent. The participant information sheet was given and the reason of the study was explained to these nurses. A structured questionnaire was used to gather information about the knowledge of nurses regarding reasons for expressing milk, technique of breast milk expression, the storage of expressed breast milk, preparation for feeding, and technique of feeding the EBM. The questionnaire was based on the existing guidelines for expressed breast milk storage and preparation for feeding.[10] Questionnaire was validated by subject experts. Pilot testing of the questionnaire was done and reliability was determined. The questionnaire included 12 questions to assess the knowledge regarding EBM storage and feeding. Participants were asked to answer this questionnaire. Each correct response was given a score of '1'. An incorrect response was given '0 '. The total score of each participant was calculated and converted to percentages. Mean of awareness score percentages of the participants was calculated, mean awareness score percentages were compared for parameters like age, place of work and years of experience.

Sample size calculation: With 95% confidence and 10% relative precision using prevalence data from Col – Araz et al[11], and with a non-response rate of 10%, the sample size was estimated to be 105.

Statistical analysis: The collected data were coded and entered in the Statistical Package for IBM (SPSS) statistics for windows version 17.0. Armonk, NY: IBM Corp. Mean, standard deviation, frequency and percentages were used for descriptive data. Mean awareness scores between various categories were compared using a one-way analysis of variance. A p-value of less than 0.05 was considered for statistical significance.

RESULTS

The study enrolled 105 pediatric nurses. Of them, 47 (44.8%) were from neonatal intensive care unit, 23 (21.9%) postnatal ward, 18 (17.1%) PICU and 17 (16.2%) pediatric ward respectively. The mean age of the participants was 33.13±12.05 years. The mean work experience was 7.82 years (range 0-29 years).

The majority of participants knew the reason for expressing breast milk, how to express breast milk, and the EBM can be stored. Regarding the temperature for storing EBM and the duration of storage, less than 50 % of the nurses gave the correct response. Only 34.3% of nurses had awareness of the right way of preparing the stored milk for feeding the baby (Annexure I).

The mean awareness score percentage was 65.71 ±16.64. Mean awareness score percentages with respect to the place of work are depicted in Figure 1. Age group of >40 years, more than 10 years' work experience, and neonatal intensive care unit being place of work had statistical significance with the mean awareness score percentages. (Table 1)

Table 1: Comparison of mean awareness score percentages based on the place of work, age and work experience

Characteristic	n	Awareness score	
		Mean ± SD	P value
Department			
Pediatric ward	17	52.45 ± 16.074	
PICU	18	56.94 ± 12.54	<0.001
NICU	47	78.01 ± 9.264	
Postnatal ward	23	57.25 ± 14.93	
Age in years			
Up to 25 years	43	53.87 ± 14.7	
26-40 years	34	69.12 ± 12.73	<0.001
>40 years	28	79.76 ± 9.47	
Experience in years			
<5 years	57	56.73 ± 14.98	
6-10 years	15	70 ± 12.12	<0.001
>10 years	33	79.29 ± 10.02	
Total	105	65.71 ± 16.64	

PICU = Pediatric intensive care unit
NICU= Neonatal intensive care unit

DISCUSSION

Despite ample benefits of breastfeeding to infants and mothers, breastfeeding rates are low worldwide.[12] Maternal empowerment, socio-cultural fac-

tors, maternal and infant health conditions, lack of knowledge of health care workers in approaching the problems of breastfeeding are some of the factors contributing to early cessation of breastfeeding.[12] Showing mothers how to maintain lactation even when they are separated from their babies is one of the ten steps of the baby-friendly hospital initiative.[13] EBM is the option available for the continuation of the baby receiving mother's milk even when both are separated or the baby is not able to directly breastfeed due to prematurity or illness. Storing human milk and preparation for feeding requires strict adherence to the guidelines to preserve the nutritional value and reduce the risk of microbial growth.[14] Health care workers' awareness about these guidelines is very essential, as they are involved in the storage of EBM and preparation for feeding in health care settings.[14] Health care providers have the responsibility of educating mothers on the proper method of storing EBM and preparing for feeding.[9]

Health care workers' lack of knowledge, training, and education related to breastfeeding has been reported in the literature.[15] Study by DL Spatz, which included 407 completed surveys showed that gaps existed among the nurses, regarding breast milk management despite the policies and standards implemented for around 2 years.[15]

A study by Gharaibeh et al on nurses' knowledge and practices of breast milk collection and storage showed that nurses' knowledge was adequate with collection and storage of EBM but inadequate with the thawing process, storage temperatures, and discarding of breast milk.[16] In the present study, nurses had adequate knowledge regarding the reasons for expressing breast milk, methods of storing breast milk but less than 50 % of nurses were aware of correct storage temperature and duration of storage at various temperatures. In the present study, correct response on the method of preparation for feeding the stored EBM was given by only 34.3% of the participants. A study by Yang et al about the knowledge of health care providers regarding breastfeeding of preterm infants in mainland China, showed that 65% of health care providers knew storage and transportation of breast milk.[17]

The mean awareness score percentage was 65.71±16.64 in the present study. In a study by Ikobah et al[9], in Nigeria to assess the breastfeeding knowledge among the health care workers, the mean percentage of knowledge score was 85.1 ± 9.0 which is much higher than the present study. The study by Ikobah et al[9], surveyed the general aspects of breastfeeding which may be the reason for higher knowledge scores. The present study focused only on EBM storage and preparation for feeding knowledge. Studies evaluating EBM storage knowledge among health care workers are limited.

In the present study, mean awareness score percentages were significantly associated with age group > 40 years, more than 10 years' work experience and neonatal intensive care being place of work. Yang et al concluded that breastfeeding knowledge was significantly associated with the profession, professional title, and gender of the participants.[17] On the contrary, a study by Ikobah et al in Nigeria and Chale et al in Tanzania, demonstrated that age, gender, and experience years were not significantly associated with good knowledge of breastfeeding among health care providers.[9,18]

LIMITATIONS

The educational background of the nurses was not taken into consideration. Barriers to the knowledge gap among nurses were not determined. Possible strategies perceived by nurses, who may improve the knowledge, were not studied. As mothers or caregivers are involved in the implementation of EBM storage and preparation for feeding beyond the health care facilities it is essential to understand their knowledge which was not assessed in the present study. The study was conducted in a tertiary care hospital hence findings cannot be generalized to rural or smaller hospitals.

CONCLUSION

Knowledge of nurses regarding reasons for expressing breast milk, technique of expressing breast milk and methods of storing of EBM was good. Knowledge about storage temperatures and preparation for feeding was inadequate. Age group of >40 years, more than 10 years of work experience, and neonatal intensive care unit as work place related to the knowledge significantly.

REFERENCES

1. Lessen R, Kavanagh K. Position of the Academy of Nutrition and Dietetics: Promoting and Supporting Breastfeeding. J Acad Nutr Diet. 2015;115(3):444–9.
2. Victora CG, Bahl R, Barros AJ, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. Lancet. 2016;387(10017): 475–90.
3. Pathak NK, Kumar P. Intervention Study to Improve Knowledge and Attitude of Lactating Mother about Breast Feeding In a Rural Area of Hapur. Natl J Community Med 2020;11(4):171-5.
4. World Health Organization & United Nations Children's Fund. Global strategy for infant and young child feeding . 2003 [cited 2021 Oct 27]. Available from: https://www.who.int/publications/i/item/9241562218.
5. Talbert AW, Tsofa B, Mumbo E,et al. Knowledge of, and attitudes to giving expressed breastmilk to infants in rural coastal Kenya; focus group discussions of first time mothers and their advisers. Int Breastfeed J. 2018 ;13 : 16 https://doi.org/10.1186/s13006-018-0158-9.
6. Pramono A, Smith J, Desborough J,et al. Social value of maintaining baby-friendly hospital initiative accreditation in Australia: case study. Int J Equity Health. 2021;20(1):22. doi: 10.1186/s12939-020-01365-3.
7. Al Ketbi MI, Al Noman S, Al Ali A, et al. Knowledge, attitudes,

and practices of breastfeeding among women visiting primary healthcare clinics on the island of Abu Dhabi, United Arab Emirates. Int Breastfeed J. 2018 ;13:26. doi: 10.1186/s13006-018-0165-x.

8. Rodrigo R, Amir LH, Forster DA. Review of guidelines on expression, storage and transport of breast milk for infants in hospital, to guide formulation of such recommendations in Sri Lanka. BMC Pediatr. 2018 ;18 : 271 https://doi.org/10.1186/s12887-018-1244-2
9. Ikobah JM, Ikpeme O, Omoronyia O, et al. Current Knowledge of Breastfeeding Among Health Workers in a Developing Country Setting: A Survey in Calabar, Nigeria. Cureus. 2020 ;12(9): e10476. doi: 10.7759/cureus.10476.
10. Centers for disease control and prevention. Proper Storage and Preparation of Breast Milk | Breastfeeding | CDC . [cited 2021 Nov 1]. Available from: https://www.cdc.gov/breastfeeding/recommendations/handling_breastmilk.htm
11. Col-Araz N, Aydin N, Tasdemir HS, et al. Breast milk expression knowledge of school of medicine and faculty of health sciences students. J Nurs Educ Pract. 2013;3(10):19-25.
12. Artantas AB, D M, Tetik BK, D M, Kılıc M. Knowledge level, attitude and own experience of health professionals about breastfeeding and breast milk in a city of Turkey: Cross-sectional study. Arch Argent Pediatr. 2016;114(6):514–20.
13. World Health Organization & United Nations Children's Fund. Baby-friendly hospital initiative: revised, updated and expanded for integrated care. 2009. [cited 2021 Nov 1]. Available from https://apps.who.int/iris/bitstream/handle/10665/43593/9789241594974_eng.pdf
14. Steele C. Best Practices for Handling and Administration of Expressed Human Milk and Donor Human Milk for Hospitalized Preterm Infants. Front Nutr. 2018;5:76. doi: 10.3389/fnut.2018.00076.
15. Spatz DL. Report of a Staff Program to Promote and Support Breastfeeding in the Care of Vulnerable Infants at a Children's Hospital. J Perinat Educ. 2005;14(1):30–8.
16. Gharaibeh HF, Al-Sheyab N, Malkawi SY. Breast milk collection and storage in the neonatal intensive care unit: Nurses' knowledge, practice, and perceived barriers. J Contin Educ Nurs. 2016 ;47(12):551–7.
17. Yang Y, Li R, Wang J,et al . Knowledge of healthcare providers regarding breastfeeding preterm infants in mainland China. BMC Pediatr. 2018 ;18(1): 251. doi: 10.1186/s12887-018-1223-7.
18. Chale LE, Fenton TR, Kayange N. Predictors of knowledge and practice of exclusive breastfeeding among health workers in Mwanza city, northwest Tanzania. 2016 ;15:72. doi: 10.1186/s12912-016-0192-0.