CROSS SECTIONAL STUDY TO ASSESS THE KNOWLEDGE ON HUMAN MILK BANKING AMONG FINAL YEAR NURSING STUDENTS

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ABSTRACT

Human milk continues to be the only milk that is custom-tailored and specifically suitable for human infants, making breastfeeding the optimal form of infant nutrition. In our nation, around 20% of infants are born with low birth weight, resulting in severe mortality and morbidity. Even though Indian women are aware with the notion of breast milk banking, it is the responsibility of nurses to educate working moms about the storage of breast milk. Human milk banks are not a novel notion. The notion of "wet nurses" dates back to at least 4000 years ago. Before the development of bottles and formula, this was the only alternate feeding option for infants. In many regions of the world, it is still common for sisters or friends with infants of comparable ages to share breastfeeding. Regarding optimal growth and development, the World Health Organization advises that newborns be exclusively breastfed for the first six months of life. Some effective nursing women generate more breast milk than is required for their infants. These breastfeeding women supported the concept of breast milk donation and the formation of a breast milk bank; nonetheless, it is believed that some mothers had inadequate milk supply. The aims of the study were to investigate the knowledge of nursing students in their final year about human milk banking. A cross sectional descriptive survey design was adopted and convenience sampling technique was used to select 63 members studying at the private nursing colleges situated at district Sirmour, Himachal Pradesh. The Knowledge on Human Milk Banking was assesses through Self Structured MCQ Questionnaires consists of 25 questions. Semi Structured multiple choice questions used to assess the knowledge of nurses regarding human milk and milk banking. The collected data was analysed by using descriptive by calculating mean, median and standard deviation and inferential statistics by applying ANOVA to assess the association of level of knowledge with selected demographic variables under study with SPSS. This study reveals that 21% (13) of the final year Nursing Students had Inadequate Knowledge, 44% (28) had Moderately adequate Knowledge and only 35% (22) had Adequate Knowledge about Human Milk Banking. With regard to Association Level of Knowledge on Human Milk Banking among Final Year Nursing Students has significant statistical association with Economic Status of the Nursing Students at P<0.05 Level. Other variables such as Age in Years, Gender & Habitat has not statistically Significant with Level of Knowledge on Human Milk Banking. This study Reveal that Final year Nursing students knowledge on Human Milk Banking was not up to the mark of expectation, so there is need of continuing nursing education, seminars, workshops and symposium need to be organized addition to the regular curriculum to enhance knowledge of Nursing students on Human Milk Banking. Regular workshops and seminars should be held to expand awareness about human milk and milk banking. The hospital should have clear processes and standards for milk banking. Similar studies may be conducted about the desire of nursing women to give their milk and the necessity of milk banking. Such research will pave the way for the establishment of a human milk bank that will benefit infants in need.

Key words: Human Milk Banking, Knowledge, Nursing Students, Awareness.

INTRODUCTION

Human milk continues to be the only milk that is custom-tailored and specifically suitable for human infants, making breastfeeding the optimal form of infant nutrition. Every woman should be encouraged to breastfeed her child. When a woman is unable to breastfeed her newborn for any reason, her breast milk should be extracted and supplied to the infant. India confronts its own unique issues, as it has the greatest number of kids born with low birth weight and considerable mortality and morbidity associated with extremely low birth weight.

In our nation, around 20% of infants are born with low birth weight, resulting in severe mortality and morbidity. Breastfeeding these infants can dramatically minimise the risk of infection. Therefore, the government, health professionals, and civil society must collaborate to promote the notion of human milk banking for the sake of thousands of premature and low birth weight infants.

A human milk bank or breast milk bank is a service that gathers, examines, processes, and distributes by prescription human milk donated by non-biologically related nursing mothers.

If feasible, newborns should be breastfed for the first year to receive the optimal nutrients. Human milk banks provide a solution for mothers who are unable to provide their own breast milk to their child for reasons such as a baby being at risk of contracting diseases and infections from a mother with certain diseases, or when a child is hospitalised at birth due to very low birth weight (and thus at risk for conditions such as necrotizing enterocolitis), and the mother is unable to provide her own milk during the extended stay for reasons such as living a long distance from the hospital.[1]

Donation of breast milk is an ancient tradition. In the past, a woman who was known as a wet nurse would breastfeed an unrelated infant directly. This procedure has been modernised to make it safer for both the youngster and the volunteer.[2]

Instead of feeding the infant directly, milk banks collect and sanitise the breast milk. The milk is pasteurised before being kept at low temperatures. Before milk is collected, the entire operation is carried out in a methodical way and includes a thorough evaluation and screening of the mother.[2]

This ensures that the health of the volunteer is not compromised. Mothers who lose their infants after delivery may donate breast milk as active volunteers.

Breast milk banks serve a vital function in saving the survival of newborns. The human milk collected in these banks is often utilised in Neonatal Intensive Care Units (NICU) for preterm or newborn infants with illnesses such as short-gut syndrome, malabsorption, or compromised immune systems.

Pantazi et al. of London, England, did a research about support for moms to give breast milk. 53 percent of paediatric personnel had had no breastfeeding training during or after nursing school. Despite the fact that 22% of neonatal personnel had no relevant training, they were regularly asked to assist moms in delivering breast milk to newborns. Some responders lacked awareness regarding the significance of breast milk, the optimal frequency for milk expression, and the ability to initiate breastfeeding at any moment.[3]

Human milk banks provide human milk to newborns who were unable to acquire human milk. Human milk is collected, screened, stored, processed, and distributed through milk banks. Donor milk is handled, stored, processed, pooled, and screened for bacterial contamination in accordance with standardised procedures at the milk bank.

In 1909, the first human milk bank opened in Vienna, Austria. Wet nursing was prevalent throughout the 19th century. Human milk banking is a substitute for breastfeeding. The primary purpose of milk banks is to provide donated milk so that it is readily available when required. Milk banks serve a crucial purpose by delivering human milk to preterm children who do not have access to it.

The first human milk bank in Asia, Sneha, was established in Mumbai in 1989, yet there are currently inadequate milk banks in India. 13 On November 27, 2014, Sion Hospital in Mumbai commemorated the 25th anniversary of India's first human breast milk bank by honouring its creator, Dr. Armida Fernandez. When infants in the Neonatal Intensive Care Unit (NICU) of the Sion hospital are administered formula or other supplements, they die.[4]

Nursing is the foundation of the healthcare delivery system. They provide care for persons of all ages throughout the life span. As a vital component of the healthcare delivery system, he/she must teach women on breast feeding's significance, advantages, storage, etc. The nurses who work in the NICU, PICU, and maternity units must understand how to store breast milk. Even though Indian women are aware with the notion of breast milk banking, it is the responsibility of nurses to educate working moms about the storage of breast milk. Students in their final year of nursing are the future staff nurses who can take this issue seriously and instruct moms. This survey aims to determine the students' current understanding about breast milk banking so that extra information may be provided if needed in the future.[5]

The aims of the study were to investigate the knowledge of nursing students in their final year about human milk banking, as well as the relationship between these factors and chosen demographic characteristics.

METHODOLOGY

A cross sectional descriptive survey design was adopted for the study to determine the knowledge on Human Milk Banking among final year B.Sc Nursing students. A convenience sampling technique was used to select 63 members (Taro Yamane simplified formula 95% confidence level and Degree of Accuracy/Margin of Error p = 0.05) studying at the private nursing colleges situated at district Sirmour, Himachal Pradesh. The formal permission was taken from the Principal of the college and informed consent was obtained from the participants. Anonymity and confidentiality of the participants was maintained.

The Knowledge on Human Milk Banking was assesses through Self Structured MCQ Questionnaires consists of 25 questions. Semi structured multiple choice questions having one correct answer among four options to assess the knowledge of nurses regarding human milk and milk banking. Each item had a score of one (1) mark for correct answer and zero (0) for incorrect answer with overall score range from (0-25). Participants were gathered in the Hall and provided adequate time to answer the questions without discussing with others. The data was analyzed by using descriptive by calculating mean and standard deviation and inferential statistics by applying ANOVA to assess the association of level of knowledge with selected demographic variables under study with SPSS.

Score Interpretation (Based on Percentile Calculation)

Level of Knowledge	**Score***
Inadequate Knowledge	0 - 8
Moderately Adequate Knowledge	9 -16
Adequate Knowledge	16 – 25

(*33rd Percentile, 66th Percentile & 100th Percentile)

RESULTS

Table 1: Frequency and Percentage Distribution of Socio demographic Variables of Participants

N = 63

S. NO	Socio Demographic Variables	Frequency	Percentage
1.	**Age in Years**		
	≤19 Years	1	1.6
	20 - 21 Years	39	61.9
	≥ 22 Years	23	36.5
2.	**Gender**		
	a. Male	2	3.2
	b. Female	61	96.8
3.	**Habitat**		
	a. Rural	35	55.6
	b. Urban	28	44.4
4.	**Economic Status**		
	< 5000	8	12.7
	> 5000 - 10000	10	15.9
	10001 to 25000	15	23.8
	25001 to 50000	23	36.5
	50001 to 10000	7	11.1

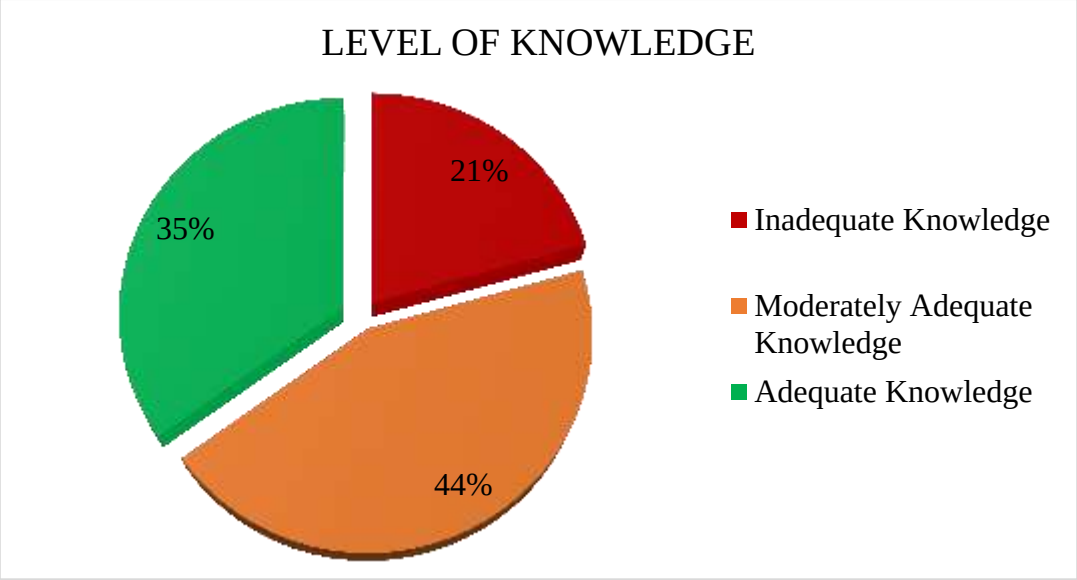

Fig1: Distribution of Level of Knowledge on Human Milk Banking among Final year Nursing Students

Fig 1 revealed that 21% (13) of the final year Nursing Students had Inadequate Knowledge, 44% (28) had Moderately adequate Knowledge and only 35% (22) had Adequate Knowledge about Human Milk Banking.

Table 2: Association between Socio Demographic Variables and Level of Knowledge on Human Milk Banking among Final Year Nursing Students.

N = 63

S. NO	Variables	Mean	SD	Mean Sqaure		F	Anova
				Between Groups	Within Groups		
1.	**Age in Years**			0.19	0.57	0.36	0.70
	≤19 Years	2.00	0.7				
	20 - 21 Years	2.21	0.73				
	≥ 22 Years	2.05	0.77				
2.	**Gender**			0.85	0.54	1.59	0.21
	Male	2.17	0.73				
	Female	1.5	0.71				
3.	**Habitat**			0.26	0.55	0.47	0.49
	Rural	2.09	0.75				
	Urban	2.21	0.738				
4.	**Economic Status**			1.25	0.49	2.51	0.05* S
	< 5000	1.5	0.54				
	> 5000 - 10000	2.5	0.53				

	10001 to 25000	2.07	0.79				
	25001 to 50000	2.26	0.68				
	50001 to 10000	2.15	0.89				

* S – Significant at P < 0.05

Table 2 revealed that Level of Knowledge on Human Milk Banking among Final Year Nursing Students has significant statistical association with Economic Status of the Nursing Students at P<0.05 Level. Other variables such as Age in Years, Gender & Habitat has not statistically Significant with Level of Knowledge on Human Milk Banking.

DISCUSSION

Human milk banks are not a novel notion. The notion of "wet nurses" dates back to at least 4000 years ago. Before the development of bottles and formula, this was the only alternate feeding option for infants. In many regions of the world, it is still common for sisters or friends with infants of comparable ages to share breastfeeding.

This study reveals that 21% (13) of the final year Nursing Students had Inadequate Knowledge, 44% (28) had Moderately adequate Knowledge and only 35% (22) had Adequate Knowledge about Human Milk Banking. With regard to Association Level of Knowledge on Human Milk Banking among Final Year Nursing Students has significant statistical association with Economic Status of the Nursing Students at P<0.05 Level. Other variables such as Age in Years, Gender & Habitat has not statistically Significant with Level of Knowledge on Human Milk Banking.

A similar study conducted by Asha Vinod Bhat (2017) discovered that 33.3% of students have excellent knowledge, 64.4% possessed average knowledge, and 3.4% possessed weak knowledge. The majority of students (88.2%) had a positive attitude, while 11.8% had a neutral attitude.

Another similar study done by A. Ekşiolu and colleagues on the opinions of Turkish mothers regarding milk banking. According to the results of the survey, 41.6% of respondents were aware of milk banking, 71.3% were eager to accept milk bank services, and 68.8% were willing to contribute breast milk. Risk of contagion was cited by 62.2% of those who did not wish to donate, although 8.2% of the participants had previously worked as wet-nurses. This demonstrates that moms are knowledgeable of human milk banking.[6]

Rana Kanwar (2021) discovered the knowledge of Human Milk Banking among Nursing students at Moradabad, INDIA and found that 2% of pupils have excellent knowledge, 54% possessed moderate knowledge, and 44% possessed inadequate knowledge. The majority of students had a positive attitude (80.76%), whilst 18.23% had a neutral attitude.[7]

A similar study done by Asha Bhat et al. in Belagavi, India, on the perspective of nursing students towards human milk banking. The survey found that 64% of respondents had average awareness about milk banking, 33% had strong knowledge, and 3% had inadequate understanding. The majority of pupils have a positive attitude (88.2%), while 11.8% have a neutral mindset. This indicates that student understanding of human milk banking is average.[2]

CONCLUSION

Regarding optimal growth and development, the World Health Organization advises that newborns be exclusively breastfed for the first six months of life. Some effective nursing women generate more breast milk than is required for their infants. These breastfeeding women supported the concept of breast milk donation and the formation of a breast milk bank; nonetheless, it is believed that some mothers had inadequate milk supply.

Infants are unable to get their own mother's milk when they are born prematurely, have significant medical issues, or their moms are unwell or under extreme stress. Therefore, breast milk donation can act as a bridge to meet the demands of these newborns and make up for their mothers' insufficient supply.

Human milk bank donor milk is therefore an alternative when the newborn cannot be nursed and/or the mother's own expressed milk is unavailable. In order to encourage moms to continue breastfeeding and to monitor the human milk bank in the future, it is advised that nurses expand their knowledge of and positive attitude toward

breastfeeding. In addition, nurses play a vital role in raising public awareness regarding the formation of breast milk banks. Additionally, healthcare workers should be educated or trained on breastfeeding, as well as breast milk donation and the development of breast milk banks. It will aid in enhancing neonatal health and lowering infant mortality rate (IMR). Consequently, this study tackles the need to improve the human milk banking knowledge among the Nursing Students.

Regular workshops and seminars should be held to expand awareness about human milk and milk banking. The hospital should have clear processes and standards for milk banking. Similar studies may be conducted about the desire of nursing women to give their milk and the necessity of milk banking. Such research will pave the way for the establishment of a human milk bank that will benefit infants in need.

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Conflict of Interest

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