



Original Research Article

ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PERCEPTION REGARDING HUMAN MILK BANKING AMONG POSTPARTUM MOTHERS: A CROSS-SECTIONAL STUDY

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Received : 16/03/2026
Received in revised form : 10/05/2026
Accepted : 25/05/2026

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DOI: 10.70034/ijmedph.2026.2.500

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (2); 3028-3032

ABSTRACT

Background: Human milk is the optimal source of nutrition for newborns, and donor human milk is considered the best alternative when mother's own milk is unavailable. Awareness and acceptance of human milk banking among postpartum mothers play an important role in improving neonatal health outcomes. The aim and objective is to assess the perception and attitude of postpartum mothers regarding donor human milk and human milk banking and to determine their association with socio-demographic variables.

Materials and Methods: This prospective observational study was conducted among 178 postpartum mothers in a tertiary care centre. Data were collected using a pretested structured questionnaire assessing knowledge, attitude, and perception regarding donor human milk and human milk banking. Statistical analysis was performed using SPSS version 27. Chi-square/ Fisher test was used to determine associations, and $p < 0.05$ was considered statistically significant.

Results: The majority of mothers belonged to the 26- 30 years age group with a mean age of 28 ± 5.03 years. Good knowledge regarding donor human milk was observed in 63% of mothers, while 83% showed favourable attitude and 95% demonstrated positive perception towards human milk banking. Maternal age, education, occupation, and family income showed significant association with knowledge, attitude, and perception ($p < 0.05$).

Conclusion: Most postpartum mothers had good knowledge and positive acceptance regarding donor human milk and human milk banking. Awareness programs and counselling may further improve maternal acceptance and utilization of donor human milk services.

Keywords: Donor Human Milk, Human Milk Bank, Postpartum mothers.

INTRODUCTION

Human milk is considered the ideal source of nutrition for newborns because it provides optimal nutrients, immunological protection, and bioactive factors essential for growth and development. The World Health Organization and UNICEF recommend exclusive breastfeeding for the first six months of life. However, in situations where the mother's own milk is unavailable or insufficient, donor human milk is considered the best alternative, especially for preterm and low birth weight infants. Human milk banks play a crucial role in collecting,

screening, processing, and distributing donated breast milk safely to vulnerable neonates.^[1,2] The establishment of human milk banks has gained global importance due to increasing evidence supporting the benefits of donor human milk in reducing neonatal morbidity and mortality. Studies have shown that donor milk decreases the risk of necrotizing enterocolitis, sepsis, feeding intolerance, and other complications among premature infants compared to formula feeding.^[3]

In India, organized human milk banking services have expanded gradually with support from national breastfeeding initiatives and neonatal care programs.

Human milk banks also promote breastfeeding awareness and encourage lactating mothers to donate excess milk for the benefit of sick and vulnerable newborns.^[4] Despite the proven advantages of donor milk, misconceptions, cultural beliefs, lack of awareness, and concerns regarding safety and infection transmission continue to influence acceptance of human milk banking among mothers. Postpartum mothers' perception and attitude toward donor milk are important determinants for the success and utilization of milk banking services.^[5] Therefore, assessing the perception and attitude of postpartum mothers regarding donor milk and human milk banking is essential for strengthening neonatal nutrition and breastfeeding support services.

Aim: To assess the perception and attitude of postpartum mothers regarding donor human milk and human milk banking in a tertiary care centre.

Objective: To evaluate the knowledge, perception, attitude, and acceptance of donor human milk and human milk banking among postpartum mothers and their association with socio-demographic factors.

MATERIALS AND METHODS

Study setting: A tertiary care institute

Study design: Cross-sectional study

Study period: 12 months

Study population: The study population included postpartum mothers.

Inclusion criteria:

Postpartum mothers within 7 days of delivery, mothers who delivered in the study hospital or whose neonates were admitted in NICU/nursery.

Exclusion criteria:

Mothers with severe psychiatric illness or postpartum psychosis, critically ill or unable to communicate and non-consented.

Sample size: Considering the anticipated prevalence as 35% it will be used as basis for the present study sample size estimation.

$$N = Z^2 \cdot P(1-p) / L^2$$

$$N = 0.8739 / 0.0049$$

$$N = 178$$

The minimum sample size required for the study was 178.

Methodology: Eligible mothers were identified from postnatal wards and neonatal units. After obtaining informed written consent, participants were interviewed in their preferred language (Telugu/Hindi/English). A validated structured questionnaire administered through face-to-face interviews by a trained interviewer and each interview lasted approximately 20 minutes. The questionnaire included: Socio-demographic details, knowledge regarding donor milk and human milk banking, attitude toward donor milk acceptance, perception, beliefs, and cultural barriers related to donor milk banking. Data were analysed using IBM SPSS V 27.0. Categorical variables were expressed as frequencies and percentages. Associations between socio-demographic variables and knowledge, attitude, and perception scores were analysed using Chi-square test or Fisher's exact test wherever applicable. A p-value of <0.05 was considered statistically significant.

RESULTS

[Table 1] shows that the majority of postpartum mothers belonged to the 26- 30 years age group (61.2%), followed by 20- 25 years (18.6%) and 31- 35 years (16.3%). Only 3.9% of mothers were aged more than 35 years. The mean age of the study participants was 28± 5.03 years.

Table 1: Distribution according to age

Age	Frequency	Percent
20- 25 years	33	18.6%
26- 30 years	109	61.2%
31- 35 years	29	16.3%
>35 years	7	3.9%
Total	178	100%
Mean age: 28± 5.03 years		

[Table 2] shows that most mothers were housewives. Most families (82.6%) had a monthly income between ₹50,000 and ₹1,00,000. Hindu religion constituted the majority of the study population.

Nuclear families were more common (73.1%) compared to joint families (26.9%). Most postpartum mothers were primigravida (67.9%).

Table 2: Socio-demographic features

Education	Frequency	Percent
Elementary/ primary	1	0.6%
Secondary	53	26.7%
Higher	124	69.7%
Occupation		
Housewife/ unemployed	140	78.7%
Private	28	15.7%
Government	44	4.5%
Self-employed	2	1.1%
Income		

<₹ 50,000/-	20	11.2%
₹ 50,000- 1,00,000/-	147	82.6%
>₹ 1,00,000	11	6.2%
Religion		
Hindu	150	54.2%
Muslim	17	9.6%
Christian	11	6.2%
Type of family		
Nuclear	130	73.1%
Joint	48	26.9%
Parity		
Primi	121	67.9%
Multigravida	57	32.1%

Figure 1a shows that 63% of postpartum mothers had good knowledge regarding donor human milk and human milk banking, while 37% had poor knowledge. Figure 1b shows that the majority of postpartum mothers (83%) had a favourable attitude towards donor human milk and human milk banking, whereas 17% had an unfavourable attitude. Figure 1c shows that 95% of postpartum mothers had a positive perception regarding donor human milk and human milk banking, while only 5% had a negative perception.

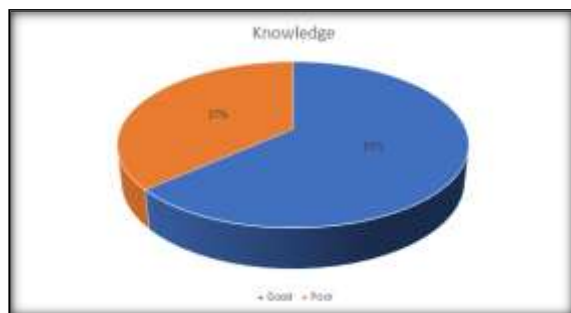


Figure 1a: Pie chart showing level of knowledge, attitude and perception

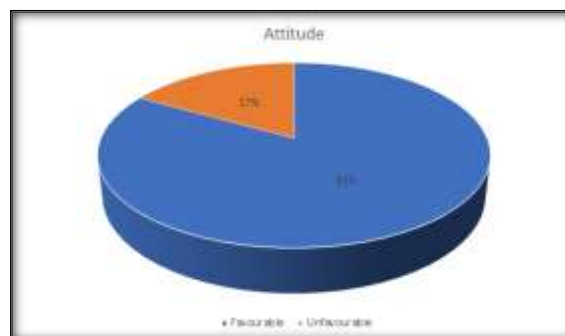


Figure 1b: Pie chart showing attitude

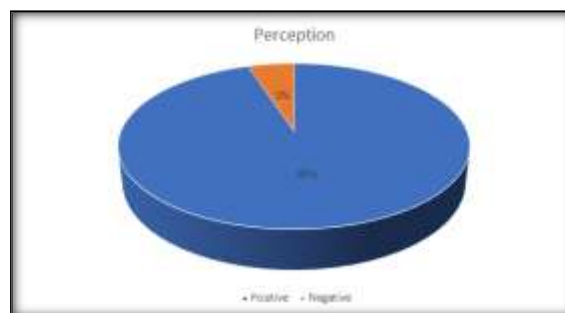


Figure 1c: Pie chart showing perception

Table 3: Association of socio-demographic variables with knowledge, attitude, and perception

Parameters	Knowledge		Attitude		Perception	
	Good	Poor	Favourable	Unfavourable	Positive	Negative
Age						
20- 25 years	5	28	16	17	27	6
26- 30 years	84	25	102	7	108	1
31- 35 years	20	9	24	5	27	2
>35 years	4	3	6	1	7	-
p- value	<0.001		<0.001		<0.001	
Mothers' education						
Elementary	-	1	-	1	1	-
Secondary	17	36	24	19	47	6
Higher	96	28	114	10	121	3
p- value	<0.001		<0.001		0.04	
Mothers' occupation						
Housewife	78	62	113	27	132	8
Private	26	2	26	2	28	-
Government	7	1	7	1	7	1
Self- employed	2	-	2	-	2	-
p- value	<0.001		0.393		0.449	
Income						
<₹ 50,000/-	4	17	9	13	16	6
₹ 50,000- 1,00,000/-	102	45	132	15	145	2
>₹ 1,00,000	7	2	7	2	8	1
p- value	<0.001		<0.001		<0.001	
Religion						
Hindu	98	52	130	20	143	7
Muslim	7	10	8	9	15	2
Christian	8	3	10	1	11	-

p- value	0.118		<0.001		0.328	
Type of family						
Nuclear	85	45	13	17	125	5
Joint	28	20	35	13	44	4
p- value	0.38		0.02		0.22	
Parity						
Primi	72	49	103	18	115	6
Multigravida	41	16	45	12	54	3
p- value	0.1		0.3		0.9	

[Table 3] shows the association between socio-demographic variables and knowledge, attitude, and perception regarding donor human milk and human milk banking among postpartum mothers. A statistically significant association was observed between age and all three domains namely knowledge, attitude, and perception ($p < 0.001$). Mothers aged 26- 30 years demonstrated better knowledge, favourable attitude, and positive perception compared to other age groups.

Mother's education showed a statistically significant association with knowledge and attitude ($p < 0.001$) and also with perception ($p = 0.04$). Mothers with higher education had better knowledge, more favourable attitude, and positive perception towards donor human milk and human milk banking. Mother's occupation had a significant association with knowledge level ($p < 0.001$), whereas no significant association was observed with attitude ($p = 0.393$) and perception ($p = 0.449$). Monthly family income was significantly associated with knowledge, attitude, and perception ($p < 0.001$). Mothers belonging to the middle-income group (₹50,000-1,00,000) showed better knowledge, favourable attitude, and positive perception.

Religion showed a statistically significant association only with attitude ($p < 0.001$), while no significant association was found with knowledge and perception. Type of family showed a significant association with attitude ($p = 0.02$), whereas no significant association was observed with knowledge and perception. Parity did not show any statistically significant association with knowledge, attitude, or perception regarding donor human milk and human milk banking.

DISCUSSION

The present study assessed the perception and attitude of postpartum mothers regarding donor human milk and human milk banking. In the present study, the majority of mothers belonged to the 26- 30 years age group with a mean age of 28 ± 5.03 years. Similar findings were reported by Sapkota DK et al. 6 where the mean maternal age was 26.2 ± 4.92 years among postnatal mothers assessed for knowledge and acceptance of human milk banking. Most mothers in the present study were educated and belonged to middle-income families, which could have contributed to better awareness and acceptance of donor human milk.

In the present study, 63% of postpartum mothers had good knowledge regarding donor human milk and

human milk banking. This finding was higher compared to the studies conducted by Sheela J et al,^[7] and Chauhan A et al,^[8] where inadequate knowledge regarding human milk banking was reported among most postnatal mothers. Improved knowledge levels observed in the present study may be attributed to increasing awareness programs, better educational status, and availability of human milk banking services in tertiary care centres.

The present study observed that 83% of postpartum mothers had a favourable attitude towards donor human milk and human milk banking. Similar observations were made by Shanigaram P et al,^[9] who reported that most mothers were willing to donate breast milk and had a positive attitude towards milk banking. Likewise, Sapkota DK et al,^[6] demonstrated high acceptance of donor human milk despite moderate levels of knowledge. Positive maternal attitude towards donor milk indicates increasing acceptance of human milk banking practices among postpartum mothers.

In the current study, 95% of mothers demonstrated positive perception regarding donor human milk and human milk banking. This finding is encouraging and reflects growing trust in the safety and benefits of donor milk. Mampane C et al,^[10] also reported that mothers were willing to accept donor human milk once they received adequate information regarding its safety and benefits.

The present study demonstrated a statistically significant association between maternal age and knowledge, attitude, and perception. Mothers aged 26- 30 years showed better awareness and acceptance compared to other age groups. Similar associations were observed by Chauhan A et al,^[8] and Sheela J et al,^[7] who reported significant relationships between maternal age and knowledge regarding human milk banking.

Maternal education was significantly associated with knowledge, attitude, and perception in the present study. Mothers with higher education had better awareness and more favourable attitudes towards donor milk. Similar findings were reported by Naik RP et al,^[11] and Shanigaram P et al,^[9] where educated mothers demonstrated better understanding and acceptance of donor human milk. Education likely improves access to health information and enhances understanding regarding the benefits of donor milk banking.

Monthly family income also showed a significant association with knowledge, attitude, and perception. Mothers from middle-income families demonstrated better acceptance and awareness regarding donor

human milk. This may be related to improved access to healthcare facilities and counselling services. Religion and type of family showed association only with attitude, whereas parity did not show any significant association with knowledge, attitude, or perception. Similar findings were reported by Naik RP et al,^[11] who observed no significant association between parity and maternal attitude towards donor milk.

Overall, the findings of the present study highlight that postpartum mothers had relatively good knowledge, favourable attitude, and positive perception regarding donor human milk and human milk banking. Increasing awareness through counselling and health education programs can further improve maternal acceptance and promote utilization of donor human milk for neonatal care.

CONCLUSION

Postpartum mothers in the present study demonstrated good knowledge, favourable attitude, and positive perception regarding donor human milk and human milk banking. Maternal age, education, occupation, and family income showed significant association with knowledge and acceptance of donor milk. Increasing awareness and counselling regarding the safety and benefits of donor human milk can further improve acceptance among mothers.

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