



Research Paper

Awareness and attitude of the parents towards HMB: A cross sectional observational study.

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Abstract

Background, aim & objective: Human milk is widely regarded as the best food for the newborn baby. For preterm or critically ill infants, donor human milk serves as a vital alternative when maternal milk is unavailable. Human milk banks (HMBs) are specially designed to collect, pasteurize, store, and distribute donor human milk under rigorous safety protocols. Despite the well-documented benefits of donor milk, access to human milk banks remains limited in many regions, particularly in low- and middle-income countries. Awareness among healthcare providers and parents act as barriers to the effective utilization of HMB services. This study aims to assess the awareness and attitude of the parents towards Human milk banking and explore strategies to enhance accessibility and awareness among target populations.

Methodology: A cross-sectional observational design was adopted to assess the awareness and attitudes of parents toward human milk banks (HMB). A total of 500 parents participated and it was conducted at outpatient department (OPD) of paediatric, immunisation and Gynae. Data were collected using 5 point Likert scale. Ethical approval was obtained from the Institutional Review Board. Written informed consent was obtained from all participants before enrollment, and confidentiality was maintained.

Result: 81.2 % of the parents never heard about Human milk bank and majority (62%) of parents are uncomfortable with the idea of feeding their child milk from an unknown mother.

Maximum parents (55.6%) responded positively that HMB is for the societal benefits. 63.4% strongly support the idea that human milk is the best option and endorse human milk bank facilities.

Conclusion: There is strong acceptance of human milk as the best option for newborns, indicating a positive attitude toward the concept of human milk banks.

Keywords: Human milk bank (HMB), parental awareness, parental attitude, breastmilk donation.

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I. Introduction:

Human milk is specific and the best food for the New-born health and its growth and development [1,2]. It contains all the required nutrients, antibodies, immune function [3] which helps in the protection from infection. The World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) has recommended exclusive breastfeeding for six months. The WHO has emphasis on breastfeeding for the first six months of New-borns life and the rate of practice must increase to 50% by the year 2025 [4]. Despite of the facts and benefits about breastmilk, many parents choose cow milk or formula feeding as parents pay less attention to the complications which may arises due to formula feeding. Parents residing in remote areas still continue their traditional practice of feeding the baby with cow milk if mother has problem in breastmilk production and it leads to lactation failure. Mother with health issue such as HIV infection, breast engorgement, breast sepsis and working mother commonly adopt bottle/top feeding to nourish their baby. Many health issues are associated for those who have not breastfed adequately during their childhood and the problems are diarrhoea, acute respiratory infection, pneumonia and obesity.[5] WHO has strongly recommended for donor human milk feeding for those LBW babies who cannot be fed by their own mother.[6] LBW babies

need to have more emphasize on breast milk feeding. The WHO has a target of 30% reduction in the number of New-born baby born with less than 2500 gm by the year 2025.^[7]

Human milk bank is a specialized service which focuses on the collection, storage and supply of breast milk to the needy New-born who cannot fed by their own mother.^[8] Now a days many hospitals have set up a unit of milk bank to fill the gap between donor and the recipient. There are certain Non-Governmental Organization (NGO) that also set up Human milk bank to provide nutritional requirement for those abandoned New-borns. It is very clear that the artificial feeding cannot substitute the nutrients requirement of New-borns, therefore Indian Academy of pediatrics (IAP) has also recommended to have breast milk bank (HMB) across the country.^[9] By keeping all the views in terms of need and the demand, we strongly feels that there must be a HMB in every hospitals. Before stepping it into set up of HMB, we need to assess the attitude and awareness about HMB among the parents, family members. Based on the response of the participants (parents), we will come to know the feasibility to set up HBM in private hospitals, Lucknow. Our current study aims to assess the awareness and attitude of the parents towards human breast milk bank.

II. Methods:

A cross-sectional descriptive study was conducted among 500 parents between September 2023 Feb 2023. Non- probability convenient sampling was used in the study. Parents of under five children who are available at paediatric OPD, Immunisation OPD and Gynae OPD, who are willing to participate were included in the study. Parents who are not willing to participate are excluded from the study. A sample size of **500 participants** was calculated using the formula for prevalence studies:

$$n = \frac{Z^2 \cdot P \cdot (1 - P)}{d^2}$$

95% confident level, 5% margin of error, using pilot study result.

A structured questionnaire was designed based on 3 sections (Demographic information, awareness on Human milk bank, attitude towards HMB)

Attitude questionnaire consisting of 16 items and a 5-point Likert scale was used to assess the attitudes of parents and the score was given as Strongly agree – 5, Agree -4, Undecided -3, Disagree- 2 and Strongly disagree- 1. Nine experts had validated the constructed tool and we had conducted pilot study on 50 parents. We used Cronbach's alpha to check the reliability and the result was found as 0.73 which indicates that the tool is reliable.

We obtained permission from the Institutional Ethics Committee. Consent was taken from the participants and data was collected from the Pediatric OPD, immunisation OPD and Gynae OPD via interview. All the collected data were entered in excel sheet and we maintained confidentiality to avoid bias and it was stored securely. For descriptive statistics we used frequencies and percentages to summarize demographic characteristics and responses. Result analysis was done using SPSS version 20.

III. Result:

Sociodemographic variables: We recruited 520 parents during the study period and considered the final data for 500 participants. The majority of the participants were female (86.6%), had attended secondary/higher education (38.4%). The majority reside in urban areas (58.4%) and have an income between 5000–15000 (51.6%), most of the participants worked as self-employed (37.6%), and had two or more children (58.8 %). A notable finding is that 81.2% of the participants are unaware of human milk banks, which may indicate the need for targeted awareness campaigns, especially in rural areas and among less-educated populations.

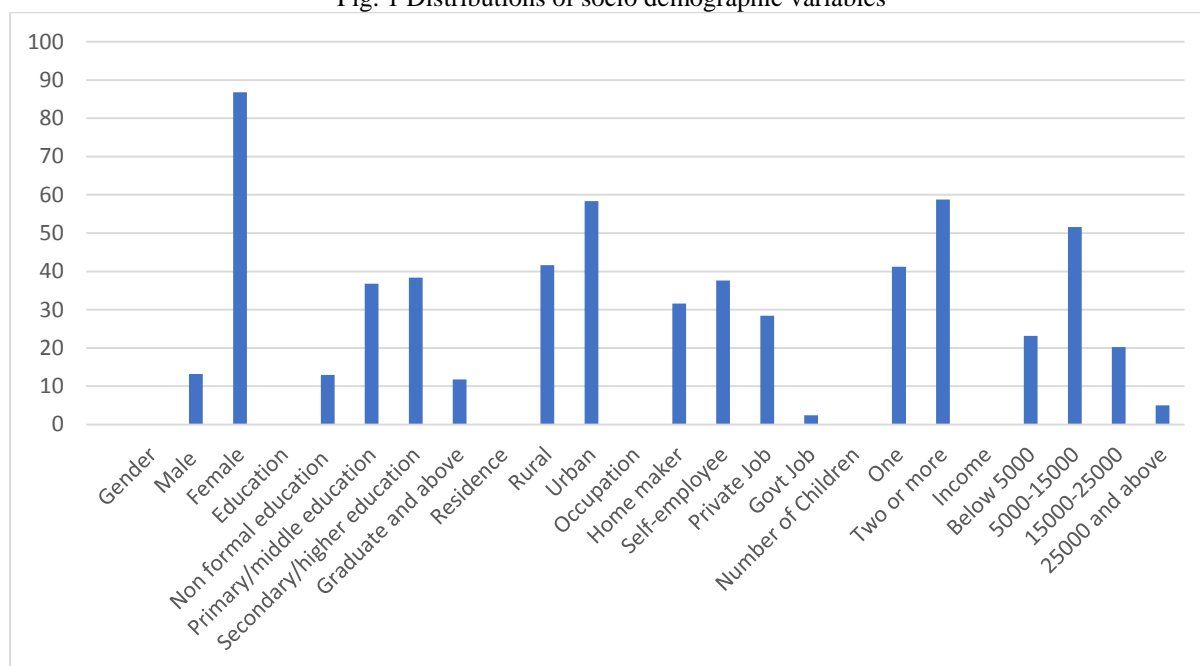
The details of socio-demographic variables are shown in table 1.

Table: 1 (Frequency distribution of socio-demographic variables)

| Characteristics | Frequency | Percentage |
|----------------------------|-----------|------------|
| N=500 | | |
| Gender | | |
| Male | 66 | 13.2 |
| Female | 434 | 86.8 |
| Education | | |
| Non formal education | 65 | 13.0 |
| Primary/middle education | 184 | 36.8 |
| Secondary/higher education | 192 | 38.4 |
| Graduate and above | 59 | 11.8 |
| Residence | | |
| Rural | 209 | 41.6 |
| Urban | 292 | 58.4 |
| Occupation | | |
| Home maker | 158 | 31.6 |

| | | |
|---|-----|------|
| Self-employee | 188 | 37.6 |
| Private Job | 142 | 28.4 |
| Govt Job | 12 | 2.4 |
| Number of Children | | |
| One | 206 | 41.2 |
| Two or more | 294 | 58.8 |
| Income | | |
| Below 5000 | 116 | 23.2 |
| 5000-15000 | 258 | 51.6 |
| 15000-25000 | 101 | 20.2 |
| 25000 and above | 25 | 5.0 |
| Have you heard about Human milk bank | | |
| Yes | 94 | 18.8 |
| No | 406 | 81.2 |

Fig: 1 Distributions of socio demographic variables



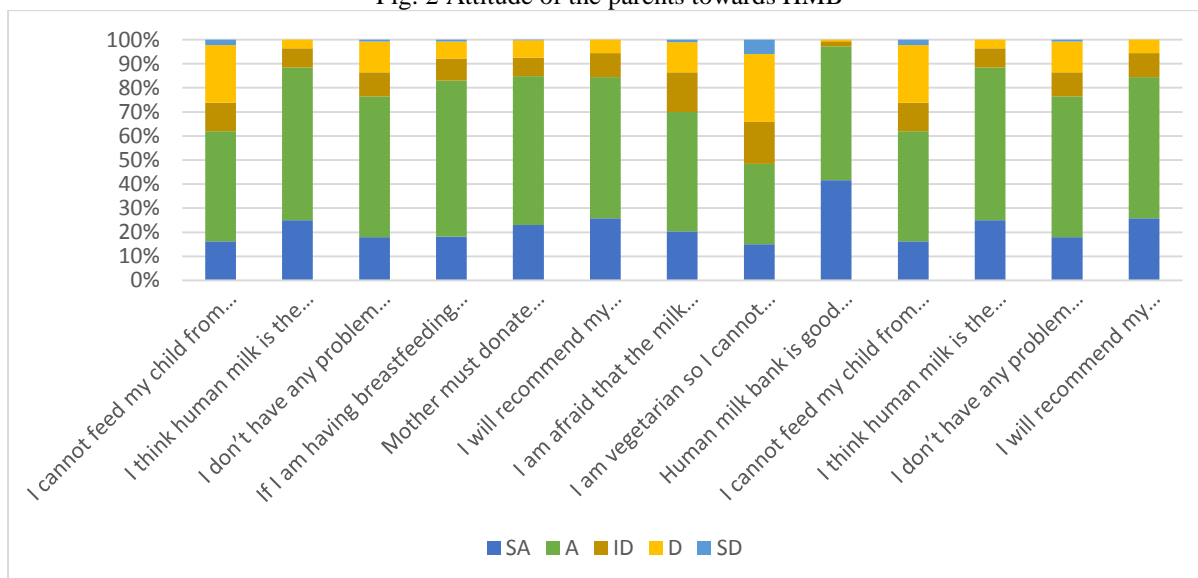
Attitude of the parents towards Human milk bank:

AS1: Majority (45.8%) agree, and 16.2% strongly agree, indicating a reluctance to use donor milk. However, 24% disagree, showing some openness among a subset of participants. **AS2:** Overwhelming support, with 63.4% agreeing and 25% strongly agreeing. Almost no disagreement (3.6%), indicating strong societal acceptance of the concept. **AS3:** 58.4% agree, and 18% strongly agree, showing that cultural or familial approval is a significant factor. Only 12.8% disagree, reflecting limited autonomy in decision-making. **AS4:** A majority (64.8% agree, 18.2% strongly agree) lean towards bottle feeding when faced with difficulties. This indicates a preference for a more familiar alternative over HMB. **AS5:** High agreement (61.8% agree, 23% strongly agree) suggests strong support for milk donation. Minimal opposition (7.2% disagree), showing societal acceptance. **AS6:** Positive responses (58.6% agree, 25.8% strongly agree) suggest people are open to endorsing the concept of HMB. Minimal disagreement (5.6%) reinforces this trend. **AS7:** Concerns are evident, with 49.6% agreeing and 20.4% strongly agreeing. A notable 16.4% are undecided, suggesting mixed awareness of HMB's safety. **AS8:** Agreement is moderate (33.4% agree, 15% strongly agree), but 28.2% disagree, showing a divide in perceptions. **AS9:** Overwhelmingly positive, with 55.6% agreeing and 41.6% strongly agreeing. Minimal opposition (0.6%), suggesting broad societal approval. **AS10:** The majority (88.4%) hesitant toward donor milk highlights a cultural stigma or trust issue. Awareness campaigns should focus on the safety and benefits of donor milk. **AS11:** Most of the parent reaffirms high support for HMB facilities, with 63.4% agreeing and 25% strongly agreeing. **AS12:** The majority (58.4%) acknowledge the need for familial or cultural approval, reflecting the influence of traditional decision-making structures. **AS13:** A significant majority (58.6%) of the parents are willing to recommend HMB, reflecting trust and a positive attitude. The details is explained in table 2

Table: 2 - Attitude of Participants toward HMB

| Statements | SA | A | UD | D | SD |
|---|-------|-------|-------|-------|------|
| I cannot feed my child from unknown mother’s milk (AS1) | 16.2% | 45.8% | 11.8% | 24.0% | 2.2% |
| I think human milk is the best milk for new-borns so the human milk bank facility is good (AS2) | 25.0% | 63.4% | 8.0% | 3.6% | 0.0% |
| I don’t have any problem with the idea but I need to get permission from my husband/ in-laws (AS3) | 18.0% | 58.4% | 10.0% | 12.8% | 0.8% |
| If I am having breastfeeding difficulty I will go for bottle feeding. (AS4) | 18.2% | 64.8% | 9.2% | 7.0% | 0.8% |
| Mother must donate breastmilk to the milk bank after feeding their baby (AS5) | 23.0% | 61.8% | 7.8% | 7.2% | 0.2% |
| I will recommend my neighbour or my relative to get benefits or donate milk in the Human Milk bank (AS6) | 25.8% | 58.6% | 10.0% | 5.6% | 0.0 |
| I am afraid that the milk from HMB may cause vomiting and diarrhoea to my baby (AS7) | 20.4% | 49.6% | 16.4% | 12.6% | 1.0% |
| I am vegetarian so I cannot go for HBM as the donor may be non-vegetarian (AS8) | 15.0% | 33.4% | 17.4% | 28.2% | 6.0% |
| Human milk bank is good for our society(AS9) | 41.6% | 55.6% | 2.2% | 0.6% | 0.0% |
| I cannot feed my child from unknown mother’s milk (AS10) | 16.2% | 45.8% | 11.8% | 24.0% | 2.2% |
| I think human milk is the best milk for new-born so human milk bank facility is good (AS11) | 25.0% | 63.4% | 8.0% | 3.6% | 0.0% |
| I don’t have any problem with milk donation in HMB but I need to get permission from my husband/ in-laws (AS12) | 18.0% | 58.4% | 10.0% | 12.8% | 0.8% |
| I will recommend my neighbour or my relative to get benefit or donate milk in the Human milk bank. (AS13) | 25.8% | 58.6% | 10.0% | 5.6% | 0.0% |

Fig: 2 Attitude of the parents towards HMB



IV. DISCUSSION:

The findings of this study provide valuable insights into the sociodemographic characteristics, awareness, and attitudes of parents toward human milk banks (HMB).

The sample predominantly comprised females (86.6%), suggesting that mothers are more likely to engage with studies related to infant feeding practices. The high proportion of participants with secondary or higher education (38.4%) and urban residence (58.4%) indicates that the sample was relatively well-educated and urban-centered. Despite this, 81.2% of participants were unaware of HMB, highlighting a significant gap in awareness, even among educated and urban populations. This gap is likely more pronounced in rural areas and among participants with lower education levels, emphasizing the need for targeted awareness campaigns need to be organised and it should be of diverse sociodemographic groups. Interestingly, the majority of participants (51.6%) reported an income of 5000–15000, placing them in a middle-income. This may reflect financial limitations influencing attitudes toward HMB, especially if the concept is perceived as costly. Additionally, most of the participants were self-employed (37.6%) and had two or more children (58.8%), indicating that many parents in this demographic may have experience with child-rearing but may still lack exposure to HMB.

Regarding attitudes of parents toward HMB:

Most of the parents were reluctant to feed their child milk from an unknown donor was evident, with 62% either agreeing or strongly agreeing to AS1. Similarly, AS10 showed that 88.4% hesitated about donor

milk, highlighting deep-seated cultural stigma and trust issues. This reluctance underscores the need for awareness campaigns emphasizing the safety, screening, and health benefits of donor milk.

We have observed a positive perception of HMB (AS2, AS5, AS6, AS9, AS13): Participants demonstrated overwhelming support for HMB as a concept. AS2 revealed that 88.4% agreed or strongly agreed that human milk is the best for newborns, and AS9 showed 97.2% supported HMB for societal benefit. Additionally, AS5 and AS6 reflected high willingness to donate or recommend HMB, suggesting that with proper education, parents could become advocates for milk banking.

It has been observed that the cultural and familial Influence (AS3, AS12): Cultural and familial dynamics were significant factors influencing attitudes. AS3 and AS12 revealed that 76.4% of participants acknowledged the need for familial or spousal approval, suggesting that decision-making is not solely individual but rooted in traditional structures. Interventions should include family-focused educational programs to increase acceptance. Very surprisingly 83% of participants preferred bottle feeding over HMB, reflecting a reliance on familiar alternatives. This highlights a need to address misconceptions about HMB. It was also observed that the parents were concerns about Safety (AS7, AS8): Safety concerns regarding donor milk were evident in AS7, where 70% expressed fear of adverse effects such as vomiting and diarrhea. Additionally, AS8 revealed that dietary concerns (e.g., vegetarian donors) influenced attitudes, with 28.2% disagreeing with using HMB due to donor diet. These findings indicate that awareness campaigns must emphasize the rigorous safety protocols and universal suitability of HMB.

This study's findings are limited by its cross-sectional design, which captures attitudes at a single point in time and cannot establish causality. Additionally, self-reported data may be subject to social desirability bias, particularly in attitudes toward culturally sensitive topics like HMB.

V. CONCLUSIONS:

The study has found that many parents were unaware of HMB, therefore there is a need to organise more awareness programs on HMB. There was a good response from the participants about HMB but reluctant to answer questions such as feeding their baby from HMB or donating breastmilk. The most challenging part is the mindset of people, HMB will function as same as a blood bank. Nobody borders to know where the blood belongs to -no caste, religion, vegetarian non-vegetarian, people utilise the benefits from the blood bank in an emergency. In the same manner, the public must think about HMB and for this, we all must stand together and provide continuous awareness of HMB.

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Conflict of Interest: Nil

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