International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Acceptance and Perception of Human Milk Banking: A Review

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Abstract
Human milk banks (HMBs) are important alternatives for infants when their mothers cannot supply breast milk. These banks provide unique nutritional and immunological benefits that differentiate them from other milk options. However, their patronage and utilization are low due to poor public awareness, cultural and religious beliefs, and misconceptions about safety and disease transmission. Several motivations exist for milk donation, including altruism and financial gain. However, human milk banks face challenges of adequate donation because of time constraints, scarce supply, and lack of family support. This scoping review emphasizes the key role played by family, community, and healthcare providers in shaping perceptions of HMBs while calling for public education, community engagement, and policymaking interventions to promote patronage. We advocate that by addressing patronage and utilization challenges, HMBs can become life-saving resources for neonates globally.

INTRODUCTION

Human milk is globally recognized as the primary nutritional source for newborns, particularly for preterm and low birth weight neonates who are at an increased risk of morbidity and mortality (World Health Organization [WHO], 2023). When a mother's milk is unavailable, milk banks serve as a replacement, providing immunological and nutritional benefits superior to formula feeds (Perrella et al., 2021). Notwithstanding the clear advantages of donor human milk, the creation and implementation of human milk banks face significant challenges, especially in low- and middle-income countries (LMICs) where neonatal and infant mortality rates are high (Obeng et al., 2023; Madewell et al., 2024). A major barrier to the success of HMBs is the acceptance and perception of breastmilk donation and usage among various stakeholders, including postpartum mothers, families, healthcare providers, and communities.

Public knowledge and sensitization about HMBs are often poor, with several mothers oblivious to the presence and value of milk banks (Mondkar et al., 2018; Biggs, 2021). Kimani-Murage et al. (2019) and Magowan et al. (2020) found that religious, cultural, and societal beliefs often view milk donation and acceptance as inappropriate or taboo, which significantly limits awareness and use of milk banks. Islamic communities' religious practices and beliefs, such as milk kinship, where children fed by the same wet nurse are deemed as siblings and hence cannot marry one another, create marked resistance towards the

use of donor human milk (DHM) (Subudhi & Sriraman, 2021; Gürel & Erenel, 2020). Likewise, misconceptions about the spread of diseases, transfer of genetic traits, and the safety of donor milk stand in the way of HMBs and donor milk acceptance (Obeng et al., 2023; Varer Akpinar et al., 2022).

Breastmilk donation often springs from selflessness, longing to help vulnerable infants and personal moral standards such as social concern and self-direction (Wambach et al., 2019; Olsson et al., 2021). However, factors such as limited time, inability to produce enough milk, and uncertainty regarding the donation process often serve as a deterrent to prospective donors (Mondkar et al., 2018; Biggs, 2021). On the other hand, several authors, including Magowan et al., have found that interventions such as community education, spousal approval and encouragement, and confidence in healthcare providers impressively boost donation rates (Wambach et al., 2019; Magowan et al., 2020). According to Magowan et al. (2020) and Kimani-Murage et al. (2019), the role played by family, community, and healthcare providers in contributing to perceptions about HMBs cannot be overemphasized. They argue that negative rumors, stigma from families, and lack of support from spouses or extended family often discourage mothers from donating or accepting donor human milk. Community leaders and healthcare providers' promotion of HMBs contributes to milk donation regularization and the correction of wrong perceptions (Mondkar et al., 2018; Varer Akpinar et al., 2022).

Given the aversions around HMBs, it is crucial to understand the factors that shape people's views and acceptance of setting up and growing milk banking programs. This scoping review brings together current evidence on how people see and accept HMB, focusing primarily on public awareness, cultural and religious attitudes, motivations and barriers, misconceptions, and the role of key stakeholders.

Methodology

This scoping review examined existing literature on the acceptance and perception of human milk banking (HMB). Using the Arksey and O'Malley (2005) framework and PRISMA-ScR guidelines, the researchers screened titles and abstracts based on inclusion and exclusion criteria. A comprehensive search was conducted across three major electronic databases—PubMed, Google Scholar, CINAHL, and Web of Science—covering biomedical, nursing, and social science literature. Search terms included key phrases related to HMB, donor milk, acceptance, perception, barriers, facilitators, and cultural influences. The review focused on studies published in English between 2010 and 2023 to ensure relevance to current practices. A total of 26 studies met the criteria, offering insights into societal attitudes toward human milk banking across various populations and contexts.

The primary goal of this scoping review was to identify the factors influencing how key stakeholders - mothers, families, healthcare providers, and communities - view and accept human milk banking (HMBs). We focused on understanding the attitudes toward milk donation and the use of donor human milk (DHM) for infants, particularly in diverse cultural, religious, and socioeconomic contexts.

The study selection process followed a systematic two-stage screening approach to ensure the inclusion of relevant studies. In the first stage, we screened article titles and abstracts and resolved disagreements through discussion. In the second stage, full-text articles that passed the initial screening were assessed for eligibility. Studies were included if they focused on human milk banking (HMB), donor milk acceptance, cultural or societal influences, and related barriers or facilitators. Exclusions were applied to studies focusing solely on nutritional or medical aspects, as well as non-English publications. This process ensured that only peer-reviewed research informed the review's findings. The study used a narrative synthesis approach to analyze and summarize the findings of selected studies. The data analysis followed

a standardized form to ensure accuracy, capturing details such as authors, publication year, country, study design, and population (e.g., mothers, healthcare providers, and community members). A thematic framework was developed to categorize key focus areas.

Ethical Considerations

This review utilized publicly available data from peer-reviewed studies and did not involve human participants directly. Ethical approval was not required.

Results

We grouped the findings of this review under six thematic areas: public awareness and knowledge, cultural and religious attitudes, motivations and barriers for milk donation, misconceptions and fears, and the role of family, community, and healthcare providers.

Public Awareness and Knowledge

Public knowledge regarding human milk banks has remained pervasively low in many regions, creating hurdles against acceptance and subsequent use. This gap in awareness is particularly dominant in low- and middle-income countries (LMICs), where neonatal mortality rates are high, and the benefits of donor human milk (DHM) could be lifesaving. In Ghana, a study by Obeng et al. (2023) revealed that only 64.7% of women felt the country is ready for an HMB facility. The majority of these women cited a lack of information as the primary barrier to establishing an HMB. A study conducted in Southern Nigeria by Ogundare et al. (2023) also revealed that among a population of 798 respondents, 78.4% of the surveyed pregnant women and nursing mothers did not know about human milk banking or wet nursing but were however willing to donate their breastmilk for a fee. The authors identified that the lack of awareness and acceptability of HMB in the region was significantly influenced by cultural and religious biases. In Tanzania, 88% of women had never heard of human milk donation for banking. However, out of the 562 women recruited for the study, 86.48% agreed to donate, and 83.45% agreed to use donor breast milk (Kimaryo et al., 2024). A study among 422 antenatal mothers in Nepal also found that 58.8% were unaware or had poor knowledge of HMBs, and 55.9% had negative attitudes toward human milk banking. The study advocates effective dissemination of information on human milk banking services to help improve acceptance and dispel misconceptions (Dhakal et al., 2024). Similarly, in Turkey, a large number of mothers were also unaware of HMBs, with some only learning about them during the COVID-19 pandemic when healthcare systems were stretched thin (Varer Akpinar et al., 2022). The COVID-19 pandemic revealed the importance of HMBs in providing safe nutrition for infants, particularly for mothers who could not breastfeed due to health issues or separation. Nonetheless, the lack of public health education about HMBs has left many communities uninformed and skeptical, hindering their acceptance and utilization (Shenker et al., 2021). This calls for proactive public health campaigns to educate communities about the existence and benefits of HMBs.

Efforts to increase awareness have yielded positive results in some parts of the world. In India, for instance, focused awareness campaigns and educational activities of healthcare providers have greatly increased the knowledge and acceptance of HMBs among mothers and families (Mondkar et al., 2018). However, many misconceptions regarding the function and hygiene of HMBs persist, especially in rural India and low-resource settings. Several mothers worry that the use of donor milk could compromise breastfeeding practices and could potentially be unsafe for their children (Biggs, 2021). To address this, culturally

sensitive communication techniques that highlight strict safety protocols of HMBs and the complementing function of DHM in supporting infant health should be employed to dispel myths. Without consistent efforts to raise public awareness, the potential of HMBs to minimize neonatal morbidity and mortality will remain unachievable (Mane et al., 2022; Magowan et al., 2020).

Cultural and Religious Attitudes

Attitudes toward HMBs are heavily influenced by cultural and religious beliefs, which often create significant obstacles to their acceptance (Ogundare et al., 2023). For example, the concept of milk kinship, grounded in Islamic tradition, holds that children who share a wet nurse are considered siblings and cannot marry each other. This belief has led to resistance against HMBs in many Muslim-majority regions, as families fear unintended social or familial complications (Subudhi & Sriraman, 2021; Gürel & Erenel, 2020). In some instances, religious leaders openly oppose HMBs, further cementing these barriers. In some conservative communities, religious authorities have raised concerns about the potential violation of Islamic principles, which discouraged families from utilizing DHM (Gürel & Erenel, 2020).

In Pakistan, a newly established milk bank in Karachi, which would have been the first-ever milk bank in Pakistan, in collaboration with UNICEF, was forced to close even before it could become operational, regardless of initial permissions from the Islamic clerics. The reason behind the closure was concerns over adherence to religious guidelines regarding kinship bonds created through breastfeeding. The clerics withdrew their consent, citing the challenge of tracking donor identities to prevent unintended milk kinship relationships (Zofeen. 2024, July 8). Similarly, in Turkey, a proposed establishment of a human milk bank was halted due to religious concerns over milk kinship. The pooling and de-identifying of donor milk made it impossible to trace its donor, thereby making it impossible to acknowledge newly formed kinship relationships. The lack of traceability raised religious objections and consequent discontinuation of the project (Alnakshabandi & Fiester, 2016).

In Kenya, the acceptability of HMBs has been hampered by social gossip and cultural taboos. Kimani-Murage et al. (2019) expressed that many societies in Kenya consider milk giving to be "unnatural" and "dangerous," as it may result in the spread of illnesses or have detrimental spiritual effects. The prevalence of poor knowledge about the scientific and medical precautions in place at HMBs frequently contributes to the perpetuation of these beliefs. On the other hand, cultural beliefs that encourage charity and community support have made milk donation easier in nations like Sweden (Olsson et al., 2021). Milk donation is conceptualized by Swedish mothers as a way to "pay it forward", which reflects the culture of providing for the needs of vulnerable newborns.

The significance of customizing HMB programs to fit local cultural and religious contexts is highlighted by these disparate instances, guaranteeing that treatments are considerate and successful in fostering acceptance. To effectively address these challenges requires culturally sensitive approaches, such as collaborating with religious leaders and scholars or academics to contextualize or reinterpret milk kinship in ways that respect cultural values and are consistent with contemporary medical procedures.

Motivations and Barriers to Milk Donation

Selflessness and a desire to help needy infants are frequently the driving forces behind milk donation. Knowing that mothers' milk can save lives and improve the health of preterm or ill babies who are unable to get their own mothers' milk gives many donors a deep sense of fulfilment (Wambach et al., 2019; Olsson et al., 2021). Some women view milk donation as a means of giving back to their society or as a way to

uphold their own moral principles of social responsibility and compassion. For instance, donors in Sweden frequently characterize their involvement as a means of "paying it forward," which reflects a societal emphasis on solidarity and group care (Olsson et al., 2021). These internal incentives are strong inducers of milk donation and demonstrate how HMBs can flourish in societies that foster these ideals. However, several obstacles prevent milk donations, notably time. Many mothers struggle to juggle their daily obligations with the demands of pumping, storing, and transporting milk (Mondkar et al., 2018; Biggs, 2021). Also, some mothers believe that their milk production is insufficient to meet the needs of their own kids and the requirements of donation, which makes them feel unable to contribute (Obeng et al., 2023). Family dynamics are equally important since mothers may be deterred from donating if their spouses or other family members do not support them, frequently because of cultural or personal beliefs (Magowan et al., 2020).

Addressing these problems requires multiple interventions, including the provision of logistics for milk collection, lactation counselling to maximize milk supply, and educating families about the benefits of milk donation. In some contexts, financial incentives or tokens of appreciation have also been successful in motivating donors. However, this requires careful implementation to avoid undermining the altruistic nature of donation (Olsson et al., 2021). Community education and awareness campaigns have also been demonstrated to equally increase willingness to donate by dispelling myths and highlighting the impact of donor milk (Mondkar et al., 2018). Again, emotional support from partners is an important motivation for milk donation and acceptance, as spousal encouragement can empower mothers to overcome logistical and emotional challenges (Wambach et al., 2019).

Misconceptions and Fears

According to Obeng et al. (2023), people often misunderstand human milk banking due to deep-rooted religious and cultural beliefs. Many mothers fear that donor milk might spread diseases like hepatitis or HIV, which stands out as a major worry (Obeng et al., 2023; Varer Akpinar et al., 2022). The scholars found that these concerns largely stem from a lack of awareness about the strict screening and pasteurization steps that make donor milk safe. We discovered that such false information spreads within communities and consequently reinforces worries and stops mothers from taking part in HMBs. To allay these fears, medical staff, among other stakeholders, need to explain the safety measures in place for human milk banking in a clear and consistent manner beyond clinical settings by reaching out to communities and showing scientific proof of donor milk's safety (Tende et al., 2023; Mathias et al., 2023; Namuddu et al., 2023).

Scholars have pointed out that another widespread misconception is that people think babies might inherit genetic traits or family illnesses by drinking milk from someone other than their mother (Kimani-Murage et al., 2019). This idea often stems from cultural or traditional beliefs and, as a result, causes strong opposition to using donated breast milk. Additionally, some mothers fear that using donor milk could weaken the bond between themselves and their children because they associate breastfeeding with emotional intimacy and maternal connection (Magowan et al., 2020). These concerns highlight the need for counselling and education that is sensitive and responsive to mothers' needs. Such interventions must inform mothers of the advantages of donor milk and as well address emotional and psychological concerns. Unless these problems are resolved, the potential of HMBs to improve neonatal health outcomes will be limited. To help dispel myths, healthcare providers must be trained and equipped to deliver accurate information and assistance (Kimani-Murage et al., 2019).

Role of Family, Community, and Healthcare Providers

Family, community, and healthcare providers play a key role in forming views on human milk banking (HMBs). In many cultures, family members, spouses and the elderly often have a major say in mothers' decision to donate or accept donor human milk (DHM). In Uganda, husbands often act as gatekeepers, and their approval is a key factor in whether mothers donate milk or accept donor milk for their babies (Magowan et al., 2020). This shows the broader patriarchal structures where men have a lot of say over family health choices. In India, grandmothers and other family members often play a big part in either backing or opposing milk donation based on their experiences or personal beliefs (Mondkar et al., 2018). Without family support, efforts to push milk donation and acceptance will face strong pushbacks. These familial influences show how important it is to include whole families, not just mothers, when talking about the good points and safety of HMBs.

In addition, Kimani-Murage et al. (2019) found that community attitudes have a considerable influence on how people perceive human milk banks. The beliefs of a community can shape whether religious and community leaders support or disapprove of milk banking. In communities where milk donation is viewed as a communal good, local leaders tend to offer their approval and help normalize the practice. However, in areas where culture or religion frowns on milk donation, negative rumors and misinformation can spread quickly, discouraging participation (Lube et al., 2019; Kimani-Murage et al., 2019). A study by Kimani-Murage et al. (2015) in Kenya showed that a community's thinking and belief system have a significant influence on the acceptance of HMBs. The scholars found that in some communities, milk donation is seen as a good deed that could save lives, so more people took part. Meanwhile, in other communities, misconceptions about the safety and ethics of donor milk coupled with cultural beliefs created resistance. Kimani-Murage et al. (2015) found that getting local leaders and influencers to help with awareness campaigns helped clear up myths and build trust in HMBs. In South Africa, Lube et al. (2019) also found that a community's acceptance of donor milk is influenced by its cultural beliefs. Hence, gaining the support of key community stakeholders, including family elders, traditional healers, and grandmothers, is essential to human milk banking. Lack of awareness and negative community perceptions were identified as major barriers to breastmilk donation and utilization (Lube et al., 2019). These findings indicate the need for a community-centred approach in decision-making and awareness-raising campaigns that involve local leaders, educators, and influencers. By creating a conducive environment, HMBs can access the level of support and openness required to succeed.

Quintessentially, the role of healthcare professionals is important, mainly as educators and advocates, in influencing mothers' decisions on donating or accepting donor milk. Higher donation and acceptance rates are recorded in settings where health professionals explain the benefits of donor human milk, review safety measures, and dispel myths with mothers (Varer Akpinar et al., 2022; Wambach et al., 2019; Lube et al., 2019). The ability of healthcare workers to articulate the advantages of DHM, its safety mechanisms, and to dispel misinformation significantly affect mothers' decisions. Biggs (2021), however, indicates that healthcare workers are sometimes not adequately informed about HMBs, which prevents them from effective advocacy. This echoes the need for effective training programs that will expose healthcare workers to HMB knowledge and support HMB initiatives. Such informed advocacy would significantly increase the confidence and trust of mothers and families and overall improvement in neonatal health outcomes in the long run.

Discussion

The findings from this scoping review draw attention to the interplay of factors at the systemic, social, and individual levels that determine acceptance and perception of human milk banks. Although, scientifically, DHM for preterm and low-birth-weight infants has been proven to work, major barriers remain, especially in LMICs where the neonatal mortality burden is most significant. We argue that the barriers are heterogeneous in nature, encompassing gaps in public awareness, cultural and religious beliefs, logistical challenges, and systemic inequities. These challenges should be met with an all-inclusive multilevel approach involving the elicited support of individuals, communities, healthcare structures, and policy leaders in their collective quest to enhance the acceptability and use of HMBs.

One of the most critical steps in overcoming the aforementioned drawbacks is the implementation of targeted public education campaigns to dispel misconceptions about HMBs. Many mothers and families require basic knowledge about the presence, safety, and benefits of donor milk, which hinders their willingness to participate in milk donation or acceptance (Obeng et al., 2023; Varer Akpinar et al., 2022). Public education initiatives must be culturally sensitive and tailored to address specific concerns, such as fears of disease transmission and the belief that donor milk may alter the genetic traits of a child (Kimani-Murage et al., 2019). These campaigns should leverage multiple communication channels, such as community workshops, social media, and collaborations with local healthcare providers, to reach diverse audiences. By increasing awareness and addressing misconceptions, the foundations can be laid for broader acceptance of HMBs.

Equally important is the role of community engagement in fostering acceptance of HMBs. The role played by cultural and religious beliefs in influencing attitudes toward milk donation and utilization, especially in regions where practices such as milk kinship are deeply ingrained, cannot be overemphasized (Subudhi & Sriraman, 2021; Gürel & Erenel, 2020). Engaging community leaders, religious authorities, and media personalities in discussions about HMBs can help bridge the gap between traditional beliefs and modern medical practices. For example, the participation of religious figures in the creation and promotion of HMB initiatives can help address concerns about milk kinship and other cultural taboos while cultivating trust within the community. Similarly, community-based education programs that involve families, including spouses, grandparents, and extended relatives, can create a supportive environment that encourages participation in HMBs (Magowan et al., 2020; Mondkar et al., 2018).

Similarly, healthcare providers are pivotal in shaping perceptions of HMBs and play a critical role in advocating for their use. Nevertheless, the effectiveness of healthcare workers in promoting HMBs is dependent on their knowledge and confidence in discussions on the topic. Perhaps most pressing is creating conditions under which healthcare providers can be duly informed about the benefits and safety of donor milk so that they can help assuage the fears of mothers and advocate for HMBs (Biggs, 2021). Comprehensive training programs for healthcare workers, including lactation consultants, nurses, and physicians, are essential to equip them with the skills and knowledge needed to support HMB initiatives. Such training programs would require emphasis on scientific evidence in support of the use of donor milk, as well as strategies for addressing common misconceptions and fears. Empowering healthcare workers to serve as informed advocates of HMBs can enhance credibility and trust among mothers and family units (Biggs, 2021).

Finally, the viability, sustainability and expansion of HMBs depend on policy support and systemic investments. Well-defined guidelines and regulations are essential to ensure the safe and ethical functioning of HMBs, including standardized protocols for donor screening, milk processing, and

distribution (Wambach et al., 2019). Policymakers therefore need to address systemic drawbacks such as inadequate infrastructure, limited transportation networks, and financial constraints, which disproportionately affect HMBs, especially in LMICs. Balancing the production of financial incentives or compensation for milk donors and ensuring ethical considerations is one way to overcome the logistical challenges and achieve increased donation rates (Olsson et al., 2021). We recommend that HMBs should be integrated into national and sub-national health systems to ensure affordability and sustainability over the long term, especially for populations most in need. Addressing the identified challenges with the proposed solutions will be the medium through which HMBs can flourish (Mathias et al., 2023; Magowan et al., 2020; Wambach et al., 2019).

Conclusion

The acceptability and perception of human milk banking are guided by a complex interplay of individual, social, and system facilitators and barriers, including public education, religious and cultural beliefs, misperceptions, and the influence of important stakeholders. Addressing these challenges requires an integrated strategy that brings together public education, community engagement, healthcare worker training, and policy advocacy. By encouraging collaboration among stakeholders and addressing the particular needs of diverse communities, the full potential of HMBs can be tapped maximally as an on-time intervention for preterm and low birth weight infants.

Although considerable progress has been made in establishing HMBs in many advanced countries, there remains much work to be done to ensure their widespread receptiveness and utilization in LMICs. Future research work needs to focus on developing and evaluating interventions that address these barriers, with emphasis on community engagement and healthcare provider training.

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