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Perspectives of healthcare workers on the acceptability of donor human milk banking in Southwest Nigeria

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Abstract

Background The World Health Organization prioritizes Mother's Own Milk (MOM) or donor human milk (DHM) when MOM is unavailable or insufficient. It is also important for healthcare workers (HCWs) to provide adequate support, information, and education to mothers to help improve their milk production and breastfeeding experience. DHM is scarce in developing countries, prompting a need for understanding health workers' perspectives.

Methods This cross-sectional study, conducted in 2021 in Ekiti State, Nigeria, examined the knowledge and attitudes of HCWs regarding human milk banking. A sample of 321 participants from government-owned hospitals completed a self-administered questionnaire.

Results Of the 321 participants (84.7% response rate), the majority were females (69.2%), aged 30–39 (32.1%), Christian (91.9%), and employed in tertiary hospitals (91.9%). About 65% of the HCWs believe that HMB is a safe practice and 42% believe that the DHM has the same quantity of immunological factors as fresh human milk. While 80.4% displayed good DHM knowledge, attitudes varied. The HCWs profession influenced their attitudes and a higher proportion of all female HCWs (71%), except for health assistants (65.4%), expressed willingness to donate their breast milk if needed. Among males HCWs, the majority of those who were doctors (82.8%) and pharmacists (62.5%) expressed willingness to support their spouses to donate breast milk, and they also had higher acceptance of DHM for their infants. In all, more than 80% of the HCWs will encourage mothers to donate their milk and feed babies under their care with DHM, but only 47% would accept DHM to feed their own children. Health assistants had less favourable views, and negative perceptions were linked to the internet and media sources.

Conclusions The study highlights health workers' awareness of DHM but indicates a reluctance to fully embrace it, especially among health assistants. The need for targeted education programs, to address knowledge gaps and negative perceptions, is crucial for the successful implementation of human milk banks in Nigeria. Overcoming challenges, such as safety concerns and sociocultural influences, requires focused efforts from policymakers and healthcare institutions.

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Background

Donor human milk banking (DHMB) represents a pivotal advancement in neonatal care, especially in regions where breastfeeding challenges are prevalent. In these areas, DHMB has the potential to significantly enhance neonatal health outcomes [1]. While DHMB provides a critical supplement when maternal milk is insufficient, it is paramount that efforts are made to optimally support mothers to increase their milk supply through information, education, and practical as well as emotional assistance from healthcare workers (HCWs). This initiative has gained prominence in the global discourse on improving neonatal health through innovative and culturally sensitive breastfeeding support systems. As global health initiatives increasingly emphasize equitable access to human milk, the perspectives of HCWs are crucial in shaping effective health promotion strategies that support optimal infant nutrition and survival. Previous reports have highlighted suboptimal knowledge among healthcare workers regarding breastfeeding, which has impacted the breastfeeding uptake in certain regions of the world [2, 3]. Other studies have also identified deficiencies in breastfeeding skills training of HCWs to support mothers for optimal breastfeeding experiences [4]. These gaps may extend to DHMB, as countries that have adopted the Mother-Baby Friendly Initiative Plus which includes breastfeeding, use of pasteurized donor human milk (DHM) when the mother's own milk (MOM) is unavailable and kangaroo mother care, have reported improvements in breastfeeding rates [5, 6].

Donor human milk has been recommended as a preferred alternative to MOM for the optimal well-being of the sick and small newborns in the absence of MOM. This inclusive approach recognizes the diverse cultural practices surrounding infant feeding and strives to accommodate them while prioritizing the overall health and development of infants in various communities. This underscores the necessity of establishing DHM banks, particularly in developing countries [7, 8] including Nigeria, where wet nursing was once the prevailing custom. The historical reliance on wet nursing has diminished, primarily due to the emergence of human immunodeficiency virus (HIV) infection and other infectious diseases that can be transmitted through breast milk. In response to these health concerns, the establishment of DHM banks becomes pivotal, serving as a safer alternative for infants in need of nourishment when the MOM is unavailable or poses potential health risks. This evolution in feeding practices reflects a necessary adaptation to contemporary health challenges, emphasizing the importance of accessible and secure sources of donor milk to support infant nutrition in developing regions. Efforts to implement and sustain DHM banks are crucial for promoting the health and well-being of infants, aligning with

evolving global health standards and prioritizing safety in infant feeding practices.

Donor human milk is more beneficial for newborns than infant formula. Studies have shown that, in comparison to breast milk substitutes, DHM is better tolerated by neonates because it is more easily digested and absorbed. In addition, DHM effectively reduces the risk of late-onset sepsis and significantly reduces the risk of necrotizing enterocolitis, especially in preterm neonates [9, 10]. The length of hospital stay was significantly reduced among sick infants fed DHM in the United States and Brazil, thus ultimately reducing the healthcare costs [6, 11]. The use of DHM has also been shown to be associated with increased exclusive breastfeeding (EBF) rates and increased awareness of the importance of breastfeeding for both families and neonatal intensive care unit (NICU) staff [6]. Furthermore, DHM banking when used appropriately, provides the opportunity for lactation support to mothers and protects breastfeeding through an integrated framework of newborn care [6, 12, 13], however, ready availability of DHM may also undermine lactation and breastfeeding support to mothers thereby depriving the newborns of their MOM.

Donor human milk differs from MOM, probably because of the handling and processing. The nutritional content of DHM is lower than that of MOM, with a mean difference in energy intake of 38.7 kcal/kg/day based on full enteral feeds of 180 ml/kg/day [14, 15]. In addition, freezing, storage and heat treatment all negatively impact the quality and content of milk to some degree. The levels of bioactive proteins, such as immunoglobulins, which are anti-inflammatory and important for immune modulation, are lower in DHM than in MOM because of pasteurization [16]. Although these differences in constituents are well known, DHM remains a valuable option when MOM is unavailable [9, 10]. Due to the superior benefits of DHM compared with those of breast milk substitutes, the WHO has called for the global scale-up of human milk banks (HMB) [17].

Despite the call by the WHO and the benefits that babies stand to derive from this practice, HMBs are not available in many sub-Saharan countries, including Nigeria. There is no known HMB in West Africa [18]. South Africa and Kenya have pioneered this practice, but obstacles to its full practice still exist [19, 20]. Identified factors in many settings limiting the successful implementation of HMBs include health workers' attitudes, disjointed health systems, lack of government policy support, also negative perceptions by mothers and the community as well as some harmful cultural practices [12, 19–22].

The pivotal role of health workers in the effective establishment of human milk banks (HMBs) cannot be overstated, as they significantly influence the motivation and they provide guidance for mothers to both donate and

accept donor human milk (DHM). A notable Brazilian study underscores this influence, revealing that mothers who eventually became donors were introduced to the concept of DHM banks during their hospital stay and were positively influenced by health workers to contribute their breast milk [23]. This highlights the centrality of health workers in determining the success or failure of HMBs.

It is noteworthy that, to the best of our knowledge, this is the first study conducted in Nigeria to explore health workers' perceptions regarding the practice of HMBs and the utilization of DHM. Our research aimed to explore the acceptability and perspective of DHM among health workers, specifically in government-owned health facilities situated in Ekiti State, Southwest Nigeria. By exploring the attitudes of health professionals, we seek to gain insights that can inform strategies for the effective implementation and sustainability of HMBs in the Nigerian healthcare context, thus contributing to the global discourse on best practices in infant nutrition and health.

Methods

This was a cross-sectional study carried out in government-owned secondary and tertiary hospitals in Ekiti State, Nigeria. Healthcare workers (HCWs) were invited from the three major government-owned hospitals in Ekiti State and were purposively selected to participate in the survey. The HCWs who participated voluntarily in the study did so after providing written informed consent.

Sample size

The sample size was calculated based on the formula for surveys with available qualitative variables such as proportion or prevalence [24]:

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

$$n = \frac{1.96^2 \times 0.56(1 - 0.56)}{0.05^2}$$

$$n = 379$$

where n = the minimum sample size,

Z = standard normal variate at 95% confidence interval (CI) is 1.96.

P = expected incidence (56%) [25].

d = precision, allowable error margin of 5%.

The tool for data collection was a self-administered questionnaire in English based on the available literature [25]. This questionnaire was subdivided into three major sections: sociodemographic characteristics of the participants, participants' knowledge of DHM, and attitudes

toward and anticipated practices of HMB. Completion of the questionnaire takes approximately 15 to 20 min.

The data were analysed using the IBM® Statistical Package for Social Science (SPSS) version 25. Categorical variables are presented as frequencies and percentages, while continuous variables are presented as the mean \pm SD or median [interquartile range (IQR)] for skewed data.

Ethical approval for the study was obtained from the Ethics and Research Committee of the Ekiti State University Teaching Hospital, Ado-Ekiti.

Results

Of the 379 respondents who consented to participate in the study, 321 (84.7%) completed the survey and were included in this analysis. The median (IQR) age and length of practice of the participants were 34 (28–40) and 8 (4–12.5) years, respectively. Two hundred and twenty-two (69.2%) of the respondents were females, 103 (32.1%) were 30 to 39 years of age, 295 (91.9%) were Christians, 295 (91.9%) worked for tertiary hospitals, and 200 (62.3%) reported having their own children. The sociodemographic characteristics of the respondents are displayed in Table 1.

Most of the respondents were nurses/midwives, 128 (39.9%), and almost one-third were medical doctors, 88 (27.4%). Only 89 (27.8%) of the respondents, who stated their departments, worked in the Paediatrics and the Obstetrics and Gynaecology wards.

There were 258 (80.4%) of the respondents who had previously heard about human milk banking (HMB), 227 (70.7%) had heard about wet nursing, and 210 (65.0%) knew that HMB is a safe practice. A total of 134 respondents (41.2%) were aware of the safety of HMB from HIV and other infectious agents, while 206 individuals (64.2%) acknowledged the necessity of HMB in our environment (Table 2).

Regarding the respondents' opinions on babies that were likely to benefit from HMB, the common responses included abandoned babies, 245 (76.3%), infants whose mothers did not have enough milk 143 (44.5%), infants whose mothers had terminal diseases 134 (42.1%), while a few respondents, nine (2.8%) believed that no baby would benefit from donated human milk.

The attitudes of the HCWs toward HMB varied depending on their profession, as shown in Table 3. Higher proportions of all the cadres of female healthcare workers (71.0%), except for health assistants (HA) (65.4%), expressed willingness to donate their breast milk if needed. Among males, the majority of those who were doctors (82.8%) and pharmacists (62.5%) expressed willingness to support their spouses to donate breast milk. In all cadres of healthcare workers, most of the respondents expressed willingness to encourage mothers to donate their milk (84.6%) if needed or feed a child in their care

Table 1 Sociodemographic characteristics of the respondents

Characteristics	Frequency	Percentage (%)
Sex		
Male	96	29.9
Female	222	69.2
Not stated	3	0.9
Age (years)		
< 20	1	0.3
20–29	76	23.7
30–39	103	32.1
40–49	66	20.6
≥ 50	14	4.4
Not stated	61	19.0
Religion		
Christianity	295	91.9
Islam	17	5.3
Others	1	0.3
Not stated	8	2.5
Tribe		
Hausa	2	0.6
Igbo/Ibo	18	5.6
Yoruba	287	89.4
Not stated	14	4.4
Institution		
Tertiary Hospitals	295	91.9
Secondary Hospital	20	6.2
Not stated	6	1.9
Parental Experience		
Yes	200	62.3
No	101	31.5
Unanswered	20	6.2
Cadre		
Medical Doctor	88	27.4
Pharmacist	13	4.0
Nurse/Midwife	128	39.9
Laboratory Scientist	10	3.1
Health Assistant*	32	10.0
Dietician/Nutritionist	8	2.5
Medical Records Officer	10	3.1
Others	11	3.4
Not stated	21	6.5
Departments		
Paediatrics	49	15.3
Obstetrics and Gynaecology	40	12.5
Surgery	12	3.7
Internal Medicine	21	6.5
Family Medicine	26	8.1
Adult Accident and Emergency	11	3.4
Pharmacy	13	4.0
Nutrition/Dietetics	11	3.4
Others	17	5.3
Not stated	121	37.7
Total	321	100

*This also includes Community Health Extension Workers

Table 2 Knowledge of human breast milk banking among respondents

Knowledge	Fre- quency N= 321	Per- cent- age (%)
Have you heard of breast milk banking before?	258	80.4
Yes	57	17.8
No	6	1.9
No response		
Have you heard of wet nursing before?	227	70.7
Yes	80	24.9
No	14	4.4
No response		
Is breast milk banking a safe practice?	210	65.4
Yes	37	11.5
No	61	19.0
I don't know.	13	4.0
No response		
Is the donated milk for the human milk bank safe from HIV and other infectious agents?	134	41.7
Yes	95	29.6
No	79	24.6
I don't know.	13	4.0
No response		
Donor human milk reduces morbidity and mortality in babies.	216	67.3
Yes	33	10.3
No	58	18.1
I don't know.	14	4.4
No response		
Stored donor human milk has the same quantity of immunological factors as fresh breast milk.	135	42.1
Yes	103	32.1
No	68	21.2
I don't know.	15	4.7
No response		
Is there any need for breastmilk banking	206	64.2
No	80	24.9
I don't know.	26	8.1
No response	9	2.8

with DHM (82.0%). Among all healthcare workers, most of the doctors (61.7%) and pharmacists (66.7%) were willing to allow their babies to be fed with donated human milk. Health assistants and medical records officers had a higher preference for breastmilk substitute (BMS) compared to DHM.

Figure 1 shows the perception of the HCW with and without children about DHM compared with BMS. There was no significant difference in the perception of HCW with or without children on the safety or advantages of DHM compared to BMS. Among the total 321 respondents, 111 (34.6%) had negative perceptions about DHM and cited various sources of information. Of the 83 and 73 who cited formal education and self-perception as their sources, 22 (26.5%) and 22 (30.1%) respondents respectively felt that DHM could transmit genetic diseases while 23.9% cited the internet as their source of

Table 3 Attitudes of respondents towards human breast milk banking by designation

Questions	DOC (%)	PHARM (%)	NUR (%)	LAB SCI (%)	DIET (%)	REC (%)	HEALTH ASS (%)	OTH-ERS (%)	NOT STATED (%)	TOTAL (%)
Are you willing to donate? (Females only)										
Yes	22 (84.6)	5 (100.0)	89 (76.7)	3 (50.0)	6 (100.0)	6 (66.7)	9 (34.6)	5 (71.4)	7 (53.8)	152 (71.0)
No	4 (15.4)	0 (0.0)	27 (23.3)	3 (50.0)	0 (0.0)	3 (33.3)	17 (65.4)	2 (28.6)	6 (46.2)	62 (29.0)
TOTAL	26	5	116	6	6	9	26	7	12	214
Will you support your wife to donate? (Males only)										
Yes	48 (82.8)	5 (62.5)	3 (42.9)	4 (100.0)	2 (100.0)	0 (0.0)	2 (40.0)	3 (75.0)	4 (66.7)	71 (74.7)
No	10 (17.2)	3 (37.5)	4 (57.1)	0 (0.0)	0 (0.0)	1 (100.0)	3 (60.0)	1 (25.0)	2 (33.3)	24 (25.3)
TOTAL	58	8	7	4	2	1	5	4	6	95
Will you encourage mothers to donate?										
Yes	79 (92.9)	11 (91.7)	108 (87.8)	10 (100.0)	7 (87.5)	7 (70.0)	16 (50.0)	10 (90.9)	15 (75.0)	263 (84.6)
No	6 (7.1)	1 (8.3)	15 (12.2)	0 (0.0)	1 (12.5)	3 (30.0)	16 (50.0)	1 (9.1)	5 (25.0)	48 (15.4)
TOTAL	85	12	123	10	8	10	32	11	20	311
Will you feed a child in your care with donor milk?										
Yes	77 (91.7)	10 (76.9)	104 (86.0)	8 (80.0)	6 (75.0)	8 (80.0)	17 (58.6)	9 (81.8)	12 (60.0)	251 (82.0)
No	7 (8.3)	3 (23.1)	17 (14.0)	2 (20.0)	2 (25.0)	2 (20.0)	12 (41.4)	2 (18.2)	8 (40.0)	55 (18.0)
TOTAL	84	13	121	10	8	10	29	11	20	306
Will you accept donor breast milk for your child?										
Yes	52 (61.2)	8 (66.7)	51 (42.9)	4 (44.4)	3 (42.9)	3 (30.0)	6 (18.8)	8 (72.7)	8 (44.4)	143 (47.2)
No	33 (38.8)	4 (33.3)	68 (57.1)	5 (55.6)	4 (57.1)	7 (70.0)	26 (81.3)	3 (27.3)	10 (55.6)	160 (52.8)
TOTAL	85	12	119	9	7	10	32	11	18	303
Do you prefer donor human milk to breastmilk substitute?										
Yes	62 (74.7)	8 (61.5)	76 (65.0)	7 (70.0)	7 (87.5)	3 (30.0)	8 (28.6)	8 (72.7)	11 (55.0)	190 (63.3)
No	21 (25.3)	5 (38.5)	41 (35.0)	3 (30.0)	1 (12.5)	7 (70.0)	20 (71.4)	3 (27.3)	9 (45.0)	110 (36.7)
TOTAL	83	13	117	10	8	10	28	11	20	300

Abbreviations: Doc – Doctors; Pharm – Pharmacists; Nur – Nurses; Lab Sci – Laboratory Scientists; Diet – Dieticians; Health Ass – Health Assistants; Rec – Medical Records Officer; BMS: Breast Milk Substitutes

information. Of those who felt it was not safe (21.7%) or culturally unacceptable (30.5%), their main source of information was from other people. Of those who felt it was unethical, 11.5% did not disclose their source.

There were 277 (86.3%) respondents who thought they needed more information about HMB, 13 (4.0%) did not think they needed more information, 14 (4.4%) were not interested in obtaining more information, and 17 (5.3%) did not answer the question. See Table 4.

Discussion

There is strong evidence for the role of donor human milk (DHM) from human milk banks as a secure alternative to MOM especially among preterm infants in the neonatal intensive care unit [9, 10]. Also, studies have shown that DHM ultimately improves breastfeeding rates/consumption of mother's own milk [5, 6]. These are the main reasons for establishing human milk banks. However,

the implementation of this practice varies globally. In this observational study, our objective was to assess the knowledge and perceptions of healthcare workers regarding HMB and DHM, aiming to gain insights into the prevailing attitudes and understanding within the healthcare community in Ekiti State, Southwest Nigeria.

This study revealed that HCWs are knowledgeable about HMB. These findings can also be cautiously interpreted as follows: HCWs are likely to support HMB in our environment, as most of them are willing to donate their breast milk and encourage other mothers to donate. A notable majority of healthcare workers (52.8%) in this study exhibited reluctance to allow their infants to receive DHM, a finding consistent with the observations of Chagwena et al. in Zimbabwe [25], who reported a similar trend with a greater proportion (69%). Interestingly, when examining the acceptance of DHM across various professions, doctors and pharmacists emerged as the

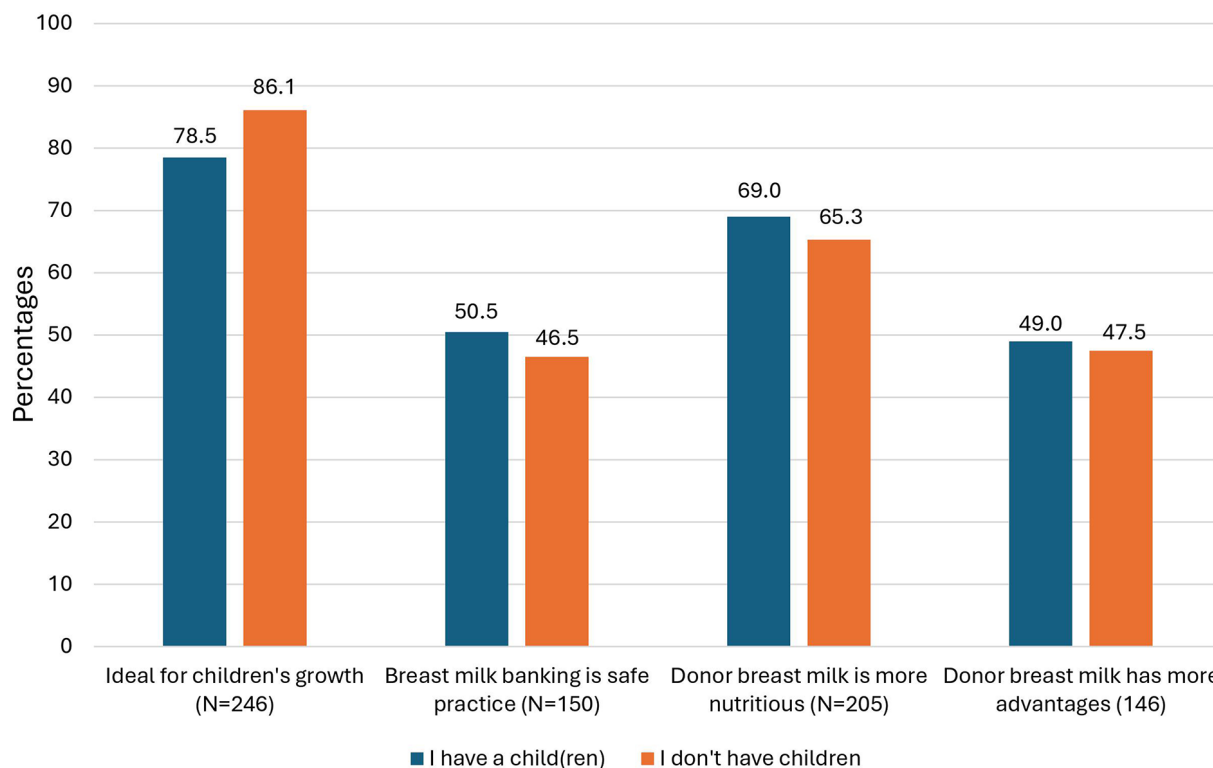


Fig. 1 Respondents' perceptions of donor breast milk compared with BMS

Table 4 Respondents' sources of information on negative perception

Negative perceptions*	Undisclosed source	Self-perception	Formal education	Internet	Print media	Workplace experience	Other people
It transmits genetic diseases	19 (31.1%)	22 (30.1%)	22 (26.5%)	21 (23.9%)	8 (25.8%)	14 (22.2%)	5 (21.7%)
I dislike the idea	14 (23.0%)	15 (20.6%)	19 (22.9%)	20 (22.7%)	8 (25.8%)	17 (27.0%)	5 (21.7%)
It is culturally unacceptable	12 (19.7%)	19 (26.0%)	23 (27.7%)	27 (30.7%)	9 (29.0%)	18 (28.6%)	7 (30.5%)
It is unethical	7 (11.5%)	5 (6.8%)	6 (7.2%)	6 (6.8%)	3 (9.7%)	5 (7.9%)	1 (4.4%)
It is not safe	9 (14.7%)	12 (16.4%)	13 (15.7%)	14 (15.9%)	3 (9.7%)	9 (14.3%)	5 (21.7%)

* Respondents selected multiple answers hence the percentages of the total number of respondents have been displayed in this table

groups demonstrating the highest levels of acceptance for their own children. This finding aligns with Chagwena et al. [25] in Zimbabwe, suggesting a pattern of greater acceptance among medical professionals. Regarding the inclination to donate, the substantial number of respondents expressing a willingness to donate breastmilk has a positive trend, contrasting with the findings of Chagwena et al. [25], where less than half of the respondents demonstrated a similar willingness. Possible explanations for these differences may stem from increased access to information on the subject matter, as the Zimbabwe study was conducted approximately four years before our study.

Notably, HAs exhibited a less favourable attitude toward HMB in this study. The majority of the HA were not willing to donate their breastmilk or accept donated breast milk to feed their babies. Additionally, approximately half of the mothers in this group were not inclined

to donate their breast milk. It is essential to highlight that health assistants play a crucial role in primary healthcare delivery in Nigeria, often being the first point of contact for mothers and clients at primary health centres within the community.

This study underscores the importance of disseminating information about HMB to all categories of health workers in Nigeria. By addressing the knowledge gaps and attitudes among health assistants and other healthcare professionals, there may be an opportunity to consider and propose the establishment of HMB services. Furthermore, improving the quality of information provided to mothers is essential, as it empowers them to make informed and appropriate choices for the well-being of their children [23, 25, 26]. It is important to state that though DHM is the clinically preferred supplement when maternal milk is insufficient all efforts should first

be made by HCWs to increase the mother's own milk production.

Breastfeeding is integral to achieving the Sustainable Development Goal (SDG), Goal 3, Target 3.2, aiming to reduce neonatal mortality to 12 per 1000 live births and under-5 mortality to 25 per 1000 live births by 2030 [27]. Emphasizing the significance of DHM over breast milk substitutes (BMSs) is crucial in this context. The hesitancy of healthcare workers (HCWs) to accept DHM, despite expressing a preference for DHM over BMS in this study, suggests a bias that might have cultural or religious roots. For example, the Islamic religion adherents believe in milk kinship which means that human milk creates a relationship between a breastfeeding woman, her biological child who is being breastfed, and her non-biological children whom she is also breastfeeding and this relationship prohibits future marriages between these "milk brothers and sister" [28]. Although this study did not delve into detailed sociocultural influences, addressing and understanding these factors are essential for providing effective HMB services.

Moreover, this study highlights the diverse sources of information influencing negative perceptions of HMB, with many respondents citing the internet, formal education, personal knowledge, and workplace experiences, sources that may lack evidential backing. This underscores the need to disseminate accurate information about HMB throughout the community, correcting misconceptions that contribute to biases against HMB services.

Some HCWs in this study reported a significant hurdle to the success of HMB, particularly related to concerns about its safety. Some HCWs believed that HMB could transmit genetic diseases, indicating a knowledge gap that could be addressed through appropriate health education. In regions with strong negative cultural perceptions and a high prevalence of infections, it is crucial to convince HCWs about the safety of DHM for HMB to gain acceptance in the community. Despite infrastructural challenges in Nigeria that might make this infant feeding option seem unattainable, successful models in other countries highlight that strong political will and effective information dissemination can overcome such obstacles.

Some scholars have raised concerns about the potentially greater cost associated with setting up DHMB and DHM compared to the cost of BMS [29, 30]. Hence, providing adequate support, information, and education to breastfeeding mothers with insufficient milk to help improve their milk production should be the priority in low-resource settings such as Nigeria. However, it is crucial to emphasize that the advantages of DHM surpass this challenge, particularly when contrasted with the expenses linked to managing morbidities such

as necrotizing enterocolitis, sepsis, and feeding intolerance, which are conditions effectively reduced by DHM [8, 31–34]. The practice of HMB has also been associated with increased breastfeeding rates [5, 6] and this hopefully should help in improving the exclusive breastfeeding rate in Nigeria which currently stands at 34% which is still far from the 50% target for 2025 set by the WHO in 2014 [35].

Healthcare workers play pivotal roles in the success of HMB, as evidenced by prior studies indicating that sufficient knowledge and a positive attitude among healthcare professionals toward breastfeeding can motivate mothers to breastfeed their infants and contribute milk to feed other babies [18, 36]. It is imperative to integrate HMB-related information and education into the training of healthcare workers in Nigeria, as well as establish human milk banks. Furthermore, policymakers in Nigeria need to make substantial investments in educating healthcare professionals about feeding practices for infants and young children, emphasizing the utilization of DHM for medical purposes. This finding aligns with the recommendations of Chagwena et al. [25] in the Zimbabwe study. Enhanced education for HCWs will not only increase the quality of the information provided to mothers but also empower them to make well-informed and appropriate choices for their children.

It is noteworthy to mention that a human milk bank was established in Lagos in August 2022, however, there are challenges confronting the practice such as, the inability to leave the pasteurized milk in the hospitals because of the lack of steady power supply, and behavioural challenges with regards to the availability of donors and the acceptability of the donated milk.

Conclusions

This study highlights that HCWs exhibit a degree of openness to HMB, as evident in their willingness to support milk donations. However, there are notable knowledge gaps concerning the advantages, acceptability, and safety of DHM. This underscores the need for targeted education programs for HCWs and fostering a comprehensive understanding of HMB concepts. Such initiatives are crucial for Nigeria to establish effective HMB services in the foreseeable future.

Abbreviations

BMS	Breast Milk Substitute
CI	Confidence Interval
DHM	Donor Human Milk
EBF	Exclusive Breastfeeding
EKSUTH	Ekiti State University Teaching Hospital
FETHI	Federal Teaching Hospital, Ido-Ekiti
HA	Health Assistants
HCW	Healthcare Workers
HIV	Human Immunodeficiency Virus
HMB	Human Milk Bank
IBM	International Business Machines

IF	Infant Formula
IQR	Interquartile Range
MOM	Mothers' Own Milk
NICU	Neonatal Intensive Care Unit
SD	Standard Deviation
SDG	Sustainable Development Goals
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

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Author contributions

Conceptualization: EOO, OAF. Data Cleaning: EOO, OAF. Data Analysis: EOO, OAF, IOFD, AAA. Data Collection: EOO, OAF, AAT. Methodology: EOO, OAF, IOFD, AAA. Writing – Original draft – EOO, OAF. Writing – review and editing – EOO, OAF, IOFD, AAT, AAA. Statistics – OAF, IOFD. All authors reviewed and approved the manuscript.

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Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical approval and consent to participate

Ethical approval for the study was obtained from the Ethics and Research Committee of the Ekiti State University Teaching Hospital, Ado-Ekiti with reference number EKSUTH/A67/2021/06/005. Healthcare workers who gave written informed consent were recruited into the study.

Consent for publication

The authors consent to publication.

Competing interests

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