

Turkish women's attitudes and views regarding human milk banking



Abstract

Objective: Human Milk Banking (HMB), which is improved and supported as an extension of national breastfeeding policies in many countries, is not approved by the majority of the Muslim communities due to the ethical problems, traditional beliefs, and attitudes. The purpose of this study is to identify the attitudes and views of Turkish women who have children regarding Human Milk Banking.

Methods: This study, which was conducted in the Family Health Centers located in the districts of Istanbul, is population-based and descriptive design. The participants were 1055 volunteer women who had at least one child. Data were collected through a 32-item questionnaire developed by the researchers in line with the related literature, considering the cultural practices and beliefs. The participants were interviewed with face to face by the researcher in their homes.

Results: Of all the participants, 62.8% had knowledge about the human milk banking project. However, 63.8% of them stated they would not donate their milk to a baby in an intensive care unit while they were breastfeeding their own child. In addition, 78.6% said they would not receive support from a human milk bank for their baby who might be in an intensive care unit or who might not have access to breast milk for some other reason. The most important issue related to human milk banking, as stated by 46.8% of the participants, is that it is inappropriate according to Islamic beliefs (babies are believed to become milk siblings). Hence, 57.2% of the participants think that a human milk banking project would not be approved in Turkey.

Conclusion: In human milk banks to be established in Muslim countries, we need to ensure that the mothers' milk will not be mixed and also develop a model where both donor and recipient can exchange information about each other.

Keywords: Human milk banking, milk donation, donor milk, muslim women, attitudes, views

Introduction

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) (2009) recommend that only mother's milk (MM) be given to babies for the first 6 months (WHO 2009). Because of its components, MM has the unique feature that it meets all a newborn's needs. Breastfeeding is a unique way to provide this ideal nutrient. Due to problems that sometimes arise from the mother and the baby, the breastfeeding period and diet of MM only is negatively affected. The World Health Organization and UNICEF report that when the MM is unavailable, the best options of milk come from a healthy wet nurse, a human milk bank, or a breast milk substitute [1,2].

Human Milk Banking combined with

children's health policy and regulations, is protected, improved, and supported as an extension of national breastfeeding policies worldwide [3]. HMB organizations provide services that collect, screen, process, and distribute donated breast milk to those in need. In general, HMB users are mothers who are unable to adequately breastfeed their babies [4]. Some hospitals have established a milk bank for mothers who are unable to breastfeed. The goal of HMB is to collect milk from lactating mothers and help feed another woman's baby. HMB organizations have been functioning throughout the world since 1909 [5].

Although the American Academy of Pediatrics (2005) noted that human milk is species-specific and the optimal source of nutrition for babies, the idea that banked

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human milk as an alternative when needed is also strongly endorsed. In 2009, more than 300 HMB organizations existed in 38 different countries [6]. Although breast milk is the best option for feeding premature and ill babies, the second best option when sufficient MM is not available is donor breast milk. Today, HMBs are found worldwide [6].

Recently, in Turkey, the practice of HMB was planned; however, due to ethical problems, traditional beliefs, and attitudes, this practice was not widely accepted by a large majority of society. Despite that, and specifically in rural areas where breastfeeding is a traditional practice, the use of donor milk from a woman that is not known by the recipient family and the idea that a bond is established between the donor mother and the baby are among the reasons why the milk banking practice has not been accepted [7]. Furthermore, the Council of the Islamic Law Academy prohibited the establishment of HMBs in the Islamic world and disapproved of Muslim children receiving milk from human milk banks on the basis that it could lead to sibling marriages in the future [2,8]. For this reason and in countries where Islam is accepted as the primary belief system, there is a great need for a functional system, approved by the public, to make HMB more widespread.

Establishing an HMB project was put on the Ministry of Health's agenda in 2012, and a committee was established. Although this project received wide media coverage, the project was delayed because of many criticisms, lack of acceptance, and insufficient infrastructure. It was assumed that by planning this study, women's views, recommendations, and attitudes would act as a guide in actualizing this project specifically in Muslim societies.

The aim of this study is to determine the views regarding HMB and to examine the attitudes concerning milk donations among women who are potential donors.

Ethical Approval

Ethical approval was obtained from the local ethical committee and conforms to the provisions of the Declaration of Helsinki. Women were informed about the aim of the study, and information about anonymity, confidentiality, and consent was included in the verbal explanation at the pre-interview.

Methods

■ Study design and settings

The present study is population-based and descriptive in design and based on data from the Turkish Statistical Institute (TUIK) (Turkish Statistical Institute 2013). The sample group of this study was limited to women who have had at least one child and who consulted Istanbul's various family health centers located in Istanbul between February and June 2014. The samples from the 13 districts were chosen according to the female population density using a stratified simple random sampling method with an alpha error of 0.05 and 99% confidence interval CI=0.04. The 1058 volunteer participants were chosen using the purposeful sampling method. Three records were removed for "failing" to answer on the personal information forms. The total sample was therefore limited to 1055 women.

■ Study instrument

The question form was developed by the researchers in line with the relevant literature and considers the subjects' cultural practices and beliefs. After a thorough review of the literature, an initial version of the questionnaire was drafted. The questionnaire included closed-ended questions regarding the descriptive characteristics and about attitudes and views of mothers on milk banking.

The questionnaire was then validated in two steps. First, the draft was sent to three experts (lactation consultant, religious expert, women's health and disease specialist) for their opinion on the relativity and the importance of the content. The amendments proposed by the experts in the questionnaire were incorporated in view of published literature [9-12]. Second, a pilot study was conducted by selecting a small sample of 30 participants who gave their opinions on making the questionnaire simpler and shorter. After a thorough discussion, the questionnaire was finalized by the authors. The reliability coefficient of the questionnaire was calculated by using SPSS v.16. The Cronbach's alpha value of 0.71 was computed for attitudes section, respectively. The data of the pilot study was not used for the final analysis. Women who agreed to participate in the study were given some brief information on the purposes of HMB and its use, and survey forms were completed by

the researchers using the face-to-face interview technique in their homes.

Data Analysis

The SPSS Software Programs, version 16.0 for Windows, was used for the data analysis. Statistical analyses were based on percentages, frequency, and mean scores for the demographics tests. Statistical significance was set at $p < 0.05$.

Results

The demographic variables of women and their views about human milk banking and milk donation were expressed in percentages and numerical values (TABLES 1-3).

The average age of women who participated in the study was 32.5 years. Most of the women were high school graduates (38.6%), and 44.5% of the sample consisted of women who had two children. The mean number of children per woman was 2.02. During the perinatal period of baby feeding, 56.9% of women used their own milk and 44.3% used their own milk plus formula. Demographic characteristics of the women included in the study are shown in TABLE 1.

Of the 1055 women responding to the questionnaire, 37.8% indicated that they had never heard of HMB. After giving brief information about HMB 36.8% indicated that while breastfeeding their own child, they could

TABLE 1: Demographic data (n:1055).

Variables	N	%
Age		
<20 years	41	3.9
21-30 years	415	39.3
31-40 years	530	50.2
>40 years	69	6.6
Education		
Illiterate	29	2.7
Literate	43	4.1
Primary school	137	13
Middle school	220	20.9
High school	407	38.6
University	219	20.7
Number of children		
1	302	28.6
2	469	44.5
3	246	23.3
4 or more	38	3.6
Feeding status of children		
Own milk	600	56.9
Formula	10	0.9
Own milk and formula	436	41.3
Donated human milk (wet nurse)	9	0.9
Total	1055	100

TABLE 2: Women's views about milk banking (n: 1055).

Have you ever heard of human milk banking?	N	%
Yes	656	62.2
No	399	37.8
Would you donate your own breast milk to a human milk bank to be given to a baby in intensive care while you were breastfeeding your child?		
Yes	382	36.2
No	673	63.8
If necessary, would you obtain breast milk from a human milk bank?		
Yes	226	21.4
No	829	78.6
Is human milk banking an acceptable practice in Turkey?		
Yes	452	42.8
No	603	57.2
What is the greatest obstacle to the use and popularisation of human milk banking in Turkey?		
It is not safe due to the risk of infection	368	34.8
It does not conform to the rules of Islam	580	55.1
The baby of the donor may be deprived of breast milk	107	10.1
Do you know about the storage conditions of the milk donated to human milk banks?		
Yes	97	9.2
No	958	90.8
Total	1,055	100

TABLE 3: Views and attitudes about milk donation (n: 1055).

Attitudes and Opinions	I agree		I do not agree	
	%	n	n	%
A mother's breast milk is only beneficial for her own baby.	738	70	317	30
If the age on months of the baby of the donor and the baby to whom the breast milk is given are at the same age (month), the breast milk of the donor will be beneficial to the recipient.	469	44.5	586	55.5
I would prefer to feed my baby formula than to feed breast milk from a milk bank.	531	50.3	523	49.6
The character traits of the donor are important to me.	926	87.8	129	12.2
I would not like to feed my baby with the breast milk of a woman that I do not know.	957	90.7	98	9.3
I would not give my breast milk to a family that I do not know even if they need it.	194	18.4	861	81.6
A certain amount of money should be paid to women who donate their breast milk.	850	80.6	205	19.4
All nursing mothers should be informed about and encouraged to donate to milk banks.	585	55.5	470	44.5
It is against Islamic law for milk siblings to get married. Thus, I may donate my own breast milk or receive milk for my baby when needed if the necessary regulations are established (e.g., milk identity cards)	764	72.4	291	27.6
My husband would never let me donate my breast milk.	514	48.7	541	51.3

donate their milk to a baby in intensive care; however, 78.6% indicated that even if it was necessary for their own baby, they would not receive milk from a milk bank.

57.2% stated that HMB involved a practice unacceptable in Turkey, 55.1% indicated that milk banks becoming widespread was not appropriate according to Islam and that this sanction was the greatest barrier to milk banks becoming widely used. Whereas 34.8% found the practice risky in terms of disease transmission, 10.1% thought that the baby of donor mothers would not receive enough nourishment, and 90.8% had no knowledge about the processes and storage conditions regarding the milk donated to the human milk bank.

Seventy percent of the women indicated that MM would only benefit the mother's, own baby, 44.5% thought that for the MM to benefit the baby, the donor mother's baby and the recipient mother's baby had to be the same age, and 50.3% indicated that in the event of need, they would prefer to give the baby formula rather than donated milk.

Personality characteristics of the donor mother were important for 87.8%. Whereas 90.7% indicated that they would not give their milk to a stranger, 81.6% indicated that they could make a milk donation to a family they did not know. 80.6% believed that donor mothers should receive remuneration and 55% thought that breastfeeding mothers should be informed about the human milk bank and support they're making a donation to the milk bank.

For human milk banks to be suitable for the Islamic belief, 72.4% of women indicated that they could donate milk and use milk, when needed, if practices such as receiving information cards/documents that contain donor and recipient information. However, 48.7% indicated that they did not believe that their spouses would ever allow them to make a donation. The attitudes and views regarding HMB and milk donation are shown in **TABLES 2 and 3**.

No statistically significant difference was found in the relationship between age, education, number of children, and children's nutritional style among women in the study who indicated that a milk bank was an unacceptable practice

($p > 0.05$). Donating milk to a milk bank and indicating that an HMB would be accepted in Turkey in women who had previous knowledge regarding HMB was highly statistically significant ($p < 0.05$). Those who indicated that the Islamic belief was the biggest barrier against HMB becoming common and used more widely were those who did not consider making a milk donation ($p < 0.05$).

Discussion

Today, feeding with MM is the most effective way to fight infection, reduce disease due to infection, and avoid death in newborns and during the period when milk is the main source of the baby's nutrition. Using volunteer MM for premature babies, who require special nutrition and support, has life-saving importance. Feeding with MM not only protects premature babies from infections but also improves long-term cognitive development and positively affects coronary and arterial health as well. For all these reasons, as international authorities have dictated MM for newborn babies as the primary nutritional component to be chosen, they also recommend MM for premature babies as well, and in the event where MM is not available or not sufficient, donor MM is recommended [2]. According to recent data, breastfeeding rates in Turkey are at a good level.

According to the 2013 Turkey's Population and Health Research, almost all children (96%) were breastfed for various periods, and the average breastfeeding duration was 16.7 months (Turkish Statical Institute 2013). However, for mothers unable to breastfeed or mothers in a position where they cannot feed their babies with their own milk tend to prefer ready-made formula because it is easy to access and it has a low cost. The ready-made formula is also preferred because families lack knowledge of the possibility of donated breast milk, there is a lack of existing donor human milk banks, and healthcare personnel provides insufficient counseling, support, and education regarding this issue.

Human milk banks are an important source for premature and low birth weight babies who are unable to be breastfed for various reasons. In Turkey, when every hospital that has a mothers health-related clinic, and all birthing hospital are taken into consideration, it is observed that HMB practices are not available. The reasons

for this are ethical problems arising from the donor and recipient not knowing each other, traditional beliefs, and attitudes. Studies conducted in Muslim countries and our country have reported similar problems.

Whereas 62.2% of mothers who participated in our study indicated that they had never heard of HMB only 9.2% had knowledge of how the milk bank works (collection of milk, transport, sterilization, and other practices). Gurol et al., in a study conducted in Eastern Anatolia in Turkey, found that 90.6% of mothers; also, Eksioğlu et al., in a study conducted in the western region, found that 58.4% of mothers had never heard of milk banking. In a study conducted in South Australia, McKenzie et al. reported that a proportion of participants had either never heard of a human milk bank or they did not know how a milk bank worked (transport of milk, sterilization, and other practices), despite there being a milk bank close to where they lived; they thought it was like a blood donation [13]. According to a study conducted by Gurol et al., the reason that HMB familiarity in our study was due to regional differences, the increased discussions about the topic in the media, and the increase in premature births. Due to the increase in premature birth rates in Turkey, where 130,000 preterm babies are delivered annually, families' awareness of these milk banks may result from a need to obtain milk, or because the sources they reached have informed them about the milk banks. However, in our study, the rate of women having knowledge about how milk banks operate was very low.

In our study, 55% of the women believe that the most important barrier to milk donations and these human milk banks becoming widespread has to do with the prohibitions set by the Islamic belief. However, 72.4% indicated that if the necessary arrangements in these milk banks were done according to the Islamic faith, then they would donate milk; this supports Islamic prohibitions being one of the most important factors. Similarly, in Aykut et al., 38.4% of mothers did not find milk banks to be appropriate; 75.4% indicated that they did not view milk banks positively because of the possibility of milk siblings marrying in the future [14]. According to Gurol et al, 36.3% of mothers perceived religious reasons and 28.9% perceived social and moral reasons as a barrier to milk donations. Eksioğlu et al. found that

mothers who did not want to donate their milk did not want to because of religious reasons. Findings from our study are consistent with the above-mentioned studies.

Different cultures and religions have different perspectives on HMB. In Christianity, Buddhism, and Hinduism the sharing of MM is not seen as problematic; on the contrary, it is encouraged. Even among Jehovah's Witnesses, where human blood transfusions are prohibited, there are no strict rules against the sharing of MM [15]. Similarly, in Islam, the sharing of MM is seen as a virtue. Breastfeeding is very much encouraged, and mothers are recommended to breastfeed their babies for two years, and the Holy Quran supports this as well with many verses. In addition, it must be noted that inappropriate use of MM is forbidden and should not be sold. However, with the way it is practiced in the west, gathering MM into an MM pool is seen as problematic [16]. The underlying reason is that babies who receive MM from the same donor become milk siblings, and this creates worry regarding their possible marriage in the future, which is considered "haram"-meaning legally forbidden and/or unlawful according to Islam. In Turkey, the majority of the population is Muslim, and these worries are profound. Similar concerns have been seen in different societies. Although gender was not a barrier for co-feeding, some cultures have imposed regulations dictating children who co-feed be of the same gender. Greece, for example, is an Orthodox Christian country where the marriage of milk siblings was prohibited until the first half of the 21st Century; however, this risk of milk-sibling marriage was greatly reduced when both co-feeding children were the same gender [16]. Among all mainstream religions, Islam is the only religion that addresses milk donation and has strict stipulations. To satisfy religious standards and regulations, donor name, recipient's family information and address, the baby's gender, and the amount of donated milk should be meticulously kept in the baby's records. An "MM file" could be established by both hospital and maternity authorities.

With this, in some Muslim communities, "milk motherhood" is fairly common. In milk motherhood, MM is shared/donated. Families generally prefer a woman they know or are acquainted with as a milk mother. This way, the donor woman's children are known as milk

siblings, meaning that the donor and recipient are obvious, and sibling marriages are prevented. In our country, although there is no concrete data on the frequency of milk mother practices, it is a practice that still continues but not as frequent as it formerly used to be. In this study, the ratio of mothers who fed their baby with a milk mother was fairly low (0.9%). In a study conducted in Central Anatolia, it was reported that 5% of mothers acted as milk mothers and that in 5.2% of the children, at least one was fed from a milk mother. In Can et al., it was reported that 17% of women breastfed another woman's child and that 14.7% of the women's children were breastfed by another woman [17]. The reasons leading to the decrease in milk mothers include the donor not willing to share her milk assuming it may not be enough for her own baby—the risk of disease transmission, and ready-made formula being cheap and easily available.

Also, in Anatolia, the belief that a mother who donates her milk (milk mother-süt Anne) will transmit her personality characteristics to the baby is a prevalent view. For this reason, great care is given when choosing milk mothers who are appropriate according to moral and societal norms. In this study, 87.8% of women indicated that the personality characteristics of the mother giving milk affect the baby, and this supports the notion that this view still continues. Also, 90.7% indicated that they would not give milk to their baby from a woman they did not know also supports the importance of the donor or milk mother being known by the family.

In the event that the mother cannot breastfeed, formula feeding should be preferred. In a systematic study examining the effects of feeding premature babies with MM and with formula, results suggest that MM reduces sepsis and necrotizing enterocolitis (NEC), which are two important complications in premature and ill babies. In another meta-analysis, 1017 stable premature babies fed with MM (from their own mother or donated milk) and fed with formula (period formula or preterm formula) were compared [18-20]. In all studies, there was a significant increase in confirmed NEC in babies who were fed with formula. The incidence rate of feeding intolerance in babies fed with formula was also found to be significantly higher. With this, studies support the importance of newborns being fed with their own MM and

recommend that donor milk should only be given only to newborns in the intensive care unit and to premature babies or babies with low birth weight who cannot receive milk from their own mothers [21]. Within this scope, methods increasing MM production, breastfeeding, and feeding methods with MM for premature babies in maternity wards should be investigated [22]. In our study, 21.4% of mothers indicated that in the event a barrier to breastfeeding arose, they would obtain milk from the human milk bank; 50.3% indicated that rather than giving milk from the milk bank, they would prefer to give formula. It is thought that the reasons for obtaining milk from an HMB organization are few and formula is preferred, result from formula being easily accessed, economical, referred to by healthcare professionals; that it does not carry any religious concerns; and that mothers do not have sufficient knowledge about the importance of MM. Also in our study, the number of women in our sample who have had a healthy child in the past may have affected the answers given.

In our study, 80.6% of women thought that donors should be paid, which is consistent with the literature. However, this may be viewed as an unethical and unsafe practice for mothers donating their milk to milk banks. Mothers may be forced to sell their milk rather than to feed their own baby due to financial difficulties or family members' greed (International Lactation Consultant Association 2008). In another study, donors were volunteers and no remuneration was given. Payment could be made to the mother in the event if her baby dies. Women in Gribble (2013) indicated that no remuneration should be paid to donors; however, donors should not be faced with other costs [23]. Payments made to donors in this respect may lead to some people to abuse this situation and neglect their own child's needs. For this reason, human milk banks in Turkey should be established with government support, be based on a totally voluntary basis, and not create any financial responsibility on the donor.

A qualitative study with women that examined the factors affecting women's milk donation and their use of milk banks found that spouses, families, friends, healthcare personnel, procedures involved in milk acceptance (such as health scans, milk collection, distribution), and bureaucracy were effective. Because Turkey

is a male-dominated society, women are more influential on women and have the right to speak on their behalf. 48.7% of women indicated that their husbands would never allow a milk donation. In this study, the reasons for permitting a donation were not questioned; however, men should take initiative in increasing their sensitivity and awareness. Similar studies can be conducted with Muslim men [24-28].

Limitations

This research should be done with mothers who have infants in intensive care. The mothers aforementioned may be more empathic and more moderate for HMB.

Conclusions

Approximately half of the mothers in our sample had heard of a milk bank and if regulations are adapted according to Islamic rules this majority indicated that they could donate their milk; this is a positive outcome for human milk banks. However, in addition to religious concerns and concerns regarding disease transmission, donors and recipients may perceive these as important systemic barriers when the milk bank system is established. For this reason, the most important step to be taken in establishing milk banks is to resolve families' concern regarding this issue and establish a system of family education. Using the media as an outlet to resolve this barrier and to reduce these concerns by introducing milk banks provide a solution. Families, especially those with babies in intensive care, should be informed about the importance of MM (even

if it is from a donor), and milk donations should be supported. To strengthen people's trust towards milk bank practices, healthcare personnel (midwives, nurses, gynecologists, pediatricians, and other health professionals) and religious figures should take on a prominent role. Concerns regarding milk banks should be taken into consideration, and processes like scanning, donation, pasteurization, and storage stages should be integrated into the educational material.

As a result, for HMB to be accepted in Muslim societies differently from its practice in western societies, a model needs to be developed where the collected milk at the milk bank will not be mixed and the donor-recipient information is available to both the donor and recipient mother.

Compliance with Ethical Standards

■ Conflict of interest

The authors declare that they have no conflict of interest.

■ Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

■ Informed consent

Informed consent was obtained from all individual participants included in the study.

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