



## Original Article

## Views of Muslim mothers in Turkey on breast milk donation and human milk banks

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## ABSTRACT

**Background & Aim:** In many countries, human milk banks (HMBs) are included in children's health policies and regulations and are supported as an extension of national breastfeeding policies. Currently, there are no active HMBs in Turkey. This study aimed to evaluate the attitude, knowledge, and views of mothers about breast milk donation and HMBs.

**Methods & Materials:** This descriptive study was conducted in a university hospital postnatal clinic in Eskisehir between January and April 2019. The study population comprised of 250 multipara mothers. Data were collected with the help of a questionnaire comprising three sections.

**Results:** Only 28.4% of mothers knew about HMBs. A total of 40.8% of mothers indicated that they were against the establishment of HMBs in Turkey. However, only 61 mothers (24.4%) approved of obtaining milk from HMBs. Mothers who did not agree to the establishment of HMBs (77.5%) stated that babies who are fed with breast milk from the same mother would be milk siblings, and it would be an ethical problem if they got married to each other.

**Conclusion:** Most mothers are hesitant to donate their milk to HMBs, mostly due to religious concerns. Even in a group of Turkish Muslim populations whose sociocultural level can be considered high, resistance against HMBs is thoughtful. It is essential to organize public campaigns, especially through social media, to raise awareness of HMBs. When the results of the study were taken into account, it is believed that an HMB model where the donors and recipients meet each other is necessary.

## Introduction

Breast milk is the perfect source of nutrition for infants (1, 2). Generally, the mother's milk is the first choice for her baby (2). However, breastfeeding can be temporarily or permanently discontinued because of some conditions of either the mother or the baby (3). In this case, human donor milk is recommended as an alternative source of nutrition (4). Wet-nursing (breast milk to feed a nonbiological child) is an option to provide donor milk and is a well-known and widely used method of feeding babies in Muslim communities (5).

Generally, the donor mother is a relative or a close friend of the recipient baby's family. Muslims believe that accepting milk from a donor mother establishes a

“relationship” between the donor mothers (including their kids) and the recipient infants. Recipient infants and the children of the donor mothers are considered as “milk siblings”; therefore, they are not allowed to marry each other (5).

In the Islamic world, it is essential for mothers of those children who received the same milk to get to know each other; this way, these children are prevented from marrying each other accidentally in the future (6). Besides the traditional way of using the donated breast milk, modern alternative methods like human milk banking are used to improve an infant's health in developed as well as developing countries. In many countries, human milk banks (HMBs) are included in children's health policies and regulations and are supported as an extension of national breastfeeding policies (7). Currently, there are no active HMBs in Turkey. The Turkish Ministry of Health launched the HMB establishment project in 2012 (8).

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However, the project was postponed due to pressure from the Turkish media and the public. Turkish Ministry of Health postponed the HMB project with emphasis on the fact that “mother's milk carries the family's gene structure and because of the issue of milk siblings that are in our traditions, legal regulations must be made first.” However, there are some differences between Muslim scholars and the overseeing bodies that make religious decisions about the importance of this issue (9). Those who oppose the establishment of the HMB used the Holy Quran as a basis. The Holy Quran (Nisa 4:23) describes restrictions placed on marriage: “Forbidden for you (in marriage) are your foster-mothers (who have suckled you), and their daughters (your foster-sisters).” However, other Islamic lawyers point out that the verse uses the term suckling to describe the act of providing milk through breastfeeding; feeding milk through a bottle does not mean suckling and, therefore, does not establish kinship (6, 9).

Few studies in the literature have investigated the opinions of mothers about HMBs in Turkey. In a country where most of the population is Muslim, the opinions of Turkish women about breast milk donation or the use of donor milk for their babies are of great importance. This study was conducted as an attempt to understand the reasons behind the resistance of the public and the different opinions by identifying the views of potential donor and recipient mothers toward wet-nursing and HMBs. In our opinion, this study will facilitate in addressing the concerns of Muslim mothers and help them in accepting and understanding the benefits of HMBs. The study also aims to bring awareness to people who are serving Muslim mothers in HMBs in other Western countries.

## Methods

This descriptive study was conducted in a university hospital postnatal clinic in Eskişehir between January and April 2019. The study population comprised multipara mothers with at least one child aged  $\leq 5$  years

old. Eskişehir is a semirural city located in the west of Turkey. The socioeconomic level of the city is average compared with other cities of the country (10). The prevalence of a wet-nurse was 20% based on the result of a previous Turkish study through its sample size calculation (11). The minimum sample size for this study was calculated as 246, and 250 mothers were included in the study.

A questionnaire that included 27 questions divided into 3 different sections was used for the study. The first, second, and third sections covered the sociodemographic and breastfeeding qualities of mothers, assessed their knowledge and experience on wet-nursing, and evaluated their knowledge and opinion on HMBs, respectively. Before creating the questionnaire, information about HMBs was given to approximately 20 mothers, and the open-ended question “why would or wouldn't you like these banks in Turkey?” was asked. The final draft of the questionnaire was created as a result of the answers from mothers and a literature review. Before providing the questionnaire, a brief explanation was given on the main objectives of the research. After answering the first question of the third section (*do you know about HMBs?*), the mothers were briefly informed about HMBs by the researchers. HMBs were identified as “centers where donor mothers' milk have been collected and where mothers who cannot breastfeed their babies can take milk stored in these banks and feed their babies.” Afterward, mothers were asked to answer the remaining questions about HMBs in the section.

IBM® SPSS version 21 (SPSS Inc., Chicago, IL) was used for statistical evaluations. Descriptive statistics were based on the percentages and mean  $\pm$  SD for sociodemographic variables, reasons for donating, and the factors that influenced the decision of donating to HMBs. A  $p$ -value  $< 0.05$  was considered statistically significant.

Institutional permissions were obtained from the Non-Interventional Clinical Research Ethics Committee of Konya

Karatay University (approval number: 41901325-050.99 [October 2018]). Written permission and approval were obtained from hospitals and units where this study was conducted. Consent of all the participating mothers was also taken.

**Results**

Of all the participating mothers, 81.2% were in the age group of 19–34 years, 48.4% of them finished primary school education, 77.6% of them were homemakers, and 95.2% of them were breastfeeding (Table 1).

**Table 1.** Some characteristics of the women

Variables	N (%)
<b>Age group</b>	
19-34	203 (81.2)
35 years and older	47 (18.8)
<b>Educational status</b>	
Primary school	121 (48.4)
High school	74 (29.6)
University	55 (22.0)
<b>Occupational status</b>	
Working	56 (22.4)
Not working	194 (77.6)
<b>Family type</b>	
Nuclear family	203 (81.2)
Extended family	47 (18.8)
<b>Number of births</b>	
2	177 (70.8)
3 and above	73 (29.2)
<b>Breastfeeding status</b>	
Yes	238 (95.2)
No	12 (4.8)
<b>Breastfeeding status other babies</b>	
Yes	220 (88.0)
No	30 (12.0)
<b>Gender of the baby</b>	
Female	122 (48.8)
Male	128 (51.2)

A total of 62.8% of mothers knew about wet-nursing. Of the 25 (10.0%) women who had done wet-nursing before, 68% of them had wet-nursed their relative. While 29.2% of the women said that they were willing to feed their babies with the milk of someone they knew, the percentage was down to 10.4% when they were asked: “would you feed your baby with the milk of someone you do not know?” A total of 83.2% of the

participants said that babies who were breastfed by the same woman would be milk siblings, and 94.8% of them stated that these siblings should not be allowed to marry each other. The vast majority (83.1%) rejected such marriage because of religious concerns (Table 2).

**Table 2.** Women’s knowledge, attitudes and behaviors on wet nursing\* and milk sharing\*\*

Variables	N (%)
<b>Do you know about wet-nursing?</b>	
Yes	157 (62.8)
No	93 (37.2)
<b>Did you have a wet-nurse?</b>	
Yes	25 (10)
No	225 (90)
<b>If you were a wet-nurse, was this baby relative?</b>	
Yes	17 (68.0)
No	8 (32.0)
<b>Did your baby’s/ babies have wet-nursing?</b>	
Yes	14 (5.6)
No	236 (94.4)
<b>Would you feed your baby with breast milk of another woman who you know?</b>	
Yes	73 (29.2)
No	177 (70.8)
<b>Would you feed your baby with breast milk of another woman who you do not know?</b>	
Yes	26 (10.4)
No	224 (89.6)
<b>If necessary would you give your breast milk to other baby?</b>	
Yes	141 (56.4)
No	109 (43.6)
<b>If two different babies are breastfed by the same mother do they become foster siblings?</b>	
Yes	108 (83.2)
No	42 (16.8)
<b>Do you approve the marriage of the foster sisters and brothers?</b>	
Yes	13 (5.2)
No	237 (94.8)
<b>If the answer is no. Why?</b>	
Marriage between milk kin is forbidden (religious concerns)	197 (83.1)
Others	40 (16.9)

\* A wet nurse is a women breastfed a non-biological child

\*\* Breast milk sharing indicates the action of pumping and sharing

Only 28.4% of mothers knew about HMBs. After discussing this question, 50% of mothers who informed about HMBs by the researchers agreed to the establishment of HMBs. Of them, 48% were willing to donate their milk to HMBs, and 24% said that they would feed

their baby with breast milk from the HMBs. Mothers who did not agree to the establishment of HMBs (77.5%) stated that babies who are fed with breast milk from the same mother would be milk siblings, and it would be a religious problem if they got married to each other (Table 3).

The influence of some characteristics of women on the decision to establish HMBs is evaluated (Table 4). However, the influence of demographic factors (age, education, occupation, family type, breastfeeding status, and breastfeeding status of other children) on this decision has not been found ( $p>0.05$ ).

**Table 3.** Women’s knowledge, attitudes and behaviors on human milk banking\*

Variables	N (%)
<b>Do you have information about HMBs?</b>	
Yes	71 (28.4)
No	179 (71.6)
<b>Would you like to establish the HMBs in our country?</b>	
Yes	148 (59.2)
No	102 (40.8)
<b>If HMBs were in our country, would you donate your own milk?</b>	
Yes	120 (48.0)
No	130 (52.0)
<b>Would you like to feed your baby by the breast milk from HMBs in case of need?</b>	
Yes	61 (24.4)
No	189 (75.6)
<b>HMBs should be established in our country because:**</b>	
Women who can't breastfeed can get breast milk from here.	98 (66.2)
Whatever the mother's breast milk is healthy for the baby.	32 (21.6)
HMBs can be established as well as blood and organ banks	38 (25.7)
Especially the breast milk needs of premature babies are met.	51 (34.5)
Mothers who cannot breastfeed or die the baby can evaluate milk in this way.	57 (38.5)
<b>HMBs should not be established in our country because:**</b>	
I think the babies who get the same breast milk are milk siblings. Therefore, if the marriage of the foster sisters and brothers in the future, it is not religiously appropriate.	79 (77.5)
The baby can be infected with milk taken from HMBs.	36 (35.3)
Every mother's milk is beneficial for her own baby.	31 (30.4)
Milk taken from the HMBs can cause allergies in the baby.	26 (25.5)
I don't know the person who donates breast milk.	32 (31.4)
Milk taken from the HMBs may be corrupted because it is not properly stored	37 (36.3)

\* Centers where donor mothers’ milk have been collected and where the mothers who cannot breastfeed their babies can take these milk gathered in these banks and feed their babies

\*\* It was calculated for mothers who want to establish the HMB in our country.

**Table 4.** Women’s status of wish to establish a human milk banks by socio-demographic characteristics

Variables	Women’s status of wish to establish a HMBs		P-value
	Yes	No	
<b>Age group*</b>			
Between 19-34 years	124 (61.1)	79 (38.9)	.274
35 years and older	24 (51.1)	23 (48.9)	
<b>Educational status**</b>			
Primary school	69 (57.0)	52 (43.0)	.771
High school	46 (62.2)	28 (37.8)	
University	33 (60.0)	22 (40.0)	
<b>Occupational status**</b>			
Working	114 (58.8)	80 (41.2)	.794
Not working	34 (60.7)	22 (39.3)	
<b>Family type*</b>			
Nuclear family	120 (59.1)	83 (40.9)	.954
Extended family	28 (59.6)	19 (40.6)	
<b>Breastfeeding status***</b>			
Yes	139 (58.4)	99 (41.6)	.369
No	9 (75.0)	3 (25.0)	
<b>Breastfeeding status of other babies***</b>			
Yes	128 (58.2)	92 (41.8)	.432
No	20 (66.7)	10 (33.3)	

\*Continuity Correction \*\*Pearson Chi-Square \*\*\*Fisher exact

## Discussion

Artificial nutrition is a significant risk factor that increases morbidity and mortality, especially for premature babies. However, mothers may not always have enough breast milk to feed their premature babies. In such cases, donor milk is a good alternative (1, 3, 4). Unfortunately, there are no HMBs in Turkey that will compensate for the lack of human milk. Sometimes, mothers who cannot breastfeed can feed their babies with the milk of someone they know, known as a milk-mother. Wet-nursing is a well-known method, especially in Muslim countries. However, in recent years, wet-nursing has lost its popularity, particularly due to the use of commercial formulas. It was determined that only 10% of the women in the study were wet-nursing, and only 5.6% of them had wet-nurses for their children. This finding shows that wet-nursing is decreasing especially in urban areas. Another study conducted in a primary family health center in Turkey comparable results, indicating that 10% of mothers had a wet-nurse and 7.2% wet nursed a baby (11). Similarly, another current hospital study from Turkey reported that 8.2% of the participants wet nursed a baby and 10.9 % were wet-nursing (12). Wet-nursing numbers were also low in the studies that were done in the city centers in Turkey, which is similar to our study (5, 8, 13).

In the current study, most of the women (68%) who wet-nursed have known the babies' families. Also, in this study, only %10.4 of the women were fed your baby with breast milk of another unfamiliar woman. In Muslim communities, the condition for wet-nursing is for the recipient family to know the donor family. According to the Holy Quran, the recipient baby is accepted as the donor baby's sibling. Therefore, it is forbidden for them to marry each other. In total, 83.2% of mothers in this study thought that babies who were fed this way would be considered siblings, while 83.1% of them said that these siblings could not marry each other because it will be inappropriate according to their religion. In

many Western countries, pooled human milk is stored in HMBs. Both the recipient and the donor keep their anonymity. This means that there is a chance for the children of the families involved to marry each other in the future, which is completely forbidden according to Islam (14).

In our study, only 28.4% of mothers knew about HMBs. In another study carried out in Turkey, 62% of the participating mothers knew about HMBs (11). The study conducted by Ergin and Uzun was completed in 2014. HMB was first mentioned in Turkey in 2012 and drew attention by the debates in the media. Even though all the arrangements were made, setting up of the HMB was postponed indefinitely. Almost half of the mothers (59.2%) who were informed about HMBs by the researchers agreed to the establishment of HMBs in Turkey. Most mothers (77.5%) who were not in favor of HMB stated that babies who were fed the same milk would be siblings, and it would be inappropriate according to their religion if they marry each other.

One of the reasons why HMB was not established was the fact that "human milk carries the genetic structure of the family and the issue of milk siblings coming from our traditions," in a word, the social and cultural effects. That time, some media organizations and groups also resisted HMB stating religion and culture as reasons. The results of our study show that religion significantly affects mothers' views. According to the author's information, there are no Western-style milk banks in Muslim countries. In addition to this, in some hospitals where a majority of the patients are Muslims, studies were conducted to investigate and increase the implementation of human milk donation (14, 15). It has been noted that Islamic rules were pioneer when it came to increasing human milk donations to baby patients in newborn intensive care units in a hospital in Malaysia.

Along with recording clear and detailed information on the names, the religion of both sides, and the amount of donated milk, the religious conditions and results were

discussed and the necessity of both sides to know each other was also explained. This way, the number of donations by Muslim mothers has increased (14). The result of this study revealed the importance of taking religious rules into account when it comes to decreasing the resistance toward HMB in Islamic countries.

Thomas et al. stated that one of the main factors affecting mothers' decisions of being a donor is the fact that babies need it, and following the suggestions from health personnel is another factor (16). Similarly, in our study, where the reasons for mothers for wanting or not wanting HMBs to be established were investigated; the idea that 66.2% of women who cannot breastfeed can get milk from HMBs affected mothers' decisions positively. One of the reasons that have had a positive effect on human milk donations is self-sacrifice. Besides, one of the motivating factors of becoming a donor is the attitude of the attending medical personnel (17). Thus, medical personnel needs to inform mothers about the importance of milk donation in prenatal care or childbirth units.

It was found that none of the variables (age, education, occupation, family type, breastfeeding status, breastfeeding status of other babies) affect their decision on whether they want HMB to be established or not. Some studies that were done in Turkey or other countries showed that a higher level of education positively influences mothers' decisions about the establishment of HMBs (8, 17).

The study was carried out in a city that had a population with higher socioeconomics and level of education. Thus, this study is limited to Eskişehir. A brief description of HMB was given to women. Women's general thoughts on whether they want HMB to be established or not were asked, without giving detailed information on the types of HMB, their goals, or the donation process.

## Conclusion

Even in a group of Turkish Muslim populations whose sociocultural level can be considered high, resistance against HMB is concerning and gives the first signals of the difficulty of establishing HMB in other Muslim countries. The religious and cultural factors behind this resistance need to be understood clearly. When the results of the study were taken into account, we believe that an HMB model where the donors and recipients meet each other is necessary; their IDs should be recorded and sent to birth registration offices, and, if possible, the donors and the recipient families' babies should have the same gender for the practice to be more acceptable in Muslim countries like Turkey or for Muslims who live in Western countries. It is essential to organize public campaigns, especially on social media, to spread awareness about HMBs.

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## Conflict of Interest

The author declares that there are no conflicts of interest regarding the publication of this paper.

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