



Knowledge and Opinions of Premature Infant Mother's on Human Milk Banks

Prematüre Bebeği Olan Annelerin Anne Sütü Bankacılığı Konusunda Bilgi ve Görüşleri

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Abstract

Introduction: Mother milk is very important for the health of babies. Donor milk is suggested for babies that for some reason cannot receive their mother's milk. Therefore, mother milk banks are very important institutions both for babies and mothers. The aim of this study is to indicate the knowledge and opinions of premature infant mothers knowledge on human milk banks.

Material and Method: The research was carried out with mothers whose babies are premature and in the newborn intensive care unit. The sample was composed of 230 mothers who agreed to fill in the questionnaire. The data has been gathered by the questionnaire that is composed of 39 questions which were prepared by the researcher. Descriptive statistics and the chi-square test were used for the analysis stage of the research.

Results: It has been determined that 86.1% of the mothers have never heard about milk banks before, 90% did not know about them and, 43.9% of the mothers were indecisive about whether milk banks should be built or not. 41.3% of the mothers stated that they would not donate milk if a milk bank was to be established in our country while 66.5% stated that they would not request milk from milk banks. 48.3% of the mothers stated that they did not know whether milk banks would cause any problems in means of religion. Lastly, it has been noted that 58.3% of the mothers request more information on milk banks. A meaningful statistical ratio has been found between the education level of the mothers and prior knowledge of milk banks, the support for the establishment of milk banks, the need for milk banks, milk donation and milk requests.

Conclusion: Overall, it has been found that the majority of the mothers do not hold sufficient knowledge about milk banks. It is found that the majority is indecisive about establishing milk banks. It can be stated that a positive attitude towards milk banks is parallel with the mother's education level, it increases as the education level increases. There is a need to resolve the worries of society on milk banks and society should be informed more about it.

Keywords: Human milk bank, premature baby, knowledge, view, nursing

Öz

Giriş: Anne sütü bebeklerin sağlığı için çok önemlidir. Herhangi bir nedenle anne sütünü alamayan bebeklere donör süt önerilir. Bu nedenle anne sütü bankaları hem bebekler hem de anneler için çok önemli kurumlardır. Bu çalışmanın temel amacı prematüre bebeği olan annelerin anne sütü bankacılığı konusunda bilgi ve görüşlerini belirlemektir.

Gereç ve Yöntem: Araştırma, bebeği prematüre ve yenidoğan yoğun bakım ünitesinde yatan annelerle yapıldı. Örneklemi anketi doldurmaya kabul eden 230 anne oluşturmuştur. Veriler, araştırmacı tarafından hazırlanan 39 sorudan oluşan anket ile toplanmıştır. Araştırmanın analiz aşamasında tanımlayıcı istatistikler ve ki-kare testi kullanılmıştır.

Bulgular: Annelerin %86,1'inin anne sütü bankasını duymadığı, %90'ının bilmediği ve anne sütü bankasının kurulmasını isteme konusunda annelerin %43,9'unun kararsız olduğu saptanmıştır. Ülkemizde anne sütü bankası olması durumunda annelerin %41,3'ü süt bağışlamayacağını, %66,5'i süt bankasından süt talep etmeyeceğini ifade etmiştir. Annelerin %48,3'ü süt bankalarının din açısından herhangi bir sorun yaratıp yaratmayacağını bilmediklerini ifade etmiştir. Son olarak annelerin %58,3'ünün süt bankaları hakkında daha fazla bilgi talep ettiği görülmüştür. Annelerin eğitim düzeyi ile süt bankası ön bilgisi, süt bankası kurulmasına destek, süt bankasına ihtiyaç, süt bağıışı ve süt talepleri arasında anlamlı bir istatistiksel oran bulunmuştur.

Sonuç: Annelerin büyük bir çoğunluğunun anne sütü bankacılığı konusunda yeterli bilgiye sahip olmadığı saptanmıştır. Annelerin süt bankasının kurulmasını isteme konusunda çoğunlukla kararsız oldukları görülmüştür. Eğitim durumu arttıkça anne sütü bankasına karşı annelerin daha olumlu bir görüş içinde olduğu söylenebilir. Toplumun süt bankacılığı konusunda endişelerinin ortadan kaldırılıp ve bu konuda bilgilendirilmesi gerekmektedir.

Anahtar kelimeler: Anne sütü bankası, prematüre bebek, bilgi, görüş, hemşirelik



INTRODUCTION

It is recommended that babies are fed only breast milk for the first six months from birth and no additional food, including water, should be given during this period.^[1-3] When a sufficient amount of breast milk cannot be reached, donor milk is recommended because it contains many nutrients. Especially for premature and other high-risk newborns, feeding with donor milk has an effective role in protecting them from infectious diseases, increasing nutritional tolerance, and preventing the development of necrotizing enterocolitis (NEC) and long-term health problems such as asthma.^[4-12] Research demonstrates that donor milk use is cost-effective, reducing the number of NEC cases, late-onset sepsis, infant food intolerance, and hospital stays, with significant cost savings to individuals, families, and healthcare systems.^[8,13-16] Many countries consider breast milk banks as part of their child health policy to promote newborn health.^[17] Some countries have created their own national guidelines.^[18,19]

In the "Born Too Soon The Global Action Report on Preterm Birth" published by the World Health Organization in 2012, the number of live births in Turkey in 2010 was 1,298,300. 11.97% of these live births were stated as premature births.^[20] Although many premature babies are born in our country every year, there is no breast milk bank. When we look at the studies conducted to determine the knowledge and opinions of women on milk banks, it has been seen that religious and moral reasons are generally cited as the main reason and they have negative opinions against milk banks. At the same time, it has been seen in some studies that mothers who have knowledge about milk banks want a breast milk bank to be established. Studies suggest that the most important factor is to inform mothers about breast milk bank.^[21-25] This study aimed to determine the knowledge and opinions of mothers with premature babies about human milk banking.

MATERIAL AND METHOD

Study Design

This descriptive study was conducted with mothers whose babies are premature between September 2016 and March 2017 in the Denizli Hospital, Turkey. Permission was obtained from the Adnan Menderes Faculty of Medicine Non-Invasive Clinical Research Ethics Committee for the study (Date: 30.06.2016 Number: 53043469-050.04.04).

Study Population and Setting

G Power analysis was performed to determine the power of the sample. The sample universe of the study was determined by the known sampling method. Accordingly, it was calculated that at least 220 mothers were included in the sample at the 95% confidence interval. In the study conducted by Ekşioğlu et al. in İzmir, the rate of mothers' knowledge of breast milk banking was found to be 41.6%. According to Ekşioğlu et al. the rate of knowing human milk banking was 41.6% ($p=0.416$), with 95% probability ($\alpha=0.05$), $d=0.05$ deviation, $q=0.584$ $t=1,96$.

It was determined that the sample size should be at least 210. 230 mothers who agreed to participate in the study, which was determined by the improbable sampling (random) method, by adding 10% to the sample number, considering the possibility of loss, took part in the study.

Inclusion Criteria

- Having a premature baby,
- The age of 18 years and older,
- The baby is in the neonatal intensive care unit,
- Able to read, write, speak and understand Turkish
- Mothers who voluntarily agreed to fill out the questionnaire were included in the study.

Data collection

In the research, the data were collected with the "question form" prepared by the researcher with the help of the literature. [19-25] In the questionnaire, there are questions about socio-demographic information, breastfeeding status of mothers, birth characteristics of their babies (week, weight, etc.), and mothers' knowledge and opinions about milk banks. The questionnaire consists of 39 open-ended (7 questions) and closed-ended (32 questions) questions. Expert opinion was taken to make the questionnaire more understandable and for content validity. Among the experts, there are three faculty members from the field of gynecology and nursing, 5 faculty members from the midwifery department, 2 nurses in the neonatal intensive care clinic, and a mother who gave birth before 37 weeks. The form was rearranged according to the suggestions of the experts.

The researcher explained the purpose of the research and the benefits to be provided in the research to the participants and the participants' questions clearly answered. Most of the questionnaires were filled out by participants. Explanations were made by the researcher on the points that the participants asked and could not understand while filling out the questionnaire. Some of the questionnaires were filled by the researcher using the face-to-face interview method for some reasons (for example, when the mothers said that they had pain). The estimated questionnaire completion was 15 minutes.

Data analysis

Descriptive statistical methods were used while evaluating the study data. The data were analyzed with the Statistical Package for the Social Sciences Version 19.0 (SPSS 19.0) program. The $p<0.05$ level was accepted as significant in the evaluations. Descriptive statistics and a chi-square test were used in the analysis of the data.

RESULTS

The demographic characteristics of mothers with premature babies participating in the study according to their demographic information is shown in **Table 1**. The mean age of the mothers participating in the study was 27.20 ± 1.12 years.

Table 1. Demographic characteristics of the study sample (N = 230)

Characteristics	n	%
Age group		
<21	29	12.6
21-25	54	23.5
26-30	71	30.9
31-35	51	22.2
36 and older	25	10.9
Mean±SD (min-max)	27.20±1.12 (19-40)	
Education status		
Primary school	80	34.8
Secondary school	88	38.3
High school	48	20.9
University or over	14	6.1
Employment status		
Employed	43	18.7
Unemployed	187	81.3
Health insurance		
Yes	224	97.4
No	6	2.6
Income status		
Income less than expenses	53	23.0
Income equal to expenses	138	60.0
Income greater than expenses	39	17.0
Family type		
Nuclear family	197	85.7
Extended family	33	14.3

It was determined that 86.1% of the mothers had not heard of the human milk banking before and 90% of the participants did not know about the human milk banking. 58.3% of mothers request information about human milk banking (Table 2).

Table 2. Participants' information on human milk banking (N=230)

	n	%
The state of hearing milk bank previously		
Yes	32	13.9
No	198	86.1
The source where she heard		
Internet	28	87.5
Television	4	12.5
Knowledge of breast milk bank		
Know	5	2.2
Partially know	18	7.8
Not know	207	90.0
Is there a human milk bank in Turkey?		
Yes	21	9.1
No	122	53.0
Not know	87	37.8
Is milk given with money in the human milk bank?		
Yes	12	5.2
No	28	12.2
Not know	190	82.6
Status of requesting information about breast milk bank		
Yes	134	58.3
No	96	41.7

The majority (66.1%) of the mothers did not want their baby to be fed with another breast milk. Nearly half (47.4%) of the mothers do not know whether there is a need for a breast milk bank, and when the findings regarding the milk donation status of a breast milk bank in Turkey are examined, 41.3% of the mothers answered no. In this study majority (66.5%) of the mothers answered that would not take milk from the milk bank, and one-third (33.9%) answered that the milk bank would cause problems in terms of religion (Table 3).

Table 3. Opinions of participants on human milk banking (N=230)

	n	%
The state of wanting to feed the baby with another breast milk		
Yes	22	9.6
No	152	66.1
Not know	56	24.3
Should a human milk bank be established in Turkey?		
Yes	73	31.7
No	56	24.3
Undecided	101	43.9
Reason for wanting to establish a human milk bank (n=73)*		
For babies who cannot have breast milk	30	42.3
For the health of babies	43	57.7
Reason for not wanting to establish a human milk banking (n=64)*		
Not religiously appropriate	64	52.9
There is a risk of disease transmission (participants can give more than one answer)	57	47.1
Is there a need for a human milk bank in Turkey?		
Yes	56	24.3
No	65	28.3
Not know	109	47.4
If there was a human milk bank in Turkey, would you like to donate your milk?		
Yes	47	20.4
No	95	41.3
Undecided	88	38.3
If there was a human milk bank in Turkey, would you get milk from there for your baby?		
Yes (If your answer is "Yes"; please answered the question -The reason wanting for getting milk from a human milk bank)	22	9.6
No (If your answer is "No"; please answered the below question - The reason not wanting for getting milk from a human milk bank)	153	66.5
Undecided	55	23.9
The reason wanting for getting milk from a human milk bank (n=22, participants who the previous question answered said Yes and participants can give more than one answer)		
Because I don't have enough milk	15	62.5
Due to economic reasons (baby formula is expensive)	3	12.5
Because there is no one I can get breast milk from	12	50.0
For my baby to recover faster	20	91.7
Because breast milk is the best food	22	100.0
The reason not wanting for getting milk from a human milk bank (n=153, participants who the previous question answered said No and participants can give more than one answer)		
Moral and religious reasons (milk kinship...)	101	52.9
Risk of disease transmission	89	47.1
The perception of the human milk bank as a religious problem (n=216)		
Creates problems	78	33.9
Not creates problems	26	11.3
Not know	112	48.7
Not answered	14	6.1

* Total number of participants who answered the open-ended question

A statistically significant difference was found between the views on wanting to establish a human milk bank in Turkey according to the education level of the mother (chi-square value: 8,963) and husband (chi-square value: 6,251) ($p < 0.05$). As the education level of the mothers and the education level of their husband's increase, the opinion of wanting to establish a breast milk bank in Turkey changes positively (Table 4).

Table 4. The views on establish a human milk bank and the the education level of the mother and husband (N=230)

Characteristics	Yes		No		Undecided		χ^2	P
	n	%	n	%	n	%		
Education status (mother)								
Primary school	18	24.7	22	39.3	40	39.6	8.963	0.000
Secondary school	31	42.5	12	21.4	45	44.6		
High school	10	13.7	22	39.3	16	15.8		
University or over	14	19.2	0	0.00	0	0.00		
Education status (husband)								
Primary school	17	23.3	3	5.4	2	2.0	6.251	0.000
Secondary school	7	9.6	12	21.4	37	36.6		
High school	29	39.7	30	53.6	45	44.6		
University or over	20	27.4	11	19.6	17	16.8		

In the case of establishing a human milk bank in Turkey, there was a difference between mother education status and milk donation opinion (chi-square value: 9,621) ($p < 0.05$). This difference stemmed from the fact that the majority of mothers who said they would donate milk consisted of mothers who graduated from high school and university or over (Table 5).

Table 5. The opinion on milk donation and the education level of the mother (N=230)

Characteristics	Yes		No		Undecided		χ^2	P
	n	%	n	%	n	%		
Education status (mother)								
Primary school	2	4.3	63	66.3	15	17.0	9.621	0.000
Secondary school	3	6.4	30	31.6	55	62.0		
High school	28	59.6	2	2.1	18	20.5		
University or over	14	29.8	0	0.00	0	0.00		

In addition, the opinion on demanding milk differs in the case of establishing a human milk bank in Turkey according to the education level of the mother (chi-square value: 9,520) ($p < 0.05$). It was found that this difference was due to the fact that the majority of the mothers who said that they would demand milk from the human milk bank were mothers who graduated from high school and university or over (Table 6).

Table 6. The opinion on demanding milk and the education level of the mother (N=230)

Characteristics	Yes		No		Undecided		χ^2	P
	n	%	n	%	n	%		
Education status(mother)								
Primary school	2	4.3	64	67.4	14	15.9	9.510	0.000
Secondary school	4	8.5	29	30.5	55	62.5		
High school	29	61.7	2	2.1	17	19.3		
University or over	12	25.5	0	0.00	2	2.3		

DISCUSSION

In this study, the majority of mothers stated that they had never heard of breast milk bank before. In the studies conducted in two different city in Turkey showed that 93.6% of the participants did not hear about milk bank^[26], and 90.6% of participants did not hear about milk bank.^[22] Abhulimhen-Iyoha et al. in Nigeria, it was found that 74.2% of the participants had not heard of milk bank.^[24] In the study conducted in the third largest city of Turkey, it was determined that 58.4% of the participants had not heard of breast milk bank.^[23]

In a qualitative study conducted in Australia, it was stated that some of the participants had never heard of the milk bank or that the milk bank existed in the region they lived in, but they did not know what kind of working system they had.^[27] The results of previous studies are similar to the results of this study. It can be said that the rate of mothers hearing about human milk banking is low.

All of the participants who heard about human milk banking in the study stated that they heard it from mass media (internet, television, newspaper, magazine, etc.). Similarly, Ekşioğlu et al. found that 87.5% of mothers heard it from the media.^[23] In another study, the rate of hearing from the media was found to be lower (25.5%) than in our study, and it was determined that the majority (43%) of mothers heard about human milk banking from healthcare professionals.^[24] The reason why all of the participants who heard about the human milk banking in this study heard about it through communication tools may be due to the fact that the milk banking is mostly announced through the media in our country. The fact that the mothers participating in the study have never heard of breast milk banking from healthcare professionals suggests that healthcare professionals do not have enough information on this subject.

In this study, most of the mothers stated that they did not know about the human milk banking. In the study conducted by Kara et al. showed that 64.3% of the mothers did not know about the human milk banking^[21], while the study of Aykut et al. found that 97.2% of the mothers did not know about the human milk banking.^[26] The results of these studies conducted in Turkey are similar to our results. The lack of sufficient information on this subject may be related to the fact that there is no human milk bank in our country

The majority of the mothers did not have an idea about this issue whether the milk in the human milk bank was sold with money or not. In the study of Karadağ et al., it was determined that 31.5% of the participants did not have an opinion on whether breast milk banks received money while providing services.^[25] Results differ between the two studies. It can be said that this result is a reflection of the mothers' lack of knowledge about breast milk bank. In this study, it was determined that more than half of the mothers requested information about breast milk banking. This result is important and meaningful that mothers should be informed about human milk banking.

The majority of mothers do not want their babies to be fed with another breast milk. Similarly, Abhulimhen-Iyoha et al. revealed that 84.8% of mothers do not want their baby to be fed with another breast milk.^[24] The results of both studies are similar to each other. In this study, most of the mothers were undecided about whether they wanted a breast milk bank to be established and they did not know whether there was a need for a breast milk bank. Unlike our study, Gürol et al. found that 64.3% of mothers wanted human milk banking to be implemented in our country^[22], while in the study of Ekşioğlu et al., 71.3% supported human milk banking.^[23] In another study conducted in our country, it was shown that 49.9% of mothers supported the establishment of an alternative human milk bank (non-Western style; breast milk is not mixed in a pool) in Turkey. However, 42.4% of mothers were against any kind of establishment of a human milk banking in Turkey.^[25] Aykut et al. revealed that 38.4% of the mothers did not find the breast milk bank application correct.^[26] As a result of the studies, it can be said that there are mothers who support human milk banking as well as mothers who do not support and are indecisive.

The majority of mothers stated moral and religious reasons (milk kinship) and the risk of disease transmission as reasons for not wanting a human milk bank. In another study showed that 75.4% of the mothers who thought that human milk banking was not a correct practice did not want to marry their milk kinship, and 16.9% did not want it because they thought that it would cause disease transmission through milk.^[26] The results of both studies are similar. Mothers were concerned about the risk of disease transmission, especially for religious and moral reasons. Also, similarly, as a result of the systematic review, the desire to help other babies in milk donation was one of the most important factors that facilitated milk donation. It was concluded that the most important obstacle was religious and cultural concerns.^[28]

In this study, the mothers wanted human milk banking (31.7%) because they wanted their babies to regain their health, and they thought that it would be a good practice especially for orphans and babies whose mothers did not have milk. Similarly, in another study reported that 59.1% of the participants thought that human milk banks could help working mothers, sick mothers, orphans, and babies whose mother's milk was prohibited.^[24]

In this study, the majority of mothers expressed undecided and negative opinions about donating their milk. Similarly, Abhulimhen-Iyoha et al. found that 53% of mothers did not want to donate milk^[24], Karadağ et al. found that the rate of mothers donating milk to western-style milk banks was 9.6%, while the rate of willingness to donate milk to an alternative breast milk bank was higher (44.2%)^[25] Unlike this study, the majority of mothers in some studies stated that they could donate their milk to the human milk bank such as (68.8%)^[23], 56.2%^[26], and 64.0%.^[22] The reason for the high rate of unwillingness to donate milk to the breast milk bank in this

study may be due to the lack of sufficient information about human milk banks. In this study, it was determined that the mother's high education status had a positive effect on milk donation. Differently, in the study conducted in India, although the participants had a poor education background, it was found that most of the participants had a positive view towards breast milk donation and banking.^[29]

The majority of mothers did not want to take milk from the human milk bank for their babies. Similarly, in other studies, the majority of the mothers were 84.8%^[24], more than half of them were 59.8%^[21], almost half of the mothers were 48.6%^[22] found that they would not want to take milk from the human milk bank. In addition, another study conducted in Turkey reported that the majority of mothers (93.1%) did not want their babies to be fed with milk from western-style milk banks, and 68.8% did not want to be fed with alternative human milk banking.^[25] Unlike this study, another study conducted in Turkey showed that the rate of those who want to benefit from a milk bank when their baby has an obstacle to breastfeeding is more than half (52.5%), but if there is no obstacle to breastfeeding, the majority of mothers (73.3%) did not want to benefit from the milk bank.^[23] The results of this study and other studies suggested that mothers generally have a negative view of wanting to take milk from a western-style human milk bank.

Implications

In line with the research results, some suggestions are as follows:

- Conducting informative studies on the importance of breast milk and breastfeeding in the community,
- Carrying out studies for the human milk banking to be a mother-child health and public health policy and including it in policies for breastfeeding and breast milk,
- Ensuring that sufficient and accurate information about human milk banking is given to the society by authorized and reliable persons (health personnel, politicians or religious leaders, etc.),
- Ensuring the elimination of concerns and concerns (perception of creating a problem in terms of religion, risk of disease transmission, etc.) that constitute the biggest obstacle to the establishment of human milk banking by authorized and reliable persons (health personnel, politicians or religious leaders, etc.),
- Effective use of the media (TV, radio, internet and newspaper, etc.) by including them in campaigns to inform society correctly about human milk banking,
- Establishing an expert team that will provide information to mothers in the nearby places where the neonatal intensive care units of hospitals are located,
- Ensuring the inclusion of donor milk in the treatment options of hospitals with neonatal intensive care units within the framework of biomedical ethical principles,

- Organizing training for health personnel to have sufficient knowledge about human milk banking and covering all health personnel with in-service training,
- Developing an alternative human milk banking system in line with Turkish culture and Islamic values instead of Western-style breast milk banking,
- We suggest that more studies be carried out with different research methods on breast milk banking

Limitations

There are some limitations of this study. Since the mothers participating in the study were determined by the random sampling method, the results of the study only represent the mothers included in the sample. Since the research data were collected through a questionnaire, the reliability of the data was limited to the accuracy of the information given by the mothers.

CONCLUSION

In this study, which was conducted to determine the knowledge and opinions of mothers with premature babies about human milk banking, this study found that the vast majority of mothers had not heard of human milk bank and did not know what human milk bank was. The majority of mothers were undecided about establishing a human milk bank in Turkey and did not know whether there was a need for a human milk bank. The findings of the study showed that if there is a human milk bank in Turkey, the majority of mothers would not donate milk and would not demand milk in human milk banks. More than half of the mothers requested information about human milk bank. Mothers with higher education levels have a more positive view towards human milk banking. The findings of this study are important and valuable because there is a great lack of information about human milk bank in Turkey and mothers should be informed about it.

ETHICAL DECLARATIONS

Ethics Committee Approval: Permission was obtained from the Adnan Menderes University Faculty of Medicine Non-Invasive Clinical Research Ethics Committee for the study (Date: 30.06.2016 Number: 53043469-050.04.04). In order to conduct the research, the necessary written approval was obtained from the General Secretariat of the Denizli Province Public Hospitals Association (Date: 29.08.2016). Final approval was given to the research protocol by the Adnan Menderes Faculty of Medicine Non-Invasive Clinical Research Ethics Committee (Date: 22.06.2017 Number: 53043469-050.04.04 33). In addition, all participants gave their verbal consent to take part in the study.

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

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