



# Investigation of Midwifery Students' Knowledge, Opinions and Religious Attitudes about Breast Milk Banking

## Ebelik Bölümü Öğrencilerinin Anne Sütü Bankası Hakkındaki Bilgi, Görüş ve Dini Yönelimleri Arasındaki İlişkinin İncelenmesi

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### Abstract

**Aim:** This study was carried out to investigate the relationship between midwifery students' knowledge, views, and religious attitudes about breast milk banking (BMB).

**Material and Method:** The population of this cross-sectional and descriptive study consisted of students from the Faculty of Health Sciences Midwifery Department. No sampling procedure was implemented in the study; instead, the entire population was targeted. Accordingly, 230 students who were at the school during the study and agreed to participate were included in the study. The data was collected using a "descriptive information form", which was developed by the researchers and aimed to collect information about participants' socio-demographic characteristics and knowledge and views on breast milk banking, and the "Religious Attitudes Scale" (RAS).

**Results:** The analysis of the students' responses to the questions checking their knowledge on BMB indicated that 37.0% knew BMB and that some of them had no idea about whether there was a need for BMB in our country (43.0%), whether using milk from a breast milk bank would matter religiously (41.3%), whether donor milk would cause an infection in newborns (48.3%), and whether milk obtained from a milk bank would be reliable (59.6%). The evaluation of students' views showed that 46.1% were not sure about donating their own milk to a breast milk bank, 38.2% would contact a breast milk bank when their baby needed milk, 42.2% thought donating milk was ethical, and that 56.1% said they would recommend this institution to mothers who had insufficient milk. The mean scores of the students from the RAS and the correlation analysis conducted to determine the knowledge and opinions of the students about BMB revealed that as the mean RAS scores increased, using milk from a milk bank would create problems religiously.

**Conclusion:** In this study, it was found that most of the students had poor knowledge and negative opinions about BMB and that increased religious orientation led to taking a negative view against breast milk banking.

**Keywords:** Breast milk, milk bank, religious attitude, midwifery

### Öz

**Amaç:** Bu araştırma ebelik bölümü öğrencilerinin anne sütü bankası hakkındaki bilgi, görüş ve dini yönelimleri arasındaki ilişkinin incelenmesi amacıyla yapılmıştır.

**Gereç ve Yöntem:** Kesitsel ve tanımlayıcı olarak yapılan araştırmanın evrenini Sağlık Bilimleri Fakültesi Ebelik Bölümü öğrencileri oluşturmuştur. Örneklem seçilmemiş evrenin tamamına ulaşılması planlanmış olup araştırma tarihlerinde okulda bulunan ve araştırmaya katılmayı kabul eden 230 öğrenci çalışmaya alınmıştır. Veriler, araştırmacılar tarafından hazırlanan, öğrencilerin bazı sosyo-demografik özelliklerini, anne sütü bankası hakkındaki bilgi ve görüşlerini belirlemeye yönelik "tanıtıcı bilgi formu" ve "Dini Yönelim Ölçeği" (DYÖ) kullanılarak toplanmıştır.

**Bulgular:** Öğrencilere yöneltilen bilgi soruları değerlendirildiğinde; %37,0'inin anne sütü bankasının ne olduğunu bildiği, %43,0'inin ülkemizde anne sütü bankasına ihtiyaç olup olmadığını, %41,3'ünün anne sütü bankasından süt kullanmanın dini açıdan sorun olup olmayacağını, %48,3'ünün donör sütünün yenidoğanlarda enfeksiyona sebep olup olmayacağını, %59,6'sının süt bankasından alınan sütlerin güvenilirliği konusunda bir fikrinin olmadığını ifade ettikleri belirlenmiştir. Öğrencilerin görüşleri değerlendirildiğinde; %46,1'in kendi sütünü anne sütü bankasına bağışlama konusunda emin olmadığını, %38,2'sinin bebeği ihtiyaç duyduğunda anne sütü bankasına başvuracağını, %42,2'sinin süt bağışlamanın etik olduğunu ve %56,1'in ise sütü yetersiz annelere bu kuruluşu önerceklerini ifade ettikleri belirlenmiştir. Öğrencilerin DYÖ'den aldıkları puan ortalaması ile anne sütü bankası hakkındaki bilgi ve görüşlerini belirlemeye yönelik yapılan korelasyon analizinde; DYÖ puan ortalaması arttıkça süt bankasından süt kullanmanın dini açıdan sorun yaratacağı saptanmıştır.

**Sonuç:** Yapılan bu çalışmada, öğrencilerin çoğunun anne sütü bankası hakkında bilgilerinin zayıf ve görüşlerinin olumsuz olduğu, dini yönelimi artan öğrencilerin anne sütü bankasına karşı dini açıdan görüşlerinin olumsuzlaştığı saptanmıştır.

**Anahtar Kelimeler:** Anne sütü, süt bankası, dini yönelim, ebelik



## INTRODUCTION

Breastfeeding plays an important role in achieving the growth and development of the newborn, decreasing infant mortality and morbidity, and establishing a mother-baby bond. However, in some cases, it may not be possible for the baby to feed on its own mother's milk. An important source of breast milk is the donor milk in breast milk banks, which provide breast milk for babies who cannot be breastfed for various reasons.<sup>[1]</sup> The World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) (2009) state that in cases where the newborn cannot receive breast milk from its own mother, the best alternative is to obtain milk from a healthy foster-mother or a breast milk bank that meets international standards.<sup>[2-5]</sup> Therefore, the breast milk bank is an important institution for babies and families who need breast milk. However, mothers who cannot breastfeed prefer the breast milk of a familiar mother or formula over donor milk due to religious beliefs, economic reasons, distrust in screening tests, unfamiliarity with donors, lack of pasteurization, and inadequate knowledge of BMB.<sup>[4, 6]</sup>

Guidelines on the collection, processing, and distribution of donor milk have been developed in collaboration with representatives from the United States Food and Drug Administration Center for Disease Control and the American Academy of Pediatrics. These guidelines have been updated annually since 1990.<sup>[7]</sup> Breast milk banks also accept donations from healthy mothers whose babies are older than six months and have started supplementary foods.<sup>[8]</sup> Donors are questioned for consumption of alcohol and caffeinated beverages, drug use, infectious disease history, diet, age of their current children, place of residence, and the amount of milk to be donated, and necessary laboratory tests are performed.<sup>[4]</sup> The "voluntary" application of donors is important for the process and motivation. Milk banks provide sterile bottles and milk pumps to eligible donors and collect donated milk frozen. These frozen milk blocks are prepared for pasteurization separately or by mixing. The donor does not earn an income in return for this donated milk.<sup>[1, 4, 7]</sup>

BMB is generally not approved in Muslim societies like our country as it causes religious and ethical dilemmas.<sup>[1]</sup> However, in terms of newborn health, it is very important to provide BMB service supported by health policies within the framework of ethical and legal rules by eliminating the lack of information related to the topic. None of the hospitals in our country with maternal and child health clinics offer BMB services. The main reason for this is that there are no official banks or centers, the donor and the recipient do not know each other, and that the religious and traditional beliefs do not favor it. However, mothers in rural areas of our country who cannot breastfeed their babies usually turn to the nursing-mother practice. However, milk brotherhood is the most important obstacle to this practice.<sup>[7]</sup> The education of mothers and promoting education in this area can contribute

to the removal of all these cultural barriers. There are few studies on this topic in our country, and there are no studies on religious attitudes at all.<sup>[1, 5, 11]</sup> If midwives are educated about the importance of milk banks and breast milk for babies during their school years, they can give information about the importance of breast milk and milk banks to every woman they will reach when they have graduated. Therefore, it is necessary to know the opinions and knowledge of midwifery students about breast milk banking. This study was carried out to determine the knowledge, views, and religious attitudes of midwifery students who are also prospective mothers and will provide counseling, training, and support on breastfeeding, and evaluate the relationship between them.

## MATERIAL AND METHOD

This study used a cross-sectional and descriptive design and was carried out between February 19, 2018 and March 2, 2018 with a total of 283 students from the Faculty of Health Sciences Midwifery Department of a university in Turkey.

The midwifery students of the mentioned faculty made up the population of the study. A sampling procedure was not performed; instead, a total of 230 students who were at school during the study and who voluntarily agreed to participate were included in the study.

### Data Collection Tools

The data was collected using a "Descriptive Information Form" which was developed by the researchers based on the literature.<sup>[1, 4, 5, 9]</sup> and aimed to collect socio-demographic information about students and their knowledge and views about breast milk banking, and the "Religious Attitude Scale (RAS)".

The Descriptive Information Form: This form contains 21 questions aiming to determine some of the socio-demographic characteristics of the students and their knowledge and views about breast milk banking.

The Religious Attitude Scale: This scale was developed by Onay (2004) and its validity and reliability study was carried out by the same author. It is a measurement tool that aims to determine the extent of religion in people's lives (thoughts, behaviors, and emotions) quantitatively.<sup>[9]</sup> RAS is a four-point Likert-type psychometric measurement tool with rating options, such as "never, sometimes, often and always". There are a total of 18 items on the scale, 6 of which are reversed. It has three sub-dimensions, namely, thought (items 1, 2, 4, 8, 9, 12, 15, and 17), behavior (items 3, 5, 10, 13, 14, and 18), and emotion (items 6, 7, 11, and 16). The lowest and highest scores that can be obtained from the scale range from 18 to 72. High scores indicate increased levels of religious attitude, while low scores indicate decreased levels of religious attitude. The Cronbach's Alpha and Gutman Split-half value of the scale is 0.95.<sup>[4]</sup>

## Legal and Ethical Situation

At the outset, the permission of the educational institution was obtained. Informed verbal and written consent of the participants of the study group were obtained. Participants were informed about the topic and purpose of the study by the researchers. The forms were distributed to the students, who agreed to participate in the study and delivered informed consent, and they were asked to fill out the forms within 15-20 minutes under the observation of the researchers.

## Data Analysis

The data was evaluated by doing the necessary statistical analysis using appropriate software. Frequency distributions and the chi-square test were used for data analysis, and the Bonferroni test was employed to determine the source of differences between groups. Statistical significance was accepted as  $p < 0.05$ .

## RESULTS

The mean age of the students in the study was  $20.39 \pm 1.50$  (min.-max.=18-26) years, 27.0% were first-year students, and 48.3% were found to spend most of their lives in a province (Table 1).

The evaluation of the students' responses to the information questions about BMB indicated that 37.0% of the students knew what BMB was and that some of them had no idea about whether the donated milk would cause any problem in newborn health (54.3%), whether BMB was needed in our country (43.0%), whether using milk from a breast milk bank would matter religiously (41.3%), whether donor milk would lead to an infection in newborns (48.3%), and whether milk from a milk bank would be reliable (59.6%). Also, it was determined that 43.9% of the students stated that milk obtained from the milk bank would increase the risk of developing allergic reactions in the newborn and that 53.5% reported the immunological benefit of the milk obtained from a milk bank would be higher than the formula (Table 1).

The analysis of the students' opinions about BMB showed that 46.1% were not sure about whether they would donate their own milk to a breast milk bank, 38.2% stated they would contact a breast milk bank when their baby needed it, 42.2% thought donating milk was ethical, and that 56.1% ( $n=129$ ) stated that they would recommend this institution to mothers with inadequate milk. Also, 35.2% of the students believed that there would be a demand for BMB institutions, 43.9% thought that these institutions should be established in every city, and 49.6% stated they would support the establishment of breast milk banks in Turkey. Moreover, 72.6% of the students stated that milk obtained from a breast milk bank would not replace the baby's own mother's milk, 58.3% stated the donor and the recipient needed to know each other's identities, and 41.7% thought that mothers who would donate milk would not deprive their baby of their milk (Table 2).

**Table 1.** Distribution of the descriptive information about the students according to their knowledge about breast milk banking

Characteristics	n	%
<b>Year</b>		
1 <sup>st</sup> year	62	27.0
2 <sup>nd</sup> year	60	26.1
3 <sup>rd</sup> year	59	25.7
4 <sup>th</sup> year	49	21.2
<b>The longest place of residence</b>		
Province	111	48.3
County	72	31.3
Town/Village	47	20.4
<b>Knowledge of breast milk banking</b>		
Yes	85	37.0
No	74	32.2
Somewhat	71	30.8
<b>Donated milk causes problems in newborn health.</b>		
Yes	48	20.9
No	57	24.8
No idea	125	54.3
<b>There is a need for breast milk banking in our country.</b>		
Yes	95	41.3
No	36	15.7
No idea	99	43.0
<b>Using milk from a milk bank causes problems religiously.</b>		
Yes	65	28.3
No	70	30.4
No idea	95	41.3
<b>Milk from a milk bank can cause an infection in the newborn.</b>		
Yes	86	37.4
No	33	14.3
No idea	111	48.3
<b>Milk from a milk bank is reliable.</b>		
Yes	43	18.7
No	50	21.7
No idea	137	59.6
<b>Milk from a milk bank increases the risk for developing allergic reactions.</b>		
Yes	101	43.9
No	29	12.6
No idea	100	43.5
<b>The immunological benefit of milk from a milk bank is more than formula.</b>		
Yes	123	53.5
No	17	7.4
No idea	90	39.1
<b>Total</b>	<b>230</b>	<b>100</b>

The comparison of students' knowledge of BMB and their willingness to donate their own milk to a breast milk bank indicated a statistically significant difference ( $\chi^2=28.237$ ,  $p=0.000$ ) ( $p < 0.05$ ). The examination of the difference with advanced analyses (Bonferroni test) showed that the student group who had limited knowledge of BMB was not sure whether they wanted to donate their own milk to a breast milk bank, and that this was the source of the difference.

When students' knowledge of BMB and whether they would contact a breast milk bank when their baby needed milk were compared, a statistically significant difference was found ( $\chi^2=25.193$ ,  $p=0.001$ ) ( $p < 0.05$ ). When the source of this difference was examined with advanced analyses, it was found to stem from the fact that the student group who had limited knowledge about BMB had no idea about contacting a breast milk bank when their baby needed milk.

A statistically significant difference was found when students' knowledge of BMB and their understanding of the ethical

**Table 2.** Distribution of students' knowledge and thoughts about breast milk banking

Characteristics	Status of knowledge of breast milk banking				Test value $\chi^2$ ; P
	Yes (n=85)	No (n=74)	Somewhat (n=71)	Total (n=230)	
<b>Would you donate milk to a breast milk bank?</b>					
Yes	33 (14.3%)	17 (7.4%)	13 (5.7%)	63 (27.4%)	28.237; 0.000
No	32 (13.9%)	13 (5.7%)	16 (6.9%)	61 (26.5%)	
Undecided	20 (8.8%)	44 (19.1%)	42 (18.2%)	106 (46.1%)	
<b>Would you contact a breast milk bank when your baby needed milk?</b>					
Yes	38 (16.5%)	26 (11.3%)	24 (10.4%)	88 (38.2%)	25.193; 0.001
No	34 (14.8%)	11 (4.8%)	20 (8.7%)	65 (28.3%)	
No idea	13 (5.7%)	37 (16.1%)	27 (11.7%)	77 (33.5%)	
<b>Donating milk to a breast milk bank is ethical.</b>					
Yes	49 (21.3%)	31 (13.5%)	17 (7.4%)	97 (42.2%)	30.803; 0.001
No	19 (8.3%)	11 (4.8%)	9 (3.9%)	39 (17.0%)	
No idea	17 (7.4%)	32 (13.9%)	45 (19.5%)	94 (40.8%)	
<b>Would you recommend breast milk banking to mothers with inadequate breast milk?</b>					
Yes	55 (23.9%)	45 (19.6%)	29 (12.6%)	129 (56.1%)	19.527; 0.001
No	16 (6.9%)	8 (3.5%)	8 (3.5%)	32 (13.9%)	
No idea	14 (6.2%)	21 (9.1%)	34 (14.8%)	69 (30.0%)	
<b>Do you believe that there will be a demand for breast milk banking in our country?</b>					
Yes	29 (12.6%)	32 (13.9%)	20 (8.7%)	81 (35.2%)	11.345; 0.023
No	34 (14.8%)	18 (7.8%)	18 (7.8%)	70 (30.4%)	
No idea	22 (9.6%)	24 (10.5%)	33 (14.3%)	79 (34.4%)	
<b>There should be a breast milk bank in every city.</b>					
Yes	47 (20.4%)	35 (15.2%)	19 (8.3%)	101 (43.9%)	18.608; 0.001
No	16 (7.0%)	14 (6.1%)	11 (4.7%)	41 (17.8%)	
No idea	22 (9.6%)	25 (10.9%)	41 (17.8%)	88 (38.3%)	
<b>Milk from a breast milk bank can replace the infants' own mother's milk.</b>					
Yes	9 (3.9%)	8 (3.5%)	3 (1.3%)	20 (8.7%)	2.627; 0.622
No	60 (26.1%)	53 (23.0%)	54 (23.5%)	167 (72.6%)	
No idea	16 (7.0%)	13 (5.7%)	14 (6.0%)	43 (18.7%)	
<b>A mother will deprive her infant of her milk when she donates milk.</b>					
Yes	25 (10.9%)	14 (6.0%)	25 (10.9%)	64 (27.8%)	8.605; 0.072
No	38 (16.5%)	37 (16.2%)	21 (9.0%)	96 (41.7%)	
No idea	22 (9.6%)	23 (10.0%)	25 (10.9%)	70 (30.5%)	
<b>Milk donors and recipients should know each others' identities.</b>					
Yes	55 (23.9%)	42 (18.3%)	37 (16.1%)	134 (58.3%)	4.195; 0.380
No	21 (9.2%)	25 (10.9%)	22 (9.5%)	68 (29.6%)	
No idea	9 (3.9%)	7 (3.0%)	12 (5.2%)	28 (12.1%)	
<b>Would you support the establishment of breast milk banks in Turkey?</b>					
Yes	48 (20.9%)	38 (16.5%)	28 (12.2%)	114 (49.6%)	15.764; 0.003
No	21 (9.1%)	8 (3.5%)	11 (4.8%)	40 (17.4%)	
No idea	16 (7.0%)	28 (12.2%)	32 (13.8%)	76 (33.0%)	
<b>Total</b>	<b>85 (37.0%)</b>	<b>74 (32.2%)</b>	<b>71 (30.8%)</b>	<b>(100.0%)</b>	

status of donating milk to a breast milk bank were compared ( $\chi^2=30.803$ ,  $p=0.001$ ) ( $p < 0.05$ ). Advanced analyses indicated that this difference came from the student group who had limited knowledge about BMB and had no idea about the ethics of donating milk to a breast milk bank.

It was determined that there was a statistically significant difference between students' knowledge of BMB and their status of recommending BMB to mothers with insufficient milk ( $\chi^2=19.527$ ;  $p=0.001$ ) ( $p < 0.05$ ). When the source of the difference was examined with advanced analyses, it was observed to come from the fact that the student group who had limited knowledge about BMB had no idea about recommending BMB to mothers with inadequate milk.

There was a statistically significant difference between students' knowledge of BMB and their belief that there would be a demand for BMB in our country ( $\chi^2=11.345$ ,  $p=0.023$ ) ( $p < 0.05$ ). When the source of the difference was examined with advanced analyses, it was determined to stem from the

fact that the student group who had limited knowledge of BMB had no idea about whether there would be a demand for BMB in our country.

The comparison between students' knowledge of BMB and the idea that there should be breast milk banks in every city indicated there was a statistically significant difference between the two ( $\chi^2=18.608$ ,  $p=0.001$ ) ( $p < 0.05$ ). Advanced analyses of the difference showed that it stemmed from the fact that the student group who had limited knowledge of BMB did not have any idea about the need for breast milk banks in every city.

A statistically significant difference was found between students' knowledge of BMB and the status of supporting the establishment of BMB in Turkey ( $\chi^2=15.764$ ;  $p=0.003$ ) ( $p < 0.05$ ). Advanced analyses indicated that this difference came from the fact that the student group who had limited knowledge and those who did not know anything about BMB at all had no idea about the establishment of BMB in Turkey.

A statistically significant difference was not determined between the students' knowledge of BMB and the status of whether the milk taken from a milk bank would replace the baby's own mother's milk, whether a mother donating milk would deprive her baby of her own milk, and whether the milk donor and the recipient needed to know each other's identities ( $\chi^2=2.627$ ,  $p=0.622$ ;  $\chi^2=8.605$ ,  $p=0.072$ ;  $\chi^2=4.195$ ,  $p=0.380$ , respectively) ( $p>0.05$ ) (**Table 2**).

The mean overall score of the students from the RAS was  $57.98\pm 7.77$  (min.-max.=21-72). The mean total scores of the students from the thought, behavior, and emotion sub-dimensions were  $27.66\pm 3.84$  (min.-max.=10-32),  $16.92\pm 3.24$  (min.-max.=7-24), and  $13.40\pm 2.16$  (min.-max.=4-16), respectively. In the correlation analysis performed to determine the mean RAS scores of the students and their knowledge and opinions about breast milk banking, an insignificant negative correlation was found between the mean RAS score and the status of whether using milk from a milk bank mattered religiously ( $r=-0.160$ ;  $p=0.015$ ). Accordingly, it was determined that as the mean RAS score increased, using milk from a milk bank would cause problems religiously. The analysis indicated that there was an insignificantly low positive correlation between the mean RAS score and the status of whether one should contact a milk bank when the baby needed milk ( $r=0.161$ ;  $p=0.015$ ). Accordingly, as the mean RAS score increased, the status of contacting a breast milk bank when the baby needed milk increased, as well (**Table 3**).

Table 3. Correlation analysis for determining the mean RAS scores of students and their knowledge and opinions about breast milk banking

Knowledge and attitudes about breast milk banking	Mean RAS scores	
	r	p
Using milk from a milk bank causes problems religiously.	-0.160	0.015
Agreeing to donate your own milk to a breast milk bank	0.064	0.334
Contacting a breast milk bank when your baby needs milk	0.161	0.015
Donating milk to a breast milk bank is ethical.	0.062	0.349
Recommending breast milk banking to mothers with inadequate breast milk	0.080	0.226
Believing that there will be a demand for breast milk banking in Turkey	0.080	0.227
Breast milk banks should be available in all cities.	0.071	0.283
Milk from a breast milk bank can replace the infant's own mother's milk.	0.044	0.507
Mothers will deprive their babies of their milk when they donate milk.	-0.117	0.075
Milk donors and recipients should know each others' identities.	-0.077	0.245
Supporting the establishment of breast milk banking in Turkey	0.066	0.323

## DISCUSSION

This study was carried out to examine the relationship between midwifery students' knowledge, views and religious attitudes about breast milk banking. All of the midwifery students in the study were female, and 27.0% of them were first-year students. In our study, 37.0% of the students were found to know breast milk banking. The fact that the majority of the students in the study were first-year students and that topics, such as breast milk/breastfeeding, were not included in the first-year curriculum might have been a reason for the low number of students who knew what BMB was. In our study, some of the students had no idea about whether the donated milk would cause a problem in newborn health (54.3%), whether there was a need for BMB in our country (43.0%), whether donor milk would cause an infection in newborns (48.3%), and whether the milk obtained from a milk bank was reliable (59.6%). In their study investigating the knowledge and opinions of healthcare personnel (with 344 midwives, nurses and physicians) on BMB in our country, Şentürk Erenel et al.<sup>[5]</sup> (2017) found the majority of the healthcare workers knew there were no milk banks in our country but that they confirmed the statements that "babies who are fed with milk obtained from milk banks have a high risk of developing infection" and that "milk obtained from a milk bank is reliable", which indicated they did not have any idea about the topic.

In our study, 41.3% of the students stated that they did not have any idea about whether using milk from a breast milk bank would lead to a problem religiously. In their study conducted with mothers having infants, Ekşioğlu et al.<sup>[11]</sup> (2015) found that most of the mothers supported milk banking and that they would donate milk. They also determined that the reason why mothers did not want to donate milk was that they thought that it posed a risk of illness and that it was religiously inappropriate. Gürol et al.<sup>[12]</sup> (2013) reported that some of the mothers perceived religious reasons (36.3%) and social and moral reasons (28.9%) as an obstacle to donating milk. From a religious point of view, it is stated that according to Islamic law, breastfeeding of a baby by a woman other than its biological mother is considered legitimate. According to Islamic understanding, even if they have different fathers, children who are breastfed by the same women become "foster siblings". This kinship, which is established on breastfeeding, is not limited to those who suck and breastfeed, but also creates barriers to marriage between the baby breastfed and other children of the nursing mother.<sup>[13]</sup> However, religiously illegitimate marriages can be prevented by establishing breast milk banks and centers, especially for premature children, by developing a high-security kinship registry system in which nursing women and the child they breastfeed are identified.<sup>[14]</sup> In this study, the majority of the students did not express their opinion on the subject and experienced contradictions due to the aforementioned reasons.

In our study, 43.9% of the students stated that milk obtained from a milk bank would increase the risk of developing

allergic reactions in the newborn, and 53.5% reported that the immunological benefit of the milk obtained from a milk bank would be higher than the formula. In the study of Şentürk Erenel et al.<sup>[5]</sup> (2017), 39.6% of the participants stated that they did not know whether "milk obtained from a milk bank increased the risk of developing allergic reactions in the baby", and 65.6% responded correctly to "the immunological benefit of milk obtained from a milk bank was less than the formula" by stating it was an incorrect statement. Donor breast milk is one of the most ideal alternatives for newborns to ensure the continuation of growth and development in cases where their own mother cannot provide breast milk. It is safer to pasteurize breast milk to reduce some risks.

It is necessary to carry out studies to make BMB a public health policy. Donor milk can be used in hospitals with postpartum and newborn units within the scope of a program based on the principles of medical ethics, such as respect for autonomy, honesty, benefit, giving no harm, reliability, and justice.<sup>[7]</sup> Milk banks should collect information about donors and recipients, have a document/record system providing information to both parties, and be established as non-profit organizations.<sup>[4]</sup> In a study conducted in Taipei City Hospital Milk Bank, which was established as a non-profit institution in 2005 in Taipei, the capital city of Taiwan, it was reported that the amount of donor milk of the bank increased 3 times in the last 6 months and that the number of milk donors and recipients increased rapidly each year. It was stated in the study that milk donors were mostly educated, working, primiparous women. It was also reported that important data, such as basic data of the donor, working staff, bacteriological results before and after pasteurization, were recorded on a database for all donations.

<sup>[3]</sup> In our study, 35.2% of the students believed there would be a demand for breast milk banking, 43.9% thought these institutions should be available in every city, and 49.6% stated they would support the establishment of BMB in Turkey. In addition, 46.1% of the students were not sure about donating their own milk to a breast milk bank, 38.2% would contact a breast milk bank when their baby needed milk, 42.2% thought that donating milk was ethical, and 56.1% stated that they would recommend this institution to mothers whose breast milk was inadequate. Midwifery students receive education on breast milk after the first year. However, 72.6% of the students thought milk obtained from a breast milk bank would not replace the baby's own mother milk, 58.3% stated those who donate milk and those who receive it should know each other's identities, 41.7% thought mothers who donated milk would not deprive their baby of their milk. In a study conducted with 695 mothers with children aged below 1 in Brazil, it was reported that 7.3% of the mothers donated their milk. Also, 59.9% of the mothers in the study had knowledge about breast milk banking, 47.1% were encouraged to donate their milk, and that 78.9% did not have any doubts or difficulties in donating their milk.<sup>[10]</sup> However, it was remarkable that the rate of mothers who donated their milk was 7.3% despite these rates in the study.

There are no official problems in Christianity, Buddhism, and Hinduism regarding the issue of breast milk donation, which causes some religious contradictions. Milk donation in these religions is encouraged. Sharing milk is considered a virtue in Islam. There are several verses in the Quran, the holy book of Islam, stating that a mother's breastfeeding is a virtuous act and encouraging breastfeeding. Despite the importance given to human milk, the establishment of breast milk banks is a complex issue in the Islamic world. This is because a child younger than 2 years old who is breastfed more than 5 times by a donor mother is considered to have sibling relation with the children of the mother donating milk, although they do not have biological ties. This means that they cannot marry as they are considered brothers or sisters.<sup>[15]</sup> In a study conducted with 948 women who donated their milk in India, 40.9% of the women were Hindu, 41.4% Muslim, 63.8% Catholic, and 22.2% were from other religions, and it was stated that religion did not affect breast milk donation.<sup>[16]</sup> In a study investigating the knowledge, attitudes, and views of 401 religious leaders on human milk banking and the availability of milk banks in Turkey, 71.3% of the participants indicated that BMB would be acceptable provided that the number of recipients in the milk pool were limited.<sup>[17]</sup> In another study investigating the perceptions of women about BMB in Turkey, it was found that the participants had a positive attitude towards milk banking but they had some concerns about the religious aspects of the case. Women who thought that milk banking was not suitable for Muslims were uncomfortable with the possibility that future babies might accidentally marry other babies who shared the same milk.<sup>[18]</sup> In this study, it was determined that 41.3% of the students had no idea about whether using milk from a breast milk bank would cause a problem religiously. It was determined that as the mean RAS scores of the students increased, they thought that using milk from a milk bank would cause problems religiously. Accordingly, the views of the students with increased religious attitude became more negative against BMB religiously. Although students are in a health school, the topic is included in the curriculum, students study a curriculum rich in content related to the importance of breast milk, and they are raised as baby/mother-friendly individuals, they still have concerns and contradictions with the effect of religious attitude. Also, it was found that using milk from a milk bank would cause problems religiously as their mean RAS scores increased; yet, this increase also meant that the status of contacting a milk bank when the baby needed milk increased, as well. This may have been because the benefits of breast milk were not known by all students.

## CONCLUSION

In this study, it was found that most of the students had poor knowledge and negative opinions about breast milk banking. Also, as the mean RAS scores of the students increased, they thought that using milk from a milk bank would create problems religiously. Accordingly, the views of the students with an increased religious attitude towards BMB became negative religiously.

## ETHICAL DECLARATIONS

**Ethics Committee Approval:** This research was conducted on midwifery students. For this research ethical committee approval was not granted but the permission of the educational institution was obtained.

**Informed Consent:** Informed verbal and written consent of the participants of the study group were obtained.

**Referee Evaluation Process:** Externally peer-reviewed.

**Conflict of Interest Statement:** The authors have no conflicts of interest to declare.

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**Author Contributions:** All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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