Turk J Intensive Care 2025;23(2):140-151
DOI: 10.63729/TJIC.2025.651

ORIGINAL RESEARCH / *ÖZGÜN ARAŞTIRMA*

Organ donation attitudes of relatives of patients in the wards and intensive care units: Will you be a life?

Servis ve yoğun bakımdaki hasta yakınlarının organ bağışı hakkındaki tutumları: Can olur musun?

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ABSTRACT

Objective: Inadequate organ donation rate is still an obstacle to organ transplantation. Lack of information and negative attitudes are the most important obstacles. Having a patient in intensive care unit may change the perspective and create sensitivity. We aimed to compare the perspectives on organ donation between relatives of patients in intensive care and inpatient services.

Material and Method: It is a cross-sectional descriptive survey study. Group I: relatives of patients hospitalized in the 3rd level intensive care unit, and Group II: relatives of patients at inpatient services. Written informed consents were obtained. Questions were consisted of;1-Demographic data, 2- Level of knowledge about organ donation, 3-Attitudes and behaviors regarding organ donation.

Results: There was a significant difference between the groups regarding the purpose of organ donation (p=0.006). The overall rate of support for organ donation by Group I (75.9%) was significantly higher than the Group II (18.7%) (p<0.001).

Conclusion: The attitudes of relatives of patients in intensive care, towards organ donation are better than those who do not have patients in intensive care. Education and awareness-raising activities on organ donation should be carried out more intensively and effectively. Specially designed questionnaires, psychological support, empathy, respectful and early communication can also be effective.

Keywords: organ donation, intensive care, questionnaire, attitudes

ÖZ

Amaç: Yetersiz organ bağışı oranı, organ naklinin önünde önemli bir engel teşkil etmektedir. Bilgi eksikliği ve olumsuz tutum en önemli engelleyici unsurlardır. Yoğun bakımda yatan yakını olması kişilerin bakış açısını değiştirebilir ve hassasiyet yaratabilir. Çalışmamızda yoğun bakım ve yataklı servislerde yatan hasta yakınlarının organ bağışına tutumlarını karşılaştırmayı amaçladık.

Gereç ve Yöntem: Tanımlayıcı, kesitsel bir anket çalışması yaptık. Grup I: Hastası 3. Basamak yoğun bakım ünitelerinde yatan hasta yakınları, Grup II: Hastası normal yataklı servislerde yatan hasta yakınlarıydı. Katılımcılara yazılı bilgilendirilmiş onam formu imzalatıldı. Sorular; 1-Demografik veriler, 2-Organ bağışı hakkındaki bilgi düzeyi, 3-Organ bağışı hakkındaki tutum ve davranışlar'dan oluşuyordu.

Bulgular: Organ bağışının amacı konusunda gruplar arasında anlamlı bir fark vardı (p=0,006). Grup I'in organ bağışını destekleme oranı (%75,9) Grup II'ye (%18,7) göre anlamlı derecede yüksekti (p<0,001).

Sonuç: Yoğun bakımda hastası olan hasta yakınlarının organ bağışı konusundaki tutumlarının, yoğun bakımda hastası olmayanlara göre daha olumlu olduğunu söyleyebiliriz. Yoğun bakımdaki hastaların kritik durumlarının hasta yakınlarındaki hassasiyeti artırdığı görülmektedir. Organ bağışına ilişkin eğitim ve bilinçlendirme faaliyetleri daha yoğun ve etkin bir şekilde yürütülmelidir. Özel tasarlanmış anketler, psikolojik destek, empati, saygılı ve erken iletişimin de etkili olabileceğini düşünüyoruz.

Anahtar kelimeler: organ bağışı, yoğun bakım, anket, tutumlar

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Received / Geliş tarihi: 29.04.2024 **Accepted / Kabul tarihi:** 24.09.2024 **Published / Yayın tarihi:** 16.06.2025

Introduction

Organ-tissue transplantation is the process of transplanting an organ-tissue from a living person, brain-dead person or cadaver to replace an organ-tissue that cannot perform its function (1,2). Organ transplantation is the focus of solution in terms of cost-effectiveness in order to ensure the maintenance of the lives of individuals and to increase the duration and quality of life. Since more than one organ can be removed from the same patient, several people can benefit at the same time. Organ donation is a person's consent to the use of his/her tissues and organs after the end of his/her medical life with his/her own free will and documenting this consent (3). According to the regulations on organ donation and transplantation in Türkiye, organ donation is legalised by obtaining an "organ donation card" and by the relatives of the patient donating organs after the medical death (1,2).

Insufficient organ donation rates in the world and in our country are still a serious obstacle to organ transplantation (4). Especially lack of information and negative attitudes are the most important obstacles (5). Although trainings are given, announcements are made in the media and the public has become more aware; the difference between the number of donated organs and the number of patients waiting for organs is still continuing (6).

According to the data announced by the Ministry of Health of the Republic of Türkiye, as of November 2023, the number of patients waiting for kidney transplantation is 24,449, the number of patients waiting for liver transplantation is 2,600, the number of patients waiting for heart transplantation is 1,422, the number of patients waiting for lung transplantation is 204, the number of patients waiting for pancreas transplantation is 277 and the number of patients waiting for cornea transplantation is 4,119. However, when we look at the organ donation data, the number of cadaveric donors in 2023 is 1264 and the number of living donors is 4691 (7)

Critically ill patients with life-threatening diseases are closely monitored and treated in intensive cares. The clinical status of the patients and their current diseases play an important role in determining their prognosis. Relatives of patients who are hospitalised in intensive care are worried about their patients (8). Besides, having a patient in intensive care unit may create sensitivity about organ donation and change the perspective. In this study, we aimed to compare the attitudes of relatives of patients' in intensive care and in regular services, on organ donation.

Material and Method

Characteristic of the research

This is a cross-sectional descriptive survey study applied to the relatives of patients hospitalized Firat University Hospital. Our study was conducted under the principles of the Declaration of Helsinki. The study was completed between January 2024 and March 2024. This study has been approved by the Firat University Non-Interventional Research Ethics Committee (approval date: 09.01.2024, number: 2024/01-36)

Sampling

Interviewers consisted of relatives of patients whose patients were hospitalized in the 3rd level intensive care unit (Group I) and relatives of patients whose patients were hospitalized in regular inpatient services (Group II). One relative of each patient was included in the study. In cases with more than one relative, the relative closest to the patient and continuously contributed to patient care was included.

Collection of data

After explaining the purpose of the study to the patients' relatives, written informed consent was obtained from the participants. Relatives of patients without written informed consent were not included in the study. To avoid any bias, the questions were asked face to face to the interviewers by research

assistants from the department of anesthesiology and reanimation, who had not yet worked in intensive care, had not completed their first year, and did not know the patients and the questions. The average time to answer the questions is 10-12 minutes. The research questions were developed by the researchers as a result of the literature review.

1. *Questions (n: 16):*
2. Demographic data (age, gender, profession, education, whether there is a patient in intensive care unit, whether there is a relative waiting for organ transplantation) 5 questions
3. Level of knowledge about organ donation (what does organ donation mean, whether there is a legal regulation regarding this, the purpose of organ donation(Multiple choice)) 3 questions
4. Respondents' thoughts, attitudes and behaviors regarding organ donation (9 questions). The questions: *-If you are in favor of organ donation, what is the reason(s)?, -Who or what contributed to your positive view of organ donation?, -If you are negative about organ donation, what is the reason(s)?* Were multiple choice questions.

1. Inclusion criteria:

2. Accepting to participate in the study
3. To be hospitalized in the 3rd Level Anesthesiology and Reanimation Intensive Care Units or inpatient wards of Firat University Hospital,
4. Being 18 years or older

1. Exclusion criteria:

2. Refusing to participate in the study
3. Not completing the survey questions
4. Not having any inpatients in Firat University Hospital
5. Having a psychiatric disorder
6. For Group I; The patient has been diagnosed with brain death, for Group II; The patient is hospitalized in oncology, hematology, or palliative services or has a disease with low surveillance
7. Patients with previous intensive care hospitalization

Statistical analysis

To determine the number of patients who should be included in the study in line with the main purpose of our study, a sample size analysis was performed using the G*power (Version 3.1) package program before the study. Literature information and expert opinion were used to analyze sample size determination (9). As a result of the sample size analysis, it was found that a total of 230 patients would be sufficient to be included in the sample for 80% power (1-β=0.80) and α=0.05 error value (95% confidence interval). Our study was completed with a total of 296 patients in case of the possibility of leaving.

Analyzes were evaluated in SPSS (Statistical Package for Social Sciences; SPSS Inc., Chicago, IL) 22 package program. Descriptive data were presented as n, % values for categorical data and mean±standard deviation (mean±standard deviation) values for continuous data. Chi-square analysis (Pearson Chi-square) was used to compare categorical variables between groups. The statistical significance level was accepted as $p<0.05$ in the analyses.

Outcomes

Primary outcome: To observe if the sensitivity of relatives of patients in intensive care units about organ donation has increased.

Secondary outcomes: 1)To observe which factors effect the attitudes of relatives about organ donation; 2)To observe how much they know about organ donation.

Results

A total of 296 participants who all of them were Muslims, 145 (49%) women and 151 (51%) men, were included in the study, with a mean age of 41.3±13.6 years (min=18-max=78). When the professions and education of the participants were analyzed, 31.1% were unemployed, 47.3% were middle school graduates and below, and 52.7% were high school

graduates and above. The participants who had a relative in intensive care unit were 49,7%. While 4,4% of the participants had a relative waiting for organ transplantation, 58,8% did not know anyone about this. (Table 1).

While 48.3% of women and 51% of men had a relative in intensive care unit, there was no significant difference between them (p=0.640). The ages of those with relatives in intensive care unit were found to be significantly higher than the ages of those without relatives (p=0.007). Fifty per cent of those who were not working, 88.2% of those who were health workers, 54.5% of those who were teachers, 39% of those who were self-employed/employees and 39% of those who were civil servants had a relative in intensive care unit and there was a significant difference between them (p=0.004) (Table 2).

Participants responded to organ donation as “Taking an organ from a dead body and transplanting it into a living one” were 17,2%. Responded as “Taking an organ from a living one and transplanting it into another one” were 16,2%. Accepted both answers as correct were 60,5% and 6,1% stated that they did not know about it. While 26.4% of the participants stated that there is a legal regulation on organ donation in our country, 11.8% stated that there was not and 61.8% said that they did not know. While 16.6% of the participants stated that the purpose of organ donation is “to improve the quality of life of the transplant recipient”, 79.7% stated “to save the life of the transplant recipient”, 1.7% stated “financial gain” and 2% stated that they did not know. In this question, there was a significant difference between the groups regarding the main purpose of organ donation (p=0.006). (Table 3).

The rate of Group I (87.8%) being worried about not being able to find an organ, and needing an organ transplant was significantly higher than the rate of Group II (68.5%) (p<0.001). The overall rate of support for organ donation in Group I (75.9%) was significantly higher than the rate of Group II (18.7%) (p<0.001) (Figure 1). The rate of Group I agreeing to donate their organs in case of brain death of a relative (58.5%) was significantly higher than the rate of Group II (17.7%) (p<0.001).

Table 1. Sociodemographic characteristics of the participant

		Number	Perent (%)
Gender	Female	145	49,0
	Male	151	51,0
Age (years), Median±Standart Deviation		41,4±13,5 (18,0-78,0)	
Professiom	Unemployed	92	31,1
	Health worker	17	5,7
	Teacher	22	7,4
	Self-employment	100	33,8
	Civil servant	65	22,0
Education	Middle school and below	140	47,3
	High school and above	156	52,7
Presence of relatives in intensive care unit	Yes	147	49,7
	No	149	50,3
Do you have a relative who has received an organ transplant or is waiting for an organ transplant?	Yes, I've got family members waiting for	13	4,4
	I know a person like that in my social circle.	29	9,8
	I've only heard about in the media.	80	27,0
	No	174	58,8

Table 2. Comparison of the intensive care unit relatives according to the sociodemographic characteristics of the participants

		Total, n (%)	ICU, n(%)	RIS, n(%)	p*
Gender	Female	145 (49,0)	70 (48,3)	75 (51,7)	0,640
	Male	151 (51,0)	77 (51,0)	74 (49,0)	
Age (years), Median±Standart Deviation		41,4±13,5	43,5±12,7	39,3±13,9	**0,007***
Profession	Unemployed	92 (31,1)	46 (50,0)	46 (50,0)	0,580
	Health worker	17 (5,7)	9 (52,2)	8 (47,8)	
	Teacher	22 (7,4)	12 (54,5)	10 (45,5)	
	Self employment	100 (33,8)	49 (39,0)	51 (61,0)	
	Civil servant	65 (22,0)	35 (53,8)	30 (46,2)	
Education	Middle school and below	140 (47,3)	72 (51,4)	68 (48,6)	0,564
	High school and above	156 (52,7)	75 (48,1)	81 (51,9)	

ICU: Intensive Care Unit; RIS: Regular Inpatient Service; n: number
*Square analysis, **Student t test was applied.

Table 3. Participants' knowledge about organ transplantation

		Total, n (%)	ICU, n (%)	RIS, n(%)	p*
What does organ transplantation mean?	Taking an organ from a dead body and transplanting it into a living one	51 (17,2)	17 (11,6)	34 (22,8)	0,063
	Removing an organ from a living person and transplanting it to another person	48 (16,2)	27 (18,4)	21 (14,1)	
	Both	179 (60,5)	95 (64,6)	84 (56,4)	
	I don't know	18 (6,1)	8 (5,4)	10 (6,7)	
Is there a legal regulation on organ donation in our country?	Yes	78 (26,4)	45 (30,6)	33 (22,1)	0,213
	No	35 (11,8)	18 (12,2)	17 (11,4)	
	I don't know	183 (61,8)	84 (57,1)	99 (66,4)	
What is the main purpose of organ transplantation?	Improving the quality of life of the transplant recipient	49 (16,6)	31 (21,1)	18 (12,1)	**0,006**
	Saving the life of the transplant recipient	236 (79,7)	115 (78,2)	121 (81,2)	
	Financial gain	5 (1,7)	1 (0,7)	4 (2,7)	
	I don't know	6 (2,0)	0 (0,0)	6 (4,0)	

ICU: Intensive Care Unit; RIS: Regular Inpatient Service; n: number. *Chi-square analysis was applied.

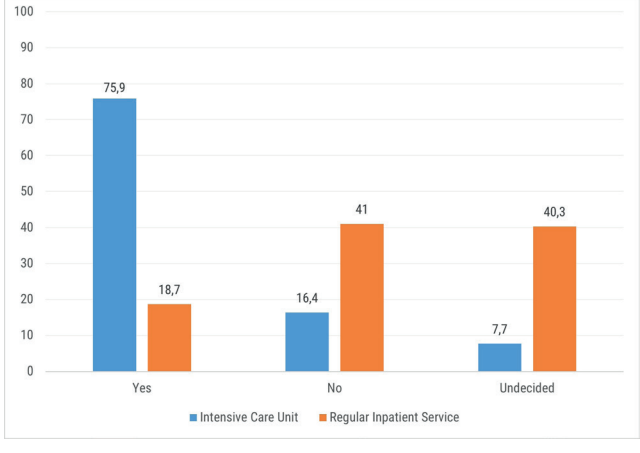

Figure 1. Supporting organ donation

The rate of Group I who wanted their organs to be donated by their relatives after death (68.7%) was significantly higher than the rate of Group II (19%) ($p<0.001$). The rate of Group I who would consider donation in case a family member needed organ donation (75.5%) was significantly higher than the rate of Group II (21%) ($p<0.001$). Among the reasons for having a positive attitude towards organ donation, the rate of saying "Saving the lives of people in need" ($p<0.001$), "I think it is a conscientious duty" ($p<0.001$) and "One day I or my relatives may need organ donation" ($p=0.001$) were found to be significantly higher among the Group I.

The rate of Group I to say "media" ($p<0.001$) and "voluntary organizations" ($p<0.001$) on their positive attitude towards organ donation was found to be significantly higher than the rate of Group II.

The reasons of a negative attitude of Group II, towards organ donation were found to be significantly higher with the answers "Organ donation after brain death disfigures the body", "My religious beliefs do not allow it", "Because my family members do not look favorably" and "I do not have enough information about this issue yet" (Table 4).

Table 4. Participants' attitudes about organ donation

		Total, n (%)	ICU, n (%)	RIS, n (%)	p*
If you or a relative of yours is in intensive care and needs an organ transplant, would you be worried about not being able to find an organ?	Yes	231 (78,0)	129 (87,8)	102 (68,5)	**<0,001**
	No	22 (7,4)	9 (6,1)	13 (8,7)	
	Undecided	43 (14,5)	9 (6,1)	34 (22,8)	
Do you support organ donation in general?	Yes	142 (48,0)	107 (75,9)	35 (18,7)	**<0,001**
	No	84 (28,4)	13 (16,4)	71 (41,0)	
	Undecided	70 (23,6)	5 (7,7)	65 (40,3)	
Would you agree to donate your relative's organs if they were diagnosed brain dead?	Yes	112 (37,8)	65 (58,5)	47 (17,7)	**<0,001**
	No	118 (39,9)	13 (11,1)	105 (65,2)	
	Undecided	66 (22,3)	20 (30,4)	46 (17,1)	
Would you like your organs to be donated by your relatives after your death?	Yes	129 (43,6)	88 (68,7)	41 (19,0)	**<0,001**
	No	113 (38,2)	15 (14,1)	98 (61,8)	
	Undecided	54 (18,2)	9 (17,2)	45 (19,2)	
If someone in your family needs organ donation, would you consider donating?	Yes	142 (48,0)	107 (75,5)	35 (21,0)	**<0,001**
	No	28 (9,5)	3 (12,0)	25 (10,8)	
	Undecided	126 (42,6)	15 (12,5)	111 (68,2)	
If you are in favor of organ donation, what is the reason(s)?	Saving the lives of people	185 (62,5)	113 (76,9)	72 (48,3)	**<0,001**
	Preventing organs from decaying by being buried	9 (3,0)	6 (4,1)	3 (2,0)	0,334
	My organ continues to live by the people who need it	7 (2,4)	5 (3,4)	2 (1,3)	0,281
	I think it is a conscientious duty	76 (25,7)	57 (38,8)	19 (12,8)	**<0,001**
	One day, I or my relatives may need organ donation.	93 (31,4)	59 (40,1)	34 (22,8)	**0,001**
Who or what contributed to your positive view of organ donation?	Media	113 (38,2)	72 (49,0)	41 (27,5)	**<0,001**
	Healthcare workers	91 (30,7)	52 (35,4)	39 (26,2)	0,086
	Voluntary organizations	54 (18,2)	43 (29,3)	11 (7,4)	**<0,001**
	Friends	41 (13,9)	22 (15,0)	19 (12,8)	0,581
	Religious scholars	19 (6,4)	8 (5,4)	11 (7,4)	0,496
If you are negative about organ donation, what is the reason(s)?	Organ donation after brain death disfigures the body	20 (6,8)	3 (2,0)	17 (11,4)	**0,001**
	Donated organs can be sold and misused by hospital authorities	6 (2,0)	2 (1,4)	4 (2,7)	0,684
	My religious beliefs do not allow	66 (22,3)	21 (14,3)	45 (30,2)	**0,001**
	Because my family members are not in favor	63 (21,3)	24 (16,3)	39 (26,2)	**0,038**
	I don't have enough information about this yet	102 (34,5)	33 (22,4)	69 (46,3)	**<0,001**

ICU: Intensive Care Unit; RIS: Regular Inpatient Service,n: number. *Chi-square analysis was applied.

While 78.2% of those who consider organ donation accept to donate their organs after the brain death of their relatives, none of those who do not support organ donation accept to donate their organs (p<0.001). While 89.4% of those who are considering organ donation accept the donation of their organs by their relatives after death, none of those who do not support organ donation do not accept to donate their organs. (p<0.001). While 97.2% of those who consider organ donation accept to donate their organs in case a member of their family is in need, 2.4% of those who do not support organ donation accept to donate their organs (p<0.001) (Table 5).

Discussion

As in the past, in the modern era, the level of organ donation is not sufficient for patients waiting for transplantation. Lack of information and awareness, false beliefs, and attitudes prevent us from reaching sufficient numbers in organ donation. Our study was conducted with relatives of patients hospitalized in intensive care units and inpatient wards in a tertiary care hospital. We showed that relatives of patients who are hospitalized in intensive care are more sensitive about organ donation and this sensitivity caused them to have positive attitudes towards organ donation.

Overall, support for organ donation was 48%. When a relative was diagnosed with brain death, 37.8% agreed to donate their organs; 43.6% wanted their organs to be donated after death; and 48% would consider donating if a family member needed organ donation. The findings of this study demonstrate that attitudes toward organ donation significantly influence individuals' decisions to donate the organs of their relatives in the event of brain death, to allow their organs to be donated by their relatives after death, and to donate their organs if a family member is in need. A large majority of those who support organ donation are willing to donate their relatives' organs in the event of brain death (78.2%), to allow their organs to be donated after death (89.4%), and to donate their organs if a family member is in need (97.2%). In contrast, none of those who do not support organ donation are willing to donate their relatives' organs or allow their organs to be donated, and only 2.4% are willing to donate their organs if a family member is in need. These differences are statistically significant (p<0.001), clearly indicating the extent to which attitudes toward organ donation impact donation decisions. Our findings were similar to the study conducted by Cotrau et al. in 2023 with the relatives of intensive care patients (10).

In this study, our aim was to evaluate the attitudes of relatives who had patients in intensive care units, towards organ donation. Our findings showed that those with relatives of patients in intensive care tended to give more positive answers about organ

Table 5. Comparison of donation of organs of oneself or one's relatives according to support for organ donation

		Do you support organ donation in general?						p*
		Yes		No		Undecided		
		n	%	n	%	n	%	
Would you agree to donate your relative's organs if they were diagnosed brain dead?	Yes	111	78,2	0	,0	1	1,4	<0,001
	No	0	,0	69	82,1	49	70,0	
	Undecided	31	21,8	15	17,9	20	28,6	
Would you like your organs to be donated by your relatives after your death?	Yes	127	89,4	0	,0	2	2,9	<0,001
	No	1	,7	62	73,8	50	71,4	
	Undecided	14	9,9	22	26,2	18	25,7	
If someone in your family needs organ donation, would you consider donating?	Yes	138	97,2	2	2,4	2	2,9	<0,001
	No	0	,0	19	22,6	9	12,9	
	Decided	4	2,8	63	75,0	59	84,3	

donation. Participants with patients in intensive care gave significantly higher positive answers to the questions of supporting organ donation in general and agreeing to donate their own or a relative's organ after death (75.9%; 68.7%; 58.5%). The reasons for positive attitudes toward organ donation in this study were; Saving lives of people (62,5 %), worrying that one day he will need an organ transplant (31,4 %), Thinking that it's a conscientious duty (25,7 %), In the study conducted by Hernández et al, relatives of patients with patients in intensive care unit had a more negative view of organ donation and perhaps the participants wanted their patients' body integrity to remain intact (11). Having a relative in intensive care is a cause of psychological stress and emotional exhaustion. Asking them to donate organs can of course be an additional responsibility and challenge for them. However, their life expectancy regarding their patients may also increase their sensitivity and change their attitudes towards organ donation.

Many factors play a role in attitudes towards organ donation. These are demographic parameters as well as the level of knowledge about organ donation (12,13). In a study conducted by Colak et al. in our country, the reasons for not participating in organ donation were religion (25%), anxiety about suffering (28%), fear (20%), life after death (87%), and traditions and customs (15%) (14). In our study, the reasons why the participants had a negative view of organ donation; 102 of them were lack of sufficient information (34.5%), 66 were because of religious beliefs (22.3%), and 63 were because of the thought that family members would not be favorable (21.3%). When we looked at our demographic data, the age of Group I was higher than the other group. In the literature, although Goz et al. (15) reported that age did not change the attitude toward organ donation, Cohen et al. (16) reported that age and attitude were positively correlated. However, in many other studies, it was observed that older people donated fewer organs, and they associated this with the high comorbidities of elderly patients (17,18). In our study, relatives of patients in the intensive care unit were older and had more positive attitudes towards organ donation. We think that the critical illnesses of patients in intensive care were also effective in this.

Many studies have shown that the level of education can change knowledge about organ donation and attitude towards organ donation (19-21). According to Zhang et al., people with higher education levels were more informed about organ donation and had more positive attitudes (22). In our study, 52% of the participants were high school and university graduates. We did not observe a significant difference in education level between the groups. About 60% of the participants answered the meaning and purpose of organ transplantation correctly and there was no difference between the groups. Despite this, approximately 73% of all participants did not know whether there is a legal regulation on organ transplantation in our country. This is consistent with the low level of organ donation in our country and shows the importance of emphasizing education.

A clear explanation of transplantation and organ donation and a clear understanding of the subject is as important as education (23). In this way, fears can be reduced. It should not be forgotten that what is unknown is doomed to be rejected. Indeed, in our study, we found that the first reason for negative attitudes towards organ donation was lack of information. In the study conducted by Cotrau et al. 52% of the participants did not know that brain death was irreversible and lack of understanding of brain death was stated as the main reason for organ donation refusal (10). In a study by Ramadurg et al., it was shown that providing education about organ donation increased the level of knowledge and changed attitudes and beliefs about donation (24).

When we look at the literature, studies show that there is a positive relationship between the level of awareness about organ donation and the willingness to donate (25). Informing the patient's relatives that everything medically possible is being done for the patient may positively affect their attitudes toward organ donation. Studies have shown that early and appropriate physical communication with families, a

respectful and empathetic approach, and providing psychological relief positively change the attitudes of patients' relatives towards donation (26,27). In this context, to increase the positive perspective on organ donation, we aimed to spend more time with patients' relatives in our intensive care unit to inform them about this issue and to reassure them.

In previous studies, the attitudes of relatives of intensive care unit patients towards organ donation were found to be more positive, supporting our study (28,29). Tontus reported that if the participants' relatives required organ transplantation, they responded more positively about donation (30). In our study, the relatives of patients in the intensive care unit reported significantly higher anxiety (87.8% vs. 68.5%, $p<0.001$). We think that the critical process of intensive care patients and the concerns of patient relatives are effective in this. We think that our findings provide important clues about the factors affecting the positive attitudes of relatives of patients in the intensive care unit towards organ donation.

Participants who were positive about organ donation in order stated that; the media (38.2%), healthcare professionals (30.7%), and voluntary organizations (18.2%) were primarily effective in this regard. Salim et al. showed that the media increased public awareness of organ donation (31). In this context, in addition to more effective use of the media and press organs to increase awareness of organ donation, utilizing the knowledge and experience of healthcare personnel to ensure the flow of accurate information in these sources will increase effectiveness. Likewise, we believe that voluntary organizations, together with health professionals, can raise public awareness by organizing continuous campaigns, seminars and trainings on this issue.

Religious beliefs are another important factor affecting people's attitudes and decisions about organ donation (32,33). The teachings and beliefs of different religions can offer different perspectives on organ donation and shape individuals' decision to donate. Holman et al. found that Orthodox (73%) and Catholics (77%) had a more favorable view of organ donation than Protestants (43%) (34). But according to Goz et al. religion did not affect this issue (15). The majority of Turkish people believe in Islam, and both religious scholars and the Directorate of Religious Affairs have stated that organ donation is compatible with Islam. In the Qur'an, in Surah Maide, Verse 32, it is stated that 'Whoever saves one life is as if he/she has saved all human beings' (35). In the article written by Sharif, it is stated that Muslims have the perception that they do not own their bodies or organs and that they do not have the right to give their organs to others (36). Muslims remain divided on this issue (37). In a multicenter study conducted by Demırkiran et al., it was emphasized that religious beliefs negatively affected the attitude toward organ donation and this could be overcome by informing the public (38). All of the participants in our study were Muslims and 22.3% of them thought that their religious beliefs would not allow organ transplantation. Only 6.4% of those with a positive view on organ donation stated that they had benefited from religious scholars. These rates show that religious scholars have a great responsibility. Understanding religious teachings about organ donation, effective communication with religious communities, and dissemination to the public are important to raise awareness about organ donation and increase donation rates.

Considering the reality of our country, the impact of the results arising from geographical location should not be ignored. Two extreme examples are Spain and Iran. According to the 2018 data of the International Registry of Organ Donation and Transplantation (IRODaT- UOBTK), cadaveric organ donation is estimated in millions; 48 in Spain, 11.1 in Iran, and 7.47 in Türkiye (39). While living donors are predominant in Iran, cadaveric donors are predominant in Spain. Spain's "opt-out" system has been effective in increasing organ donation. In Iran, religious and cultural factors play an important role, whereas in Spain the general acceptance and awareness of the society encourages organ donation. While Spain adopts a more systematic approach to organ donation

coordination and education, in Iran this process is based on individual donations (40).

This study has some limitations. Since it is a single-center cross-sectional study, it does not provide a universal generalization. In addition, psychological factors affecting the attitudes of patients' relatives towards organ donation may also need to be examined in detail. The survey was administered to relatives of ICU critically ill patients, but not patients diagnosed as brain dead; results may vary in patients diagnosed as brain dead. Another limitation is that the study was conducted in two groups of relatives of patients with and without ICU patients, but the diagnoses of the patients were not examined separately.

Conclusion

We can say that the attitudes of relatives of patients with patients in intensive care towards organ donation are more positive than those who do not have patients in intensive care. It is seen that the critical condition of patients in intensive care increases the sensitivity of the relatives. We believe that education and awareness-raising activities on organ donation should be carried out more intensively and effectively, especially by politicians, educators, health professionals and clergy. Considering that all our participants are Muslims, the clergy have a big role to play.

Specially designed questionnaires that aim to assess people's knowledge and attitudes towards organ donation and transplantation are crucial for identifying effective educational strategies to increase organ donation. The media and voluntary health organizations also need to educate the public from the perspective of scientific knowledge. We believe that psychological support, empathy, respect, and early communication with relatives can also have positive effects.

Ethical approval

This study has been approved by the Firat University Non-Interventional Research Ethics Committee (approval date: 09.01.2024, number: 2024/01-36). Written informed consent was obtained from the participants.

Author contribution

Study conception and design: GA. GÖ, FÇ, AA; data collection: GA, FÇ, AA, GÖ, İD, FD; analysis and interpretation of results: GA, İD, FD, FÇ; draft manuscript preparation: GA, FÇ, AA, GÖ, FD, İD. The author(s) reviewed the results and approved the final version of the article.

Source of funding

The authors declare the study received no funding.

Conflict of interest

The authors declare that there is no conflict of interest.

References

1. Gökçe N, Özer H, Kilci Z. Organ Donation According to Students and Their Families in the Example of Social Studies Lesson. Anadolu Journal of Educational Sciences International. 2016;6:84-109. [Crossref]
2. Vicdan AK, Peker S, Üçer B. Determining the Attitudes of Akşehir Health School Students Regarding Organ Donation. TAF Preventive Medicine Bulletin. 2011;10:175-80. [Crossref]
3. Şen H, Özaydın Ö. Examining the Relationship Structure Between the Thoughts of Individuals in Eskişehir Province About Organ Donation and Their Socioeconomic Qualifications. Osmangazi University Journal of Social Sciences. 2004;5:95-116.

4. Santos FGT, Mezzavila VAM, Rodrigues TFCS, et al. Trend of transplants and organ and tissue donations in Brazil: a time series analysis. Rev Bras Enferm. 2021;74:e20200058. [Crossref]

5. Szydło M, Mijalska A, Koziara K, Głowinski J. Attitudes Toward and Knowledge of Brain Death and Deceased Organ Donation Among Anesthesiologists in the Northeastern Region of Poland. Transplant Proc. 2022;54:864-73. [Crossref]

6. Desai JN, Vadhel CR, Patel NM, Patel BGA. Questionnaire-based study evaluating awareness for organ and body donation and cadaveric dissection among the general population attending mid-Gujarat region. International Journal of Health Sciences. 2022;6(Suppl. 2):3156-65. [Crossref]

7. TTDISKDS KAMU. Brain death. 2019. Available at: https://organkds.saglik.gov.tr/DSS/PUBLIC/Brain_Death.aspx (Accessed on Jul 7, 2024).

8. Kanyári Z, Cservenyák D, Tankó B, Nemes B, Fülesdi B, Molnár C. Knowledge and Attitudes of Health Care Professionals and Laypeople in Relation to Brain Death Diagnosis and Organ Donation in Hungary: A Questionnaire Study. Transplant Proc. 2021;53:1402-8. [Crossref]

9. Ríos A, Cascales P, Martínez L, et al. Emigration from the British Isles to southeastern Spain: a study of attitudes toward organ donation. Am J Transplant. 2007;7:2020-30. [Crossref]

10. Cotrau P, Negrau M, Hodoşan V, et al. Organ Donation Awareness among Family Members of ICU Patients. Medicina (Kaunas). 2023;59:1966. [Crossref]

11. Hernández Rivera JCH, Mojica OD, Mendoza MS, et al. Factors That Influence the Attitude of the Population to Be a Donor in Mexico. Transplant Proc. 2020;52:1036-41. [Crossref]

12. Irving MJ, Tong A, Jan S, et al. Factors that influence the decision to be an organ donor: a systematic review of the qualitative literature. Nephrol Dial Transplant. 2012;27:2526-33. [Crossref]

13. Curtis RMK, Manara AR, Madden S, et al. Validation of the factors influencing family consent for organ donation in the UK. Anaesthesia. 2021;76:1625-34. [Crossref]

14. Colak M, Ersoy K, Haberal M, Gürdamar D, Gerçek O. A household study to determine attitudes and beliefs related to organ transplantation and donation: a pilot study in Yapracik Village, Ankara, Turkey. Transplant Proc. 2008;40:29-33. [Crossref]

15. Goz F, Goz M, Erkan M. Knowledge and attitudes of medical, nursing, dentistry and health technician students towards organ donation: a pilot study. J Clin Nurs. 2006;15:1371-5. [Crossref]

16. Cohen J, Ami SB, Ashkenazi T, Singer P. Attitude of health care professionals to brain death: influence on the organ donation process. Clin Transplant. 2008;22:211-5. [Crossref]

17. Ríos A, Ramírez P, Martínez L, et al. Are personnel in transplant hospitals in favor of cadaveric organ donation? Multivariate attitudinal study in a hospital with a solid organ transplant program. Clin Transplant. 2006;20:743-54. [Crossref]

18. Agaba EI, Ocheke IE, Agaba PA, et al. Willingness of Nigerian healthcare workers to donate kidneys. Int J Artif Organs. 2008;31:329-32. [Crossref]

19. Tumin M, Tafran K, Zakaria RH, Satar NM, Ng KP, Lim SK. Do family members of dialysis patients have a positive attitude toward organ donation? Ann Transplant. 2015;20:752-6. [Crossref]

20. Howard K, Jan S, Rose JM, et al. Preferences for policy options for deceased organ donation for transplantation: a discrete choice experiment. Transplantation. 2016;100:1136-48. [Crossref]

21. Yang H, Wang Z, Li H, Zeng F. Factors influencing attitudes of relatives of renal failure patients toward living kidney donation: central China. Transplant Proc. 2012;44:2921-4. [Crossref]

22. Zhang H, Zheng J, Liu W, et al. Investigation and strategic analysis of public willingness and attitudes toward organ donation in East China. Transplant Proc. 2015;47:2419-24. [Crossref]

23. Bernat JL. Whither brain death? Am J Bioeth. 2014;14:3-8. [Crossref]

24. Ramadurg UY, Gupta A. Impact of an educational intervention on increasing the knowledge and changing the attitude and beliefs towards organ donation among medical students. J Clin Diagn Res. 2014;8:JC05-7. [Crossref]

25. Zhang QX, Xie JF, Zhou JD, et al. Impact Factors and Attitudes Toward Organ Donation Among Transplantation Patients and Their Caregivers in China. Transplant Proc. 2017;49:1975-81. [Crossref]

26. Jacoby L, Jaccard J. Perceived support among families deciding about organ donation for their loved ones: donor vs nondonor next of kin. Am J Crit Care. 2010;19:e52-61. [Crossref]

27. Afshar R, Sanavi S, Rajabi MR. Attitude and willingness of high school students toward organ donation. Saudi J Kidney Dis Transpl. 2012;23:929-33. [Crossref]

28. Chen YC, Fang CS, Tsai CL. Willingness of intensive care unit patients' family members to donate organs: a cross-sectional study. Medicine (Baltimore). 2023;102:e32601. [Crossref]

29. Park UJ, Han SY, Han KH, et al. Effects of phased education on attitudes toward organ donation and willingness to donate after brain death in an Asian country. Asian J Surg. 2019;42:256-66. [Crossref]

30. Tontus HO. Educate, Re-educate, Then Re-educate: Organ Donation-centered Attitudes Should Be Established in Society. Transplant Proc. 2020;52:3-11. [Crossref]

31. Salim A, Berry C, Ley EJ, Schulman D, Navarro S, Chan LS. Utilizing the media to help increase organ donation in the Hispanic American population. Clin Transplant. 2011;25:E622-8. [Crossref]

32. Tontus O, Karabey M, Gurdal M. Survey of medical students' attitudes, religious beliefs, and knowledge of organ donation. Cells Tissues Organs. 2011; 14: 203-206.

33. Alhawari Y, Verhoff MA, Ackermann H, Parzeller M. Religious denomination influencing attitudes towards brain death, organ transplantation and autopsy-a survey among people of different religions. Int J Legal Med. 2020;134:1203-12. [Crossref]

34. Holman A, Karner-Hutuleac A, Ioan B. Factors of the willingness to consent to the donation of a deceased family member's organs among the Romanian urban population. Transplant Proc. 2013;45:3178-82. [Crossref]

35. Saffarzadeh T. Quran-e Hakim [The Holy Quran]. Tehran: Osveh Publications. 2009.

36. Sharif A. Organ donation and Islam-challenges and opportunities. Transplantation. 2012;94:442-6. [Crossref]

37. Alkhawari FS, Stimson GV, Warrens AN. Attitudes toward transplantation in U.K. Muslim Indo-Asians in West London. Am J Transplant. 2005;5:1326-31. [Crossref]

38. Demırkiran O, Bozbay S, Elmaagac M, Agkoç M. Religious and Cultural Aspects of Organ Donation in the Turkish Population. Transplant Proc. 2019;51:2158-62. [Crossref]

39. International Registry on Organ Donation and Transplantation (IRODaT). http://irodat.org. 2023. Available at: https://irodat.org/ (Accessed on Jul 8, 2024).

40. Matesanz R, Domínguez-Gil B. The Spanish Model of Organ Donation and Transplantation. In: Jox R, Assadi G, Marckmann G, editors. Organ Transplantation in Times of Donor Shortage. International Library of Ethics, Law, and the New Medicine, Volume 59. Springer, Cham; 2016. [Crossref]