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## Attitudes, knowledge levels and behaviors of Islamic religious officials about organ donation in Turkey: National survey study

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## Abstract

### BACKGROUND

The most important factors affecting the decision of organ donation are socioeconomic, educational, cultural, and religious factors.

### AIM

To evaluate Islamic religious officials' attitudes and behaviors toward and level of knowledge on organ donation and transplantation.

### METHODS

This study surveyed 2350 Islamic religious officials in Turkey. To ensure a representative sample, we used and modified the Nomenclature of Territorial Units for Statistics. Based on the Nomenclature of Territorial Units for Statistics-II, Turkey was divided into 26 regions. The number of Islamic religious officials in each city and town in each of the 26 regions was proportionate to the population. A stratified sampling method based on demographic factors, such as age, marital status, and educational level, was used. Data were collected by PRP Research and Consultancy Company using computer-assisted personal interviewing.

### RESULTS

Of the 2350 religious officials surveyed, 59.9% were in the age group of 35-54 years; 84.7% had either a bachelor's or a master's degree; 99.7% never donated an organ; and 75.4% were not considering donating in the future. About 22% of the religious officials said religious belief was their reason for not donating; 45.3% did not indicate any reason. Although 41.5% of participants considered cadaveric organ donation as the best source of organ transplantation, 36.3% deemed living donor transplantation as the best option. Meanwhile, 52.9% of participants considered donating an organ from a brain dead relative in case they were asked for permission; 80.1% considered donating to a relative, if necessary; 81.6% considered undergoing organ transplantation, if necessary. About 83.7% of participants deemed organ donation as a proper human behavior; 60.5% believed that it is allowed by Islam; 55% said they preach for organ donation at their mosque; and 41.1% said their views of organ donation were influenced by their leaders in society.

### CONCLUSION

Religious officials are unsure whether or not organ donation is respectful of their religious belief, but they consider donating an organ if a relative need to undergo organ transplantation.

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**Core tip:** Organ shortage remains a major problem globally. The waiting list for organ transplantation has been expanding every day. The most important reason for this problem is insufficient organ donation. The most important factors affecting the decision of organ donation are socioeconomic, educational, cultural, and religious factors. In the present study, we aimed to evaluate the attitudes, level of knowledge and behaviors of Islamic religious officials toward organ donation and transplantation.

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## INTRODUCTION

Organ transplantation has become a preferred treatment option of patients with end-stage organ failure such as liver, kidney, heart, pancreas and lung<sup>[1,2]</sup>. Although survival and life quality rates of patients undergoing organ transplantation have improved in recent years, owing to medical and technical developments, organ shortage remains a problem; the waiting list for organ transplantation increases every day<sup>[1,3]</sup>. The gap between organ availability and patients on the waiting list for living donor organ transplantation (LDLT) to take the lead in Asian and the Middle Eastern countries<sup>[3,4]</sup>. Owing to the high risk of morbidity and mortality for donors in LDLT, doctors in Western countries prefer not to perform LDLT even while there is organ shortage. There is a consensus among organ transplant community that cadaveric organ donation should be promoted to address organ shortage and prevent the risks involved in organ donation.

To increase cadaveric organ donation, many studies have shown that educational, socioeconomic, cultural, and religious factors, as well as knowledge of and attitudes toward organ donation affect people's decision on organ donation<sup>[5-8]</sup>. A study revealed that the most important factors affecting the decision on organ donation are socioeconomic, educational, cultural, and religious factors<sup>[9]</sup>. According to a widely perceived notion, the major obstacle for organ donation in Muslim-majority countries, such as Turkey, is that it is not suitable to the Islamic religion, which is not true<sup>[10]</sup>. The role of Islamic religious officials as opinion leaders is important in eliminating such misinformation on and espousing organ donation. A study in Saudi Arabia reported that Islamic religious officials affect people's opinion on organ donation<sup>[11]</sup>. For example, an increase in organ donation was observed after the Saudi Islam Law Society had published its sermon favoring organ donation and transplantation. Differences between the central dogma of the Islamic religion and society's perception or understanding of Islamic religion exist. In Quran, The Surah of Maida, 5/32, states that "whoever saves one it is as if he had saved the whole mankind"<sup>[8]</sup>. However, there is misperception in society that humans will resurrect from death and their organs will testify to their previous life on earth. Given that there is misperception on the importance of the integrity of the body integrity and a lack of explicit verses on organ donation in Quran and Hadith, the responsibility of providing guidelines on organ donation now lies in Islamic religious officials, who are considered opinion leaders. Therefore, this study aimed to evaluate Islamic religious officials' attitudes and behaviors toward and level of knowledge on organ donation and transplantation.

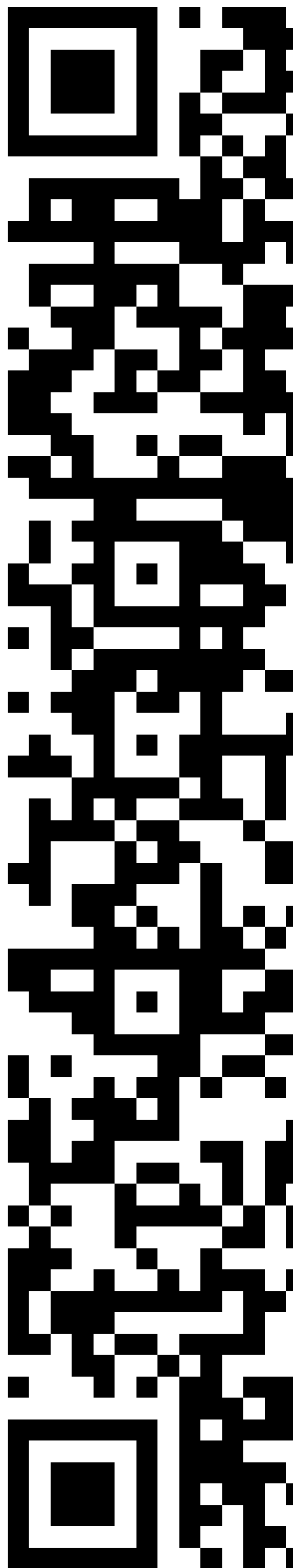
## MATERIALS AND METHODS

This study aimed to evaluate the attitudes and behaviors toward organ donation and educational levels of Islamic religious officials, who are opinion leaders, using a national survey. The study covered all Islamic religious officials (imam and muezzin), including those who were working at mosques in Turkey. To determine the sample size, <http://www.surveysystem.com/sscalc.htm> (<http://www.surveysystem.com/sscalc.htm>) was used. All data were loaded into the system. The minimum number of participants was set as 2331 (with a confidence level of 95%, confidence interval of 2.0, and population of about 80000). However, if data were missing upon loading into the system, the number of participants was revised to 2350. Ethical approval was obtained from Inonu University institutional review board for non-interventional studies (2018/1-9). The study was supported and funded by Inonu University Scientific Research Projects Coordination Unit (Project No. 2018/1024).

This study used and modified the Nomenclature of Territorial Units for Statistics, which was developed by the Statistical Office of the European Union, in surveying Islamic religious officials throughout Turkey. Turkey was divided into 26 regions based on regional similarities in terms of social, economic, and geographical factors identified by the Turkish Statistical Institute using the Nomenclature of Territorial Units for Statistics-II system. Two thousand three hundred and fifty Islamic religious officials were distributed based on city populations. The number of religious officials in each city and town in each of the 26 regions was proportionate to the population. The national survey was conducted by PRP Research and Consultancy Company, located in Istanbul, Turkey. A survey protocol was laid out with the company. The preparation of the survey, including the selection of pollsters and reporting of results, were conducted in accordance with ISO 9001/ISO 20252 and Esomar. The stratified sampling method used was based on age, marital status, and educational level. The questionnaire, titled "Islamic religious officials' awareness of organ donation," included 33 questions. Eleven questions asked about participants' sociocultural and demographic characteristics, and the rest, about their knowledge of and attitude toward organ donation. Face-to-face interviews were conducted outside the mosque borders. The survey was conducted using computer-assisted personal interviewing.

### Statistical analysis

The statistical analyses were performed using IBM SPSS Statistics v25.0 (Statistical Package for the Social Sciences, Inc, Chicago, IL, United States). The categorical variables were presented as number and percentage (%).  $\chi^2$  tests were used to compare categorical variable. A *P* value of less than 0.05 was considered statistically significant.



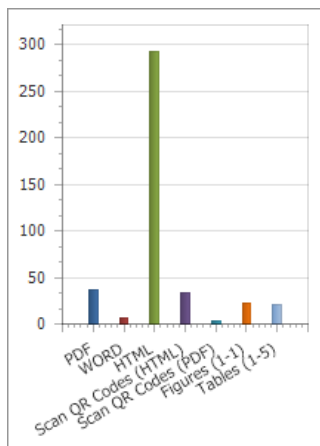
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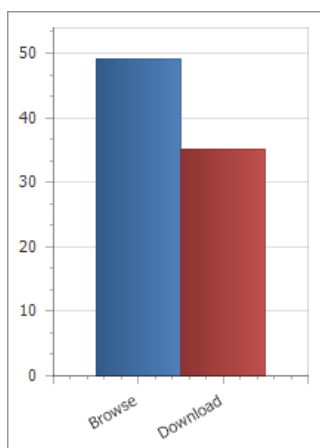
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## RESULTS

### Demographic and sociocultural characteristics

Of the 2350 religious officials surveyed, 59.9% were aged between 35 and 54 years; 65.7% had a height ranging from 168 cm to 179 cm; and 55.8% had a weight ranging from 69 kg to 80 kg. About 87.8%, or 2064 religious officials, were married and 89.4%, or 1846, had children. Of the total number of religious officials, 10.9% had one child, 31.1% had two, 25.9% had three, 23.2% had four, and 9% had five or more children. About 15.3% of the total religious officials graduated from Imam and Reverent School. Moreover, 62.9% graduated from Faculty of Theology; 1.4% obtained either a theology-related master's or doctorate degree; and 20.4% graduated from non-theology faculties. In terms of lifestyles, 11.1% were smokers. Of the total number of smokers, 39.1% reported to be smoking less than 10 cigarettes a day; 41.1%, between 11 and 20 cigarettes a day; and 19.8%, more than 20 cigarettes a day. In terms of illness, 11.4% had chronic diseases that require medication; 8.5% had undergone operation due to benign and malignant diseases (Table 1). The geographic distribution of the religious officials are as follows: Marmara (39.7%), Central Anatolia (16.6%), Aegean (12.1%), Mediterranean (11.7%), Southeastern Anatolia (8.6%), Eastern Anatolia (5.8%), and Black Sea (5.5%). Their place of birth are as follows: Marmara (22.3%), Central Anatolia (17.8%), Mediterranean (14.8%), Black Sea (12.5%), Eastern Anatolia (11.4%), Southeastern Anatolia (11.2%), and Aegean (10.0%) (Figure 1).

**Table 1** (<http://www.wjgnet.com/2307-8960/full/v8/i9/1620-T1.htm>) Demographic and sociocultural features of 2350 Islamic religious officials.

Demographic features	n	%
<b>Age (yr)</b>		
18-34	695	29.6
35-44	729	31.0
45-54	680	28.9
≥ 55	246	10.5
<b>Height (cm)</b>		
≤ 167	201	8.6
168-173	704	30.0
174-179	840	35.7
≥ 180	605	25.8
<b>Weight (kg)</b>		
≤ 68	370	15.8
69-74	499	21.2
75-80	814	34.6
81-86	331	14.1
≥ 87	336	14.3
<b>Marital Status</b>		
Married	2064	87.8
Unmarried	264	11.1
Divorced	24	1.0
<b>Children</b>		
Yes	1846	78.6
No	504	21.4
<b>Number of children</b>		
One	201	10.9
Two	574	31.1
Three	477	25.8
Four	428	23.2
Five or More	166	9.0
<b>Educational Level</b>		
High School	360	15.3
University (Faculty of Theology)	1478	62.9
Masters/ doctorate	33	1.4

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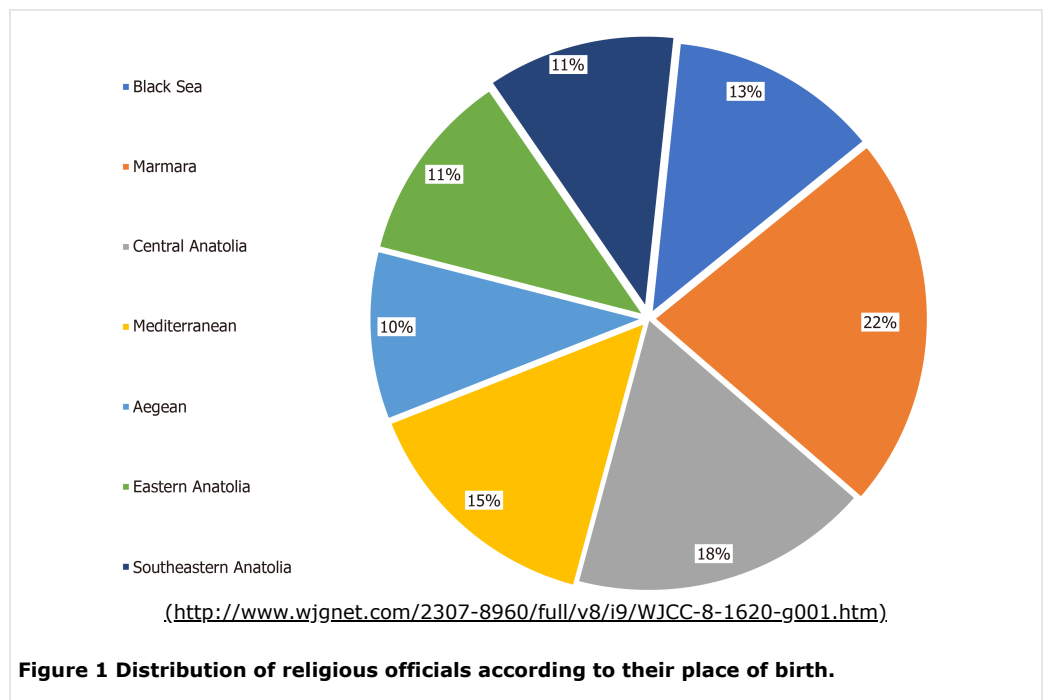
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Demographic features	n	%
University (other faculty)	479	20.4
Smoking		
Yes	258	11.0
No	2092	89.0
Chronic disease		
HT	68	2.9
DM	46	2.0
COPD	20	0.9
Cancer	13	0.6
Dermatit (urticaria, eczema etc.)	34	1.4
Migraine	62	2.6
Rheumatic diseases	26	1.1



**Figure 1** Distribution of religious officials according to their place of birth.

#### Characteristics related to organ donation awareness

Of the 2350 religious officials surveyed, 0.3% ( $n = 6$ ) stated that they had donated their organs; 75.4% did not consider donating an organ in the future; and 19.9% were unsure whether or not to donate. About 45.4% of the religious officials said there was no specific reason for their decision not to donate, whereas 22% said they did not want to because of religious beliefs; only 2.1% said their opinion was affected by the negative news they saw on videos, social media, and print media. In terms of level of knowledge of organ donation, 66.5% of the religious officials stated that they had little knowledge of organ donation; 36.5% needed more information; and 38.7% did not want any information. Only 17.9% of the religious officials stated that they had sufficient information on organ donation. Among the 785 religious officials who answered these questions, 31.5% said they obtained information from television programs, whereas 33.5%, from in-service training symposia. In terms of their experience on organ donation, 1.1% said they had a family member who donated an organ; 1% had a family member who underwent organ transplantation. About 41.5% of the religious officials considered cadaveric organ donation as the best source of organ transplantation, whereas 36.3% deemed living donor transplantation would be the best option (Table 2).

**Table 2** (<http://www.wjgnet.com/2307-8960/full/v8/i9/1620-T2.htm>) Organ donation information of 2350 Islamic religious officials.

	n	%
Have you donated your organs?		
Yes	6	0.3
No	2344	99.7

	<i>n</i>	%
Are you willing to donate your organs in future?		
Yes	111	4.7
No	1767	75.4
Undecided	235	10.0
No idea/no sure	231	9.8
Do you know how to donate your organs?		
Yes	629	33.5
No	963	41
Partially	758	32.3
What are your reasons to refuse organ donation?		
Familial and social causes	184	7.8
Body integrity can deteriorated after death	182	7.7
Health problems	30	1.3
Religious beliefs	516	22.0
Distrust against health institutions	94	4.0
My organs might get into the hands of the mafia	68	2.9
News in media (social, internet, verbal, written)	50	2.1
I have many fears	41	1.7
I have never considered organ donation	199	8.5
No enough knowledge about organ donation	214	9.1
No specific reason	1064	45.4
Do you have adequate informations about organ donation?		
Yes	788	33.5
No	1562	66.5
What are your main sources of informations on organ donation?		
Television programs	248	31.5
Daily newspaper	115	14.6
Internet platform	169	21.5
Radio broadcasts	15	1.9
Books/magazines	50	6.4
Healthcare professionals	159	20.2
Social media (Facebook, Instagram, WhatsApp, Twitter etc.)	69	8.8
Family/relatives/friends	73	9,3
During education	96	12.2
In-service training/courses	263	33.5
Conference, seminar, meeting	41	5.2
Would you like to get information about organ donation?		
Yes	857	36.5
No	909	38.7
No need/enough idea	421	17.9
No idea/no sure	163	6.9
Which is the most ideal type of organ transplantation?		
Living donor	854	36.3
Deceased donor	976	41.5
No idea/no sure	520	22.1

About 80.1% of the religious officials said they would donate an organ if a first-degree relative needs organ donation; 52.9% would allow organ donation of a relative in case they develop brain death; 81.9% would consent for organ donation if they suffer from end-organ failure. However, 8.3% stated that they would not consent for organ donation under any circumstance. Although 83.7% of the religious officials stated that organ donation is a suitable and necessary behavior of humans, 22.7%

stated that organ donation is not suitable to Islamic religion. About 40.9% of the participants stated that they were faced with questions on organ donation from the community at the mosque; 55% said they had given sermon regarding organ donation; 41.1% said they were influenced by the actions of opinion leaders regarding organ donation (Table 3).

**Table 3** (<http://www.wjgnet.com/2307-8960/full/v8/i9/1620-T3.htm>) Viewpoints of religious officials on organ donation and organ transplantation.

	Yes (%)	No (%)	No idea/ no sure (%)
Did any of your relatives donated their organs?	26 (1.1)	1954 (83.1)	370 (15.7)
Did any of your relatives underwent transplantation?	24 (1.0)	2219 (94.4)	107 (4.6)
Would you give consent to organ donation of the relatives?	1243 (52.9)	610 (26.0)	497 (21.1)
Willing to donate your organs to a relatives when it is necessary?	1882 (80.1)	294 (12.5)	174 (7.4)
Would you accept organ transplantation if it is necessary?	1917 (81.6)	195 (8.3)	238 (10.1)
Do you believe organ donation as a necessary for humanity?	1967 (83.7)	212 (9.0)	171 (7.3)
Is organ donation appropriate for religious terms?	1421 (60.5)	534 (22.7)	395 (16.8)
Are you exposed to questions about organ donation?	961 (40.9)	617 (26.3)	772 (32.9)
Did you preach or sermon organ donation?	1293 (55.0)	682 (29.0)	375 (16.0)
Do religious leaders' views affect your donation perspective?	966 (41.1)	1219 (51.9)	165 (7.0)
Which organs and tissues may be suitable for transplantation?			
Kidney	2304 (98.1)	22 (0.9)	24 (1.0)
Liver	2121 (90.3)	93 (4.0)	136 (5.8)
Bone marrow	2031 (86.4)	71 (3.0)	248 (10.6)
Heart	2004 (85.3)	141 (6.0)	205 (8.7)
Cornea	1741 (74.1)	165 (7.0)	444 (18.9)
Skin grafting	1201 (51.1)	719 (30.6)	430 (18.3)
Lung	1099 (46.8)	507 (21.6)	744 (31.7)
Bone	755 (32.1)	951 (40.5)	644 (27.4)
Small bowel	675 (28.7)	524 (22.3)	1151 (49.0)
Pancreas	594 (25.3)	611 (26.0)	1145 (48.7)
Nerve	471 (20.0)	1210 (51.5)	699 (28.5)

The religious officials were grouped into four categories according to their educational level: High school ( $n = 360$ ), undergraduate degree on theology ( $n = 1478$ ), master's/doctorate degree ( $n = 33$ ), other undergraduate degrees ( $n = 479$ ). Religious officials with a master's or doctorate degree had a significantly higher level of knowledge about organ donation and its procedures than those in other categories ( $P < 0.001$ ). The question regarding their opinion on organ donation in the future was negatively answered by 70% of religious officials in other categories. However, 27% of religious officials with a master's or doctorate degree had a negative opinion regarding future organ donation ( $P < 0.001$ ). Religious officials with a high school degree had a significantly higher need for seeking information regarding organ donation than those in other categories ( $P < 0.001$ ). Meanwhile, 11.7% of religious officials with an undergraduate degree had a negative opinion on the necessity and suitability of organ donation for the survival of humans ( $P = 0.045$ ) (Table 4).

**Table 4** (<http://www.wjgnet.com/2307-8960/full/v8/i9/1620-T4.htm>) Viewpoints of religious officials on organ donation by educational levels.

	High school	Theology faculty	Masters/ Doctorate	Other faculty	P value
Do you know how to donate your organs?					
Yes	36 (10.6)	448 (30.3)	20 (60.6)	123 (25.7)	< 0.001 <sup>a</sup>
No	185 (51.4)	587 (39.7)	8 (24.2)	183 (38.2)	
Partially	137 (38.1)	443 (30.0)	5 (15.2)	173 (36.1)	
Do you have adequate informations about organ donation?					
Yes	71 (19.7)	521 (35.3)	24 (72.7)	172 (35.9)	< 0.001 <sup>b</sup>
No	289(80.3)	957 (64.7)	9 (27.3)	307 (64.1)	
Are you willing to donate your organs in future?					
Yes	14 (3.9)	47 (3.2)	9 (27.2)	41 (8.6)	< 0.001 <sup>b</sup>
No	274 (76.1)	1140 (77.3)	9 (27.2)	344 (72.1)	
Undecided	37 (10.3)	135 (9.2)	14 (42.4)	49 (10.3)	
No idea/no sure	35 (9.7)	153 (10.4)	1 (3.0)	43 (9.0)	
Would you like to get information about organ donation?					
Yes	156 (43.3)	515 (34.8)	9 (27.3)	177 (37.0)	0.001 <sup>c</sup>
No	140 (38.9)	582 (39.4)	9 (27.3)	178 (37.2)	
No need/enough idea	39 (10.8)	278 (18.8)	13 (39.4)	91 (19.0)	
No idea/no sure	25 (6.9)	103 (7.0)	2 (6.1)	33 (6.9)	
Do you believe organ donation as a necessary for humanity?					
Yes	304 (84.4)	1232 (83.4)	29 (87.9)	402 (83.9)	0.045 <sup>d</sup>
No	26 (7.2)	128 (8.7)	2 (6.1)	56 (11.7)	
No idea/no sure	30 (8.3)	118 (8.0)	2 (6.1)	21 (4.4)	
Would you accept organ transplantation if it is necessary?					
Yes	293 (81.4)	1212 (82.0)	26 (78.8)	386 (80.6)	0.706
No	25 (6.9)	123 (8.3)	2 (6.1)	45 (9.4)	
No idea/no sure	42 (11.7)	143 (9.7)	5(15.2)	48 (10.0)	
Are you exposed to questions about organ donation?					
Yes	140 (38.9)	609 (41.2)	16 (48.5)	196 (40.9)	0.446
No	96 (26.7)	372 (25.2)	8 (24.2)	141 (29.4)	
Rarely	124 (34.4)	497 (33.6)	9 (27.3)	142 (29.6)	
Did you preach or sermon about organ donation?					
Yes	182 (50.6)	830 (56.2)	24 (72.7)	257 (53.7)	0.176
No	116 (32.2)	412 (27.9)	6 (18.2)	148 (30.9)	
I don't remember	62 (17.2)	236 (16.0)	3 (9.1)	74 (15.4)	

<sup>a</sup>All groups were different.

<sup>b</sup>Masters/ doctorate group was different from other groups.

<sup>c</sup>High school was different from other groups.

<sup>d</sup>Other faculty was different from other groups.

Religious officials were also grouped into four categories according to age groups: 18-34 years, 35-44 years, 45-54 years, and 55 years and above. Religious officials in age groups 45-54 years and 55 years and above had a significantly lower level of knowledge about organ donation and its procedures ( $P < 0.001$ ). Accordingly, the need for more information on organ donation was significantly higher in age groups 45-54 and 55 years and above ( $P < 0.001$ ) (Table 5).

**Table 5** (<http://www.wjgnet.com/2307-8960/full/v8/i9/1620-T5.htm>) Viewpoints of religious officials on organ donation by age groups.

	18-34 (%)	35-44 (%)	45-54 (%)	≥ 55 (%)	P value
Do you know how to donate your organs?					
Yes	243 (35.0)	247 (33.9)	118 (17.4)	21 (8.5)	< 0.001 <sup>a</sup>
No	244 (35.1)	293 (40.2)	299 (44.0)	127 (51.6)	
Partially	208 (27.4)	189 (25.9)	263 (38.7)	98 (39.8)	



	18-34 (%)	35-44 (%)	45-54 (%)	≥ 55 (%)	P value
Do you have adequate informations about organ donation?					
Yes	284 (40.9)	283 (38.8)	187 (27.5)	34 (13.8)	< 0.001
No	411 (59.1)	446 (61.2)	493 (72.5)	212 (86.2)	
Are you willing to donate your organs in future?					
Yes	32 (4.6)	48 (6.6)	26 (3.8)	5 (2.0)	0.101
No	526 (75.7)	538 (74.1)	516 (76.1)	187 (76.3)	
Undecided	70 (10.1)	62 (8.5)	73 (10.8)	30 (12.2)	
No idea/no sure	67 (9.6)	78 (10.7)	63 (9.3)	23 (9.4)	
Would you like to get information about organ donation?					
Yes	217 (31.2)	251 (34.4)	275 (40.4)	114 (46.3)	< 0.001 <sup>b</sup>
No	274 (39.4)	280 (38.4)	259 (38.1)	96 (39.0)	
No need/enough idea	153 (22.0)	146 (20.0)	98 (14.4)	24 (9.8)	
No idea/no sure	51 (7.3)	52 (7.1)	48 (7.1)	12 (4.9)	
Do you believe organ donation as a necessary for humanity?					
Yes	582 (83.7)	606 (83.1)	570 (83.8)	209 (85.0)	0.994
No	63 (9.1)	69 (9.5)	61 (9.0)	19 (7.7)	
No idea/no sure	50 (7.2)	54 (7.4)	49 (7.2)	18 (7.3)	
Would you accept organ transplantation if it is necessary?					
Yes	564 (81.2)	606 (83.1)	542 (79.7)	205 (83.3)	0.385
No	60 (8.6)	62 (8.5)	55 (8.1)	18 (7.3)	
No idea/no sure	71 (10.2)	61 (8.4)	83 (12.2)	23 (9.3)	
Are you exposed to questions about organ donation?					
Yes	272 (39.1)	310 (42.5)	285 (41.9)	94 (38.2)	0.354
No	185 (26.6)	198 (27.2)	176 (25.9)	58 (23.6)	
Rarely	238 (34.2)	221 (30.3)	219 (32.2)	94 (38.2)	
Did you preach or sermon about organ donation?					
Yes	360 (51.8)	432 (59.3)	379 (55.7)	122 (49.6)	0.024 <sup>c</sup>
No	219 (31.5)	186 (25.5)	189 (27.8)	88 (35.8)	
I don't remember	116 (16.7)	111 (15.2)	112 (16.5)	36 (14.6)	

<sup>a</sup>45-54 and ≥ 55 groups were different from other groups.

<sup>b</sup>45-54 and ≥ 55 groups were different from other groups.

<sup>c</sup>35-44 group was different from other groups.

## DISCUSSION

Religion is a major factor in motivating people and guiding them through life decisions and about morality. Islam, as a religion, is the major religion in Turkey and among the three most adopted religions in the world. It is known to support organ donation and transplantation in ethical and scientific forms. However, in Muslim-majority countries, a large number of patients with organ failure die on the waiting lists because of the lack of available organs. Given that the opinion of Islamic religious officials in Turkey may affect people's decision on organ donation, this study examined the former's attitudes and behaviors toward and knowledge level of organ donation.

Organ transplantation is among the most remarkable medical advances. However, the gap between the number of patients on the waiting list for an organ donation and that of donors and available organs for transplantation continues to grow each year<sup>[12,13]</sup>. Organ donation rate in Turkey is lower than in Western countries. According to a recent study, deceased donor rates per million people are as follows: Spain (43.6%), Portugal (32.6%), Belgium (30.7%), France (28.6%), Iceland (26.9%), Finland (24.6%), the United Kingdom (21.2%), South Korea (11.4), and Turkey (7.0%)<sup>[14]</sup>.

Da Silva *et al*<sup>[15]</sup> identified the following barriers to organ donation: Variable clinical and legal definitions of brain death; inconsistent legal upholding of brain death criteria; racial, ethnic, and religious perspectives on organ donation; and physician discomfort and community misunderstanding of the process of donation after cardiac death. Moreover, the lack of standardization of brain death and organ donation criteria worldwide contributes to a loss of potential donors. These barriers must be addressed globally to increase donation and organ availability.

According to the Turkish Ministry of Health, in 2015, 935 patients per million population had kidney failure; only 17.4% of them underwent organ transplantation and 77.3% had hemodialysis treatment<sup>[13]</sup>. Because of the limited supply of livers, thousands of candidates were waiting for transplantation in Turkey; less than 30% received an organ in 2017<sup>[15]</sup>. Therefore, it is essential to continue to promote organ donation to avoid mortality on the waiting list<sup>[12]</sup>.

Previous studies have showed that faith leaders generally support organ donation, whereas those who do not belong to a religious group are, in principle, against organ donation<sup>[16,17]</sup>. In many studies, religious belief is among the most-cited factors affecting attitude toward organ donation; mosques are leading institutions within the Islamic communities<sup>[1,18-22]</sup>. However, a large percentage of people have no clear idea about the stand of Islam with regard to organ donation and the majority have no access to information about organ donation at either religious sermons or lectures at mosques. A study surveyed 653 Malaysian Muslims from 82 mosques in Kuala Lumpur, Malaysia regarding their knowledge of and access to information on organ donation<sup>[23]</sup>. They reported that 54%-64% of the respondents did not have access to information at either religious sermons or lectures at mosques. A study in Palestine showed that religious beliefs and fears of complications are the main factors influencing organ donation<sup>[24]</sup>. A study on the public's perspective on organ donation in Saudi Arabia showed that 23.7% of the participants were unaware of any issued Islamic fatwa regarding organ donation; 36.1% did not respond to this question, which revealed their lack of knowledge of the topic<sup>[25]</sup>.

There is a trend of recruiting faith leaders at mosques to overcome religious barriers to organ donation, and thus increase donor registration among Muslims<sup>[26]</sup>. Members of religious communities tend to accept that faith leaders are honest and transparent, and that their authoritative positions and opinions are reflective of the moral values within their respective belief systems. However, faith leaders are not necessarily updated about the empirical medical and scientific facts relevant to organ donation. At times, they are not well-educated about the religion's stand on organ donation<sup>[3,27]</sup>. This lack of information may negatively impact the moral legitimacy of organ donation, or at least to call its legitimacy into question.

There are variable levels of knowledge among religious officials with regard to organ donation in Islam. Many studies have revealed that 61.3% to 92.5% of religious officials advocate organ donation and transplantation being compatible with Islamic rules<sup>[1-3,9,22,27,28]</sup>. This study showed that only 60.5% of the religious officials deemed organ donation as appropriate to Islamic beliefs, which was significantly affected by their level of education. In terms of having adequate knowledge of organ donation, 72.7% of those with a master's or doctorate degree and only 19.7% of those with a high school degree said they have enough information. The level of education significantly affected the willingness of religious officials to donate their organs. About 27.2% of those with a master's or doctorate degree and only 3.9% of those with a high school degree are willing to donate their organs. Compared with religious officials with a lower educational level, those with a higher educational level believed that organ donation is a necessary and appropriate human behavior. Such finding highlights the importance of education in affecting the attitude of religious officials, who are among the most influential people in Islamic communities, toward organ donations. Age was another factor affecting religious officials' level of knowledge of organ donation. A higher number of those in the younger age groups expressed having enough information on organ donation.

Organ transplantation and donation are permissible in Islam. The first modern fatwa related to organ donation in Muslim countries was issued in 1966 by an Egyptian head mufti. This was followed by the fatwa issued by muftis of Malaysia (1969), Algeria (1972), Jordan (1977), Kuwait (1979), and Saudi Arabia (1982)<sup>[29]</sup>. The Islamic Fiqh Council of the Organization of the Islamic Council issued decisions pointing to the importance of both living and deceased organ transplantation during its meeting of 1986. The first fatwa related to organ donation and transplantation in Turkey was issued in 1980<sup>[29]</sup>. The High Board of Religious Affairs of Turkey declared a decree stating that organ donation is allowed in Islam<sup>[3,29]</sup>. This is because organ transplantation and donation fulfill the requirement in the preservation of human life, which is among the five objectives of maqasid al-syar'iyyah (objectives of the Islamic law). Islamic teachings and scriptures encourage saving lives, treating diseases, relieving sufferings, and eliminating harm. Organ transplantation provides the option to eliminate harm. A patient has the option to receive organs from a deceased donor to replace his/her damaged organs. In this context, preventing harm is a priority over preserving the body of the deceased.

The need to promote organ donation and increase organ availability is necessary to save the lives of patients who need transplant and shorten the waiting time on the waiting list. Although Islam plays an enormous role in guiding attitudes among Muslims, mosques are leading institutions within the Islamic communities. As such, mosques are expected to be portals for delivering information on organ shortage and creating higher awareness. However, this study showed that religious officials have inadequate information on organ donation, and mosques have inadequate role in public education and promotion of organ donation. We recommend that educational programs should be made available to religious and Islamic officials and that mosques should support organ donation. In this way, they can help save lives of thousands of patients dying each year due to organ unavailability.

## ARTICLE HIGHLIGHTS

### **Research background**

Each year, the number of people on the waiting list continues increase, and the unavailability of adequate organs for transplantation to meet the existing demand has resulted in major organ shortage crises. Religious misconceptions on organ donation is one of the major barriers to organ donation and hence Islamic religious officials as opinion leaders in Islamic communities can play a major role in promoting organ donation culture and clearing misconceptions.

### **Research motivation**

A large number of patients with organ failure die on the waiting lists because of the lack of available organs, many of them become too sick for transplant while waiting and get dropped from the list. We aim to explore readiness of Islamic religious officials as opinion leaders in Turkey to take part in promoting organ donation culture in the country.

### **Research objectives**

The main objective of this study is to evaluate Islamic religious officials' attitudes and behaviors toward and level of knowledge on organ donation and transplantation. Data from this study would help us to evaluate if this group of opinion leaders have adequate knowledge and attitude which allows them to effectively promote the public knowledge and influence their attitude towards organ donation.

### **Research methods**

We surveyed 2350 Islamic religious officials working in Turkey. Based on the Nomenclature of Territorial Units for Statistics-II, Turkey was divided into 26 regions. The number of Islamic religious officials in each city and town in each of the 26 regions was proportionate to the population. A stratified sampling method based on demographic factors was used.

### **Research results**

This study showed that only 60.5% of the religious officials deemed organ donation as appropriate to Islamic beliefs. These data show that misperceptions of religion stand of organ donation do exist not only in the public, but it even exists in Islamic opinion leaders. Furthermore, the level of education of religious officials significantly affected the willingness to donate their organs, with far more religious officials with a higher educational level believed that organ donation is a necessary and appropriate human behavior.

### **Research conclusions**

Our results showed that Religious officials in Turkey have inadequate information on organ donation, and they need better education before they can be recruited to overcome religious barriers to organ donation and promote organ donation in the country. Furthermore, educational level found to correlate well with positive attitude towards organ donation. This further stress the importance of education and showed that Islamic officials with higher education should be selected for the purpose of public education.

### **Research perspectives**

Opinion leaders in the community can have the same misperceptions that present in the public. Their knowledge and attitude needs to be tested before they can take role in public education. Further studies are needed to test the effectiveness of educational courses in changing attitude in opinion leaders, which would help utilizing the efforts of these influential people in promoting organ donation in the country.

## **Footnotes**

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Peer-review report's scientific quality classification

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Grade B (Very good): B

Grade C (Good): 0

Grade D (Fair): D

Grade E (Poor): 0

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