

Received: 2017.12.19  
Accepted: 2018.01.02  
Published: 2018.05.04

# Knowledge and Ethical Issues in Organ Transplantation and Organ Donation: Perspectives from Iranian Health Personnel

Authors' Contribution:  
Study Design A  
Data Collection B  
Statistical Analysis C  
Data Interpretation D  
Manuscript Preparation E  
Literature Search F  
Funds Collection G

ADE 1 **Mahmoud Abbasi**  
ADE 2 **Mehrzad Kiani**  
ACDE 3 **Mehdi Ahmadi**  
ABCDEF 1 **Bahare Salehi**

1 Medical Ethics and Law Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran  
2 Department of Medical Ethics, Faculty of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran  
3 Razi Vaccine and Serum Research Institute (RVSRI), Agricultural Research, Education and Extension Organization (AREEO), Karaj, Iran

**Corresponding Author:** Bahare Salehi, e-mail: bahar.salehi007@gmail.com

**Source of support:** This study was financially supported by the Vice-chancellor for Research Affairs of Shahid Beheshti University of Medical Sciences, Tehran, Iran

**Background:** Organ transplantation is one of the most critical topics in medical ethics that is commonplace in various countries. This study aimed to evaluate the knowledge and the ethical issues surrounding organ transplantation and organ donation among healthcare personnel in Tehran, Iran.


**Material/Methods:** In a cross-sectional study performed on 450 healthcare personnel, self-administered questionnaires were used to derive data from individuals. Among the 450 health personnel who received the questionnaires, 377 completed their questionnaires (83.77%).

**Results:** The willingness and unwillingness to donate organs among individuals were 47.48% ( $n=179$ ) and 52.51% ( $n=198$ ), respectively. Among the individuals who signed the organ donation card, 96.5% ( $n=55$ ) were willing to donate their organs and 3.5% ( $n=2$ ) were unwilling to donate their organs. Most of the individuals that were willing (48.34%;  $n=175$ ) and unwilling (51.66%;  $n=187$ ) to donate their organs claimed religious support for organ donation ( $P=0.00$ ). Out of these people, 110 willing people (67.48%) and 53 (32.52%) unwilling people were familiar with the idea of brain death. The individuals who selected cadavers (67.64%;  $n=255$ ) and brain death (24.4%;  $n=92$ ) were chosen as the best candidates for organ donation. Most individuals believed that young patients ( $n=123$ ; 32.62%) and people who had not already had organ transplants ( $n=90$ ; 23.87%) should be the preferred recipients of organs. Most individuals had learned about organ transplantation from television (30.24%;  $n=114$ ), newspapers (23.61%;  $n=89$ ), and the radio (19.89%;  $n=75$ ).

**Conclusions:** In conclusion, there is a need for more educational programs for the improvement of knowledge and ethical consideration with regard to organ transplantation and organ donation among healthcare personnel.

**MeSH Keywords:** Brain Death • Ethics, Medical • Organ Transplantation

**Full-text PDF:** <https://www.annalsoftransplantation.com/abstract/index/idArt/908615>

 3106

 4

 1

 34



## Background

The transplantation of human organs in the case of the irreversible failure of an organ has been raised for a long time in scientific and social committees, and this topic has been addressed from scientific, moral, religious, political, and legal perspectives [1–4]. Organ donation options, such as the heart, lungs, kidneys, the liver, and the eyes, from a patient with brain death before cardiac arrest, are particularly important because these organs can save another patient's life. Organ transplantation is one of the most critical topics explored in medical ethics, which is presently commonplace in many countries. Owing to the prevalence of organ transplants in the world, various issues need careful attention from researchers. Organ transplantation within the study of medical ethics contains hundreds of topics.

Ethics, at its foundation, considers the values, ideas, traditions, and practices of a community or an individual [5]. Thus, any action in opposition to these concepts is deemed to be unethical [6]. Recently, transplantation has seen improvements across its various features; it can be performed in most regions of the world, including Asian countries [7–9]. In most western nations, voluntary consent is required for organ transplants [10,11]. The demand for organ transplantation has quickly increased during the past decade in many countries. Owing to the increased incidence of organ failure, growing success and significant improvement have become prevalent in post-transplant results. Nevertheless, the lack of adequate organs for transplantation to meet the existing demand has resulted in substantial organ-shortage crises as a result of an increase in the critical conditions of certain patients on transplant waiting lists, as well as in the number of patients deaths while waiting [12–14].

In Islamic countries, many religious scholars have allowed organ transplantation [15,16]. The ethical verdict on organ transplantation is disputable and varying. Therefore, opinions about organ transplantation depend on personal opinions, as well as religious and geographical reasons, and involve economic, emotional, and socio-cultural factors, which deserve discussion and study [17]. The Islamic Republic of Iran is one of the countries in which Islam is the dominant religion. In Iran, the organ donation law was first passed in 2000 by the Islamic Consultative Assembly. From 2001 to 2010, reports from Iran showed a notably increasing rate of transplantation from cadaveric organs [18]. It seems logical that all countries and regions need to promote expansion of the yield of organs for transplantation. Healthcare knowledge has exposed a key reason for the success or the failure of organ transplantation plans [19]. One way to reach this aim involves focusing on the knowledge of healthcare workers. The lack of knowledge among healthcare workers has been recognized as a barrier

and is essential to successful organ donation [20]. The objective of the present study was to evaluate the knowledge, the willingness, and the ethical considerations of healthcare personnel with regard to organ transplantation and organ donation in Tehran, Iran.

## Material and Methods

This was a cross-sectional study in the hospitals of Tehran, Iran. Data were collected from 2016 to 2017. The survey was carried out by a self-administered questionnaire given to healthcare personnel, which included patient care assistants, security, pharmacists, managers, culinary staff, and nutritionists, and excluded doctor and nurses. The questionnaire form was prepared with 4 parts: socio-demography, knowledge, willingness for organ donation, and ethical beliefs about organ transplantation and organ donation. The educational qualifications of individuals in this study were classified arbitrarily as 'medium' (Diploma, Associate, and Bachelor degrees) or 'high' (Master's and Ph.D. degrees). The knowledge of respondents was evaluated through scores of correct responses to questions. In addition, we considered extra questions about the willingness to donate as well as ethical issues for individuals. All the questionnaires were in printed format and the survey was self-administered. During distribution to individuals, we directed the participants to only select 1 response to each query. We assigned a code number for each questionnaire to allow computerized data entry. This study was approved by the Research Ethics Committee of Shahid Beheshti University of Medical Sciences, Tehran, Iran.

## Statistical analysis

All the data were entered into a dedicated SPSS database (IBM SPSS Statistics for Windows, Version 11.5; IBM, Armonk, New York). The analysis was carried out with the use of the aforementioned software. We used the chi-square test for the analysis of proportions of categorical variables. The independent-samples Student's *t* test was used to compare the means for 2 groups of variables.  $P < 0.05$  was considered significant. The missing responses to specific questions in the completed questionnaires were coded as missing. Percentages were calculated from the total number of respondents, including those with missing responses.

## Results

### Socio-demographic characteristics of individuals and healthcare levels

We shared 450 questionnaires among the healthcare personnel. We received 377 completed questionnaires (response rate=83.77%). The socio-demographic characteristics of

**Table 1.** Socio-demographic factors among healthcare personnel.

Characteristics	Male, n (%)	Female, n (%)	P-value
<b>Age</b>			
Less than 35 years old	98 (43.17)	129 (56.83)	0.145
Between 35 and 40 years old	49 (43.36)	64 (56.64)	
Older than 41 years	20 (54.05)	17 (45.95)	
<b>Educational level</b>			
Medium	127 (51)	122 (49)	0.14
High	40 (31.25)	88 (68.75)	
<b>Marital status</b>			
Single	98 (44.96)	120 (55.04)	0.041
Married	69 (43.4)	90 (56.6)	
<b>Parenthood</b>			
Parent	55 (44)	70 (56)	0.023
Nonparent	14 (41.18)	20 (58.82)	

individuals and healthcare levels are shown in Table 1. Most of the individuals were female (55.7%;  $n=210$ ), single or married (55.04%;  $n=120$ , and 56.6%;  $n=90$ , respectively), and had children (56%;  $n=70$ ). Most were less than 35 years (60.21%;  $n=227$ ), with 43.17% ( $n=98$ ) males and 56.83% ( $n=129$ ) females. The medium education level had the highest frequency among all participants (66.04%;  $n=249$ ).

#### Willingness and knowledge of healthcare personnel about organ donation

The effect of the characteristics on the willingness towards organ donation among healthcare personnel is shown in Table 2. The individuals were divided into willing to donate (47.48%;  $n=179$ ) and unwilling to donate (52.51%;  $n=198$ ). The category comprising willing to donate organs was higher among females (54.29%;  $n=114$ ), married people (65.69%;  $n=134$ ), and individuals with a high level of education (92.38%;  $n=109$ ). The results showed that the years spent working in healthcare does not significantly affect the willingness to be an organ donor ( $P=0.45$ ). Out of all the individuals who signed the organ donation card, 96.5% ( $n=55$ ) were willing to donate their organs and 3.5% ( $n=2$ ) were unwilling to donate their organs. Most individuals did not know anyone who had donated an organ. Only 40 (76.93%) individuals among the willing-to-donate category and 12 (23.07%) individuals among the unwilling-to-donate category knew someone who had donated an organ. The willingness of individuals to donate blood showed that there was no significant difference between the willingness to donate and the unwillingness to donate ( $P=0.24$ ). All the individuals were Muslims and most of the people willing

to donate organs (48.34%;  $n=175$ ) and the people who were unwilling to donate organs (51.66%;  $n=187$ ) claimed that their religion supports organ donation ( $P=0.00$ ). With respect to the concept of brain death, 110 (67.48%) of the participants who were willing to donate and 53 (32.52%) of the participants who were unwilling to donate, were familiar with the concept of brain death. Among the participants, 173 participants (77.23%) who were willing to donate and the 51 participants (22.77%) who were unwilling to donate claimed to know somebody who was waiting for transplantation ( $P=0.01$ ).

#### Ethical considerations of healthcare personnel with respect to organ donation

The individual's perspective on the ideal candidate for organ donation is shown in Table 3. One hundred and twenty-six (33.42%) males and 129 (34.21%) females regarded cadavers as the best candidates for organ donation ( $P=0.032$ ). In addition, brain death was selected by 37 (9.81%) males and 55 (14.58%) females as an acceptable source of organ donation. Furthermore, 3 individuals agreed on organ reception from an animal ( $P=0.03$ ). Two individuals believed that a paralyzed person was a good candidate for organ donation ( $P=0.00$ ). The perspective of individual preference for a received organ is shown in Table 4. Organ transplants for young patients ( $n=123$ ; 32.62%) and people who have not already had organ transplants ( $n=90$ ; 23.87%) were given the greatest preference for organ reception. Sixty-five (17.24%) males selected anyone who has not already had an organ transplant as the preferred group, while 88 (23.34%) females regarded young patients as their preferred choice for who should receive an organ.

**Table 2.** Characteristics affecting the willingness to donate organs among healthcare personnel.

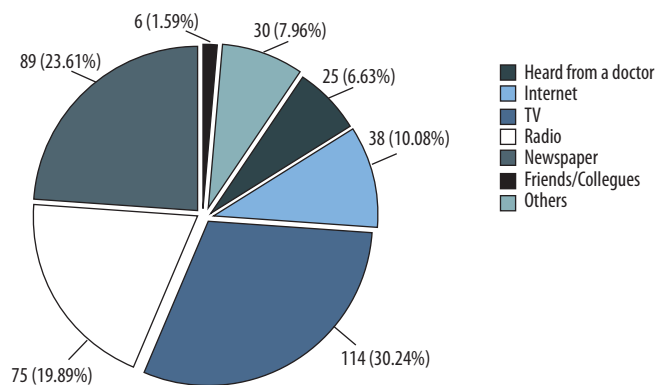
Factors	Willingness to donate		P-value
	Yes, n (%)	No, n (%)	
<b>Gender</b>			
Male	65 (38.92)	102 (61.08)	0.00
Female	114 (54.29)	96 (45.71)	
<b>Marital status</b>			
Single	45 (26.01)	128 (73.99)	0.03
Married	134 (65.69)	70 (34.31)	
<b>Education Level</b>			
Medium	70 (27.03)	189 (72.97)	0.01
High	109 (92.38)	9 (7.62)	
<b>Years working in healthcare environment</b>			
<1	24 (40)	36 (60)	0.45
1–5	25 (29.77)	59 (70.23)	
6–10	46 (41.81)	64 (58.19)	
11–15	46 (65.71)	24 (34.29)	
>15	38 (71.7)	15 (28.3)	
<b>Have you received an organ donation card?</b>			
Yes	55 (96.5)	2 (3.5)	0.00
No	124 (38.75)	196 (61.25)	
<b>Knowing anyone who had donated organ</b>			
Yes	40 (76.93)	12 (23.07)	0.00
No	139 (42.76)	186 (57.24)	
<b>Willingness to donate blood</b>			
Yes	156 (64.46)	86 (35.54)	0.24
No	23 (17.03)	112 (82.97)	
<b>Does one's religion support organ donation?</b>			
Yes	175 (48.34)	187 (51.66)	0.00
No/unsure	4 (26.66)	11 (73.34)	
<b>Understand the concept of brain death</b>			
Yes	110 (67.48)	53 (32.52)	0.01
No	69 (32.24)	145 (67.76)	
<b>Knowing somebody waiting for transplantation</b>			
Yes	173 (77.23)	51 (22.77)	0.01
No	6 (3.92)	147 (96.08)	

**Table 3.** Perspectives of individuals with regard to the characteristics of ideal candidate for organ donation.

Characteristics	All, n (%)	Male, n (%)	Female, n (%)	P-value
Healthy person	25 (6.63)	5 (1.32)	20 (5.3)	0.001
Cadaver (organ donation after death)	255 (67.64)	126 (33.42)	129 (34.21)	0.032
Paralyzed person	2 (0.53)	1 (0.26)	1 (0.026)	0.00
Brain death	92 (24.4)	37 (9.81)	55 (14.58)	0.001
Animal	3 (0.79)	2 (0.53)	1 (0.26)	0.03

**Table 4.** Perspective of individuals with regard to preference for the recipient of an organ.

Characteristics	All, n (%)	Male, n (%)	Female, n (%)	P-value
Priority in organ transplants with those who have not already had organ transplants	90 (23.87)	65 (17.24)	25 (6.63)	0.003
Priority in organ transplant with young patients	123 (32.62)	35 (9.28)	88 (23.34)	0.02
Low-income patients	45 (11.93)	14 (3.71)	31 (8.22)	0.03
Those who have organ damage due to illness	32 (8.48)	8 (2.12)	24 (6.36)	0.04
Priority when those who are waiting a long time for organ transplants	87 (23.07)	39 (10.34)	48 (12.73)	0.001

**Figure 1.** Information sources of individuals with regard to organ transplantation.

### Information sources of healthcare personnel on organ transplantation

The healthcare personnel who participated in this study heard about organ transplantation from television (30.24%;  $n=114$ ), newspapers (23.61%;  $n=89$ ), the radio (19.89%;  $n=75$ ), the Internet (10.08%;  $n=38$ ), doctors (6.63%;  $n=25$ ), friends/colleagues (1.59%;  $n=6$ ), and others sources (7.96%;  $n=30$ ) (Figure 1).

### Discussion

Organ transplantation brings up troublesome ethical issues about an individual's claims in figuring out what happens to their bodies prior to and after death. In the present study, we found that 47.48% of healthcare personnel were willing to be organ donors. Those belonging to the willing-to-donate category cited the human spirit as the most important reason for donation. We found that women and individuals with higher education were more likely to consent to organ donation than men and individuals with a less education. This result was similar to the findings of Popp et al. [21] in their assessment of the readiness for living liver donation among the general German

population. Alvaro et al. [22] carried out a study on the predictors of organ donation behavior among Hispanic Americans. The results of this study showed that women were more likely to consent to organ donation than men. Oluyombo et al. [23] reported that only 29.5% of healthcare workers in south-west Nigeria were willing to donate an organ, even though there was a high level of awareness (93%) and knowledge (82.5%) about organ donation. Unlike our study, Yilmaz [24] reported that people with higher education tended to have sceptical attitudes towards organ donation. Education level is one of the most important causes that can influence organ donation decisions. In our study, individuals with a higher level of education were more likely to donate and they were less fearful of organ donation. It is clear that people with a higher level of education have a better understanding that organ transplantation can save lives.

In our study, 30.72% of individuals who were willing to donate signed the organ donation card. Schut [25] reported that only about 7–10% of all the individuals in Germany who are in favor of organ donation carry a donor card. Akqun et al. [26] performed a study on the knowledge and the personal views of Turkish healthcare professionals, showing that 44.2% of healthcare personnel were willing to donate, but only 17.9% carried donor cards. Agreements to sign organ donation cards suggest body mutilation at the point of death or after, which, in the eyes of many, is taboo and against personal beliefs. Most individuals in our study had not signed donation cards, mostly due to ignorance and inaccurate information. This implies the need to motivate and encourage positive attitudes through appropriate advertising [23]. In the last year in Iran, 3438 organs were transplanted from dead donors. Recently, around 1.8 million individuals have been issued voluntary organ donation cards in Iran. Every donor can save up to 10 individual lives. Although the willingness to donate the organs of patients with brain death has lately expanded in Iran, more plans should be created to encourage more individuals to become organ donors.

We found that 52.51% of individuals were unwilling to be an organ donor. Previous studies reported some reasons why individuals are unwilling to donate their organs, and indicated that the reasons are complicated [27]. The results of our study show that certain reasons, traditions, and socio-cultural beliefs make a person unwilling to donate his organs.

Morgan et al. [27] reported that one of the most important factors affecting organ donation was religion. Sunni and Shi'i are the 2 major branches of Islam, with an overwhelming majority (90%) of Iranians practicing Shi'i Islam, which is the official religion of Iran. Most Islamic religious leaders have acceptant attitudes towards organ donation during life, but certain religious leaders do not believe brain death is an acceptable

criterion for donor status, and consider the cessation of all signs of life, including the heartbeat, as a precondition for declaring death [28]. Religion is an essential part of life for many Asians [29]. Dehghani et al. [30] studied the causes of organ donation refusal in southern Iran. They reported a high level of family refusal to allow their relatives to donate organs due to belief that the definition of brain death is obscure and because miracles could still occur and a brain-dead person could recover. For efficient and successful transplanting, health authorities should organize useful debates involving different religious leaders, as they have a significant influence on the clientele of healthcare institutions [23].

In the present study, individuals indicated that cadavers and brain death are the best candidates for organ donation. Ali et al. [31] evaluated the knowledge and the ethical views on organ donation among medical students in Pakistan, showing that cadavers, healthy living donors, and brain-death groups were seen as good candidates for organ donation. In recent times, when people die, their organs may be donated if the individual had consented to do so before dying. A person is considered dead once either the heart stops beating or the brain's function ceases (called brain death). After death, the organs are taken from the body of deceased individuals so that one cadaveric donor can donate organs to a few unique individuals.

In our study, 3 individuals agreed with the use of an animal as a source of organ donation. The main risk associated with organ transplantation from animals to humans is the presence of infectious agents in the transplanted organ and its transference to the recipient, and, eventually, the general population. Predictions such as the likelihood of transmission of disease during organ transplants from animals to humans are difficult to make because the medical community is not equipped to test for any pathogens that can be transferred through this type of transplant. In addition, animal pathogens agents may combine with human pathogens; this can create a new form of patient-specific disease. Mental and psychological issues are essential during organ transplantation from an animal. The human psyche is unpredictable and it is impossible to examine all its dimensions. Only a long-term study can identify the impact on a person. Therefore, the issues raised are more theoretical and its scientific evaluation needs sophisticated studies. Religion plays an essential role in the lives, lifestyles, eating habits, and medical treatments of people. Islam allows organ transplantation from animals to humans as there is no prohibition, unless it has a harmful effect (which is forbidden and unlawful) and is not banned under Islamic law. Based on the studies of researchers and clinical trials of scientists, it seems that organ transplantation from animals to humans will become commonplace. There is no need to lose precious time while patients are waiting on the transplant list. However, human organs will still be needed in the future.

In our study, young patients and people who had not already had organ transplants were the most preferred category for the reception of organs among individuals. Ali et al. [31] reported that most of the students who participated in their study agreed on the young age group of patients as the preferred group for organ reception due to a desire to increase the life expectancy of younger people. In addition, most individuals believed in equal conditions for organ transplants (i.e., priority should be given to people who have not already had an organ transplant rather than those who have already had organ transplants). They stated that it is not fair for a person to receive an organ several times and another person not to receive an organ even once.

In our study, most individuals had heard about organ donation from television. In recent years, television programs in various countries have dealt with organ transplantation in their storylines in different ways. Weber et al. [32] carried out a study on the impact of television on attitudes towards organ donation in a sample of the German urban population. They reported that the assumption that TV had a negative impact on donation rates must be rejected. Therefore, a stagnation or decline in donation rates must be blamed on other reasons. Saleem et al. [33] studied the knowledge, attitudes, and practices regarding organ donation among a selected adult population in Pakistan. They showed that television, print media, and doctors fall in the same order of frequency in being information sources for organ donation. Majidi and Aghaee [34] studied the role of television in the spread of ideas about organ donation from the perspective of families who donated organs. They found that television documentaries showing donors and recipient families had the most significant role in encouraging donors. The current broadcast of a scene on the advancement of organ donation and its significance in a favorite primetime television reality show caused an influx of reactions, with volunteers signing up for organ donation; this broke every record. In the 48 hours after the scene was broadcast on the family television show 'Khandevaneh', nearly 68 000 individuals went to the entrance of the Iranian Society for Organ Donation and signed up for organ donation. A typical strategy to spread awareness is mass communication; this involves creating prominent recognition through education campaigns or public messages on issues that enhance volunteerism.

## References:

1. Abouna GM: Ethical issues in organ transplantation. *Med Princ Pract*, 2003; 12(1): 54-69
2. Shapiro MH: On the Possibility of progress in managing biomedical technologies: Markets, lotteries, and rational moral standards in organ transplantation. *Cap. UL Rev*, 2003; 31: 13
3. Price D: Legal and ethical aspects of organ transplantation. Cambridge University Press, 2000
4. Dion-Labrie M, Fortin MC, Hébert MJ, Doucet H: The use of personalized medicine for patient selection for renal transplantation: Physicians' views on the clinical and ethical implications. *BMC Med Ethics*, 2010; 11(1): 5
5. Abbasian L, Abbasi M: The role of clinical ethics in the health care system. *Med Ethics J*, 2016; 3: 11-33
6. Paulino LAF, da Costa Teixeira SL: Ética em transplantados. *CEP*, 2009; 30130: 007 [in Portuguese]
7. Oniscu GC, Forsythe JL: An overview of transplantation in culturally diverse regions. *Ann Acad Med Singapore*, 2009; 38(4): 365-69

## Conclusions

This study showed that most of the healthcare personnel want to promote organ donation. We found that organ donation knowledge is correlated to the education level and the socioeconomic status of individuals. Our findings show that television, newspapers, and radio can be efficient sources of information. Religious scholars are exceedingly important in mobilizing favorable public opinion towards organ donation. Policymakers should involve religious scholars to promote organ donation. Further studies should be carried out to elucidate the reasons behind attitudes against organ donation among healthcare personnel. This information will guide any future approach towards overcoming the inconsistency between the willingness to donate and unwillingness to donate. In this study, we used a quantitative tool to evaluate the willingness to donate among healthcare personnel in Tehran. Our analysis is a vital baseline document for further studies and a qualitative tool that can be used by future researchers.

In summary, Iran has the third highest rates of organ donation in the world and is the only nation that has addressed the shortage of transplant organs through a legal payment system for organ donation since 1988. It is also the only nation in which organ exchange is authorized. Undoubtedly, organizing and coordinating organ transplantation through the comprehensive organ transplantation system needs purposeful development through the extensive and rapid growth of organ transplantation in Iran. It must have an adequate level of organization for study and prediction, policymaking and planning, implementation, and monitoring education and research on medical organ transplantation.

## Acknowledgements

This paper was part of the Ph.D. thesis of Dr. Bahare Salehi supervised by Dr. Mahmoud Abbasi and Dr. Mehrzad Kiani and advised by Dr. Mehdi Ahmadi.

## Conflicts of interest

None

8. Shukla A, Vadeyar H, Rela M, Shah S: Liver transplantation: east versus west. *J Clin Exp Hepatol*, 2013; 3(3): 243–53
9. Abadie A, Gay S: The impact of presumed consent legislation on cadaveric organ donation: A cross-country study. *J Health Econ*, 2006; 25(4): 599–620
10. Corsline MC, Johnson RL: The United States System of Organ Donation, the International Solution, and the Cadaveric Organ Donor Act: And the Winner is. *J Corp L*, 1994; 20: 5
11. Harris CE, Alcorn SP: To solve a deadly shortage: economic incentives for human organ donation. *Issues L. & Med.*, 2000; 16: 213
12. Abouna GM: Organ shortage crisis: Problems and possible solutions. *Transplant Proc*, 2008; 40(1): 34–38
13. Freeman RB, Edwards EB: Liver transplant waiting time does not correlate with waiting list mortality: Implications for liver allocation policy. *Liver Transpl*, 2000; 6(5): 543–52
14. Kim WR, Biggins SW, Kremers WK et al: Hyponatremia and mortality among patients on the liver-transplant waiting list. *N Engl J Med*, 2008; 359(10): 1018–26
15. Ebrahim AFM: Islamic jurisprudence and the end of human life. *Med. & L*, 1998; 17: 189
16. Sharif A: Organ donation and islam – challenges and opportunities. *Transplantation*, 2012; 94(5): 442–46
17. Santos R d J et al: [Ethical aspects of organ transplantation from medical students' perspective: A comparative study.] *Revista Bioética*, 2016; 24(2): 344–54 [in Portuguese]
18. Afzal Aghaee M, Dehghani M, Sadeghi M, Khaleghi E: Awareness of religious leaders' fatwa and willingness to donate organ. *Int J Organ Transplant Med*, 2015; 6(4): 158–64
19. Shafer TJ, Wagner D, Chessare J et al: Organ donation breakthrough collaborative increasing organ donation through system redesign. *Crit Care Nurse*, 2006; 26(2): 33–48
20. Anochie I, Ofori P: Attitude of medical students towards voluntary kidney donation. *TNHJ*, 2001; 2: 175–76
21. Popp FC, Eggert N, Hoy L et al: Who is willing to take the risk? Assessing the readiness for living liver donation in the general German population. *J Med Ethics*, 2006; 32(7): 389–94
22. Alvaro EM, Jones SP, Robles AS, Siegel JT: Predictors of organ donation behavior among Hispanic Americans. *Prog Transplant*, 2005; 15(2): 149–56
23. Olujobo R, Fawale MB, Ojewola RW et al: Knowledge regarding organ donation and willingness to donate among health workers in South-West Nigeria. *Int J Organ Transplant Med*, 2016; 7(1): 19–26
24. Yilmaz TU: Importance of education in organ donation. *Exp Clin Transplant*, 2011; 9(6): 370–75
25. Schütt G: 25 years of organ donation: European initiatives to increase organ donation. *Transplant Proc*, 2002; 34(6): 2005–6
26. Akgün HS, Bilgin N, Tokalak I et al: Organ donation: A cross-sectional survey of the knowledge and personal views of Turkish health care professionals. *Transplant Proc*, 2003; 35(4): 1273–75
27. Morgan SE, Harrison TR, Afifi WA et al: In their own words: the reasons why people will (not) sign an organ donor card. *Health Commun*, 2008; 23(1): 23–33.
28. Khan FA: The definition of death in Islam: Can brain death be used as a criteria of death in Islam? *J IMA*, 1986; 18(1): 18–22
29. Eshraghian A: Religion, tradition, culture, and solid organ transplantation. *Crit Care Med*, 2013; 41(7): e134
30. Dehghani SM, Gholami S, Bahador A et al: Causes of organ donation refusal in southern Iran. *Transplant Proc*, 2011; 43(2): 410–11
31. Ali NF, Qureshi A, Jilani BN, Zehra N et al: Knowledge and ethical perception regarding organ donation among medical students. *BMC Medical Ethics*, 2013; 14(1): 38
32. Weber F, Philipp T, Broelsch CE, Lange R et al: The impact of television on attitudes towards organ donation – a survey in a German urban population sample. *Nephrol Dial Transplant*, 1999; 14(10): 2315–18
33. Saleem T, Ishaque S, Habib N et al: Knowledge, attitudes and practices survey on organ donation among a selected adult population of Pakistan. *BMC Medical Ethics*, 2009; 10(1): 5
34. Majidi N, Aghaee M: [The role of television in spreading the culture of organ donations from the perspective of families donated organs.] *Culture of Communication*, 2013, 3(9); 53–75 [in Persian]