



Original Article

## Study of knowledge and attitude of nurses in Sanandaj city toward organ donation

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### ABSTRACT

**Background & Aim:** Nowadays, organ transplantation is the final treatment for the patients with end-stage organ dysfunction. Considering the importance of the organ donation and the important role of nurses in increasing the number of organ donations, the present study aimed to determine the knowledge and attitudes of nurses in Sanandaj hospitals toward organ donation.

**Materials & Methods:** This study was descriptive-analytic (cross-sectional). 250 nurses working in hospitals in Sanandaj city were selected by stratified sampling method in 2017 and completed the questionnaire on knowledge and attitude towards organ donation. Data were analyzed by SPSS software version 20, using independent t-test and ANOVA.

**Results:** The results showed that the mean score of knowledge was  $13.2 \pm 0.4/57$  and the mean score of attitude was  $44.7 \pm 82.75$  and 207 (82.2%) did not have a donation card, while 146 nurses (58.4%) tended to receive a donation card. The mean score of nurses' knowledge about donation was  $13.2 \pm 26/49$  and the mean score of their attitude was  $13.2 \pm 07.91$ . There was also a significant correlation between attitude and level of education ( $p=0/045$ ).

**Conclusion:** According to the results, the knowledge and attitude of the majority of nurses were moderate and most of them did not have a donation card. Considering the importance of this effective group in increasing the culture of the community toward organ donation, education and preparing appropriate background for receiving, and increasing knowledge and attitudes toward organ donation for the nurses is necessary.

## Introduction

Organ Transplantation is the preferred treatment for patients at the last stages of the disease (1) and significantly improves the quality of life of patients (2) and increases their life expectancy (3). The imbalance between the demand for donation organs and the presence of it results in the deaths of more patients waiting in the organ transplant list 17 to 25 percent of the transplant retrieval organs due to inappropriate donor organ management the vital time of the donation is destroyed (4).

Iran ranked forty-two in the world, and the rate of dissatisfaction with donation in the country reached 63%(5) and The ranking of Kurdistan province in 2012 was 46 in the country (6), while in European countries, this proportion reaches twenty in a million and in some countries, such as Spain, reaches 35 in a million per year, which proves that only a small fraction of brain death people in Iran are volunteers for organ donation (3). The lack of donation is the most important factor in increasing the waiting time for the transplant (7), and

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organ shortages and long waiting lists remain a major problem in the country(2).

One of the reasons for this is the low consent of the family of brain death patients for organ donation and needs to be improved in this regard (8).

Nurses are the largest group of health care professionals (9), the success of the donation process is closely related to the level of knowledge, attitude and practice of nurses the organ donation process (10). There is a strong correlation between the rate of organ donation and the level of knowledge and education of nurses (11). The attitude and knowledge of nursing staff towards organ donation can have a significant impact on the decision making of the donors' family (12). Nurses among the health care staff are usually the first who identify the patient as a potential donor (13). Therefore, nurses dealing with this phenomenon should familiarize with their roles in this process (10). Ju et al. (2018) showed that there is a significant difference between the knowledge about organ donation and the consent of the donation of brain death (14).

In a study by Lomero et al. (2017) in Spain, while the rate of completion of the questionnaire was 68/2%, 9/98% agreed with the donation. Respondents were uncertain about the criteria for entering the waiting list, and only 72/2% agreed that brain death was equivalent to death (12). In the study of Jafari Kolaei et al. (2017), the average attitude of nurses about organ donation and cerebral death was 93/23%, of which 46/7% had a good attitude and 53/3% had an excellent attitude and There was a significant relationship between age, education, work experience variables and organ donation experience with nurses' attitudes about organ donation and brain death (15). The viewpoints of 12/3% of the nurses of the Masih Daneshvari Hospital on the transplantation 17/6% fully agree, 54/7% agree on improvement of conditions and 15/4% are to different (16).

Considering the increasing need for organ donation and its low rates in Iran towards advanced countries, as well as the importance of nurses' knowledge and attitudes, the knowledge and attitude of this

group of health care community members about organ donation is necessary. Considering the traditional context of Kurdistan province and the low donation rate in this provinces. Among other provinces, as well as the importance of the role of nurses in raising the knowledge and attitude of the donors' family, the aim of this study was to determine the knowledge and attitude of nurses in Sanandaj city toward organ donation.

## **Methods**

The present study was a descriptive study and the statistical population included all nurses working in Sanandaj (850 people) in 2018. The inclusion criteria included employing as nurse and willingness to participate in the research, and the criteria for excluding was the reluctance to participate in the research. There were four educational hospitals in Sanandaj, which include three general hospitals and one specialized psychiatric hospital. Information was collected from nurses from three general hospitals (Tohid–Kowsar-Besat Hospital).

The sampling method was a randomized stratified sampling method. Each hospital was one strati, and based on the population of nurses working in each hospital, 50% of the samples were from nurses of Tohid Hospital, 30% of Kowsar nurses and 20% of nurses from Be'sat hospital in Sanandaj were selected.

Sample size was estimated by considering the study of Dutra et al. (17) and based on the sample size formula, taking into account  $p = 0.55$ ,  $d = 0.06$  and 95% confidence level, it was estimated to be 200 people. In order to increase the accuracy, according to the recommendation of the statistical advisor, 250 people were considered.

Before the start of data collection, the ethics code (IR.MUK.REC.1396.292) was received from Ethics Committee of Kurdistan University of Medical Sciences and all nurses were volunteer.

In this research, a questionnaire was used to determine the knowledge and attitude towards the donation of a member. This

questionnaire consists of 35 questions that were designed by Haji Ghaderi and Ghajhi (18) and used in Dehgani et al research and validity and reliability was confirmed by test-retest with Cronbach's alpha ( $\alpha = 0.7$ ).

The questionnaire consisted of 11 questions related to knowledge and 18 questions related to attitude. Knowledge questions had correct answers, false and I do not know scoring. The scoring of the questionnaire of knowledge based on the correct score = 2, I do not know = 1 and false = 0. Questions 4, 6 and 10 were negative and their rating in the opposite direction, the maximum score was 22 and the minimum score is 0.

I totally agree for attitude question, I agree, I have no idea, I do not agree, I totally disagree, I'm completely disagree. I totally agree for attitude question = 4, I agree = 3, I have no idea = 2, I do not agree = 1, and I totally disagree = 0, Questions 2, 3, 13 and 18 are negative and their rating is in reverse and the maximum score is 72 and the minimum score is 0 (19).

Data were analyzed by SPSS software version 16 using inferential statistics and analyzed by independent t-test, ANOVA and Pearson correlation.

## Results

In this study, 250 questionnaires were completed and collected by nurses. Of the 250 participants in the study, 61.4% (153 persons) were female and 38.6% (96) were male; 1 missing data for the gender variable was reported (0.4% lack of response to a gender related question). The mean age of participants was  $30.41 \pm 6.76$  and their mean work experience were  $52.26 \pm 5.78$  years. The majority of nurses' religion were Sunnis (84.2%) had a moderate income (78.0%) and had undergraduate and postgraduate education (91.1%). More than half of the nurses participating in the study (67.5%) had a moderate level of information related to organ donation. In terms of subjects, audio and television were the largest source of information and participation in the seminar with 46.1 percent ( $n=113$ ), and 7.8 percent (19 people) were the smallest source of

information on organ donation. Mean scores of knowledge and attitude of nurses about organ donation were  $13.04 \pm 2.57$  and  $44.22 \pm 7.75$  respectively. It should be noted that 1 (0.4%) of the samples studied had a history of organ donation.

The absolute frequency and relative frequency of non-response to each question (lost data) was also reported for each variable (table1). There was a significant relationship between gender variable and mean scores of knowledge ( $p= 0.122$ ). Other variables studied (religion, income, education, information on organ donation, ward, etc.) did not have a significant relationship with mean score of knowledge about donation ( $p < 0.05$ ).

There was a significant relationship between the variables of having organ donation card ( $p = 0.001$ ), tendency to receive a donation card ( $p < 0.0001$ ), and a person's information of religious references perspectives about organ donation ( $p = 0.002$ ) with the mean scores of nurses' attitudes toward organ donation. Other variables were not statistically significant with the mean scores of nurses' attitude ( $p < 0.05$ ). Using Pearson correlation test, there was no significant relationship between mean age and work experience of nurses with knowledge and attitude scores regarding organ donation ( $P > 0/05$ ) (Table2).

## Discussion

Health professionals play an important role in increasing organ donation. Therefore, assessing the knowledge and attitude of medical personnel about organ donation is very important (20) and the attitude and knowledge of nurses about organ donation can be effective on decision making by donors. Therefore, the purpose of this study was to assess the knowledge and attitude toward nurse's donation, and the findings of this research are in line with research that indicates the knowledge and attitude towards the donation.

**Table1.** Demographic characteristics of participants in the study

Variable	Group	N	%
Sex	Female	61.4	153
	Male	38.6	96
	Total	100	249
<b>1 missing data (0.4%)</b>			
Religion	Shi'i	13.3	32
	Sunnis	86.7	208
	Total	100	240
<b>10 missing data (4%)</b>			
Income	Low	15.6	39
	Medium	78	195
	Much	6.4	16
	Total	100	250
Education	Assistant / Bachelor	91.1	226
	Senior / Ph.D.	8.9	22
	Total	100	248
<b>2 missing data (0.8%)</b>			
The amount of notification of the organ donation	Low	14.9	37
	Medium	67.5	168
	Much	17.7	44
	Total	100	248
<b>1 missing data (0.4%)</b>			
The source of information on organ donation	Television	46.1	113
	The press	31	76
	Seminar	7.8	19
	Friends and acquaintances	15.1	37
	Total	100	245
<b>5 missing data (2%)</b>			
Ward	ICU special care	19.2	48
	Emergency	12.4	31
	Internal	12.8	32
	Other sections	55.6	139
	Total	100	250
Story of organ donation in family/ Friends	Yes	18.9	47
	No	81.1	202
	Total	100	249
<b>1 missing data (0.4%)</b>			
Having an organ donation card	Yes	17.3	43
	No	82.7	206
	Total	100	249
<b>1 missing data (0.4%)</b>			
The desire to get the card	Yes	61.8	136
	No	38.2	84
	Total	100	220
<b>30 missing data (12%)</b>			
Inform of religious references perspectives about organ donation	Yes	25.7	62
	No	74.3	179
	Total	100	241
<b>9 missing data (3.6%)</b>			
Age		30.41±6.76	
Work experience		6.52±5.78	
Knowledge		13.04±2.57	
Attitude		44.82±7.75	

**Table 2.** Relationship between knowledge and attitude of participants in the study with the variables studied

Variable	Knowledge		P value	Attitude	
		SD±M			SD±M
Sex	Female	13.39±2.57	*0.012	44.7±28.07	*0.211
	Man	12.54±2.51		45.8±61.67	
Religion	Shi'i	13.03±2.43	*0.966	44.7±90.87	*0.967
	Sunnis	13.01±2.59		44.7±84.64	
Education	Assistant/ Bachelor	13.03±2.62	*0.673	44.7±57.41	*0.068
	Senior/ Ph.D	13.27±2.27		47.10±72.17	
Having an organ donation card	Yes	13.60±2.72	*0.125	48.7±43.47	*0.001
	No	12.91±2.54		44.7±06.63	
The desire to get the card	Yes	12.94±21.63	*0.880	46.7±59.34	*<0.0001
	No	13.01±2.54		41.7±18.66	
History of organ donation in family/ Friends	Yes	13.10±2.43	*0.827	46.8±66.63	*0.083
	No	13.02±2.62		44.7±44.49	
Inform of religious references perspectives about organ donation	Yes	13.15±2.76	*0.642	47.8±51.19	*0.002
	No	12.97±2.55		43.7±85.51	
Income	Low	13.89±1.99	**0.062	46.9±39.95	**0.360
	Medium	12.92±2.55		44.7±46.21	
	Much	12.33±3.69		45.8±37.02	
Ward	ICU special care	12.58±2.58	**0.283	42.7±85.17	**0.127
	Emergency	12.63±2.29		44.6±34.85	
	Internal	12.96±2.78		46.7±90.88	
	Other sections	13.32±2.58		45.8±16.02	
The amount of information about organ donation	Low	12.13±2.37	**0.054	42.7±67.02	**0.092
	Medium	13.26±2.49		44.7±77.39	
	Much	13.07±2.91		46.9±46.01	
The source of information on organ donation	Television	12.86±2.88	**0.478	44.7±14.46	**0.130
	The press	13.18±2.16		45.7±04.91	
	Participate in the seminar	13.88±3.14		48.5±94.74	
	Friends and acquaintances	13.03±2.16		45.9±05.03	

\*Independet t test \*\*Anova

According to the knowledge score of the present study, the mean score of nurses' knowledge was 13.24 ± 57.04. Knowledge and attitude in Jafari Kolaei et al. (2016) study was good in 46.7% of nurses and good 53.3% (15). The research by Hejazi et al. (2017) found that only a little more than half of the subjects believed that return to life in brain death patients was impossible, which indicates a lack of knowledge in this regard (3).

The results of Wang et al. (2012) showed that those who had more knowledge about organ transplantation contributed more to supporting organ donation (21). Considering the moderate knowledge and attitude of

nurses in this study and related researches and the importance of knowledge among nurses, it is necessary to pay attention to the effective factors involved in increasing knowledge and attention to this issue. Nursing education needs to be initiated from the beginning of the student period and then promoted to retraining courses. According to the attitude score obtained from the present study, the mean attitude of nurses was 44.7 ± 82.85.

The attitude of nurses in present study was less than that of Chang et al. (2008) with 85% positive attitude toward organ donation (22) and Ozdag study (2001) with 87.7% positive attitude toward organ donation (23).\_The probable reasons for the low attitude score in

the present study against, external studies can be non-sufficient education for the donation of nursing members. It is worth noting that the attitude toward the organ donation in this research and related studies in Iran is even less than that of old-time foreign studies, and this necessitates more attention and speed in increasing the knowledge and attitude of nurses towards donated members.

In research, Schaeffner et al. (2004), showed that only 8% of nurses were good enough to approach relatives of organ donors (24). Considering the importance of the intensive care unit in identifying potential people for organ donation and the readiness of the donor family, the knowledge and attitude of nurses in this unit is more important than other wards.

This study did not compare the knowledge and attitude of nurses of intensive care units with other nurses. Therefore, it is recommended that in future studies, their knowledge and attitude be measured and compared with other wards. Considering the importance of this unit in increasing the amount of donation, the training of nurses in this ward should be prioritized.

Research results of Xie and et al (2017) also indicated that 34.4% of nurses said they donated their organs after death and only 38.2% wished to register in the organ donation system (25).

Therefore, when there is a negative attitude towards the donation of nurses, this affects important aspects such as belief in the diagnosis of brain death or entry criteria (12), since nurses are an important group that can affect on the attitude of people, their negative attitudes can have a negative impact on society's attitude toward organ donation (25). An educational program can increase the knowledge and attitude of health care professionals (2). Therefore, more research is needed to identify the weaknesses in attitude toward the organ donation and to conduct educational planning in the area where the donation culture of a member of brain death patients is made (3). Changing attitudes always require constant interventions based on the views and culture of individuals. Therefore, it is recommended that the necessary measures be started during the

student period and then updated using nurses' continuing education.

The results of this study showed that the average amount of nurses was informed about the donation. In the research by Lomero et al. (2017), nurses in America, 98.6% of respondents said they are agree to organ donation (12). The level of knowledge and willingness of nurses in advanced countries in previous studies was greater than of nurses in present study. The reasons for this may be the shortage of courses in the nursing student course and the nurses' continuous education in the hospital. In future studies, the reason for this can be investigate to remove barriers. In the study of Alsaied et al. (2012), 51.3% of physicians and 61.6% of nurses tended to their body remain intact after their death (26). When nurses have little desire to donate their members, they cannot affect others, especially the family of brain death patients, so the need for greater familiarity with organ donation and, consequently, interventions to increase the willingness to donate to nurses is necessary. In the research, Dutra et al. (2003), 69.2% tended to donate, and 51% of the unwillingness to donate was due to lack of trust in the health system, 14.3% had no knowledge of the organ donation and 1.7% religious reasons (17).

In the present study, the reasons for not receiving the donation card were have not been investigated, but it is necessary to examine and it is recommended that these reasons be investigated and addressed in order to resolve them. Because the increase of knowledge and information has a positive effect on the attitude of individuals towards organ donation, even among health care professionals. Therefore, we need to make progress in developing a nationwide hospital education program that provides training on organ transplantation and donation (27).

In this study, TV as an influential media was the most important source of information of nurse about donation. The results of the researches of Majeed et al. (13), Saidi et al. (8), Hejazi et al. (3),

Alghanim (28) and Maroof et al. (29) are consistent with the present study, and in all of them the main source of information about the donation was given by the member of the Media.

In the study of, Bapat et al. (30), among medical students, 97% received information about the organ donation from television, which certainly the source of information in nurses should be different from ordinary people. However, due to the lack of percentage of information source from the assemblies and seminars and according to the results of the research, which showed that the preference of television for conferences and seminars in nurses, it was necessary to hold appropriate conferences and workshops in this field along with television programs.

The results of this study showed that the majority of nurses do not have a donation card, while half of them tend to receive a donation card. High tendency to receive a donation card and practically low number of card recipients was observed in this research. The results of Mithra et al. (2013) study also showed that despite the willingness of 59.6% of the subjects to organ donation, only 3.7% of them had an organ donation card (1). In Akgün et al. (2003), although 44.2% claimed to be willing to donate their organs, only 17.9% actually had a donation card (27). In the study Mithra et al. (2013) in India, 42.3% knew about the existence and necessity of a donation card, but only received 3.7% of the donation card recipient (1).

The results of this study was consistent with the high desire for donation of an organ and the fact that the number of card recipients is practically low is evident. This inconsistency is evident in the high tendency to donate and receive low donation cards in studies carried out in advanced countries and Iran. It is necessary to examine the reason for this and it is necessary to resolve it.

It is recommended to study the reasons for this and because of the great influence of personality traits on the organ donation, it is suggested in the subsequent researches

investigate the relationship between personality characteristics and willingness to organ donation.

The results of this study showed that the knowledge and attitude of the majority of nurses were moderate and most of them lacked a donation card and expressed a high tendency for organ donation. It is necessary for further training about organ donation to increasing knowledge and attitudes, as well as the types of methods for receiving donation card. Considering the great influence of nurses on the family of patients and their decision to donate, it is advisable to provide continuing education courses to increase knowledge and attitude of nurses should be considered.

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### **Conflicts of Interest**

The authors declare that there are no conflicts of interest regarding the publication of this paper.

### **References**

1. Mithra P, Ravindra P, Unnikrishnan B, Rekha T, Kanchan T, Kumar N, Papanna M, Kulkarni V, Holla R, Divyavaraprasad K. Perceptions and attitudes towards organ donation among people seeking healthcare in tertiary care centers of coastal South India. *Indian journal of palliative care.* 2013 May;19(2):83-7.
2. Aghayaw HR, Arjmand B, Emami-Razavi SH, Jafarian A, Shabanzadeh AR, Jalali F, Goodarzi P, Jebelifar S. Organ Donation Workshop—a Survey on Nurses' Knowledge and Attitudes toward Organ and Tissue Donation in Iran. *The International journal of artificial organs.* 2009 Oct;32(10):739-44.
3. Hejazi SS, Nikbakht S, Jouybari L, Abadi MH, Davoodi D, Azizi TH, Yahyaei S. Knowledge and

attitudes toward brain death and organ donation in Bojnurd. *Electronic physician. 2017 Jul;9(7):4746-52.*

4. Salehi S, Kanani T, Abedi H. Iranian nurses' experiences of brain dead donors care in intensive care units: A phenomenological study. *Iranian journal of nursing and midwifery research. 2013 Nov;18(6):475-82.*

5. Dehkordian and Nawami Z. A Survey on a helping hand, the relationship between personality traits and the willingness to donate a member. *Social Psychosocial Researches 2013; 3(11):26-35.[in Persian]*

6. The first Kurdish soul celebration was held. Iranian Association of Organ Donation. Available at: <https://ehda.center/fa/page/KjyqQ>. Accessed July 4, 2018.[in Persian]

7. Reville P, Zhao C, Perez T, Nowacki A, Phillips D, Bowen G, et al., editors. A student leadership model for promoting educational programs in organ donation and transplantation. *Transplantation proceedings 2013;45(4):1287-94.*

8. Saidi R. Changing pattern of organ donation and utilization in the USA. *International journal of organ transplantation medicine.2012;3(4):149-56.*

9. Hoy H, Alexander S, Frith KH, Ng YC. The Effect of Transplant Education on Nurses Attitudes Toward Organ Donation and Advocacy for Transplantation: Instrument Development. *Progress in Transplantation. 2017 Jun;27(2):175-79.*

10. Manzari Z, Masoumian Hoseini ST, Karimi Moonaghi H, Behnam Vashani H. Effect of Education Based on Nursing Model of Dynamism and Continuous Improvement in Seeking Assurance and Getting Approve on Nurses' Knowledge, Attitude and Practice about Their Role in Organ Donation Process. *Journal of Mazandaran University of Medical Sciences. 2014 Dec 15;24(119):141-53.*

11. Mahdiyoun SA, Imanipour M, Mojtahedzadeh R, Hosseini AF. Comparison of Effectiveness of Interactive and Non-interactive Virtual Education about Brain Death and Organ Transplantation on Knowledge and Satisfaction of Critical Care Nurses. *Journal of hayat. 2015 Sep 15;21(2):40-53.*

12. Lomero MD, Jiménez- Herrera MF, Rasero MJ, Sandiumenge A. Nurses' attitudes and knowledge regarding organ and tissue donation and transplantation in a provincial hospital: A descriptive and multivariate analysis. *Nursing & health sciences. 2017 Sep;19(3):322-30.*

13. Majeed F. Saudi Nursing and Medical Student's Knowledge and Attitude toward Organ

Donation-A Comparative Cross-Sectional study. *International journal of health sciences.2016; 10(2):209-17.*

14. Ju M, Sim M, Son S, editors. A Study on Nursing Students' Knowledge, Attitude, and Educational Needs for Brain-Death Organ Transplantation and Donation and Intent to Donate Organs. *Transplantation proceedings; 2018;50(4):1187-91.*

15. Jafari Kolaei A, Bagheri Nesami M, Khanjarneshad F, Jawadyan K H. The study of Nurses' Attitudes on Organ Donation and Brain Death and its Related Factors. 6th National Congress on Health Promotion and Challenges Based on Community Based Care :2016: Sari.[in Persian]

16. Sahin H, Abbasoglu O. Attitudes of Medical Students From Different Countries About Organ Donation. *Experimental and clinical transplantation. Exp Clin Transplant. 2015 Jun 15. 10.6002/ect.2014.0228*

17. Dutra MMD, Bonfim TAS, Pereira I, Figueiredo I, Dutra A, Lopes A, editors. Knowledge about transplantation and attitudes toward organ donation: a survey among medical students in northeast Brazil. *Transplantation proceedings;2004; 36(4):818-20.*

18. Haji Gaderi A, Gagagi Kh. Knowledge and attitude of Gorgan university students about organ donation. 3rd congress of student research of west of Iran.2010;6-14.

19. Dehghani Sh, Bahmanpour K, Bijan N, Valiee S. Effect of blended education on Nursing Students' Awareness and Attitude towards organ donation: A Solomon Four-group Study. *Strides Dev Med Educ. 2019 December,accepted.[in Persian]*

20. Schulz PJ, van Ackere A, Hartung U, Dunkel A. Prior family communication and consent to organ donation: using intensive care physicians' perception to model decision processes. *Journal of public health research. 2012 Jun 15;1(2):130-36.*

21. Wang W, Tian H, Yin H, Liu H, Zhang X. Attitudes toward organ donation in China. *Chinese medical journal.2012;125(1):56-62.* Chung CK, Ng C, Li J, Sum K, Man A, Chan S, et al. Attitudes, knowledge, and actions with regard to organ donation among Hong Kong medical students. *Hong Kong Med J.2008; 14(4):278-85.*

22. Chung CK, Ng C, Li J, Sum K, Man A, Chan S, et al. Attitudes, knowledge, and actions with regard to organ donation among Hong Kong medical students. *Hong Kong Med J. 2008 ;14(4):278-85.*



23. Ozdag N, Bal C. The nurses knowledge, awareness and acceptance of tissue-organ donation. *Edtna-Erca Journal*.2001;27(4):201-6
24. Schaeffner ES, Windisch W, Freidel K, Breitenfeldt K, Winkelmayr WC. Knowledge and attitude regarding organ donation among medical students and physicians. *Transplantation*. 2004;77(11):1414-8.
25. Xie JF, Wang CY, He GP, Ming YZ, Liu J, Gong LN, et al., editors. Attitude and Impact Factors Toward Organ Transplantation and Donation Among Transplantation Nurses in China. *Transplantation proceedings*.2017;49(6):1226-31.
26. Alsaied O, Bener A, Al-Mosalamani Y, Nour B. Knowledge and attitudes of health care professionals toward organ donation and transplantation. *Saudi Journal of Kidney Diseases and Transplantation*.2012;23(6):1304-10.
27. Akgün H, Bilgin N, Tokalak I, Kut A, Haberal M, editors. Organ donation: a cross-sectional survey of the knowledge and personal views of Turkish health care professionals. *Transplantation proceedings*;2003;35(4):1273-75.
28. Alghanim SA. Knowledge and attitudes toward organ donation: a community-based study comparing rural and urban populations. *Saudi Journal of Kidney Diseases and Transplantation*.2010;21(1):23-30.
29. Maroof S, Kiyani N, Zaman Z, Gul RK, Nayyar S, Azmat A, et al. Awareness about organ donation especially kidney donation in Nurpur Shahan, a rural community area in Islamabad, Pakistan. *JPMA The Journal of the Pakistan Medical Association*.2001;61(8):828-32.
30. Bapat U, Kedlaya PG. Organ donation, awareness, attitudes and beliefs among post graduate medical students. *Saudi Journal of Kidney Diseases and Transplantation*.2010;21(1):174-80.