

## Comparison of the Effect of Peer-led Education and Education by the Healthcare Personnel on Awareness, Attitude and Performance of Lettered People toward Organ Donation

M. Mohammadpour (MSc)<sup>1</sup>, A. Mohammadpour (PhD)<sup>\*2</sup>, H. Ajam Zibad (PhD)<sup>3</sup>, S. Najafi (MSc)<sup>3</sup>

1.Student Research Committee, School of Nursing, Gonabad University of Medical Sciences, Gonabad, I.R.Iran

2.School of Nursing, Gonabad University of Medical Sciences, Gonabad, I.R.Iran

3.Social Development & Health Promotion Research Center, School of Nursing, Gonabad University of Medical Sciences, Gonabad, I.R.Iran

J Babol Univ Med Sci; 21; 2019; PP: 306-13

Received: Sep 23<sup>rd</sup> 2018, Revised: Des 30<sup>th</sup> 2018, Accepted: Jan 20<sup>th</sup> 2019.

### ABSTRACT

**BACKGROUND AND OBJECTIVE:** Lack of donation is one of the major limitations of organ transplantation. Promoting organ donation requires increased awareness and creation of a positive attitude through training in specific ways. The purpose of this study was to compare the effect of peer-led education and education by healthcare personnel on awareness, attitude and performance of lettered people in regard with organ donation.

**METHODS:** This case-control clinical trial was performed on 120 lettered people who were randomly assigned to three groups of 40, including peer-led, healthcare personnel and control groups. The two intervention groups underwent training sessions. Before and after the intervention, the data were collected and compared using questionnaires in three groups in three areas of awareness, attitude and performance.

**FINDINGS:** Most of the lettered people (58.33%) were female. 61.66% had a bachelor's degree and 60.83% were teachers at elementary school. There was a significant difference in the mean scores of awareness, attitude and performance toward organ donation in the two intervention groups before the intervention (in peer-led group were  $11.52 \pm 2.12$ ,  $92.05 \pm 10.24$ , and  $1.87 \pm 1.42$  and in healthcare group were  $11.30 \pm 3.00$ ,  $90.73 \pm 10.92$ , and  $1.38 \pm 1.29$ , respectively) and after the intervention (in peer-led group were  $15.47 \pm 1.13$ ,  $98.78 \pm 5.70$ , and  $3.53 \pm 0.50$  and in healthcare group were  $15.13 \pm 1.49$ ,  $96.95 \pm 5.52$ , and  $3.05 \pm 0.81$ , respectively) ( $p < 0.05$ ). The mean score of attitude and performance of the lettered people in the peer-led group was significantly higher than the other groups ( $p < 0.05$ ).

**CONCLUSION:** The results of the study showed that peer-led education is a more effective method than education by healthcare personnel to promote and institutionalize organ donation.

**KEY WORDS:** Awareness, Attitude, Performance, Organ Donation, Lettered People, Peer-Led Education.

### Please cite this article as follows:

Mohammadpour M, Mohammadpour A, Ajam Zibad H, Najafi S. Comparison of the Effect of Peer-led Education and Education by the Healthcare Personnel on Awareness, Attitude and Performance of Lettered People toward Organ Donation. J Babol Univ Med Sci. 2019;21: 306-13.

\*Corresponding Author: A. Mohammadpour (PhD)

Address: School of Nursing, Gonabad University of Medical Sciences, Gonabad, I.R Iran

Tel: +98 51 57223084

E-mail: Dr.mohammadpour@GMU.ac.ir

## Introduction

Organ transplantation is an effective therapeutic strategy to preserve life and improve the quality of life of patients suffering from late stages of organ failure and has a significant role in saving treatment costs (1). Advances in surgical techniques and understanding of the immunologic pathways of organ transplantation have made hopes of saving patients' lives a reality, but the main cause of limitations in organ transplantation is refusal for organ donation. More than 20% of patients on the waiting list for organ transplants die each year due to organ donation deficiency worldwide (2). In Iran, as many as 26,000 patients are on the organ transplant waiting list and 7 to 10 die daily without receiving an organ (3). One of the most important resources for providing organs needed for organ transplantation is brain-dead patients (4) who provide about 90% of organs needed for transplantation (5). However, consent to organ donation is very difficult for families. About 5,000 to 8,000 brain deaths have been reported in Iran in 2017, of which about 2,500 to 4,000 could have been donated, but only 870 have been donated (3). According to statistics of the International Society for Organ Donation and Procurement, in 2015, the overall organ donation statistics in Iran was 8.4 per million people, while in Spain it was 35.9 per million, which is a leading country in this field (6). Several years after enactment of the National Organ Transplant Act in Iran and despite the high capacity of the medical staff in this regard as well as the high incidence of accidents in our country as the first cause of brain death, unfortunately, organ donation statistics in Iran are not favorable. In Islam, however, donating organ is a holy move and is considered an act of kindness (5).

The socioeconomic status, religion, and level of education play an important role in the satisfaction of organ donation. Incorrect beliefs about organ transplantation and organ donation are a major obstacle to organ donation (7). The results of a study in Australia showed that cultural and social beliefs, mistrust in medical system, fear of invasive actions on the deceased's body, and concerns about the fair distribution of the donated organ were the most important reasons for refusal for organ donation (8). A study in Mashhad found that in 51.8% of brain death cases, the families gave consent to organ donation (9). In another study in Chaharmahal and Bakhtiari, the researchers showed that only 37% gave consent to organ donation, and the most common reasons for refusal for organ donation were: not believing that brain death is a definitive death (72.9%), believing that the organ transplantation process is painful (60.4%), and uncertainty about the correct diagnosis of brain death (75%) (10). Promoting satisfaction with organ donation required increased

awareness and creation of a positive attitude towards this issue in the community. Promotion or publicization for raising public awareness of organ donation results in better performance (3).

Educational programs have recently been proposed as a new approach to address the problem of shortage of organ donors (2). Organ transplantation is an issue that should be considered by all members of the community in educational and promotional programming. Sadic et al. showed that a more active relationship between health care providers, religious authorities, and school staff is needed to reduce the widespread disparity between the supply and demand for organs (11). Different strata and organs can be effective in creating a positive attitude and taking an effective step in this regard, including lettered people such as teachers that play an important role in raising the awareness of students and, consequently, families and society. Due to their large population and their influential role in educating and raising awareness of the community as well as being responsible, lettered people can serve as an influential stratum in raising the awareness regarding organ donation.

The results of a study in Tehran showed that although most teachers had heard or read about brain death, organ donation and organ transplantation, lack of contact with people with chronic illness and lack of trust in organ transplantation were the most important reasons for not participating in this process. Therefore, it is necessary to build trust in the brain death diagnosis system, along with relevant educational programs (12). According to the results of the studies, despite the moderate awareness and favorable attitude of the lettered people towards organ donation, there is unfortunately no good performance in this field (13). In a study, Rois et al. showed that 54% of teachers believed that the training program was appropriate for organ donation and about 71% believed that a peer-led education from the transplant team was the best way to do this (14).

Given these interpretations, and considering the knowledge of health team about organ transplantation and the educational role of nurses, it is hypothesized that educating and raising awareness of lettered people regarding organ donation and involving this stratum can be a major step to create a positive attitude toward this issue in society. Modern education basically emphasizes ways that learners can also participate in education, such as peer-led education, which is a community-oriented and community-based intervention, and the peer group can better encourage their peers to choose appropriate behaviors (15). Studies have also shown the effectiveness of this educational approach in some areas (16,17). Therefore, developing

a positive attitude and promoting awareness of organ donation through peer-led education in lettered people along with the educational role of nurses can create a positive trend in organ donation and even as an effective alternative method. Due to the importance of this subject and inadequate studies in this field, the present study was designed and conducted to compare peer-led education and education by healthcare personnel on awareness, attitude and performance of lettered people towards organ donation.

## Methods

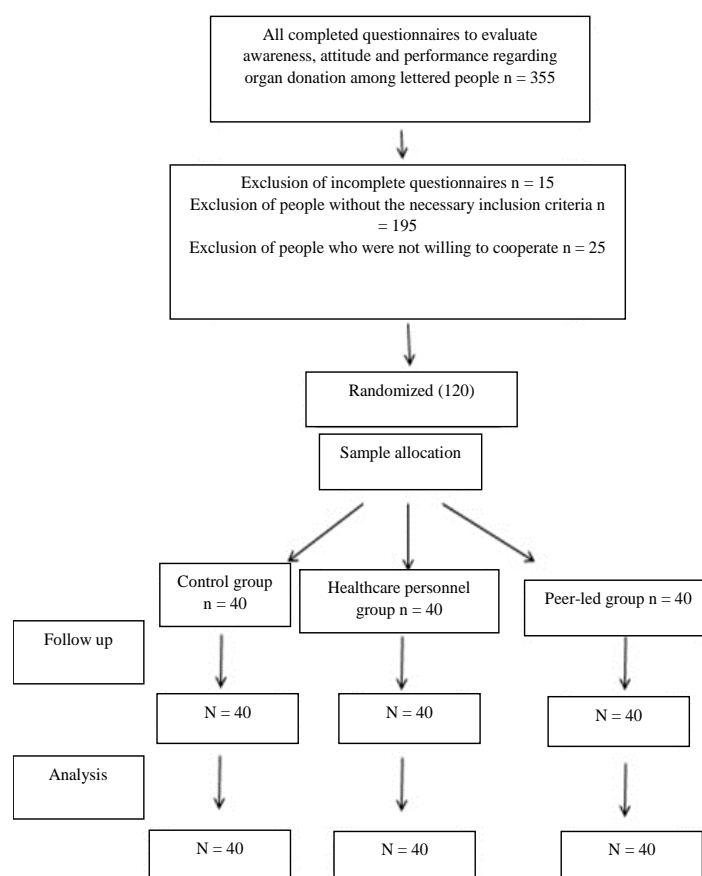
**Study Design, Environment, and Sampling:** This randomized controlled trial was conducted in 2017 after being approved by the Ethics Committee of Gonabad University of Medical Sciences under code IR.GMU.REC.1395.131 and clinical trial registration number IRCT20171018036863N1 among lettered people in different educational levels in girls' and boys' primary and secondary schools of Torbat-e Heydariyeh. The sample size was considered 40 people in each group based on 95% confidence interval and 80% test power according to a similar study by Akbarzadeh et al., and considering the highest value of the three variables of awareness, attitude and performance, while calculating 5% loss (Fig 1).

The lettered people were selected for the intervention based on the class sampling method; each of the grades, including primary and secondary grades, were considered as one class according to gender. Considering quotas within each class and according to the list of employed lettered people (lottery) the required sample size was selected based on simple random sampling and then randomly assigned to three groups of education by healthcare personnel, peer-led education and control group.

The lettered people who attained scores below average in the awareness, attitude, and performance questions about organ donation, had no intention to donate or had not received organ donation card, were teaching in the schools at the time of research, did not suffer from disabling and chronic disease, had not been trained about brain death and organ donation, and health instructors who did not have a bachelor's degree in nursing or other medical sciences were included in the study.

The peer-led group also included educators who were willing to provide education to their peers, received training on organ donation and organ transplantation prior to participating in the study, one teacher with organ donation card, one biology teacher and on theology teacher. Subjects were excluded if they did not consent to continue the study at any time and

intended to attend another training program related to brain death and organ donation.



**Figure 1. Follow-up of participants at each stage of the study**

Data were collected using a researcher-made questionnaire consisting of 4 sections on demographic information, 19 questions on awareness, 25 questions on attitude and 8 questions on performance. Questions on awareness had 3 answers: "correct", "incorrect", and "I don't know". One point was given to "correct" answers and no point was given to "incorrect", "I don't know", and unanswered questions (total of 19 points). In the classification of the scores obtained about awareness, score less than 6.5 was poor, 6.5 to 13 was average and above 13 was considered good awareness. Questions on attitude were scored based on Likert scale; 5 points for "completely agree", 4 points for "agree", 3 points for "I have no opinion", 2 points for "disagree", and 1 point for "completely disagree" (total of 125 points). In the classification of attitude scores; score less than 41.5 was poor attitude, score 41.5 to 83 was average attitude and score above 83 was considered good attitude.

Criteria for evaluation of performance included history of receiving or donating an organ, having an organ donation card or setting up a legal document in

this regard, encouraging others to donate, or willing to donate if necessary and wishing to receive a donation card. In the questions on performance, one point was assigned to “yes” and no point was assigned to “no” (total of 8 points). In the classification of performance scores, score less than 2.7 was poor performance, score 2.7 to 5.4 was average performance and score above 5.4 was considered good performance. The validity of the questionnaire was confirmed by content validation based on the latest valid scientific sources and the opinion of 10 professors and experts in the field of medicine, nursing and health at Torbat-e Heydariyeh University of Medical Sciences and Gonabad University of Medical Sciences. Cronbach's alpha method was used to assess the reliability of the questionnaire. Cronbach's alpha coefficient in this study was  $\alpha = 0.79$  for the whole questionnaire. After the participants were assigned to three groups of peer-led education, healthcare education group and control group, the intervention step was performed only for the experimental groups and the control group did not receive any intervention.

In the intervention group of Education by the Healthcare Personnel, the training sessions were held by 3 healthcare personnel (two nurses, one physician) during three two-hour sessions for three consecutive days using lecture, projector and PowerPoint. In the first session, a nurse explained about what organ transplantation is, the importance of organ transplantation, the process of organ donation and organ transplantation in the country, statistics on organ donation and organ transplantation in the country and comparing it with other countries to lettered people. In the second session, a physician explained about transplantation resources in the country, what is brain death and how is it confirmed, and why there is a need to diagnose brain death as soon as possible and to perform organ donation on a brain-dead patient.

The third training session was held by a nurse on jurisprudential and legal issues related to organ donation. Peer-led education was also provided by three lettered people (one biology teacher, one theology teacher, and one teacher who had an organ donation card) who were already prepared for the educational content of the sessions, like the three sessions of education provided by the healthcare personnel. The first session was held by a teacher who had an organ donation card. The second session was held by the biology teacher and the third session by the theology teacher. After completing the educational intervention, the questionnaires were again completed by the participants of the three study groups.

**Ethical Considerations:** Required permissions were obtained from the Department of Education. Participants were assured that they would be free to participate in the study and that their information would be kept confidential. Informed consent was obtained from the participants. Subjects were assured of being free to exit the study at any stage. At the end of the intervention, the training was also provided to the control group in the form of an educational package.

**Data analysis:** After coding the questionnaires, the data were entered into the computer accurately and were analyzed by SPSS Ver. 16 using descriptive statistics and Kolmogorov–Smirnov, Kruskal–Wallis, Mann–Whitney, chi-squared, Wilcoxon and Spearman correlation coefficient tests, and  $p < 0.05$  was considered significant.

## Results

Before intervention, the study groups were matched in terms of demographic variables (Table 1). The results showed that the three study groups were homogeneous in terms of gender, religion, sect, marital status, educational level, place of teaching, teaching level, field of study, participation in training courses related to organ donation, source of obtaining information, history of receiving and donating organ in relatives, age and teaching background. Moreover, the three groups were homogeneous in terms of the level of awareness, attitude and performance regarding organ donation before the intervention.

According to the results, there was no significant difference between the mean scores of awareness, attitude and performance regarding organ donation in the control group before and after the intervention, but a significant difference was observed between the mean scores of awareness, attitude and performance regarding organ donation before and after the intervention in the two intervention groups ( $p < 0.05$ ) (Table 2).

The mean scores of awareness, attitude and performance of the lettered people towards organ donation after the intervention were significantly higher in the peer-led group and the health-care personnel training group compared to the control group. Furthermore, the mean score of attitude and performance of the lettered people towards organ donation in the peer-led education group was significantly higher than that of the health-care personnel education group ( $p < 0.05$ ), but there was no significant difference between the two groups in the mean score of awareness in lettered people regarding organ donation (Table 3).

**Table 1. Frequency distribution of demographic characteristics of the study subjects**

| Variable              | Group               | Control<br>N(%) | Peer-led<br>N(%) | Health-care personnel<br>N(%) | Chi-squared<br>result                       |
|-----------------------|---------------------|-----------------|------------------|-------------------------------|---|
| Gender                | Male                | 16(40)          | 17(42.5)         | 17(42.5)                      | X <sup>2</sup> = 0.69<br>Df = 2<br>P = 0.48 |
|                       | Female              | 24(60)          | 23(57.5)         | 23(57.5)                      |   |
| Religion              | Islam               | 40(100)         | 40(100)          | 39(97.5)                      | X <sup>2</sup> = 2.02<br>Df = 2<br>P = 0.18 |
|                       | Other religions     | 0(0)            | 0(0)             | 1(2.5)                        |   |
| Sect                  | Shiite              | 40(100)         | 40(100)          | 39(97.5)                      | X <sup>2</sup> = 2.02<br>Df = 2<br>P = 0.18 |
|                       | Sunnite             | 0(0)            | 0(0)             | 1(2.5)                        |   |
| Grade                 | Primary school      | 23(57.5)        | 22(55)           | 28(70)                        | X <sup>2</sup> = 7.71<br>Df = 6<br>P = 0.13 |
|                       | Secondary school    | 15(37.5)        | 17(45)           | 12(30)                        |   |
|                       | Both                | 2(5)            | 0(0)             | 0(0)                          |   |
| Level of<br>education | High school diploma | 12 (30)         | 15(37.5)         | 11(27.5)                      | X <sup>2</sup> = 3.85<br>Df = 6<br>P = 0.34 |
|                       | BA                  | 25(62.5)        | 24(60)           | 25(62.5)                      |   |
|                       | MA and above        | 3.5 (7.5)       | 1(2.5)           | 4(10)                         |   |

**Table 2. Comparison of the mean score of awareness, attitude and performance regarding organ donation in three study groups before and after the intervention**

| Variable    | Control<br>Mean±SD     |                       | Wilcoxon<br>test<br>results | Peer-led<br>Mean±SD    |                       | Wilcoxon<br>test<br>results | Health-care personnel<br>Mean±SD |                       | Wilcoxon<br>test<br>results |
|-------------|------------------------|-----------------------|-----------------------------|------------------------|-----------------------|-----------------------------|----------------------------------|-----------------------|-----------------------------|
|             | Before<br>intervention | After<br>intervention |                             | Before<br>intervention | After<br>intervention |                             | Before<br>intervention           | After<br>intervention |                             |
| Awareness   | 30.11±2.21             | 36.11±2.20            | P=0.67<br>Z=- 0.85          | 52.11±2.12             | 47.15±1.13            | P=0.001<br>Z = - 5.53       | 30.11±3.00                       | 15.1±13.49            | P=0.001<br>Z=- 4.88         |
| Attitude    | 35.91±6.81             | 57.91±6.77            | P= 0.78<br>Z = - 0.25       | 5.92±10.24             | 78.98±5.70            | P = 0.001<br>Z = - 4.60     | 73.90±10.92                      | 96.5±95.52            | P=0.001<br>Z = - 4.30       |
| Performance | 95.1±1.11              | 95.1±1.11             | P= 1<br>Z = 0.00            | 87.1±1.42              | 53.3±0.50             | P=0.001<br>Z=-5.009         | 38.1±1.29                        | 3.0±05.81             | P = 0.001<br>Z = - 5.09     |

**Table 3. Comparison of the mean score of awareness, attitude and performance regarding organ donation between healthcare personnel group and peer-led group after the intervention**

| Questions   | Healthcare personnel |            | Peer-led education |            |                         |
|-------------|----------------------|------------|--------------------|------------|-------------------------|
|             | Group<br>Number      | Mean±SD    | Number             | Mean±SD    | Mann – Whitney results  |
| Awareness   | 40                   | 13.5±1.49  | 40                 | 47.15±1.13 | P = 0.14<br>Z = - 1.07  |
| Performance | 40                   | 05.3±0.81  | 40                 | 53.3±0.50  | P = 0.003<br>Z = - 2.73 |
| Attitude    | 40                   | 95.96±5.52 | 40                 | 78.98±5.70 | P = 0.02<br>Z = - 1.95  |

## Discussion

According to the results of the present study, the mean scores of awareness, attitude and performance of subjects towards organ donation were significantly different in the intervention groups before and after the intervention and their mean scores increased after completing three training sessions. This indicates the significant impact of education on raising the awareness regarding organ donation. Considering the effect of awareness on attitude, increasing awareness about the organ donation process in lettered people created a positive attitude in them. Since performance on organ donation is

dependent on one's awareness and attitude, it can be concluded that education and gaining awareness and positive attitude toward organ donation created a better performance in them. The results of the study by Mahdiyoun et al. showed that after intervention, both interactive and non-interactive e-learning significantly increased the awareness of the ICU nurses about the organ donation process (18), which is consistent with our study. The findings of the study by Murakami et al. on medical students showed improvements in the participants' attitudes toward organ donation after educational intervention (19), which is in line with our results. The results of a study by Lin



et al. also showed the significant effect of education on increasing the awareness, attitude and motivation in ICU nurses regarding participation in the organ donation process in brain-dead patients (20).

The results of the study of McGlade on nursing students in Ireland showed that organ donation training improves the attitude and behavior of nurses in this field and implementation of educational program can improve the awareness of individuals and subsequently the attitude and performance towards organ donation (21), which is consistent with the results of our study. The findings of the study of Aghayan et al. showed that the mean scores of nurses' awareness of organ donation after educational intervention were significantly increased, which is consistent with the results of our study, but the mean scores of nurses' attitude before and after the intervention were not significantly different (22), which was not consistent with the results of our study. The difference may be due to the number of sessions, the educational content, as well as the ability of educators to transfer educational content and change attitudes. Three sessions were considered in the present study while one training session was considered in the study of Aghayan. After the educational intervention, there was a significant difference between the mean scores of awareness, attitude and performance regarding organ donation in the experimental groups compared to the control group; the mean scores of the lettered people after training in the two intervention groups was higher than the control group.

Considering the lack of educational intervention in the control group, the results indicate the effect of both educational methods in the present study in promoting the level of awareness, attitude and performance of the lettered people towards organ donation. The results of the study by Manzari et al. showed that nurses' awareness, attitude and performance regarding their role in organ donation process in both context-based and lecture-based groups increased significantly after the educational intervention (23), which is consistent with our study results. In another study, Manzari et al. showed that the level of awareness, attitude and performance of nurses in the two groups was significantly increased after the educational intervention (24), which is consistent with the results of our study. According to the results of the present study, there was no significant difference between the two educational methods in promoting the level of awareness regarding organ donation, but the mean score of attitude and performance regarding organ donation in peer-led education group was significantly higher than healthcare personnel group.

Given the similar characteristics in the peer group and a greater sense of trust, it seems that participants in peer-led group can better encourage their peers to change attitudes and select appropriate performance in organ donation. Better

attitude and performance in peer-led education group shows the ability of the lettered people to educate and raise the knowledge regarding organ donation and it shows the positive impact of this educational method on the participation of the lettered people in this field. The results of the study by Morowati et al. showed that after intervention, the mean score of attitude in the peer-led group was higher than that of the healthcare personnel group, which is consistent with the results of our study. However, the results of the study by Morowati et al. showed a greater increase in awareness score in the health personnel group than in the peer-led group after the intervention (25), which is not consistent with the results of our study. This may be due to the fact that in their study the peer-led group included women who referred to health centers and were in fact female learners from different strata who were trained by two of them who scored higher on the questionnaire and this lower awareness may be due to the weakness of their peers in transferring the information to the target group, but in our study, the learners in the peer-led group were lettered people who were in an educated and homogeneous stratum, and the educators were three of the teachers with the ability to provide education. The results of the study by Karayurt et al. showed that both group training and peer-led approach improved students' attitude towards breast cancer prevention, which is in line with our study (26).

Miller et al. in a study in Kenya showed that using a peer-led approach increases people's mean score of awareness, attitude, and performance on AIDS prevention (27), which is consistent with the results of our study. Based on the results of the present study, education about the organ donation process and adopting measures to increase awareness and create a positive attitude toward this issue may lead to better performance in this field. This study demonstrated the positive impact of peer-led education along with training by health care professionals on lettered people. Therefore, it seems that we can use the help of lettered people to inform and change attitudes towards organ donation in society. Therefore, considering the findings of this study, and given the efficiency and cost effectiveness of this educational method, it can be considered as an effective educational method in addition to the educational role of health-care personnel to increase the awareness of people and institutionalize organ donation in the society.

## Acknowledgment

Hereby, we would like to thank the Deputy of Research and Technology of Gonabad University of Medical Sciences, Faculty of Nursing, all the lettered people of Torbat-e Heydariyeh, respected professors of Gonabad and Torbat-e Heydariyeh University of Medical Sciences, and all those who assisted us in carrying out this research.

## References

1. Karki S, Thapa S, Poudyal S. Knowledge and attitude of nursing students regarding organ transplantation. *J Chitwan Med College*. 2017; 5(3): 60-5.
2. Sellers MT, McGinnis HS, Alperin M, Sweeney JF, Dodson TF. Deterrents to Organ Donation: A Multivariate Analysis of 766 Survey Respondents. *J Am College Surg*. 2018;226(4):414-22.
3. Sadic S, Sadic J, Krupic R, Fatahi N, Krupic F. The Influence of Information and Religion on Organ Donation, as Seen by School Teachers in Bosnia and Herzegovina. *Mater Sociomed*. 2016; 28(5): 373-7.
4. Niazi M, Shirazi M. The role of socio-cultural factors on organ donation among Kashan citizenry. *J Iran Soc Dev Stud*. 2010; 2(2): 51-82. Available from: [http://jisds.srbiau.ac.ir/article\\_1852\\_en.html](http://jisds.srbiau.ac.ir/article_1852_en.html). [In Persian]
5. International Registry in Organ Donation and Transplantation. Available at: <http://www.irodat.org>. Accessed 2017/02/01.
6. Yilmaz TU. Importance of education in organ donation. *Exp Clin Transplant*. 2011;9(6): 370-5.
7. Neate SL, Marck CH, Skinner M, Dwyer B, McGain F, Weiland TJ, et al. Understanding Australian families' organ donation decisions. *Anaesth Intensiv Care*. 2015;43(1):42-50.
8. Afzal Aghaee M, Rahmanifar F. Factors related to organ donation from brain dead patients in teaching hospitals of Mashhad University of Medical Sciences during 2006-2013. *Med J Mashhad Univ Med Sci*. 2016; 59(3): 148-54. [In Persian]
9. Sayyah Z, Parvin N, Rafiee-Vardanjani L. The causes of consent to and refusal of organ donation by relatives of brain dead patients in Chaharmahal and Bakhtiari Province, Iran; A letter to the editor. *Chronic Dis J*. 2015;3(1):37-8.
10. Safarri-Moradabadi A, Madani A, Zare F, Amani F, Dadipoor S. Awareness and Attitude of Bandar Abbas Residents Towards Organ Donation. *Iran J Health Educ Health Promot* 2014, 2(3): 223-31.
11. Khoddami-Vishteh HR, Ghorbani F, Ghasemi AM, Shafaghi S, Najafizadeh K. Attitudes toward organ donation: a survey on Iranian teachers. *Transplant Proc*. 2011; 43(2):407-9.
12. Mohammadpour M, Mohammadpour A, Ajam-Zibad H, Najafi S. A study on the awareness, attitudes and performance of teachers towards the organ donation during 2016-2017. *Nurs Pract Today*. 2018;5(2):299-309.
13. Ríos A, Febrero B, López-Navas A, Martínez-Alarcón L, Sánchez J, Guzmán D, et al. Secondary school teachers' assessment of the introduction of an educational program about organ donation and transplantation. *Transplant Proc*. 2011; 43(1): 58-60.
14. Dehghani A, Mohammad Khan Kermanshahi S, Memarian R, Hojati H, Shamsizadeh M. The effect of peer-led education on depression of multiple sclerosis patients. *Iran J Psychiatr Nurs*. 2013; 1(1):63-71. [In Persian]
15. Ebrahimian A, Fakhremovahedi A, Hossain Saeidi M. Peer-Centered Retraining Management of the Nurses In Intensive Care Units. *J Health Admin*. 2013; 16(52): 86-94. [In Persian]
16. Keller R, Frank-Bader M, Beltran K, Ascalon M, Bowar-Ferres SL. Peer education: an Innovative approach for integrating standards into practice. *J Nurs Care Qual*. 2011; 26(2): 120-7.
17. Akbarzadeh M, Zangiabadi M, Moattari M, Tabatabaei H. Comparing the effect of teaching Breast self-examination by peers and health care personnel on students' knowledge and attitude. *Iran J Med Educ*. 2009; 8(2): 195-203. [In Persian]
18. 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. *Hayat*. 2015;21(2):40-53. [In Persian]
19. Murakami M, Fukuma S, Ikezoe M, Nakamura M, Yamamoto Y, Yamazaki S, et al. Effect of an educational program on attitudes towards deceased organ donation. *Ann Transplant*. 2015; 14(20): 269-78.
20. Lin LM, Lin CC, Lam HD, Chen CL. Increasing the participation of intensive care unit nurses to promote deceased donor organ donation. *Transplant Proc*. 2010;42(3):716-8.
21. McGlade D, Pierscionek B. Can education alter attitudes, behaviour and knowledge about Organ donation? A pretest-post-test study. *BMJ Open*. 2013; 3(12): 1-8.

22. Aghayan HR, Arjmand B, Emami-Razavi SH, Jafarian A, Shabanzadeh AR, Jalali F, et al. Organ donation workshop- a survey on nurses' knowledge and attitudes toward organ and tissue donation in Iran. *Int J Artif Organs*. 2009;32(10):739-44.
23. Manzari ZS, Masoumian Hoseini ST, Karimi Moonaghi H, Behnam Vashani HR, Khaleghi I. Comparing the effect of two educational methodes (context based learning and lecture) on nurse's knowledege, attitudes and practice about nurse's role in organ donation process. *J Urmia Nurs Midwifery*. 2015; 13(9): 759-71. [In Persian]
24. 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. *J Mazandaran Univ Med Sci*. 2014; 24(119): 141-53. [In Persian]
25. Morowati sharifabad MA, Alizadeh Mradkandi A, Mozaffari Khosravi H, Fallahzadeh H, Momeni Sarvestani M. Comparison of the effect nutrition education by peers and health personnel on knowledge, attitude and nutritional indices of 18-35 years old women of Orumieh health care centers. *Toloo-e-Behdasht*. 2012; 11(1): 54-64. [In Persian]
26. Karayurt O, Dicle A, Malak AT. Effects of peer and group education on knowledge, beliefs and breast self-examination practice among university students in Turkey. *Turk J Med Sci*. 2009; 39(1): 59-66.
27. Miller AN, Mutungi M, Facchini E, Barasa B, Ondieki W, Warria C. An outcome assessment of an ABC-based HIV peer education intervention among Kenyan university students. *J Health Commun*. 2008; 13(4): 345-56.