

ORIGINAL RESEARCH

Knowledge and Attitude Regarding Organ Donation among Relatives of Patients Referred to the Emergency Department

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Abstract

Introduction: Organ donation is one of the surviving procedures, which can increase the life expectancy of end-stage patients. Inappropriate beliefs and attitude of individuals to organ donation, their poor knowledge, and the socio-economic level are one of the most important barriers for organ donation. Therefore, here knowledge and attitude levels among relatives of trauma patients regarding organ donation were evaluated. **Methods:** This cross-sectional study was done on relatives of trauma patients referred to the emergency department of Sina Hospital, Tabriz, Iran, through 2013 to 2014. The questionnaire included parts of demographic data and socio-economic situations as well as status of knowledge and attitude regarding organ donation. A score between 0-7 was belonged to each person based on his/her level of knowledge. Attitude level had a score between 0-12. Chi-square, Fisher, and Mann-Whitney U test were performed to assess the relation between demographic variables and the level of knowledge and attitude. $P < 0.05$ was considered as a significant level. **Results:** 79 persons (57.1% male) with the mean age of 31.3 ± 11.3 years were evaluated. 57 (73.1%) of subjects agreed with organ transplant. The main causes of disagreement among relatives regarding organ donation were dissatisfaction of the donor's relatives (25%) and religious issues (15%); 49 (62.02%) studied people had inappropriate attitude and 27 (34.2%) ones had good knowledge. male gender (OR=5.87; 95%CI: 3.32-8.42; $p=0.001$) and self-employed job (OR=7.78; 95%CI: 4.64-10.92; $p=0.001$) are independent factors associated with poor knowledge about organ donation. Self-employed job (OR=3.86; 95%CI: 1.41-6.11; $p=0.009$) and poor knowledge (OR=15.3; 95%CI: 9.03-21.57; $p < 0.001$) were related to inappropriate attitude toward organ donation. **Conclusion:** The present study showed that 73.1% of participants agreed with organ donation. The major causes of disagreements were dissatisfaction of other relatives and religious beliefs. 62.0% of the studied people had positive view regarding organ donation and 34.2% of them well informed about. The most important causative factors for poor knowledge in this context were male gender and self-employed occupation. In addition, poor knowledge and self-employed job were two factors associated with inappropriate attitude toward organ donation.

Key words: Organ transplantation; knowledge; attitude; tissue donors; directed tissue donation

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Introduction:

Organ donation is one of the surviving procedures that with recent advances in technologies and immune system suppression lead to improve the life expectancy of end-stage patients (1, 2). Such a progression and high rate of success cause to increase the request number of organ donation and waiting time for

donation. This issue caused that about 10-25% of patients needed donation in waiting list died without receiving the organ (3, 4). In Iran, organ donation has been performed from both cadaveric and living donor. The first kidney donation in Iran was done in 1967. By 1988 all donations have been performed from living donors. The rule of cadaver donation was approved in



2000. The network of providing transplant organs in the country has been designed since deputy of certain diseases and organ donation in the ministry of health has been founded in 2002 (5, 6). Brain-dead patients are the most important source of organ donation, because of ability to provide several organs from the same one. However, only 40% of brain-dead patients were subjected to organ donor groups (7); the main cause is the low level of families' consent. In fact, the studies showed that 25-60% of society members disagreed with organ donation from themselves or one of their family members after brain-dead (8-12). The reason of this low rate arises from inappropriate beliefs and attitude of individuals to organ donation, their little knowledge, and the socio-economic status. Based on the above-mentioned, knowledge and attitude of family members have a critical role in increasing the percent of organ donation. Therefore, the present study was done with the goal of evaluating knowledge and attitude levels among relatives of trauma patients, regarding organ donation and its causative factors.

Methods:

Study design and setting

This cross-sectional study was done on relatives of trauma patients referred to the emergency department of Sina Hospital, Tabriz, Iran, through November 2013 to March 2014. Because multiple trauma is one of the most important causes of brain-dead which more happens among the youth, this group are considered as one of the best source of organ donation. Before beginning the project, explanations regarding questionnaire and the aim of study were stated for participants and informed consent were given from them. The study protocol was confirmed by Ethical Committee of Tabriz University of Medical Sciences and researchers were observed Helsinki Declaration during all the study period. It should be mentioned that participation in this project was optional and information of questionnaire kept as secret.

Subjects

The studied population consisted of all relatives of multiple trauma patients who were referred to the emergency department of Sina Hospital, Tabriz. Exclusion criteria were disagreement from participation and disability of the person to talk and communicate. The sample size was estimated 77 persons with considering to previous studies ($d=0.1$, $z=1.96$, and $p=0.7$) (13). Finally, 79 subjects were evaluated.

Data gathering

The designed questionnaire for the present study was used for data gathering. The questionnaire included demographic data and socio-economic situation; 7 questions were related to appraise the knowledge of subjects about organ donation and 12 ones with the goal of assessing their attitude status. Validity of the

Table 1: Demographic characteristics of subjects

| Variable | N (%) |
|--------------------------------------|-----------|
| Age | |
| 15-29 | 41 (51.9) |
| 30-44 | 30 (38.0) |
| 45-59 | 2 (2.5) |
| >60 | 6 (7.6) |
| Gender | |
| Male | 44 (57.1) |
| Female | 33 (42.9) |
| Marital status | |
| Single | 31 (39.7) |
| Married | 47 (60.3) |
| Income | |
| Low | 28 (36.8) |
| Middle | 48 (63.2) |
| High | 0 (0.0) |
| Religion | |
| Shia | 77 (97.4) |
| Sunni | 1 (1.3) |
| Other | 1 (1.3) |
| Number of Child | |
| 0 | 37 (50.7) |
| 1 | 20 (27.4) |
| >1 | 16 (21.9) |
| Occupational status | |
| Staff | 34 (55.7) |
| Self-employed | 27 (44.3) |
| Education | |
| Under diploma | 10 (13.7) |
| Diploma | 21 (28.8) |
| Postgraduate Diploma | 7 (9.6) |
| Graduate | 29 (39.7) |
| Post graduate | 6 (8.2) |
| Relative | |
| First-degree | 26 (57.8) |
| Second-degree | 19 (42.2) |
| Type of first-degree relative | |
| Father | 8 (33.4) |
| Mother | 6 (25.0) |
| Sister | 5 (20.8) |
| Brother | 5 (20.8) |

questionnaire were determined by factor analysis and principal components. To determine the reliability of different parts of the questionnaire, Cronbach's alpha coefficient was used that 0.83 was obtained. Questions of the questionnaire regarding knowledge and attitude are shown in Table 2 and 3.

Outcomes

In the present study, the knowledge and attitude of patients' relatives regarding organ donation were evaluated. A score between 0-7 was belonged to each person based on his/her level of knowledge (each true answer had 1 score). In addition, attitude level had a score between 0-12. It should be mentioned that false answer did not have negative score. Finally, causative factors on



knowledge and attitude of subjects to organ donation were assessed.

Statistical analysis

Statistical analysis was done using STATA 11.0. After presenting descriptive analysis of data, Chi-square, Fisher, and Mann-Whitney U tests were performed to assess the relation between demographic variables and the level of knowledge and attitude. For this purpose, knowledge status (poor and good) and attitude (appropriate and inappropriate) were categorized in two groups. For categorizing the median of society was used as a cut point that is a common method in classifying groups (14-16). Then significant factors in univariate tests were entered to multivariate logistic regression model. With 95% confidence interval (CI) for the odds ratio (OR), independent causative factors on knowledge and attitude of the participants to organ donation were appraised. $P < 0.05$ was considered as a significant level.

Results:

In this research, 79 persons were evaluated (57.1% male). The mean age of subjects was 31.3 ± 11.3 years (Age group of 15-92 years). Demographic characteristics of these people are shown in Table 1. In a polling it was determined that 57 (73.1%) of subjects agreed with organ donation. The main causes of disagreement among relatives regarding organ donation were lacking of relatives' consent (25%) and religious issues (15%). It worth noting that among discontented persons 9 (45%) subjects stated that they agreed with receiving

the organ by themselves while they disagreed with donation of their organ or their relatives own. 53 (75.7%) of participants disclaimed that they had enough knowledge about organ donation. The most important ways of informing were Television (57.8%), newspapers and articles (15.6%), friends and colleagues (8.9%), and Internet (8.9%), respectively. However, most of the persons (85.9%) were not aware from the laws of organ donation. 13 (17.1%) of studied people believed that organ donation is not ethically true and 25 (33.8%) of them disagreed with having organ donation card as voluntary. 13 (16.9%) of these persons did not accept organ donation as a therapeutic procedure. The status of knowledge and attitude of these people are presented in Table 2 and 3. The mean score of attitude (with maximum 12 scores) for the subjects was 8.0 ± 3.3 , significantly higher among people who agree ($p < 0.0001$). The similar difference was also observed regarding the knowledge level of people who agreed. The attitude score of 49 (62.02%) studied people was ≥ 8 (appropriate level), while knowledge score of only 27 (34.2%) ones was ≥ 5 (good level). This issue showed that knowledge about organ donation in most of the participants was low. Univariate analysis displayed that women (51.5%; $p = 0.002$) and staffs (50.0%; $p < 0.001$) had higher level of knowledge ($p = 0.002$). In addition, higher education level ($p = 0.001$) associated to increase the knowledge about organ donation (Table 4). The attitude level of these persons only related to their

Table 2: Knowledge of subjects regarding organ donation

| Question | Yes | No |
|--|-----------|------------|
| Do you have enough knowledge regarding organ donation? | 39 (50.6) | 338 (49.4) |
| Do you know about the laws of organ donation? | 11 (14.1) | 67 (85.9) |
| Do you think organ donation is a treatment option? | 64 (83.1) | 13 (16.9) |
| Do you have any information about brain-dead? | 48 (62.3) | 29 (37.7) |
| Do you think that brain-dead is a certain method to determine death? | 38 (50.7) | 37 (49.3) |
| Do you have knowledge regarding the steps of organ donation? | 24 (30.8) | 54 (69.2) |
| Do you think that the age of organ donor and receiver is important? | 62 (81.6) | 14 (18.4) |

Table 3: Attitude of subjects regarding organ donation

| Question | Yes | No |
|--|-----------|-----------|
| Do you agree with organ donation? | 57 (73.1) | 21 (26.9) |
| Do you agree with organ donation from your relatives? | 54 (69.8) | 25 (31.6) |
| Do you agree with organ donation form non-relatives? | 52 (65.8) | 27 (34.2) |
| Do you think that organ donation is ethically true? | 63 (82.9) | 13 (17.1) |
| Do you agree with having organ donation card as voluntary? | 49 (66.2) | 25 (33.8) |
| Do you agree with organ donation if you have beneficial interest? | 12 (16.4) | 61 (83.6) |
| If you watch a television interview about organ donation with families of the donors, will you admire them? | 67 (88.2) | 9 (11.8) |
| If you agree with organ donation, is its type important for you? | 39 (52.0) | 36 (48.0) |
| Do you think that with more cultural enrichment regarding organ donation, the attitude of people will be changed in this area? | 67 (91.8) | 6 (8.2) |
| Do you agree to donate your organs if you experience brain-dead? | 52 (66.7) | 26 (33.3) |
| Do you think someday you may need organ transplant? | 51 (65.4) | 27 (34.6) |



Table 4: Relationship between knowledge of subjects and demographic variables

| Variable | Knowledge Status | | P |
|----------------------------|------------------|-----------|--------|
| | Good | Poor | |
| Age | | | |
| 15-29 | 14 (34.2) | 27 (65.8) | 0.686 |
| 30-44 | 9 (30.0) | 21 (70.0) | |
| 45-59 | 1 (50.0) | 1 (50.0) | |
| >60 | 3 (50.0) | 3 (50.0) | |
| Gender | | | |
| Male | 8 (18.2) | 36 (81.8) | 0.002 |
| Female | 17 (51.5) | 16 (48.5) | |
| Marital status | | | |
| Single | 11 (35.5) | 20 (64.5) | 0.90 |
| Married | 16 (34.0) | 31 (66.0) | |
| Income | | | |
| Low | 12 (42.9) | 16 (57.1) | 0.22 |
| Middle | 14 (29.2) | 34 (70.8) | |
| High | 0 (0.0) | 0 (0.0) | |
| Occupational status | | | |
| Staff | 17 (50.0) | 17 (50.0) | <0.001 |
| Self-employed | 2 (7.4) | 25 (92.6) | |
| Education | | | |
| Under diploma | 1 (10.0) | 9 (90.0) | 0.001 |
| Diploma | 4 (19.1) | 17 (80.9) | |
| Postgraduate Diploma | 2 (28.6) | 5 (71.4) | |
| Graduate | 17 (58.6) | 12 (41.4) | |
| Post graduate | 3 (50.0) | 3 (50.0) | |

education, occupation status ($p=0.01$), and level of knowledge ($p<0.001$) (Table 5). The results of multivariate logistic regression are shown in Table 6. As it can be seen, male gender ($OR=5.87$; $95\%CI: 3.32-8.42$; $p=0.001$) and self-employed job ($OR=7.78$; $95\%CI: 4.64-10.92$; $p=0.001$) are independent factors that are associated with poor level of knowledge about organ donation. Moreover, self-employed job ($OR=3.86$; $95\%CI: 1.41-6.11$; $p=0.009$) and poor knowledge ($OR=15.3$; $95\%CI: 9.03-21.57$; $p<0.001$) were two factors related to inappropriate attitude toward organ donation.

Discussion:

The present research showed that 73.1% of the studied people agreed with organ donation. The main reasons of disagreement were lacking of consent among relatives and religious beliefs. It should be mentioned that 62.0% of participants had appropriate attitude to organ donation and 34.2% of them were well informed about. The most important factors of poor knowledge in this regard were male gender and self-employed job. Furthermore, poor knowledge and self-employed job were two factors related to inappropriate attitude toward organ donation. As mentioned before, the most important source of organ donation is brain-dead people, but such a donation has some limitations. The first problem is disagreement of donor's relatives. Secondly, some studies have shown that organ donation from living donors has more successful results than brain-dead. In other words, it causes that physicians encourage us-

ing donors who have the optimum conditions for organ donation, included young people and those who have higher education level (17, 18). These two limitations cause that organ donation from brain-dead people associates with some problems. One of the effective elements for solving this problem is improving the knowledge and attitude of the family or spouse of the brain-dead person regarding organ donation (8). In many cases, subjects are potentially proper for organ donation but because of disagreement of their family or relatives, it cannot be happened. Indeed, applying some strategies to improve the level of knowledge and attitude of the society can be helpful in this area. Of course, the role of wrong cultural and religious beliefs should not be ignored. Clergymen have a critical role in encouraging people to organ donation both for living and brain-dead persons (9). One of the religious beliefs in East Asia (countries like Japan and China) is keeping the dead body intact for the life after death. That's why positive attitude of people in China and Japan toward organ donation is too low in compare to other regions (19, 20). In this context, Liu and colleagues by comparing Chinese and Japanese students established that only 35.9% of Chinese society and 43.6% of Japanese have desired attitude toward organ donation. They also revealed that family attitude has a key role in making such a decision (9). Thus, cultural enrichment and change in legislation can be helpful to reach this goal, as its successfulness was displayed in Japan. The law of



Table 5: Relationship between attitude of subjects and demographic variables

| Variable | Attitude Status | | P |
|----------------------------|-----------------|---------------|--------|
| | Appropriate | Inappropriate | |
| Age | | | |
| 15-29 | 26 (63.4) | 15 (36.6) | 0.97 |
| 30-44 | 18 (60.0) | 12 (40.0) | |
| 45-59 | 1 (50.0) | 1 (50.0) | |
| >60 | 4 (66.7) | 2 (33.3) | |
| Gender | | | |
| Male | 26 (59.1) | 18 (40.9) | 0.69 |
| Female | 21 (63.4) | 12 (36.4) | |
| Marital status | | | |
| Single | 18 (58.1) | 13 (41.9) | 0.61 |
| Married | 30 (63.8) | 17 (36.2) | |
| Income | | | |
| Low | 15 (53.6) | 13 (46.4) | 0.19 |
| Middle | 33 (68.8) | 15 (31.2) | |
| High | 0 (0.0) | 0 (0.0) | |
| Occupational status | | | |
| Staff | 27 (79.4) | 7 (20.6) | 0.01 |
| Self-employed | 13 (48.2) | 14 (51.8) | |
| Education | | | |
| Under diploma | 6 (60.0) | 4 (40.0) | 0.01 |
| Diploma | 9 (42.9) | 12 (57.1) | |
| Postgraduate Diploma | 4 (57.1) | 3 (42.9) | |
| Graduate | 23 (79.3) | 6 (20.7) | |
| Post graduate | 5 (83.3) | 1 (16.7) | |
| Knowledge level | | | |
| Poor | 25 (48.1) | 27 (51.9) | <0.001 |
| Good | 24 (88.9) | 3 (11.1) | |

Table 6: Independent risk factors of poor knowledge and inappropriate attitudes regarding organ donation

| Variable | OR | 95% confidence interval | p |
|-------------------------------|------|-------------------------|--------|
| Poor knowledge | | | |
| Female gender | 5.87 | 3.32-8.42 | 0.001 |
| Self-employed job | 7.78 | 4.64-10.92 | 0.001 |
| Inappropriate attitude | | | |
| Self-employed job | 3.86 | 1.41-6.11 | 0.009 |
| Poor knowledge | 15.3 | 9.03-21.57 | <0.001 |

organ donation was approved in Japan in 1997 but because of religious beliefs, the procedure of recognizing brain-dead had unique double standard. Consequently, during 12 years (until 2009) only 86 brain-dead donors have been success to do organ donation. New organ transplant policies in Japan led to perform 16 cases of organ donation from brain-dead donors during three months in 2009 (11, 21). In Islamic countries like Iran, religious beliefs are too deep to separate from social issues. Therefore, religious aspect of organ donation is one of the main facets of approving the law and thus Fatwa of clergymen have been presented to confirm this activity. In terms of these Fatwas, organ donation in Iran weather from a living or brain-dead person has been permitted but commercial interest of it strongly rejected. However, with such laws and Fatwas some disagreements with organ donation have yet existed.

Recently, there are some staffs in treatment centers of Iran to preparing the relatives of brain-dead people for organ donation and giving their consent; but most parts of these attempts are unsuccessful (22). One of the important problems is lacking enough knowledge and appropriate attitude in public society to organ donation. In this study, 62.0% of subjects had appropriate attitude to organ donation. Also, Khoddami-Vishteh and others showed that 70% of studied teachers had consent to organ donation after brain-dead. The major causes of disagreement in this society were mistrust to the organ donation network and diagnostic criteria of brain-dead (1). In the study of Shabanzadeh and others 75.6% of the nurses in intensive care unit (ICU) had a good attitude regarding organ donation from brain-dead patients (23). Sanavi et al. also stated that 85% of medical students had a positive view to donation of



their organ, while only 49.2% of them agreed with this proceeding regarding their relatives. In this project no relationship was seen between age, gender, education level and attitude toward organ donation (24). Additionally, Nasrollahzadeh et al. defined that 66.2% of nurses had a desirable view regarding organ donation of their family members after brain-dead (25). As it can be seen, the attitude of people about it was in a nearly proper level (60-85%). But, some resistances have still existed against organ donation that representative the complication and difficulty of making a decision in this regard for both the person and relatives. In this procedure knowledge, attitude, and self-confidence of physicians and personnel of ICU, patients and their families, culture and rules, as well as religious and economic beliefs of the society are effective. It seems that public education programs for the society to increase their knowledge and positive attitude can make the trust in people regarding organ donation.

Self-reporting bias is one of the limitations in the present research. Another limitation was the lack of presence other religions in this study based on which the role of religion on attitude of participants could not be evaluated. Moreover, the low sample size was another limitation, but considering to the findings, at least power of the present project was 95%. Therefore, low sample size seemingly had no effect on the results.

Conclusion:

The present study showed that 73.1% of participants agreed with organ donation. The major causes of disagreements were lacking of consent among relatives and religious beliefs. 62.0% of the studied people had positive view regarding organ donation and 34.2% of them well informed about. The most important causative factors for poor knowledge in this context were male gender and self-employed occupation. In addition, poor knowledge and self-employed job were two factors associated with inappropriate attitude toward organ donation.

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