Perceptual Factors Related to register as Organ Donors among Iranian Medical College Student

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ABSTRACT
One of the major treatments for many diseases is organ transplantation. The objective of this study was to determine factors related to register as organ donors among Iranian college student based on the theory of planned behavior. This cross-sectional study was conducted on 320 college students in Hamadan University of medical sciences. Participants filled out a standard self-administered questionnaire including the expanded theory of planned behavior components. Data were analyzed by SPSS version 21 using correlation, linear and logistic regression statistical tests at 95% significant level. Our result showed 6.6% of participants reported registered as an organ donor card. The most of participants have reported save people life most effective factor that motivation them to register as an organ donor card. The TPB variable, accounted for 33% of the variation in the outcome measure of the intention to organ donor card registered. The best predictor for organ donor card registered was subjective norm with odds ratio estimate of 1.23 [95% CI: 1.04, 1.44]. Comprehensive educational programs need to emphasize on psychological factors that mediate and predict behaviors. According to the results, donor organ associated with subjective norms in community; It seems special attention to importance culture in the organ donation to save human lives utilizes by influence persons at community, could be benefit results.

Key words: Organ Donors, Students, Subjective Norm

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1. INTRODUCTION

Brain death is the unalterable end of brain activity (including involuntary activity necessary to sustain life) due to total necrosis of the cerebral neurons following loss of brain oxygenation (1). Brain death can be caused by any injury that stops blood and oxygen from reaching the brain. Heart attacks, strokes, brain tumor, die as a result of head injuries, blood clots and infections (2). Considering the high rate of accidents in Iran, which the ten accident one person is dead, and also in every hundred deaths one of them is brain death, we witnessed the highest numbers of brain death in Iran as compared to other countries (3). Organ donation is the process of surgically removing an organ or tissue from one person (the organ donor) and placing it into another person (the recipient). Organ transplantation is one of the great advances in modern medicine, and display a noteworthy improvement in current medical science, and it has
promoted several patients with organ defeat (4). Currently, organ transplant, one of the most effective treatments and sometimes that is only cure for many of advanced disease; however unfortunately depending on the disease approximately 10-25% of patients who needing a transplants, without getting organ died on the waiting list (5). In addition, unfortunately, the need for organ donors is much greater than the number of people who actually donate. Every day in the United States 18 people die waiting for an organ and more than 117,000 men, women, and children await life-saving organ transplants (6). Generally amount of family consent in brain dead patients to organ donation is different in various countries; these amount during 2007 in some countries such as Hungary, Ireland, Poland, Spain, Cuba, less than 20%, and in some of countries such as Bulgaria, Estonia, Italy, Argentina, Uruguay, Greece, between 20-50 percent, and in Panama, America, Britain, and Turkey more than 50 percent were reported (5). Understanding the factors related to register as organ donors among various social groups could be appropriate to enhance organ donation card register is effective. In this regard, two main methods have been approved to understand the factors influencing communication of the organ donation decision. One method has focused on identifying individual background factors predicting willingness to register and discuss the donation decision. The second method is the development of predictive models designed to account for variability in registration and discussion decisions (7). In this regard, several research was conducted based on theory of planned behavior to predicting factors related to register as organ donors (7, 8). Regarding confined of studies in our country, our TPB based study focused on exploring cognitive factors related to the register as organ donors in a sample of medical college students in Iran.

2. MATERIALS AND METHODS

2.1. Participants and Procedure

This cross-sectional study was conducted on 320 college students aged 18 to 30 years old in Hamadan University of Medical Sciences, the west of Iran, during 2012. The sample size was calculated at 95% significant level according to the results of a pilot study and a sample of 320 was estimated. Of the population of 320, 302 (94.3%) signed the consent form and voluntarily agreed to participate in the study, which has been approved by the research institute of behavioral disorders and substance abuse of Hamadan University of Medical Sciences, Iran. Data collection conducted after receiving approval from the relevant university ethics committee, this project was carried out and the volunteers were given the self-questionnaire.

2.2. Measure

Prior to conducting the main project, a pilot study was carried out. Initially the relevant questionnaires were administered to 30 students who were similar to study population in order to estimate the duration of the study conduction and to evaluate the reliability of the questionnaire. Estimated reliability using alpha Cronbach coefficient for each TPB constructs questionnaire were as follows: attitude (α = 0.73); subjective norms (α = 0.67); perceived behavior control (α = 0.74) and behavioral intention (α = 0.79). The variables assessed in this study included: Background data collected were: age (years), level of education (BSc, MSc, MD or MDD), marital status (single or married), Job (just student or employee), Live in Dormitory (yes or no), Native of Hamadan (yes or no).

2.3. Theoretical Framework

The theory of planned behavior (TPB) was proposed by Icek Ajzen in 1985. According to the TPB, the primary determinants of future behavior are one’s intention to perform the behavior and the subjective perception of having control over behavior (perceived behavioral control - PBC). In turn, intentions are predicted by three variables: (a) Attitudes are a person’s positive or negative evaluation of performing the focal behavior, (b) Subjective norms (SN) are a person’s perception of other people’s opinion regarding behavioral performance and (c) PBC refers to a person’s sense of control over performing the behavior under study. When PBC is a reflection of actual control over behavioral performance, it is expected that it will predict behavior directly (9). TPB scale was designed based on standard questionnaires, and included 19 items under four constructs including (a) attitude; (b) subjective norms; (c) perceived behavioral control; (d) behavioral intention (7, 8). Five items were designed to measure attitude toward to register as organ donors (e.g., I think register as an organ donor could be saved other human life). Five items were designed to measure subjective norms to register as organ donors (e.g., those people who are important to me would want me to be registered as an organ donor card). Five items...
were designed to perceived behavioral control toward to register as organ donors (e.g., I am confident that I could talk to my family about my donation decision). Four items were designed to evaluate intention toward to register as organ donors (e.g., I intend to register as an organ donor card in the next months). In order to facilitate participants’ responses to the items, all items were standardized to a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Data were analyzed by SPSS version 21 using appropriate statistical tests including Correlation, linear and logistic regression at 95% significant level.

3. RESULTS AND DISCUSSION

The mean age of respondents was 21.33 years [SD: 2.30], ranged from 18 to 30 years. More details of demographic characteristics of the participants are shown in Table 1.

Table 1. Distribution of the demographic characteristics among the participants

| Variables                       | Number | Percent |
|---------------------------------|--------|---------|
| Age group (year)                |        |         |
| 18-21                           | 177    | 58.6    |
| 22-25                           | 108    | 35.8    |
| 26-30                           | 17     | 5.6     |
| Sex                             |        |         |
| Male                            | 203    | 67.2    |
| Female                          | 99     | 32.8    |
| Living in Dormitory             |        |         |
| Yes                             | 175    | 57.9    |
| No                              | 127    | 42.1    |
| Faculty                         |        |         |
| Medical                         | 49     | 16.2    |
| Dentist                         | 33     | 10.9    |
| Pharmacology                    | 16     | 5.3     |
| Nursing                         | 58     | 19.2    |
| Paramedical                     | 47     | 15.6    |
| Health                          | 74     | 24.5    |
| Rehabilitation                  | 25     | 8.3     |
| Marital Status                  |        |         |
| Single                          | 286    | 94.7    |
| Married                         | 16     | 5.3     |

Only 6.6% (20/302) of participants reported registered as an organ donor card. Participants also reported that 10.3% (31/302) of their friends registered as an organ donor card and about 8.6% (26/302) of them reported that their family registered as an organ donor card. Furthermore, 21.9% (66/302) of participants have reported TV as the most effective factor that persuaded them to register as an organ donor card. The correlation between different components of theory of planned behavior is shown in Table 2. According to these results, there is a mild to moderate correlation between different components of the theory.

Table 2. Correlation between different components of theory of planned behavior

| Component                     | Mean (SD) | X1  | X2  | X3  | X4  |
|-------------------------------|-----------|-----|-----|-----|-----|
| X1. Attitude                  | 20.26 (3.22) | 1   |     |     |     |
| X2. Subjective Norms          | 14.52 (3.26) | 0.335 | 1   |     |     |
| X3. Perceived Behavioral Control | 17.84 (4.55) | 0.212 | 0.340 | 1   |     |
| X4. Intention                 | 12.22 (3.58) | 0.330 | 0.467 | 0.442 | 1   |

A hierarchical multiple regression analysis was performed to explain the variation in intention to organ donor card registered, using the TPB variables of perceived behavioral control, attitudes, and subjective norms. As can be seen in Table 3, were statistically significant predictors of the outcome measure. Collectively, they were accounted for 33% of the variation in intention to organ donor card registered.

Table 3. Predictors of the Intention to register as organ donors

| Variable                  | B      | SE B | t     | p-value |
|---------------------------|--------|------|-------|---------|
| Attitude                  | 0.180  | 0.056| 3.193 | 0.002   |
| Subjective Norms          | 0.341  | 0.058| 6.019 | 0.000   |
| Perceived behavioral control | 0.237  | 0.040| 5.957 | 0.000   |

Adjusted R squared = 0.33, P <.000.

According to the logistic regression analysis, subjective norms and behavioral intention were the most influential predictors on registered as an organ donor card (Table 4).

Table 4. The correlation between different components of theory of planned behavior and register as organ donors using logistic regression analysis

| Variable                  | Odds Ratio | 95.0% CI Lower | 95.0% CI Upper | P value |
|---------------------------|------------|----------------|----------------|---------|
| Subjective Norms          | 1.323      | 1.049           | 1.647          | 0.011   |
| Behavioral Intention      | 1.184      | 1.006           | 1.394          | 0.042   |
The study of organ donation among various groups is very important. Present study is discussed about factors associated with registration as organ donor among various groups. According to the study, subjective norms and behavioral intention were strong predictors of registration as organ donor among college students. The constructs of the theory of planned behavior could predict 33% of the variance in behavioral intention in registration as organ donor.

4. CONCLUSION
According to the study, subjective norms and behavioral intention were strong predictors of registration as organ donor among college students. The constructs of the theory of planned behavior could predict 33% of the variance in behavioral intention in registration as organ donor.

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AUTHORS CONTRIBUTION
This work was carried out in collaboration between all authors.

CONFLICT OF INTEREST
Authors have declared that no conflict interests exist.

REFERENCES
1. Randell T. Medical and legal considerations of brain death. Acta anaesthesiologica scandinavica. 2004;48(2):139-44.
2. Lovasik D. Brain death and organ donation. Critical care nursing clinics of North America. 2000;12(4):531-8.
3. Jalilian F, Shiri M, Mirzayi Alavijeh M, Morshed M, Zinat Motlagh F. The Relationship Between Subjective Norms and Registered Volunteer Organ Donors Among Students of Hamadan University of Medical Sciences. SJFM. 2012;17(4):217-24.

4. Wang W, Tian H, Yin H, Liu H, Zhang X. Attitudes toward organ donation in China. Chin Med J. 2012;125(1):56-62.

5. Vishteh HRK, Ghorbani F, Ghobadi O, Shafaghi S, Barbati ME, Louyeh AR, et al. Causes and follow-up outcomes of brain dead patients in Shahid Beheshti University of Medical Sciences hospitals. Pajoohandeh Journal. 2010;15(4):171-8.

6. Kaur M, editor Organ donation and transplantation in Singapore. Transplantation proceedings; 1998: Elsevier.

7. Hyde MK, White KM. To be a donor or not to be? Applying an extended theory of planned behavior to predict posthumous organ donation intentions. Journal of Applied Social Psychology. 2009;39(4):880-900.

8. Hyde MK, White KM. Are organ donation communication decisions reasoned or reactive? A test of the utility of an augmented theory of planned behaviour with the prototype/willingness model. British journal of health psychology. 2010;15(2):435-52.

9. Ajzen I. The theory of planned behavior. Organizational behavior and human decision processes. 1991;50(2):179-211.

10. Bormand MA, Asghari F. Do Tehran citizens agree with organ donation from a brain-dead family member? Iranian Journal of Medical Ethics and History of Medicine. 2012;5(1).

11. Khadir M, MAGHSOUDLOU M, Gharah Baghian A, Danandeh E, Faghih H, Vafaiyan V, et al. The evaluation of the attitude of Iranian women towards blood donation. Blood (Khoon). 2004.

12. Lemmens K, Abraham C, Hoekstra T, Ruiter R, De Kort W, Brug J, et al. Why don’t young people volunteer to give blood? An investigation of the correlates of donation intentions among young non-donors. Transfusion. 2005;45(6):945-55.

13. Lemmens K, Abraham C, Ruiter R, Veldhuizen I, Dehing C, Bos A, et al. Modelling antecedents of blood donation motivation among non-donors of varying age and education. British Journal of Psychology. 2009;100(1):71-90.

14. Stephenson MT, Morgan SE, Roberts-Perez SD, Harrison T, Afifi W, Long SD. The role of religiosity, religious norms, subjective norms, and bodily integrity in signing an organ donor card. Health Communication. 2008;23(5):436-47.

15. Amponsah-Afuwape S, Myers L, Newman S. Cognitive predictors of ethnic minorities' blood donation intention. Psychology, Health & Medicine. 2002;7(3):357-61.

16. Kafashpoor A, Mortazavi S, Hasani MS. Application of social marketing concept in encouraging voluntary blood donors using theory of planned behavior. Scientific Journal of Iranian Blood Transfusion Organization. 2012;9(1).