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

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ABSTRACT

One of the major treatments for diseases is organ transplantation. The objective of this study is to determine factors related to register as organ donors among Iranian college students 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 was 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 on organ donor card. Most of the participants have reported, to save lives of the people is the most effective factor that motivates 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 is associated with subjective norms in community; It seems to give special attention to importance of culture in organ donation to save human lives, utilizes by influenced persons at community and could be beneficial to the suffering humans.

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, death as a result of head injuries, blood clots and infections etc (2,3). Considering the high rate of accidents in Iran, in which ten

accidents one person is dead, and also in every hundred deaths one of them is brain dead, we witnessed the highest numbers of brain deaths in Iran as compared to other countries. 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 advanced disease; however unfortunately depending on the disease approximately 10-25% of patients who need a transplant died on the waiting list without getting the organ transplant (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, family consent in brain dead patients for organ donations is different in various countries. The percentage of consents during 2007 in some countries such as Hungary, Ireland, Poland, Spain and Cuba are 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 an organ donor among various social groups could be appropriate to enhance organ donation card register as effective. In this regard two main methods have been approved to understand the factors influencing the 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 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 at 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. Out 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. The volunteers were given the self-questionnaire.

2.2. Measure

Prior to the conducting of 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 ($\alpha = 0.73$); subjective norms ($\alpha = 0.67$); perceived behavior control ($\alpha = 0.74$) and behavioral intention ($\alpha = 0.79$). 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 IcekAjzen 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 to register as an organ donor could save other humans 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 organ 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 on the organ donor card. Furthermore, 21.9% (66/302) of participants have reported TV as the most

effective factor that persuaded them to register on the 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
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

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	B	t	p-value
Attitude	0.180	0.056	0.162	3.193	0.002
Subjective Norms	0.341	0.058	0.310	5.901	0.000
Perceived behavioral control	0.237	0.040	0.302	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		P value
		Lower	Upper	
Subjective Norms	1.232	1.049	1.447	0.011
Behavioral Intention	1.184	1.006	1.394	0.042

Annually over ten thousand of brain deaths occurs due to accidents in Iran. That is much higher than other countries; however, today, one of the most effective and sometimes the only treatment of this incurable disease is organ transplant (5). Thus, identify and analyzing factors associated with registration as organ donor among various groups is very important. Present study discussed about factors associated with registration as an organ donor among medical students using the theory of planned behavior. Our findings indicated that 6.6% of the participants are registered as organ donors. That is much lower in comparison with other countries. Hyde et al in their study which was conducted among students in Australia reported that 61% of them have donor card

registration (7). Ghadi-Pasha et al in their study about organ transplantation reported that 55 percent of the doctors in Kerman city agreed with organ transplantation in brain death and 80 percent of them have a tendency to register as organ donor. Furthermore, the finding of BORMAND and ASGHARI on study of the population over 18 years in Tehran city showed that 83.3% of those surveyed agreed with organ donation if one of their family members has suffered from brain death (10). Finding of Khadir et al study in blood donation among Iranian women showed that 24% of participants have at least one previous donation (11). Logistic regression revealed that the subjective norms and behavioral intention constructs are the strong predictors of registration as

an organ donor. Several studies have also shown that subjective norms are strong predictors of registration as an organ donor, which is consistent with our study (12, 13). In this regard Stephenson suggests that subjective norms have a positive role in consent for registration as organ donor (14). Hyde et al in their study that was conducted in Australia during 2009 reported that the Subjective norms have an effective role in the decision of registration as organ donor (7). In previous studies on blood donation by Lemmens, and Myers, the effect of subjective norm on decision making in blood donors has been reported (12, 15). Reference groups can affect the social behavior of individuals and influence on their attitude and can act as sources for confirming a positive social behavior. It also plays an important role in the engaging in particular behaviors (16). Our findings indicated that individuals behave according to the culture and the important people in their life. Thus, culture and utilization of effective social channels can have useful effects on registration as an organ donor in public population. According to our finding, attitude and perceived behavioral control did not act as a strong predictor of registration of an organ donor. Stephenson in their study reported that attitude have positive role in consent for people for organ donation. Despite of the high level of student attitude toward organ donation, According to result of present study, organ donation attitude has no significant relation with registration as organ donor. It can be demonstrated that this behavior can be influenced by other factors. Our findings reported in this study have certain limitations, such as: First, data collected by questionnaire, which is usually prone to recall bias. Second, study conducted on medical students, recommended that future studies conducted on different social groups need a more detailed report. Third, data collection based on one of the behavioral theory suggested application of other health behavior models or an integrated model to assess factors related to 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.

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