

Personal Factors of Coordinators and Their Impact on Family Interview Outcomes for Organ Donation: A National Experience

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ABSTRACT

Background: One of the most critical responsibilities of the Organ Procurement Unit (OPU) is to receive consent from the family members of brain-dead persons.

Objective: The present study aimed to evaluate the effect of the personal characteristics of coordinators on their success in obtaining consent.

Methods: To examine how coordinators' personal characteristic influenced their consent rate in the organ donation process, we collected primary data from 99 consent coordinators via phone calls. We measured their age, education level, work experience, and national and international course participation. We also asked them to complete Cattell's 16 Personality Factors Test to assess their personality dimensions, such as extroversion or introversion. We calculated their consent rate by dividing the successful consents by the brain death cases they attempted. We then used a penalized logistic regression model to analyze the effect of each personal factor on their consent rate.

Results: The study found a noteworthy correlation between the personal traits of coordinators (such as higher education, work experience, vitality, and self-reliance) and their success rate in obtaining consent ($P < 0.05$). It can be concluded that coordinators with higher education, experience in the field, as well as vitality and self-reliance, had the best chances of success in the consent process.

Conclusion: The study suggests that including psychological tests and evaluating the personal traits of coordinators during recruitment can improve their success in obtaining consent from families of brain-dead individuals. This would ultimately lead to more organ donations and could save many lives.

KEYWORDS: Coordinator; Organ donation; Personal factors

INTRODUCTION

Organ donation has the potential to save the lives of patients who are in critical need of a new organ [1]. Unfortunately, many countries face a scarcity of organs, which can be attributed at least in part to the

requirement of obtaining consent from the family of donors [2]. This consent is obtained through an interview conducted by a health-care professional coordinator. The role of this coordinator involves reaching out to and communicating with families who might be willing to consider organ donation, providing them with information and support throughout the process, and respectfully requesting their consent [3, 4]. Conducting these interviews requires coordinators to possess skills

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Table 1: Demographic characteristics of coordinators.

Variables	Mean $\pm$ SD, [Min-Max] / n (%)*
Age (years)	39.53 $\pm$ 7.89, [23-58]
Participation in national educational courses	1.90 $\pm$ 1.81, [0-11]
Participation in international educational courses	0.68 $\pm$ 0.84, [0-5]
Experience (years)	4.96 $\pm$ 3.75, [1-17]
The number of brain-dead cases referred	26.24 $\pm$ 3.75, [3-300]
Number of successful consents	17.40 $\pm$ 3.75, [0-270]
Success ratio	45 (45.2)
Gender (female)	55 (55.6)
Level of education	
B.Sc.	65 (65.7)
M.Sc.	20 (20.0)
Ph.D.	14 (14.1)

*Quantitative variables are expressed as mean $\pm$ standard deviation and [Min-Max], and qualitative variables are summarized as numbers and percentages.

and knowledge as they navigate this process. The family interview is a complex and sensitive process that requires specific knowledge and skills from the coordinator. Therefore, it is important to understand how the personal factors of coordinators, such as their education, experience, personality, and communication style, affect their performance and outcomes in the family interview [5].

There are two types of death: heart/respiratory death and brain death. Brain death, which accounts for 10% of deaths, occurs when brain cells are destroyed [6]. There are three concepts of brain death: whole-brain death, brain stem death, and neocortical death. Neocortical death occurs when the brain cortex is destroyed while the lower brain remains intact. Brain death is not the same as being in a coma, but every brain-dead person can save lives by donating their organs and tissues [7].

Organ transplantation is the most effective treatment for terminal and irreversible organ failure. The best source of organs for transplant comes from brain-dead individuals [8]. Organ donation coordinators were first introduced in Iran in 1991, following the establishment of the country's first organ transplant center. Their role was to obtain consent from the families of brain-dead patients, as well as

to coordinate the processes of brain death confirmation, organ preservation, and organ removal and transfer to the transplant center. They have the most important responsibility, "receiving donation consent from the family of a brain-death person". Attaining the family's approval is often accompanied by the transfer, removal, and transplantation of the organ [9]. In Iran, each university of medical sciences has an Organ Procurement Unit (OPU), which comprises members including an expert in charge of organ preparation, a manager, an identification team (encompassing telephone identification and investigation), a coordinator, and an administrative affairs officer. This unit primarily identifies possible donors hospitalized in hospitals affiliated with relevant universities based on the Glasgow Coma Scale (GCS). The process is usually carried out by inspectors and telephone identification teams [10]. If the person's consciousness deteriorates in the next follow-up or the person is suspicious of brain death, the unit will send a coordinator for an in-person assessment. In case of confirmation of brain death, the person will be sent to the hospital to receive consent from their family and be transferred to the ICU. The coordinator is often a nurse or a physician who has passed different national and international courses on brain death diagnosis and care and transfer of brain-dead individuals,

Table 2: Description of Cattell's test's 16 factors in coordinators.

Questionnaire factors	Mean $\pm$ SD, [Min-Max]
Outgoing/reserved (Sociability)	11.83 $\pm$ 2.59, [5-17]
Less intelligent/more intelligent (Intelligence)	8.27 $\pm$ 2.15, [2-15]
Stable/neuroticism	15.53 $\pm$ 3.52, [7-24]
Submissive/assertive	11.78 $\pm$ 2.92, [1-18]
Sober/happy-go-lucky (Vitality)	13.74 $\pm$ 3.52, [5-24]
Expedient/ conscientious	14.94 $\pm$ 2.87, [6-20]
Shy/venturesome	17.16 $\pm$ 4.31, [7-26]
Tough-minded/tender-minded	11.06 $\pm$ 3.07, [4-17]
Trusting/suspicious	9.70 $\pm$ 3.26, [2-21]
Practical/imaginative	10.04 $\pm$ 2.73, [5-16]
Forthright/shrewd	10.09 $\pm$ 2.63, [4-16]
Placid/apprehensive	8.84 $\pm$ 3.01, [2-16]
Conservative/experimenting	8.38 $\pm$ 2.51, [3-16]
Group dependent/self-sufficient (Self-reliance)	9.12 $\pm$ 3.36, [2-16]
Undisciplined/controlled	13.47 $\pm$ 2.65, [5-19]
Relaxed/tense	10.98 $\pm$ 4.16, [0-21]

especially on obtaining consent from the deceased's family for donation. As OPU agents, these individuals are responsible for making all arrangements required for organ donation. The Iranian Society of Organ Donations holds these courses at the request of the Ministry of Health. The society is responsible for training all organ donation teams [9]. The present study aimed to evaluate the effect of personal (age, level of education, experience, and participation in educational courses) and psychological (all Cattell's factors) characteristics of coordinators on their ability to obtain family members' consent, using appropriate statistical methods. Data analysis was carried out using logistic regression. It is worth noting that the preceding model was applied due to the high number of independent variables and to overcome their collinearity problem [10].

MATERIALS AND METHODS

This study collected data using an information form and the online Cattell's 16 Personality Factors Test, which were distributed to OPU experts and coordinators via social

media platforms, email, and text messaging across the country. In total, 90 coordinators were selected based on the inclusion criterion of carrying out the consent process at least three times. However, those who had the experience of caring for and transferring brain-dead people without their families' consent were excluded.

Initial data included all coordinators' personal and underlying characteristics, which were collected through forms completed by participants via email or phone call. In the second stage, the subjects completed Cattell's 16 Personality Factors Test online to identify their personal characteristics. After that, each score was scaled to a range of 0 to 100 and recorded in the datasheet as secondary data [11, 12]. All factors of the test included Factor A (outgoing/reserved), B (less intelligent/more intelligent), C (stable/neuroticism), E (submissive/assertive), F (sober/happy-go-lucky), G (expedient/ Conscientious), H (shy/venturesome), I (tough-minded/tender-minded), L (trusting/suspicious), M (practical/imaginative), N (forthright/shrewd), O (placid/apprehensive), Q1 (conservative/experimenting), Q2 (group dependent/self-sufficient), Q3 (undisciplined/

controlled), Q4 (relaxed/tense), extroversion/introversion, anxiety/flexibility, independence, controlling instincts, adaptability, strength, and creative quantitative continuity [12]. For instance, if a score of 13 out of 20 was received for the extroversion factor, the fraction of 13/20 was calculated based on 100 and considered as the extroversion score of the person. The consent variable was measured based on the number of brain-dead people introduced to each coordinator and the number of successful consents received from the deceased's family members via a phone call. Each characteristic was added to or eliminated from the model by the Backward method depending on its significance or insignificance. Ultimately, a particular model emerged, where the person's key characteristics contributed to their success [11]. Moreover, the Step-PLR in R Software was used to estimate the parameters and analyze the data [12]. Ultimately, the results were interpreted based on the model, with a P-value of less than 0.05 considered statistically significant. The following regression equation was exploited to estimate regression coefficients and the impact of personal and psychological characteristics of the coordinators (Equation 1) [13]:

Equation 1 below presents the penalized logistic regression model used in the analysis:

$$\widehat{\beta}^{lasso} = \sum_{i=1}^N (y_i - \beta_0 - \sum_{j=1}^p x_{ij}\beta_j)^2 + \lambda \sum_j |\beta_j|$$

In this model, the penalty function is calculated as the sum of the absolute values of the regression coefficients, and λ is the regularization parameter that controls the penalty strength. λ was estimated through cross-validation to optimize model performance while preventing overfitting.

RESULTS

In total, 99 donation coordinators active in the consent area were enrolled in the study, comprising 55 females (55.6%) and 44 males (44.4%) (Table 1). In terms of educational level, 65 subjects (65.7%) held a B.Sc., 20 (20.2%)

held an M.Sc., and 14 (14.1%) held a Ph.D. In addition, the minimum and maximum years of experience were 1 and 17 years, respectively, with a mean of five years. Furthermore, each coordinator participated in national educational courses at least twice. Based on our findings, 45% of the coordinators had successfully performed the consent process. Table 2 describes 16 factors of Cattell's test.

Table 3 presents the results of the univariate regression model used to assess the personal characteristics of the coordinators and factors of Cattell's test in these individuals. According to the results, there was a direct significant relationship between the level of education (M.Sc. and Ph.D.) and coordinators' success in the consent process ($P=0.001$, $P=0.039$). There was also a significant direct association between work experience and the success of the participants ($P=0.001$). Moreover, the results indicated a direct and significant correlation between participation in national educational courses and success ($P=0.012$). A significant direct relationship was also found between intelligence and success ($P=0.001$). Furthermore, a direct and significant association was found between vitality and success ($P=0.002$), and a direct and significant relationship was observed between self-reliance and success ($P=0.039$). In addition, our findings showed a significant direct correlation between extroversion and success ($P=0.042$).

After assessing the significant factors in the univariate regression model, they were used to evaluate the multivariate regression model. In the end, the significant variables in the multivariate model were described in a final model, as shown in Table 4.

DISCUSSION

The consent process is crucial for organ donation, as it determines whether a life-saving organ can be delivered to a patient in need [14]. According to the latest statistics, Iran has a donation rate of 14.3 organs per million population per year. This is far below the acceptable level of 30.8 and the ideal level of 48.7 for

Table 3: Effects of 16 factors of Cattell's test on the consent process in a univariate regression model.

Variables	Estimate	Standard Error	P-value
Age	-5.59	8.37	0.504
Gender (male)	-0.01	0.05	0.887
Level of education (MSc)	2.97	0.90	0.001*
Level of education (PhD)	2.58	1.24	0.039*
Work experience	0.40	0.13	0.001*
Participation in national educational courses	0.07	0.27	0.012*
Participation in international educational courses	0.85	0.58	0.143
Outgoing/reserved (Sociability)	-0.19	0.15	0.222
Less intelligent/more intelligent (Intelligence)	0.41	0.17	0.018*
Stable/neuroticism	-0.19	0.13	0.130
Submissive/assertive	-0.17	0.15	0.266
Sober/happy-go-lucky (Vitality)	0.45	0.14	0.002*
Expedient/ conscientious	-0.20	0.13	0.145
Shy/venturesome	0.02	0.10	0.831
Trusting/suspicious	-0.14	0.12	0.219
Practical/imaginative	0.04	0.14	0.775
Forthright/shrewd	0.17	0.16	0.271
Placid/apprehensive	-0.13	0.16	0.422
Conservative/experimenting	-0.19	0.15	0.211
Group dependent/self-sufficient (Self-reliance)	0.26	0.13	0.039*
Undisciplined/controlled	0.07	0.21	0.367
Relaxed/tense	0.02	0.02	0.904
Extrovert	2.66	1.31	0.042*
Anxiety	-0.16	2.03	0.940
Emotional sensitivity	-0.69	2.13	0.745
Independence	1.00	1.47	0.497
Compatibility	-1.07	2.48	0.666
Vitality	-2.46	2.05	0.231
Leadership power	0.25	1.65	0.879
Creativity	0.03	0.82	0.975

*Significant at 5%

our country. Therefore, we need to make a lot of effort to increase the organ donation rate in Iran [15]. In Iran, there is an OPU in each university of medical sciences, which includes members such as an expert in charge of organ preparation, a manager, an identification team (including telephone identification and investigation), a coordinator, and an administrative affairs officer [9].

Meanwhile, coordinators are responsible for obtaining consent from the deceased's family members. These individuals begin working in this area after completing educational courses at provincial, national, and international levels and acquiring the necessary skills [16]. Considering the importance of this position and the potential impact of coordinators' personal characteristics on their success in the consent process, it is crucial to understand the factors affecting the recruitment and education

Table 4: Effects of 16 factors in Cattell's test on the success of the consent process in the univariate regression model.

Variables	Estimate	Standard Error	P-value
Level of education (MSc)	1.43	0.09	<0.001*
Work experience	0.16	0.01	<0.001*
Vitality	0.15	0.01	<0.001*
Self-reliance	0.20	0.01	<0.001*

*Significant at 5%

processes of these individuals by relevant organizations, which will ultimately enhance their success rate [17]. The current study evaluated the effects of coordinators' personal and psychological characteristics on their success in obtaining consent using proper statistical techniques. According to the results, higher education, work experience, vitality, and self-reliance were significantly related to the success rate of the participants ($P < 0.05$). Therefore, it could be expressed that coordinators with higher education, experience working in this field, vitality, and self-reliance have the highest chance of successfully carrying out the consent process. In this respect, Baughn *et al.* (2010) conducted a study to evaluate the effect of the sex and ethnicity of coordinators on the consent process. Based on their findings, African-American coordinators, especially African American women, were more controlling and work-oriented than white procurement coordinators.

Additionally, male coordinators were more affiliative with the white family, whereas female coordinators were slightly less so. African American coordinators expressed more positive affect when interacting with African American families than with white families, whereas the opposite was true for white procurement coordinators [18]. One of the critical constraints of the present study was its implementation during the COVID-19 crisis, which limited our cases to emergency ones. Another limitation of healthcare centers was an extreme shortage of medical staff in the donation field since they were working in various COVID-19 wards at the time. This resulted in a very limited number of subjects, with only 120 out of the predicted population of 300 available, and only 99 of them were en-

tered into the study. Compared to international standards, Spain reports over 46 donations per million population, and the United States achieves over 38 per million, suggesting that Iran still lags behind top-performing nations.

In conclusion, the results of the present study indicate that personal characteristics, including higher education, work experience, vitality, and self-reliance, were significantly related to coordinators' success in obtaining consent. In other words, coordinators who have higher education, experience of working in this field, as well as vitality and self-reliance, have the highest chance of successfully receiving consent from the family members of brain-dead persons.

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