

RESEARCH ARTICLE

Prevalence of socio-demographic and behavioral factors about organ donation in Qatar: A household survey

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ABSTRACT

Background: A single organ and tissue donor can serve and save eight-fold lives, but availability of organ donors is scarce, posing a grim situation for end-stage organ failure worldwide. Knowledge, attitudes, behaviors, and beliefs toward organ donation can help policymakers develop strategies to address the challenges facing organ donation and transplantation in Qatar.

Aim: To assess sociodemographic characteristics, knowledge, attitudes, beliefs and intentions regarding organ donation in the household population of Qatar. **Methods:** A prospective observational household survey was conducted between October and November 2016 in Qatar using a validated questionnaire. One thousand forty-four individuals aged 18 and older residing in eight municipalities in the country were enrolled in the survey.

Results: Average age was 38 ± 11 years. There were 27.4% Qatari citizens and 72.6% nonQatari residents in the survey. 48.9% of the total (1044) were males. Knowledge [46% (95% C.I.: 45% – 47%)], attitude [70% (95% C.I.: 66% – 74%)], behavioral beliefs [42% (95% C.I.: 39% – 50%)], normative beliefs [29% (95% C.I.: 28% – 30%)], control beliefs [–27% (95% C.I.: –24% to –30%)] and intentions towards organ donation [29% (95% C.I.: 27% – 31%)] were observed in the study. Factor analyses were able to explain 70%, 72%, 70%, and 74% variations in knowledge, attitude, beliefs, and intentions domains respectively showing adequacy of construct of the domains for organ donation.

Conclusion: Most of the survey participants showed good attitude but less intention towards organ donation.

Keywords: Organ donation, transplantation, household survey, attitude, intentions

INTRODUCTION

Organ transplantation offers life-saving opportunities for those with end-stage organ failure. Unfortunately, demand outstrips the supply of organs all over the world.¹ Several specific factors may be associated with positive attitudes toward organ donation, including education level, socio-economic status, and being young.^{2,3} Exploring the reasons why people do or do not donate organs can help policymakers address the organ supply shortage. There is no recent data available on organ donation and transplantation in Qatar as the most recent survey was conducted 10–12 years ago. Study settings are also important while collecting information on complex and sensitive issues such as organ donation. Participants included in the previous study were from primary health centers seeking medical advice^{4,5} and did not represent the general population. Therefore, a prospective household survey was conducted to assess and compare sociodemographic characteristics, knowledge, attitudes, beliefs, and intentions regarding organ donation in Qatar to develop strategies that can effectively address the challenges facing organ donation and transplantation in Qatar.

MATERIAL AND METHODS

A prospective cross-sectional survey was conducted on 1044 household participants in eight municipalities of Qatar between October and November 2016. In total, 286 Qatari nationals and 758 nonQatari residents were interviewed using a validated questionnaire based on the Theory of Planned Behavior (TPB).^{6,7} TPB states that attitude toward behavior, subjective norms, and perceived behavioral control together shape an individual's attitude, behaviors, and intentions.⁷ The questionnaire consisted of six domains about organ donation viz. General Inquiry; Knowledge; Attitudes; Beliefs; Intentions and Demographics. Attitude tends to refer to an individual's favorable or unfavorable evaluation of the behavior of interest. Beliefs were further subclassified as behavioral beliefs, normative beliefs, and control beliefs. Behavioral beliefs indicated an individual's readiness to perform the behavior; normative beliefs refer to an individual's perception of social normative pressures; and control beliefs refer to

an individual's beliefs about the presence of factors that may facilitate or hinder performance of the behavior.⁷ Each domain had multiple response items. Verbal informed consent was obtained from each participant. A team consisting of bilingual female interviewers/research assistants and supervisors fluent in the relevant language and with experience socializing in the community and translating conducted the interviews. Quality control measures such as extensive training for the interviewers on the recruitment process, explaining the questionnaire items, and data collection were applied to ensure consistency of the collected data. Domestic helpers living within the household were excluded from the survey as they did not meet the criteria of the household as per the ministry of development planning and statistics (MDPS), Qatar.⁸ Vulnerable populations such as children, prisoners, pregnant women, mentally disabled persons, and those not willing to participate in the survey were also excluded from the study based on guidelines offered by the Supreme Council of Health.⁹

Coding of items in the questionnaire:

Multiple items of each domain were coded "1" and "0" for Yes and No or correct and incorrect responses to the dichotomous questions. Items with categories such as Yes, Maybe, and No/Do Not Know were coded as 2, 1, and 0. A five-point Likert scale was used for the variables: "strongly disagree," "disagree," "neither agree nor disagree," "agree," and "strongly agree," coded as "-2," "-1," "0," "+1," and "+2," respectively. Reverse codes were given to negatively keyed items.

Domain index score

Qualitative responses are coded with integers for all items for each domain (Knowledge, attitude, behavioral belief, normative belief, control belief, and intentions) to make qualitative responses on par with quantitative responses. Individual index i.e., $\sum(\text{items response})/\sum(\text{highest values in the items})$ is calculated for each domain.

Statistical analysis

The collected data were transferred for statistical analysis from electronic tablets to statistical package for social sciences (SPSS, Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). Descriptive statistics in the form of the frequency with percentages for categorical

characteristics of sociodemographic and variables such as knowledge, attitude, behavioral beliefs, normative beliefs, control beliefs and intentions related to organ donation were performed. Mean \pm standard deviation with 95% C.I. for each domain index was calculated.¹⁰ Domain indices were compared using Student t-test (unpaired) for dichotomous variables and one-way analysis of variance with post-hoc analysis (Bonferroni) for more than two categories for demographic characteristics. Factor analysis was performed to explain total variance for knowledge, attitude, beliefs, and intentions domains to see the adequacy of the construct of the domain.¹¹ Scree plots were presented to depict the descending variances for factors extraction in the form of graphs. P-value ≤ 0.05 (two-tailed) was considered for a statistically significant level for all the comparisons except post-hoc analysis (Bonferroni).

RESULTS

Demographic data

The survey participants consisted of 286 (27.4%) Qatari citizens and 758 (72.6%) nonQatari residents with an average age of 38 ± 11 years. The majority (535 or 51.2%) were females. Most of the survey participants (312 or 29.9%) were employed in government sectors and the highest number (411 or 39.4%) worked in the service sector. Three hundred and seventy (35.4%) participants' income ranged between 10,000 – 20,000 QR/month. Most participants (838 or 80.3%) practiced the Islam religion and 840 (80.5%) participants were married. All the participants had one or more dependents. Most of the individuals (540 or 51.7%) who participated in this survey had diplomas and were graduates, and a majority of the participants (823 or 78.8%) lived in Qatar for less than 10 years. Approximately 532 (51%) participants were willing to give family consent. Further, 85.4% (892/1044) people were aware of organ donation, and 290 (27.8%) participants agreed that television had played an important role in the awareness of organ donation. Only 29 (2.8%) participants had attended the organ donation promotion campaigns in Qatar. Few participants 50 (4.8%) were only registered as organ donors in Qatar and outside Qatar 39 (3.7%). Details of sociodemographic data of the survey are presented in Table 1.

Knowledge about organ donation

Six hundred and fifty-five (62.7%) of the total 1044 participants indicated that organ donation means the transfer of organs or tissues from a dead body or a living donor to a patient. When asked what organs could be donated, participant responses included kidneys (82.8%), heart (47.6%), liver (46.2%), lungs (24.1%), pancreas (19.6%), intestine (17.2%), blood (66.9%), cornea (38.6%), skin (19.4%), bone (15.9%), and bone marrow (26.3%). According to 724 (69.3%) participants, "death" meant no heartbeat and no breath, whereas 196 (18.8%) knew that death meant brain death with the heart beating on a ventilator; the remaining lacked clarity about death or had differing views about death. While 694 (66.5%) participants said that their religion allows organ donation, the remaining 255 (24.4%) were not sure about what views their religion had about organ donation. Only 271 (26%) participants knew someone who is either a family member, friend or a colleague who donated an organ or tissues during their lifetime. In response to question on liver transplant, 627 (60.1%) participants knew that part of the liver can be donated while one is living and nearly 368 (35.2%) said that this would involve health risk. The majority (86.4%) of the participants indicated that one of the two kidneys can be donated and 64.9% said that it was safe for the donor. The calculated knowledge index was 0.46 ± 0.16 suggesting 46% knowledge about organ donation in the population (Table 2).

Attitudes toward organ donation

Responses were measured using a five-point Likert scale ranging from strongly agree to strongly disagree. Approximately 53% (553/1044) participants agreed and 42.6% (445/1044) strongly agreed that organ donation was a good thing to promote. Around 59% (620/1044) participants agreed and 35% (364/1044) strongly agreed that registering as an organ donor could save somebody's life. Regarding the by-default inclusion of everyone into the donor registry, most participants 724 (69.3%) agreed or strongly agreed, while 102 (9.8%) were unsure and 218 (20.9%) expressed disagreement or strong disagreement. The majority of participants (632 or 60.5%) were willing or strongly willing to register as an organ donor if their family would not object. Around 61% (634/1044) participants said that they would be willing to donate organs if more information

Table 1. Demographic and general enquiry description on organ donation in Qatar.

Variable	Category	N (%) or Mean \pm sd
Age	–	38 \pm 10.6
Nationality	Qatari	286 (27.4)
	Non-Qatari	758 (72.6)
Gender	Male	509 (48.8)
	Female	535 (51.2)
Occupation	Student	56 (5.4)
	Home maker	309 (29.6)
	Govt. employee	312 (29.9)
	Non-government employee	305 (29.2)
	Self employed	32 (3.1)
	Retired	23 (2.2)
Job Sector	Unemployed	07 (0.7)
	Agriculture	09 (0.9)
	Petrochemical	39 (3.7)
	Services	411 (39.4)
	Manufacturing	12 (1.1)
	Construction	60 (5.7)
	Health care	72 (6.9)
	Transportation	42 (4.0)
House hold income (QAR)	Others/Skipped	399 (38.2)
	< 10,000/month	210 (20.1)
	10,000 – 20,000/month	370 (35.4)
	20,001 – 30,000/month	195 (18.7)
	> 30,000/month	76 (7.3)
Religion	Refused	193 (18.5)
	Islam	838 (80.3)
	Christian	136 (13.0)
Marital status	Others	70 (6.7)
	Single	161 (15.4)
	Married	840 (80.5)
	Divorced	16 (1.5)
Number of dependents	Widowed	27 (2.6)
	≤ 3	298 (28.5)
	4 – 5	352 (33.7)
Education	≥ 6	394 (37.7)
	Up to primary	84 (8.0)
	Secondary & Higher secondary	305 (29.2)
	Diploma & Graduation	540 (51.7)
Years in Qatar	Post-graduation & above	115 (11)
	≤ 10 years	823 (78.8)
	11 – 20 years	156 (14.9)
Family consent for organ donation	> 20 years	65 (6.2)
	No	335 (32.1)
	Yes	532 (51.0)
Heard of organ donation	Not Decided	177 (17)
	No	152 (14.6)
	Yes	892 (85.4)

Table 1. Continued.

Variable	Category	N (%) or Mean \pm sd
Mechanism of hearing of organ donation	Word of mouth	100 (9.6)
	Newspaper	153 (14.7)
	Television	290 (27.8)
	Radio	24 (2.3)
	Internet	146 (14.0)
	Social events/get-together	167 (16.0)
	Other/don't know	12 (1.2)
	Skipped question	152 (14.6)
Attended organ donation campaign	No	863 (82.7)
	Yes	29 (2.8)
	Not answered	152 (14.6)
Registered for organ donation	Qatar	50 (4.8)
	Outside Qatar	39 (3.7)
	Not registered	955 (91.5)
Have donated organ/blood/tissue	No	741 (71.0)
	Yes	303 (29.0)
Donated organ/blood/tissue	Blood	301 (28.8)
	Organ	2 (0.2)
	None	741 (71.0)

was provided about organ transplantation and its procedures. Also, 708 (67.8%) participants indicated they would be willing to register as an organ donor if they had more information about their religion's views about organ donation, but 255 (24.4%) disagreed with this statement, and 81 (7.8%) neither agreed nor disagreed with it. Around 59% (611/1044) were willing or strongly willing to donate if they knew where they could register as an organ donor. The calculated attitude index was 0.70 ± 0.66 , suggesting a 70% attitude toward organ donation in the study (Table 2).

Beliefs toward organ donation

Sixty-eight percent (711/1044) participants agreed or strongly agreed and 20.5% (241/1044) disagreed or strongly disagreed while 11.4% had a neutral

opinion about the impact of organ donation on life after death. Around 82% of participants believed that organ donation would be rewarded by God. Another 22% of them believed that they would not be given emergency care if they were registered donors, while 65% disagreed with that belief. When beliefs related to bodily disfigurement following organ donation was discussed, 255 (24.4%) participants agreed or strongly agreed and 625 (59.8%) disagreed. When asked whether providing social support to a donor's family would increase organ donation, 650 (62.3%) agreed and 254 (24.3%) disagreed. Also, for registering as an organ donor, many people (495 or 47.4%) gave importance to the opinion of family members such as spouse, parents, children or siblings, while 210 (20.1%) participants gave importance to religious leaders and 47 (4.5%) to friends.

Table 2. Means, standard deviations (SD), and percentages with 95% C.I. of knowledge, attitude, behavioral beliefs, normative beliefs, control beliefs, and intentions indices towards organ donation.

Domain	Mean \pm SD	Percentage with 95% C.I.
Knowledge	0.46 ± 0.16	46% (45%–47%)
Attitude	0.70 ± 0.66	70% (66%–74%)
Behavioral beliefs	0.42 ± 0.47	42% (39%–50%)
Normative beliefs	0.29 ± 0.21	29% (28%–30%)
Control beliefs	-0.27 ± 0.56	-27% (-24%–30%)
Intentions	0.29 ± 0.31	29% (27%–31%)

Approximately 37% of participants felt there was a scarce opportunity for registering as an organ donor, while 50% believed there were ample opportunities for the same. Around 1.4% of the participants who had already registered as organ donors in

Qatar believed that the registration process was time-consuming, while 3.1% of participants disagreed. Thirty-four percent of participants feared not getting answers to their questions related to organ donation, while 28.7% believed they were not

Table 3. Comparison of indices according to demographic characteristics.

Variable	Category	Knowledge index	Attitude index	Behavioral beliefs index	Normative beliefs index	Control beliefs index	Intentions index
Nationality	Qatari	0.46 ± 0.14	0.68 ± 0.69	0.40 ± 0.45	0.27 ± 0.21	-0.30 ± 0.60	0.28 ± 0.31
	Non-Qatari	0.46 ± 0.16	0.71 ± 0.65	0.43 ± 0.48	0.30 ± 0.21	-0.26 ± 0.54	0.29 ± 0.32
P value	-	0.82	0.56	0.30	0.04	0.23	0.65
Gender	Male	0.45 ± 0.16	0.70 ± 0.67	0.41 ± 0.48	0.28 ± 0.22	-0.29 ± 0.56	0.29 ± 0.31
	Female	0.47 ± 0.15	0.70 ± 0.66	0.43 ± 0.46	0.30 ± 0.21	-0.25 ± 0.56	0.29 ± 0.32
P value	-	0.05	0.96	0.38	0.25	0.34	0.87
Religion	Islam	0.46 ± 0.15	0.70 ± 0.68	0.42 ± 0.47	0.29 ± 0.21	-0.28 ± 0.57	0.29 ± 0.31
	Christianity	0.51 ± 0.19	0.74 ± 0.61	0.43 ± 0.49	0.28 ± 0.21	-0.19 ± 0.50	0.28 ± 0.31
	Others	0.47 ± 0.17	0.71 ± 0.61	0.46 ± 0.42	0.33 ± 0.20	-0.28 ± 0.45	0.25 ± 0.30
P value	-	0.002	0.76	0.71	0.23	0.24	0.52
Household Income (QAR)	< 10,000/month	0.43 ± 0.15	0.69 ± 0.75	0.42 ± 0.45	0.27 ± 0.21	-0.35 ± 0.6	0.25 ± 0.27
	10,000 – 20,000/Month	0.46 ± 0.15	0.72 ± 0.63	0.44 ± 0.48	0.28 ± 0.21	-0.23 ± 0.53	0.33 ± 0.33
	20,001 – 30,000/month	0.47 ± 0.15	0.81 ± 0.62	0.42 ± 0.47	0.32 ± 0.20	-0.31 ± 0.60	0.32 ± 0.31
	30,000 and above	0.51 ± 0.19	0.72 ± 0.63	0.52 ± 0.43	0.30 ± 0.21	-0.21 ± 0.46	0.33 ± 0.38
	Refused	0.48 ± 0.16	0.59 ± 0.68	0.36 ± 0.48	0.29 ± 0.22	-0.23 ± 0.56	0.21 ± 0.28
P value	-	0.001	0.03	0.11	0.16	0.07	0.001
Occupation	Student	0.44 ± 0.15	0.71 ± 0.70	0.46 ± 0.43	0.32 ± 0.19	-0.40 ± 0.56	0.22 ± 0.36
	Homemaker	0.45 ± 0.14	0.66 ± 0.66	0.40 ± 0.47	0.30 ± 0.21	-0.26 ± 0.54	0.27 ± 0.31
	Government employee	0.50 ± 0.16	0.78 ± 0.65	0.43 ± 0.50	0.28 ± 0.22	-0.28 ± 0.58	0.33 ± 0.32
	Non-government employee	0.44 ± 0.16	0.68 ± 0.66	0.43 ± 0.44	0.28 ± 0.21	-0.25 ± 0.53	0.29 ± 0.32
	Self-employed	0.49 ± 0.14	0.83 ± 0.68	0.39 ± 0.58	0.22 ± 0.21	-0.14 ± 0.74	0.35 ± 0.30
	Retired	0.48 ± 0.12	0.45 ± 0.75	0.52 ± 0.44	0.24 ± 0.23	-0.28 ± 0.65	0.20 ± 0.30
	Unemployed	0.43 ± 0.13	0.73 ± 0.81	0.54 ± 0.38	0.37 ± 0.18	-0.48 ± 0.67	0.25 ± 0.31
	P value	-	0.001	0.12	0.82	0.22	0.40
Marital Status	Single	0.46 ± 0.15	0.78 ± 0.61	0.45 ± 0.42	0.28 ± 0.21	-0.29 ± 0.52	0.29 ± 0.29
	Married	0.46 ± 0.16	0.70 ± 0.67	0.42 ± 0.48	0.29 ± 0.21	-0.26 ± 0.56	0.29 ± 0.32
	Divorced	0.55 ± 0.19	0.71 ± 0.77	0.38 ± 0.56	0.08 ± 0.16	-0.55 ± 0.60	0.38 ± 0.13
	Widowed	0.47 ± 0.15	0.43 ± 0.66	0.37 ± 0.35	0.25 ± 0.22	-0.10 ± 0.72	0.30 ± 0.05
P value	-	0.25	0.09	0.73	0.001	0.08	0.25
No. of years living in Qatar	≤ 10	0.46 ± 0.15	0.71 ± 0.67	0.41 ± 0.47	0.28 ± 0.21	-0.29 ± 0.56	0.28 ± 0.31
	11 – 20	0.46 ± 0.16	0.69 ± 0.65	0.46 ± 0.49	0.31 ± 0.21	-0.23 ± 0.56	0.30 ± 0.33
	> 20	0.50 ± 0.17	0.69 ± 0.61	0.49 ± 0.46	0.29 ± 0.22	-0.09 ± 0.47	0.32 ± 0.35
P value	-	0.21	0.93	0.23	0.24	0.01	0.66
Dependent Family Members	≤ 3	0.46 ± 0.17	0.69 ± 0.64	0.38 ± 0.49	0.27 ± 0.21	-0.23 ± 0.53	0.31 ± 0.32
	4 – 5	0.46 ± 0.15	0.69 ± 0.67	0.45 ± 0.47	0.30 ± 0.21	-0.26 ± 0.53	0.27 ± 0.30
	≥ 6	0.46 ± 0.15	0.73 ± 0.68	0.42 ± 0.45	0.29 ± 0.21	-0.31 ± 0.59	0.30 ± 0.32
P value	-	0.99	0.63	0.20	0.24	0.14	0.36
Education	Up to primary	0.46 ± 0.16	0.70 ± 0.77	0.43 ± 0.38	0.20 ± 0.20	-0.31 ± 0.71	0.29 ± 0.34
	Secondary & Higher secondary	0.42 ± 0.14	0.66 ± 0.69	0.37 ± 0.45	0.29 ± 0.21	-0.31 ± 0.56	0.27 ± 0.30
	Diploma & Graduation	0.47 ± 0.15	0.71 ± 0.65	0.44 ± 0.48	0.30 ± 0.21	-0.24 ± 0.55	0.30 ± 0.32
	Post-graduation & above	0.54 ± 0.15	0.81 ± 0.58	0.46 ± 0.53	0.32 ± 0.23	-0.25 ± 0.46	0.30 ± 0.33
P value	-	0.001	0.22	0.15	0.001	0.28	0.80

healthy enough to donate and 21% had doubts about their age not being right for organ donation. Around 42% of participants felt that operation procedures for donation were discouraging and 29.7% of participants believed donation during life would leave them weak. Most participants (72%) trusted the healthcare system in Qatar. More than half (53%) felt concerned about their family's emotions during organ extraction; however, 38.3% participants had no such concerns. Behaviors, normative and control beliefs indices were 0.42 ± 0.47 , 0.29 ± 0.21 , and -0.27 ± 0.56 , respectively, toward organ donation (Table 2).

Intention to donate organs

Upon assessing intention to register as an organ or tissue donor, 29.8% (311/1044) of the participants showed interest in doing so, whereas 438 (42%) were not interested and 245 (23.5%) felt conflicted about it. The participants were mostly interested in donating organs such as kidneys (32%), blood (40.2%), heart (17.4%), eyes (17.3%), liver (16.2%), skin (12.5%), lungs (13.3%), and bone marrow (13.4%). Many people (38.4%) said that they had a trusted religious leader, while 56.8% of participants denied that. Around 27.6% would consider organ donation after discussing it with a trusted religious leader, whereas 44.1% would not consider organ donation based on their discussions. Almost 47% of individuals would consider organ donation if they were approached by

an organization that they trust, whereas that would not be influential for 30% of them. The mean index of intentions was 0.29 ± 0.31 toward organ donation in the study (Table 2).

Knowledge, attitude, behavioral beliefs, normative beliefs, control beliefs, and intention indices toward organ donation according to sociodemographic characteristics

When compared with sociodemographic characteristics, knowledge of organ donation was higher among female participants than males ($p = 0.05$). It was significantly high for Christian participants ($p = 0.002$), postgraduates ($p \leq 0.001$), government employees ($p \leq 0.001$), and participants with a monthly income of 30,000 QAR or more ($p \leq 0.001$) (Table 3).

Attitude index toward organ donation was significantly higher for participants with a monthly income between 20,000–30,000 QAR than for those with <10,000 QAR monthly income or more than QAR 30,000, and for those who refused to disclose their monthly income ($p = 0.03$) (Table 3).

In comparison, the normative beliefs index was significantly higher for the nonQatari population than for the Qatari population ($p = 0.04$). It was significantly high for postgraduates ($p \leq 0.001$) and married participants ($p \leq 0.001$) as compared with divorced and widowed participants (Table 3).

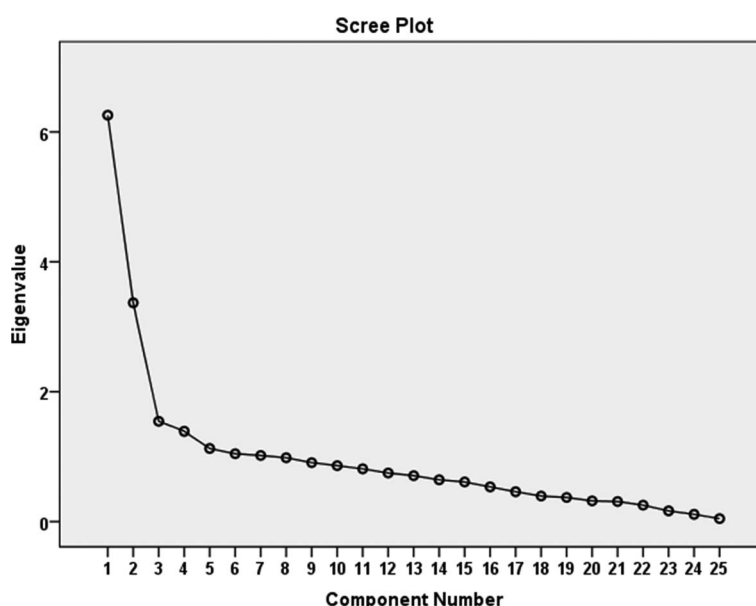


Figure 1. Scree plot showing number of components and eigenvalues for knowledge domain.

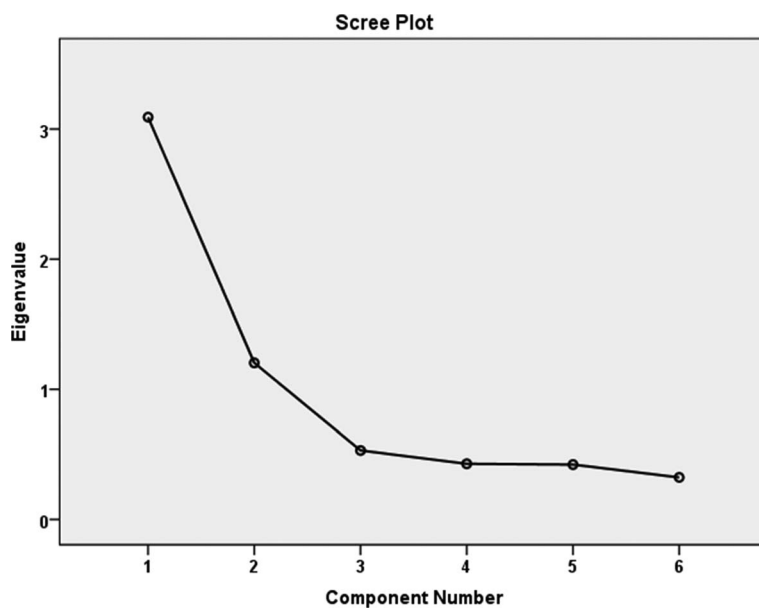


Figure 2. Scree plot showing number of components and eigenvalues for attitude domain.

The intention to donate organs was significantly lower for participants who had a monthly income of <10,000 QAR or who refused to disclose it than for other categories of the income ($p \leq 0.001$) (Table 3).

Factor analysis

Factor analysis showed that domains such as knowledge, attitude, beliefs, and intention to donate were able to explain 70%, 72%, 70%, and 74%

variations, respectively, showing the adequacy of the construct of domains in the questionnaire having Eigenvalues more than one and components 5, 2, 6, and 3, respectively. Scree plots are presented to depict the descending variances for factors extraction (Figures 1, 2, 3, and 4).

DISCUSSIONS

The continuing advancement of transplant medicine has created greater opportunities for organ

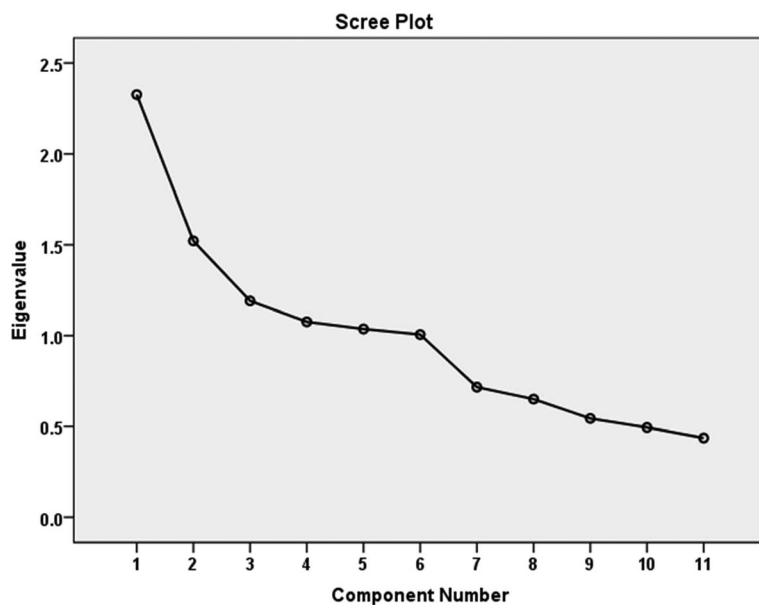


Figure 3. Scree plot showing number of components and eigenvalues for beliefs domain.

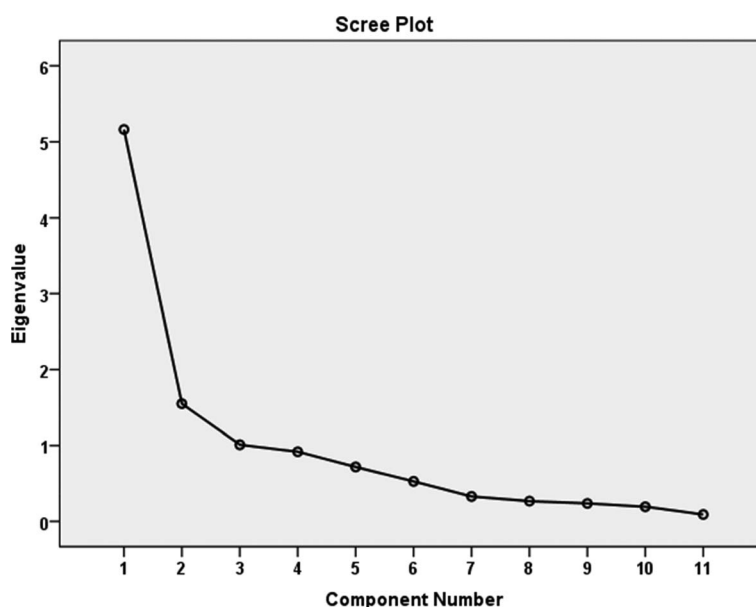


Figure 4. Scree plot showing number of components and eigenvalues for intention to donate organs domain.

transplantation and improving outcomes in end-stage organ failures. However, the number of end-stage organ diseases and the need for organ transplantation is far outpacing organ availability. To address this gap, it is essential to understand the various factors influencing organ donation and transplantation in every country to promote organ donation. In this survey, 85.4% of participants had already heard of organ donation. This data aligns with Coad et al.'s study on young adults in the UK, where 95% of participants were aware of organ donation and transplantation.¹² Our results showed that 62.7% of the survey participants knew that organ donation was the transfer of organs or tissues from a dead or a living donor to a patient. The previous study on healthcare population showed that 84% of participants knew that organs could be donated from cadavers and 71.1% knew that organ donation could be carried out in their lifetime.¹³ However, another study conducted in a community setting among the nonpatient population showed that only 50.1% of participants were aware of cadaver donations and only 36.5% knew about living donations.¹⁴

Many survey participants claimed that their knowledge about organ donation was produced from media exposure such as television (27.8%), newspaper (14.7%), internet (14.0%), and radio (2.3%), while others attributed their knowledge of organ donation to social events (16.0%) and interactions (9.6%). In 2005, Ashraf et al. also

reported that television and print media were the main sources of information for organ donation.¹³

The concept of "brain death" is crucial^{15,16} and is one of the main reasons behind the refusal of family consent for cadaveric organ donation.^{17,18} Most of the participants (69.3%) in our survey believed that death meant no heartbeat and no breath. The acceptance of brain death among the public is deeply influenced by religious backgrounds and social customs.¹⁹ Consultation with a religious leader regarding organ donation is an important source of information for the community to provide opportunities to improve the current organ donation rates.²⁰ Around 38% of participants in this study stated that they had a trusted religious leader with whom to seek advice on organ donation and that they would donate organs after consulting them.

Family discussions potentially exert a large impact on consent decisions as they impact the family's decision to either provide or withhold consent for organ donation from deceased donors.^{21,22} Some of the participants in this survey were willing to register as organ donors if their family agreed to give consent upon their death. Previous studies found a significant influence of family on individual attitude toward donation,^{17,23–25} mainly when it involves a partner who is in favor of organ donation, which predicts a more positive attitude.

Survey participants believed that organ donation would have an impact on life after death in a good way

and that this act would be rewarded by God. On the contrary, an earlier study showed that many participants' beliefs were superstitious, implying that discussing death or signing a donor card would lead to one's death.²⁶ Some participants were concerned that doctors may not provide enough care to patients in case of emergency if they were registered as organ donors. Similar concerns were reported by Skowronski in 1997 that healthcare providers were only interested in "harvesting" or untimely removal of a patient's organs.²⁷ Few participants in the survey believed that the organ retrieval process after death may cause body disfigurement. This could be the result of their negative experiences from previous interactions with the healthcare system.^{28,29}

In the current study, few participants (29.8%) expressed their willingness to register as an organ or tissue donor and these findings are similar to the data from Nigeria, where a similar percentage of the respondents to the survey expressed their intention to donate.³⁰ A recent systematic review suggested that lower willingness to donate organs could be due to lack of awareness about transplantation within communities, dominant influence of family members, religious myths and misconceptions, fear of premature death, concerns about bodily disfigurement, distrust in the medical system and concerns of racial discrimination in organ allocation.³¹ However, a study from Ohio showed that most respondents (96%) expressed favorable intentions toward organ donation.³² Another study from China showed that 49.8% of respondents were willing to be living organ donors and 62% of individuals designated relatives as their most probable recipients.³³ In 2005, El-Shoubaki et al. reported that the majority of the participants preferred donating organs to their close relatives and friends in Qatar.⁴

The participants of our survey showed the following overall indices: 70% attitude, 46% knowledge, 42% behavioral beliefs, 29% normative beliefs, 27% control beliefs, and 29% intention to donate, implying good attitude but less intention toward organ donation and thus pointing toward the need for more awareness programs and organ donation campaigns in the household population of Qatar.

CONCLUSION

Study findings suggest that survey participants had a good attitude toward organ donation but their knowledge, beliefs, and intentions toward it were below average. Continuous rigorous awareness programs among the household population in Qatar could play an important role in a paradigm shift toward better awareness and increasing the number of registered donors in the country.

LIMITATIONS OF THE STUDY

Though the data was quantified from the information of the qualitative data for better exploring and understanding of results, the limitations of the qualitative data cannot be ignored.

ETHICAL APPROVAL

Ethical approval was taken from IRB (Ref. No. 14227/14), Medical Research Center, HMC, Doha, Qatar.

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DATA DISCLOSURE

Data is available at Cardiology Research Center, HMC, Doha, Qatar.

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