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Research Article

**KNOWLEDGE, ATTITUDE AND PRACTICE OF ORGANS  
DONATION AMONG PRIMARY HEALTH CARE SAUDI ADULTS  
ATTENDEES IN AL-AHSA SAUDI ARABIA, A CROSS SECTIONAL  
STUDY**<sup>1</sup>Mohammed Abdulrahman Al Jamaan , <sup>2</sup>Meshal Ali Al-Essa, <sup>3</sup>Saleh Salah Al-Sumaih,  
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Email Address: samet22255@gmail.com<sup>2</sup>Medical intern, King Faisal University, Email Address: M.Ali.Essa23@gmail.com<sup>3</sup>Medical intern, Affiliation: King Faisal University, Email Address: S.alsumaih@gmail.com:<sup>4</sup>Medical intern, Affiliation: King Faisal University, Email Address: r-4-2013@hotmail.com<sup>5</sup>Medical Student, King Faisal University, E-Email Address: nsnsnss@hotmail.com<sup>6</sup>Medical intern, King Faisal University, E-Email Address: ofb.9516@gmail.com<sup>7</sup>Medical intern, Affiliation: King Faisal University, E-Email Address: [smart.w55@hotmail.com](mailto:smart.w55@hotmail.com)**Article Received:** December 2019 **Accepted:** January 2020 **Published:** February 2020**Abstract:**

**BACKGROUND:** Organ transplantation is regarded as the optimal treatment for end-stage organ disease recently. Increasing awareness of organs donation contributes in improving attitude and practice of organs donation. **OBJECTIVES:** This study aims to estimate the prevalence of organs donation for PHC attendees with measuring knowledge, attitude, practice and related factors. **DESIGN:** A cross-sectional study **SETTING:** Primary health care centers (PHC) in Al Ahsa – Saudi Arabia. **SUBJECTS AND METHODS:** Adults Saudis above the age of 18 years who attend PHC. A self-administered validated questionnaire was randomly distributed. **Main outcome:** Attitude toward organs donation. **RESULTS:** Out of 391, there were 350 (89.5%) participants have heard of the term “organs donation”. For those respondents, Prevalence of organ donation was 2% with 40% of the respondents had high knowledge score. Overall willingness for organs donation was 33%. **CONCLUSION:** The study stated a significant number of participants were familiar with the concept of organ donation. Fear of health complications was the most common barrier interfere with organ donation. **LIMITATIONS:** Economic status, job titles and attending a scientific course about organs donation were not included in study questionnaire.

**Key Words:** Organ Donation, Knowledge and Attitude, Al-Ahsa, Saudi Arabia

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## INTRODUCTION:

Organs donation is defined as the act of donating one or more healthy organs without reimbursements to replace failing organs of a recipient.<sup>1</sup> During the second half of the 20<sup>th</sup> century, organs transplantation has reached a remarkable improvement.<sup>2</sup> Recently, organ transplantation is regarded as the optimal treatment for end-stage organ disease.<sup>3</sup> In the past few decades, organ transplantation field has had tremendous achievements which saved and remarkably improved hundreds of thousands of lives.<sup>4</sup> However, patients from all around the globe with end-stage organ failure are dying while waiting for transplant surgery due to the shortage of organs.<sup>5</sup>

At the present time, lack of organs donors gives rise to a worldwide issue. For instance, in the United States, more than 90,000 patients are on the waiting list of organs transplantation.<sup>6</sup> Similarly, In India there are about 500,000 people die annually because of shortage of organs.<sup>7</sup> Although the need for organs donation is constantly increasing, the number of donated organs remains very low leading to unmatched supply toward the organs demand which limits the progress of transplantation program.<sup>3,8</sup> Recognizing the underlying factors that lead to the large gap between the demand and supply along with encouraging public for organs donation will contribute effectively to overcome such challenge.<sup>9</sup>

In 1984, the government of Saudi Arabia had established a National Kidney Foundation which then developed into the Saudi Center for Organs Transplantation (SCOT) as a national organs donation center which attempts to end the suffering of patients with end stage organs failure and improves the public awareness of organs donation.<sup>2,10</sup> According to the figures that were published by the SCOT, number of the cadaveric organs in 1995 was 82. Moreover, number of patients on dialysis in Saudi Arabia in 1996 was about 5000 persons.<sup>10</sup>

A systematic review of eighteen articles that involved about 1019 participants has discovered eight factors that influence the individual's decision about organs donation. These factors include religious reasons, cultural influences, relational ties, family refusal, body probity, knowledge about organs donation, health-care system interaction, and reservations about the process of organs donation.<sup>2</sup> A previously conducted study in Saudi Arabia showed that about 40% of the participants accepted the concept of organs donation after death, while about 16% refused for several different reasons, the religious reasons were behind the refusal in about 28% and about 23% did not want to have their bodies dissected after death.<sup>5</sup>

This study aims to estimate the prevalence of organs donation acceptance for Saudi adults PHC attendees in Al-Ahsa. Also, to measure the knowledge and find out the attitude about organs donation in addition to assess the relationship between attitude of organs donation and other independent factors with specifying the common causes that affect organs donation practice.

## MATERIALS AND METHODS:

A cross sectional study was conducted in Al-Ahsa region. It recruited the PHC attendees during June and July 2018, with specific inclusion criteria that included Saudi adults above the age of 18 years.

Sample size was calculated based on one proportion qualitative variable equation. Furthermore, the calculation assumed that type I error ( $\alpha$ ) = 0.05, power (1 – type II ( $\beta$ )) = 80%, estimated probability of acceptance of organs donation was 40% based on previous study in Saudi Arabia<sup>4</sup> and confidence level = 95%. The final total sample size was 406 after adding 10% to account for incomplete, missing, or non-response participants.

Additionally, the followed technique of sampling incorporated two stages analysis. First stage was cluster sampling technique of the administrative areas in Al-Ahsa region which were AlMoubaraz and AlHaffouf areas. Second stage was systematic sampling technique of ten PHC centers selected from every cluster followed by systematic sampling was every second person with the study inclusion criteria. Consent was taken for every respondent after explanation of study objectives. We assumed that all PHCs provide care to approximately the same number of patients due to the lack of accurate numbers about the patient's distribution in each administrative area.

A self-administered questionnaire was adopted from a relevant literature to answer the study objectives.<sup>4</sup> It was designed to acquire data related to three aspects; Socio-demographic data, knowledge, attitude and practice toward organs donation and transplantation. It was translated to Arabic and retranslated again to English with comparing the same copies and modifying accordingly. Also, Study questionnaire was reviewed by one biostatistician in addition to pilot study which was done to assess the validity and reliability. Total scores of knowledge, attitude and practice were calculated and categorized during analysis.

Statistical Package for Social Sciences (SPSS) version 21 was used for the data analysis. Descriptive analysis was used for participant characteristics. In addition, Chi-square was used to compare participates' attitude toward organs donation and the independent variables to determine the association. Furthermore, Inferential statistics

was represented by *P value* (<.05) and confidence interval (Null hypothesis = 1for OR). Moreover, Logistic Regression was used to estimate the adjusted odd ratio (OR).

## RESULTS:

A total number of 391 Saudi adults who attended the selected PHC centers in Al-Ahsa were included. The mean age of the participants was 32.2 (12.9) years. Socio-demographic characteristics are presented in **Table 1**. It included 198 (50.6%) males and 193 (49.4%) females. More than half of the participants were married 217 (55.5%). Approximately one third (33%) of the respondents were employees, and one third (33.8%) were students whereas the remaining third included house wife, unemployed, and retired. The majority of educational level was university certified for 182 (46.5%) respondents. There were 350 (89.5%) participants have heard of the term "organs donation" and they continue the other parts of questionnaire.

**Table 2** explains the level of knowledge about organs donation for PHC attendees who have heard about organs donations (350). There were 213 (60.9%) participants knew that both the alive and the deceased are eligible for organ donation, whereas only 100 (28.6%) of the respondents were unaware whether donation is legal in Saudi Arabia or not. Also, 207 (59.1%) were unaware about where to go to become a donor. The knowledge of donated organs is as follows about two thirds answered eye (71.1%), followed by kidney (64.9%), liver (42%), heart (32.9%), lung (22.9%), bone marrow (20.9%), and lastly skin (9.4%). Overall level of knowledge indicated that 140 (40%) of the respondents had a high level (score >5 out of 11). **Figure 1** shows that internet, TV, and friends were the highest rated source of information regarding organs donation.

Attitude and practice of organs donation are elaborated in **Table 3**. It showed that 177 (33%) of the respondents believed to donate organs and 88 (25.1%) preferred to donate during lifetime, whereas 190 (54.3%) of the respondents preferred to donate after death. Also, there were 270 (77.1%) of the respondents agreed on promoting organs donation. Additionally, 236 (67.4%) agreed on providing financial support to the organs donors and 207 (59.7%) believed that the health sectors have not done their role sufficiently for rising awareness of organs donation in society. Total attitude level indicated that 181 (51.7) participants had a high attitude toward organs donation. For organs donation practice, 7 (2%) respondents have donated an organ, 94 (26%) their relatives have denoted an organ, 97 (27.7%) knew someone who has donated an organ and 7 (2%) knew persons who received organs transplants. Furthermore, 134 (38.3%) had a

high practice score.

**Figure 2** shows the reasons behind the willingness to donate organs of the respondents and they were as follow: 113 (87.6%) to save someone's life, 15 (4.3%) out of compassion or sympathy, 14 (4%) for money and 25 (7.1%) as a responsibility or duty. On the other hand, **Figure 3** shows the reasons behind the unwillingness to donate organs of the respondents and they were as follow: 46 (13.1%) due to health complications that may arise, 12 (3.4%) due to the lack of family support, 26 (7.4%) due to the lack of complete information about organ donation, 7 (2%) due to the lack of financial support, 14 (4%) for religious reasons and 36 (10.3%) would not want their body to be cut open or mutilated.

**Table 4** shows the results of Chi-Square test along with the Odd Ratio based on organs donation attitude level. It has been found that there is no significant relationship between the attitude of respondents accepting to the concept of organs donation with the age, gender, region, marital status, occupation, education, level of knowledge and practice. **Table 5** shows the results of multi-variable analysis (Logistic Regression) based on attitude toward organs donation with other variables. It revealed a significant relationship between the attitude along with the education and age. Increasing age is associated with high attitude toward organs donations (OR 1.02, P 0.04, 95%CI 1.01-1.05). In addition, highly educated participants are less likely to donate their organs (OR 0.61, P 0.05, 95%CI 0.37-0.99).

## DISCUSSION:

Out of 391 respondents in this study, there were 350 respondents have heard about organs donation and continue answering all parts of questionnaire. More than half of the them had the correct knowledge of eligibility for donation and legality of organs donation which is consistent with the study that was conducted in Al-Kharj, KSA.<sup>19</sup> However, unlike other studies<sup>8,19</sup> quite more than half (62.6%) believed that Islamic law allows the concept of organs donation which indicates a noteworthy increasing in the level of awareness. Therefore, religious legislation has a positive influence upon increasing the level of public knowledge. Furthermore, 24.9% of the participants knew where to go to become a donor which is relatively higher compared to 3% in Al-Kharj study.<sup>1</sup>

Internet followed by TV were the main sources of knowledge in this study corresponding with other Saudi studies<sup>19,23</sup> along with other countries' studies.<sup>5,21</sup> It indicates that media is playing a big influencing role in increasing the public awareness toward organs donation. Health workers and hospital displays were found to be minimal as a

source of knowledge, which is consistent with the results of other Saudi studies.<sup>8,10,19</sup> Despite the fact that health care providers are often involved in public education through awareness campaigns, it might be limited to small proportion of people. The overall level of knowledge in this study was 40.3% which is near to Taif study.<sup>23</sup> However, compared to the neighboring countries Qatar and Kuwait, the level of knowledge was quite higher reaching to almost 70%<sup>5,22</sup> with consideration of differences in measures of knowledge level.

The overall willingness for organs donation was 33% which is generally indicating a negative attitude toward organs donation. However, this percentage varies with other studies as in less than 25% in Al-Kharj<sup>19</sup>, 40.6% in Taif<sup>17</sup>, 51% in Riyadh<sup>8</sup> and 74.1% in Madinah<sup>2</sup>. Compared to other countries, the willingness of organs donation among the general population of Qatar for example was 31–39%<sup>8</sup>, China was 53.5%<sup>23</sup>, in England was more than three quarter<sup>18</sup>, in Australia was 49%<sup>19</sup>, in New York was 73.4%<sup>20</sup>, Pakistan 62.3%<sup>21</sup> and Iran 92%.<sup>22</sup>

To save someone's life was the main reason encouraging the participants to donate their organs in this study. On the other hand, fear of health complication or body mutilation was the common reason behind the unwillingness for organs donation. These reasons were consistent with other Saudi studies<sup>1,8,23</sup> as well as the other countries' studies.<sup>5,21,23</sup> Therefore, establishing legislations that ensure the donors along with simplifying the access to health facilities might encourage people to donate their organs. On the other hand, religious reasons and lack of financial support as an incentive appeared to have a minimal role in organs donation rejection. Nonetheless, both financial and non-financial incentives should be taken under consideration to promote the concept of organs donation among the community. Moreover, 48% preferred to donate solely to their family members if they need while 52% would donate to any one in need if they donate their organs.

This study has revealed that there is a significant relationship between the educational level and the

attitude to donate organs which is consistent with the result of the following Saudi study.<sup>2</sup> The recruited participants with higher level of education degree are less prone to donate their organs compared to less educated participants. This might be justified by the fact that more educated participants are more knowledgeable with regard to the risk associated with the surgery. Furthermore, there is also a significant relationship between the age of participants and their attitude toward donating their organs. The younger the participants the less likely that they would donate their organs.

The current study used a self administered questionnaire which may affect the completeness of answering and increasing missed data. Study questionnaire did not include some related variables like attending a scientific course or campaign related to organs donation along with economic status and job titles. This study targeted PHCs attendees who were waiting for the treating physicians which may affect their answers on the survey. Variation between data collectors and their explanations to the respondents is cannot be ruled out. However, data collectors were trained during the distribution of the questionnaire.

#### CONCLUSION AND RECOMMENDATION:

In conclusion, the study stated a significant number of participants were familiar with the concept of organs donation. Fear of health complications was the most common barrier interfere with organ donation. On the other hand, religion and finical factors seemed to have minimal influence on organs donation rejection. These findings emphasized the need for more efforts to dispel current misconceptions along with increasing the public awareness through organs donations campaigns, hospital displays and social media users to maximize the willing for organ donation in order to fill the gap between supply and demand. Further descriptive studies in this subject to measure the frequency, awareness and causes are recommended. Also, analytic studies that compare between organs donors with other in addition to follow up the organs donors and receivers to measure the prognosis with incidence estimation are required.

**Table 1 : Distribution of general characteristics of PHC attendees in Al Ahsa (N= 391)**

Variable	Categories	Number (391)	%
<b>Age</b>	15-25Y	171	43.7
	26-45Y	139	35.5
	45+	81	20.7
<b>Gender</b>	Male	198	50.6
	Female	193	49.4
<b>Region</b>	Alhufof	199	50.9
	Almubarraz	192	49.1
<b>Marital status</b>	Single	164	41.9
	Married	217	55.5
	Divorced	6	1.5
	Widowed	4	1.0
<b>Occupation (Missed 2)</b>	Student	132	33.8
	House Wife	54	13.8
	Employee	129	33.0
	Unemployed	36	9.2
	Retired	38	9.7
<b>Education (Missed 17)</b>	Elementary School	23	5.9
	Middle School	24	6.1
	High School	88	22.5
	University	182	46.5
	Graduate	57	14.6
<b>Know about Organs donation</b>	Yes	350	89.5
	No	41	10.5

**Table 2** : level of **knowledge** about organs donation for PHC attendees in Al Ahsa (N= 350)

Variable	Categories	Number (350)	%
<b>Who is eligible to donate ?organs</b>	Alive	47	13.4
	Deceased	67	19.1
	Both	213	60.9
	No one	3	0.9
	Don't Know	20	5.7
<b>Is organ donation legal in ?Saudi Arabia</b>	Yes	243	69.4
	No	7	2.0
	Don't Know	100	28.6
<b>Does Islam allow organ ?donation</b>	Yes	219	62.6
	No	12	3.4
	Don't Know	119	34.0
<b>Do you know the place where you have to go to become a ?donor/donate an organ</b>	Yes	87	24.9
	No	207	59.1
	Don't Know	56	16.0
<b>?Which organs can be donated</b>	Kidney	227	64.9
	Lung	80	22.9
	Heart	115	32.9
	Eye	249	71.1
	Liver	147	42.0
	Skin	33	9.4
	Bone Marrow	73	20.9
<b>Overall knowledge level Missed data (3)</b>	High Level	140	40.0
	Low Level	207	59.1

**Table 3** : level of **Attitude & Practice** about organs donation for PHC attendees in Al Ahsa (N= 350)

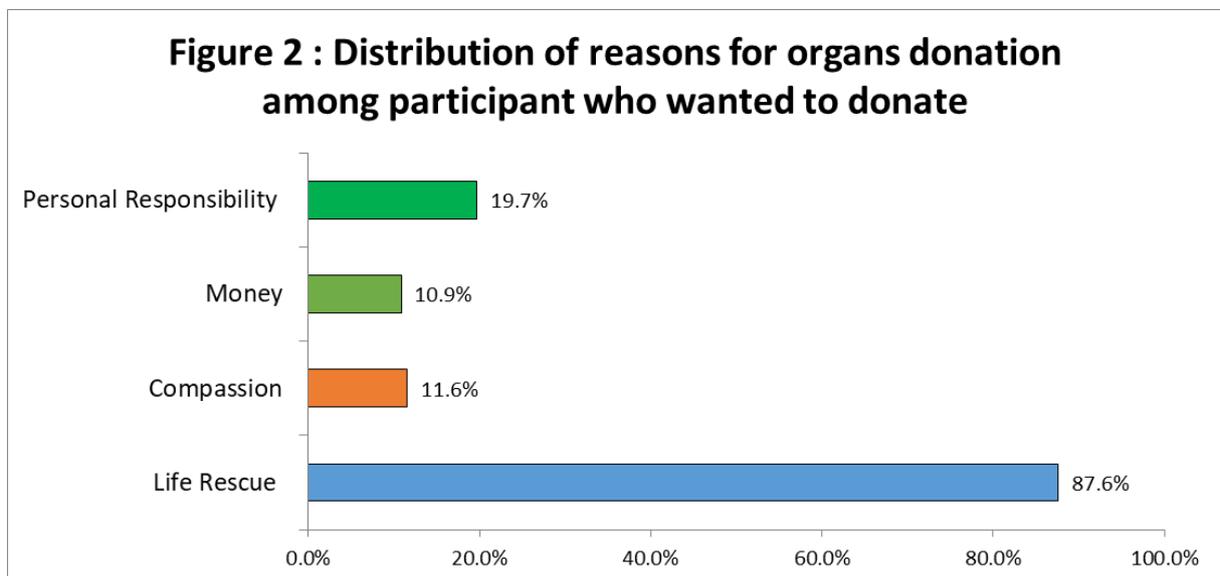
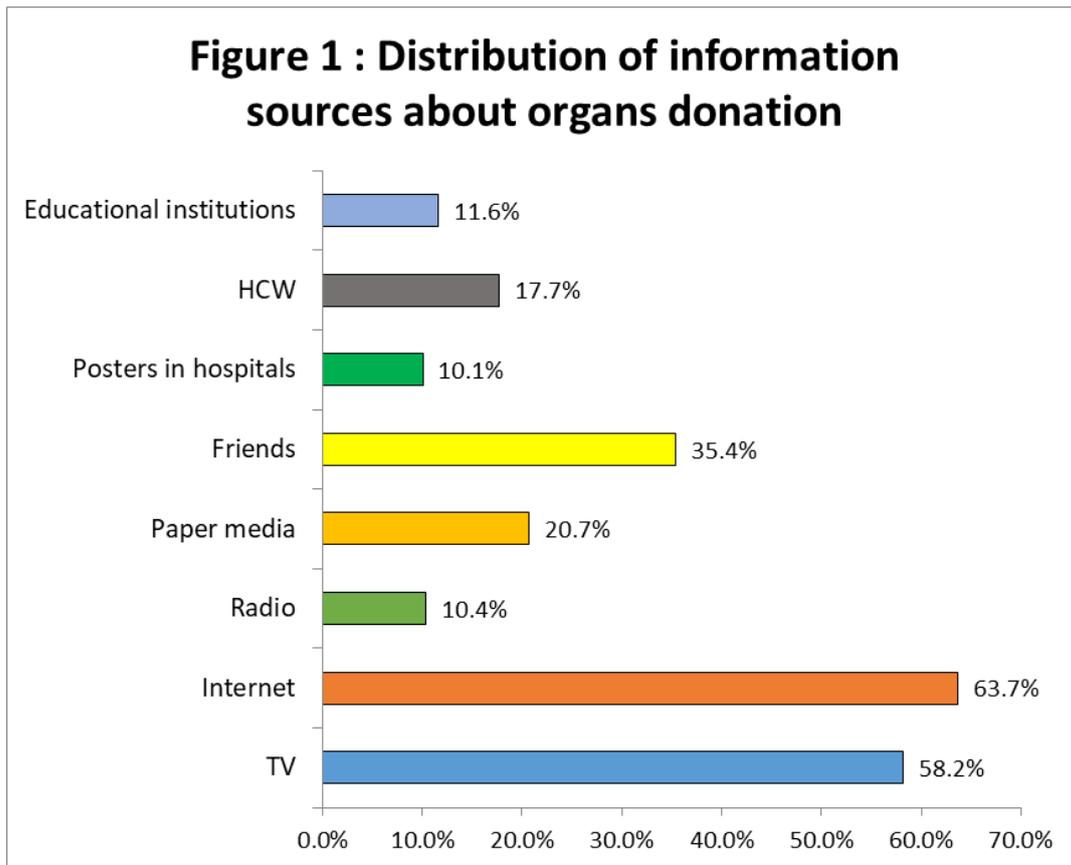
Variable	Categories	Number (350)	%
<b>A. Attitude :</b>			
<b>?Are you willing for organ donation</b> Missed (6)	Yes	117	33.0
	No	227	66.0
<b>At what stage you would like to donate your</b> <b>?organs</b> Missed (5)	Lifetime	88	25.1
	After death	190	54.3
	Never	67	19.1
<b>What is your opinion on promotion of organ</b> <b>?donation</b> Missed (3)	Agree	270	77.1
	Disagree	15	4.3
	I don't know	62	17.7
<b>What is your opinion on providing the financial</b> <b>?support to the organ donor</b> Missed (3)	Agree	236	67.4
	Disagree	55	15.7
	I don't know	56	16.0
<b>Do you believe the health sector have done their</b> <b>role sufficiently for rising awareness of organ</b> Missed (3) <b>?donation in society</b>	Yes	52	15.0
	No	207	59.7
	I don't know	88	25.4
<b>Overall attitude level</b>	High Attitude	181	51.7
	Low Attitude	169	48.3
<b>A. Practice :</b>			
<b>?Have you ever donated an organ</b> Missed (2)	Himself	7	2.0
	Relative	94	26.9
	No	247	70.6
<b>Do you know of anyone who has donated an</b> <b>?organ</b> Missed (3)	Yes	97	27.7
	No	250	71.4
<b>Do you know anyone who has ever received an</b> <b>organ transplant? Missed (3)</b>	Yes	7	2.0
	No	340	97.1
<b>Overall practice level</b>	High Practice	134	38.3
	Low Practice	216	61.7

**Table 4 :** Bivariate analysis based on organs donation attitude level for PHC attendees in Al Ahsa (Chi-square test)

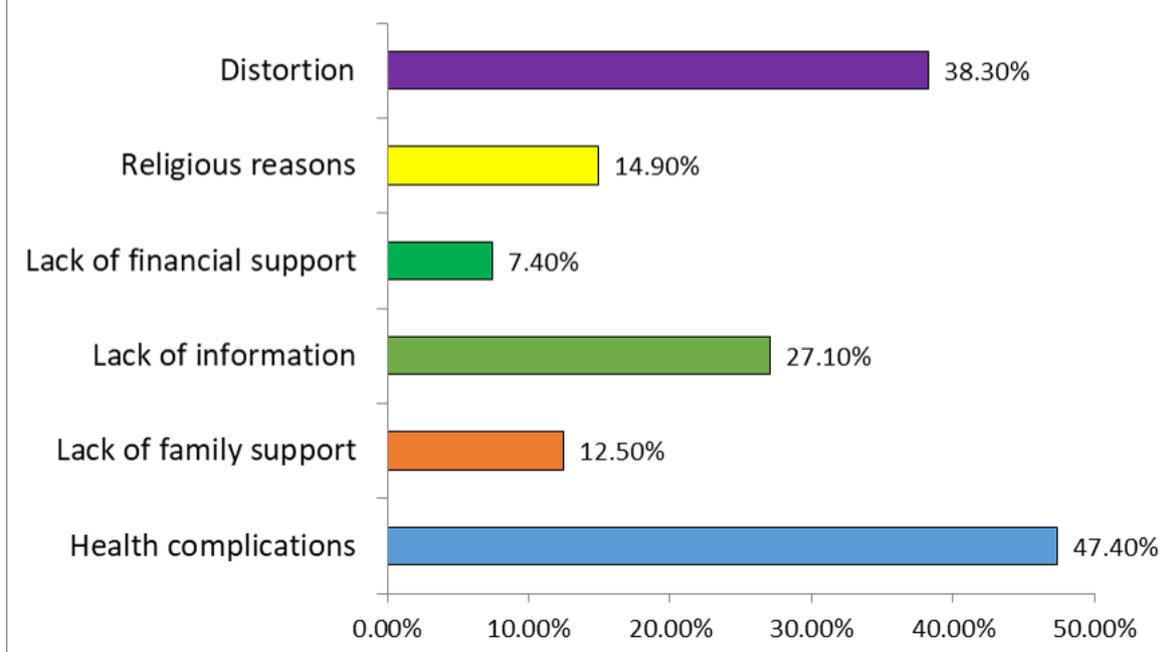
Variable	Categories	High attitude		Low attitude		P value	OR
		(181)	%	(169)	%		
Age	25Y-15	75	48.4	80	51.6	081.	0.53
	45Y-26	62	49.2	64	50.8		0.55
	+45	44	63.8	25	36.2		
Gender	Male	89	50.3	88	49.7	58.	1.12
	Female	92	53.2	81	46.8		
Region	Alhufof	98	54.1	83	45.9	34.	0.82
	Almubarraz	83	49.1	86	50.9		
Marital Status	Married	108	55.7	86	44.3	09.	1.43
	Not-married	73	46.8	83	53.2		
Occupation (Missed 2)	Student	60	50.4	59	49.6	9.	
	Employee	64	53.3	56	46.7		1.12
	Unemployed	56	51.4	53	48.6		1.04
Education (Missed 15)	Pre-university	62	58.5	44	41.5	12.	0.68
	University	112	48.9	117	51.1		
Level of Knowledge (Missed 3)	High	78	55.7	62	44.3	2.	1.32
	Low	101	48.8	106	51.2		
Level of Practice	High	71	53.0	63	47.0	7.	1.09
	Low	110	50.9	106	49.1		

**Table 5 : Multi-variables analysis (Logistic regression)**

Variables	Categories	B	.Sig	OR	.C.I %95	
					Lower	Upper
Age	Age	0.02	0.04	1.02	1.01	1.05
Gender	Male	0.34-	0.16	0.71	0.44	1.15
Occupation	Student		0.20			
	Unemployed	0.58-	0.10	0.56	0.29	1.11
	Employee	0.12-	0.71	0.89	0.47	1.67
Education	High level	0.50-	0.05	0.61	0.37	0.99
Knowledge score	High score	0.27	0.25	1.30	0.83	2.04
Practice score	High score	0.03-	0.89	0.97	0.61	1.53
Constant		0.03-	0.95	0.97		



**Figure 3 : Distribution of reasons for organ donation refrain among participant who did not want to donate**



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