

Original Research Article

Public Awareness, Perception and Attitude towards Organ Donation and Transplantation :Cross sectional study among Ha'il City community, Saudi Arabia.

Abstract:

Background:

Organ donation is the process when a person donates an organ of his own to be removed and transplanted to another person, legally, either by consent while the donor is alive or dead with the assent of the next of kin. Donation may be for research or, more commonly, healthy transplantable organs and tissues may be donated to be transplanted into another person. All major religions accept organ donation. According to Saudi Centre for Organ Transplantation (SCOT), one organ donor can save eight lives and enhance the lives of up to 50 people

Aim:

The present study built the interest to assess the awareness, perception and attitude towards Organ donation and transplantation in Hail community. Also, to identify the reasons and determinants for refusal of organ donation. Thus, aiming to improve population's thoughts by spreading a questionnaire on a randomly selected samples and letting them think and search more about it.

Material:

A cross-sectional survey will be distributed in Hail City, Saudi Arabia, by the help of 3 data collectors, between October 2021 to February 2022. An online questionnaire was designed and distributed via various social media apps. A total of 406 participants completed the study questionnaire.

Method:

SPSS for Windows v22.0 IBM Inc..SPSS for windows Rel 15.0 2006 Chicago Inc.

Results:

A total of 181 (44.6%) participants had good awareness level regarding organ donation and transplantation while 225 (55.4%) had poor awareness level. good awareness was detected among 60% of participants who had their information regarding organ donation from physicians. Organizing specialist conferences for organ

Comment [LKK1]: This is not the objective of the study

Comment [LKK2]: reword

Comment [LKK3]: Is the instruments validated ?

Comment [LKK4]: How the sample size calculated ? and whos is the respondents ?

Comment [LKK5]: What is the response rate ?

Comment [LKK6]: Where is the findings of perception and attitude ?

donation will help increase the willingness of organ donation, as many people with fatal conditions are in desperate need of organ donation these days.

Key wards: Organ donation, organ transplantation, donors, Ha'il, KSA.

Introduction:

Organ donation and transplantation are now widely accepted as the therapy of choice for a variety of end-stage organ diseases [1]. Deceased donation is available either after brain death (donation after brain death [DBD]) or after circulatory death (DCD). The primary source of organ donation is DBD [2]. According to Saudi Centre For Organ Transplantation (SCOT), one organ donor can save eight lives and enhance the lives of up to 50 people. Donor organ pools are essential to transplantation systems, and public attitude toward organ donation is the most important factor of donation activity [3]. Religious reasons and lack of information are major causes of opposing organ donation [4]. While others think that living with one organ is not enough [5], many people believe humanitarian reasons are most important causes for them to donate [6]. In 2019, SCOT published that 20,971 patients are on the waiting list for organ donation and 15,130 patients whom have been saved due to organ donation. According to SCOT 2019 annual report, the various organs that had been transplanted by SCOT inside the kingdom of Saudi Arabia in 2019 included 1,121 kidneys, 319 livers, 46 hearts, 30 heart valves, 9 cornea, 70 lungs and 8 pancreas. In addition, there have been many tissue donations of bones, bone marrow, bone tissue and skin [7]. With increasing prevalence of chronic diseases as in the cases of diabetes and hypertension among the Saudi population [8], patients' chances of developing end-stage organ illness are rising, which means that more people may need organ transplants in the future but with an increasing shortage of donors [5].

Comment [LKK7]: This is not part of your study

Comment [LKK8]: Recommended to highlighted the Organ donation in the world (other countries). Followed by the prevalence of organ donation in the state. The second issues must be highlighted are the awareness, perception and altitude or organ donation (refer to your title).

Methodology

Data analysis:

After data were extracted, it was revised, coded, and fed to statistical software IBM SPSS version 22 (SPSS, Inc. Chicago, IL). All statistical analysis was done using two tailed tests. P value less than 0.05 was statistically significant. For awareness items, each correct answer was scored one point and total summation of the discrete scores of the different items was calculated. A participant, who had score less than 60% (8 points) of the maximum score, was considered to have poor awareness while good awareness was considered if he had score of 60% (9 points or more) of the maximum or more. Descriptive analysis based on frequency and percent distribution was done for all variables including participants' personal data, job title, education, and monthly income. Awareness regarding organ donation and transplantation, participants' attitude and perception, source of knowledge, and reasons of refusing organ donation were also assessed in frequency tables and graphs. Crosstabulation was used to assess distribution of participants' awareness level regarding organ donation according to their personal data, perception and source of information. Relations were tested using Pearson chi-square test and exact probability test for small frequency distributions.

Consent and Ethical Approval:

This study had been reviewed and approved by the research Ethics Committee (REC) at the University of Ha'il and approved by the University president. The research project was numbered H-2021-202 and dated 01-11\2021. Participants in the study were informed that their participation was voluntary, and that their contribution was of great value. No personal identifiers were collected. All authors declared that informed consent was obtained from the participants for publication of this original article.

Results :

A total of 406 participants completed the study questionnaire. Exact of 248 (61.1%) were females and 400 (98.5%) were Saudis. As for educational level, 281 (69.2%) had university level of education and 114 (28.1%) had secondary level of education. As for job title, 319 (78.6%) were students, 28 (6.9%) were governmental employees, while 19 (4.7%) worked at private sector. The majority of participants were (85.5%) were not married. About monthly income, 117 (28.8%) had monthly income of 5000-10000 SR and 119 (29.3%) had monthly income of 10000-20000 SR (Table I).

Table I. Socio-demographic data of study participants, Ha'il City community, Saudi Arabia

Socio-demographic data	No	%
Gender		
<i>Male</i>	158	38.9%
<i>Female</i>	248	61.1%
Nationality		

Comment [LKK9]: Recommended to highlighted:

1. Type of study
2. Time of the study done.
3. Area of study conducted
4. Study respondents
5. Instruments used
6. Data collection method
7. How the informed consent was obtained

Comment [LKK10]: Please review for language

<i>Saudi</i>	400	98.5%
<i>Non-Saudi</i>	6	1.5%
Educational level		
<i>Below secondary</i>	11	2.7%
<i>Secondary</i>	114	28.1%
<i>University</i>	281	69.2%
Job		
<i>Not working</i>	40	9.9%
<i>Student</i>	319	78.6%
<i>Governmental job</i>	28	6.9%
<i>Private job</i>	19	4.7%
Marital status		
<i>Not married</i>	347	85.5%
<i>Married</i>	59	14.5%
Family income / month		
<i>< 5000 SR</i>	75	18.5%
<i>5000-10000 SR</i>	117	28.8%
<i>10000-20000 SR</i>	119	29.3%
<i>> 20000 SR</i>	95	23.4%

Table II showed the **Public Awareness** regarding organ donation and transplantation among Ha'il City community, Saudi Arabia. Exact of 96.3% of the study participants heard about organ donation. Organ donation as being from living-to-living person was reported by 3.4% of the participants, while 29.3% defined as donation from dead to living, while, 66% reported for both types. As regards the organs that could be donated, the most known organ was kidney (96.3%), followed by liver (92.4%), heart (79.8%), lung (63.8%), bone marrow (59.9%), and cornea (58.4%) while 37.2% know about skin and only 2.7% answered for none of them. A total of 230 (56.7%) knew that Islam allowed organ donation. A total of 227 (55.9%) participants know that consent should be given by parents in the case of donation after death while 105 (25.9%) didn't know. Also, 160 (39.4%) realised that the judge should give consent for organ donation in the case of unidentified dead while 95 (23.45) told for physicians. Exact of 140 (34.5%) reported that parents could make the decision, rather than the mentally disabled, about organ donation. Also, 51 (12.6%) participants stated the local and international legislations for organ donation while 55 (13.5%) fixed only the local legislations.

Comment [LKK11]: Recommended to highlighted the important findings only..The table already self explanatory

Table II. Public Awareness towards organ donation and transplantation among Ha'il City community, Saudi Arabia

Awareness items	No	%
Previously heard about organ donation		
<i>Yes</i>	391	96.3%
<i>No</i>	15	3.7%

What is organ donation?		
<i>Transferring organs from living-to-living person</i>	14	3.4%
<i>Transferring organs from dead to living person</i>	119	29.3%
<i>Both of them</i>	268	66.0%
<i>Dont know</i>	5	1.2%
Which organs can be donated?		
<i>Kidney</i>	391	96.3%
<i>Liver</i>	375	92.4%
<i>Heart</i>	324	79.8%
<i>Lung</i>	259	63.8%
<i>Bone marrow</i>	243	59.9%
<i>Cornea</i>	237	58.4%
<i>Skin</i>	151	37.2%
<i>None of them</i>	11	2.7%
Does Islam allow organ donation?		
<i>Yes</i>	230	56.7%
<i>No</i>	32	7.9%
<i>Dont know</i>	144	35.5%
In the case of donation after death who should give consent?		
<i>Parents</i>	227	55.9%
<i>Siblings</i>	11	2.7%
<i>Husband / wife</i>	25	6.2%
<i>Physician</i>	38	9.4%
<i>None</i>	105	25.9%
In the case of unidentified dead, who should give consent?		
<i>The judge</i>	160	39.4%
<i>he police</i>	20	4.9%
<i>Physicians</i>	95	23.4%
<i>Charities</i>	18	4.4%
<i>None</i>	113	27.8%
Can parents make the decision, rather than the mentally disabled, about organ donation?		
<i>Yes</i>	140	34.5%
<i>No</i>	114	28.1%
<i>Dont know</i>	152	37.4%
Are you aware of local or international laws regarding organ donation?		
<i>National legislations</i>	55	13.5%
<i>International legislations</i>	8	2.0%
<i>Both of them</i>	51	12.6%
<i>None of them</i>	292	71.9%

Figure 1 showed Overall Public Awareness level regarding organ donation and transplantation among Ha'il City community, Saudi Arabia. A total of 181 (44.6%) participants had good awareness level regarding organ donation and transplantation while 225 (55.4%) had poor awareness level.

Comment [LKK12]: Recommended to include in Table II

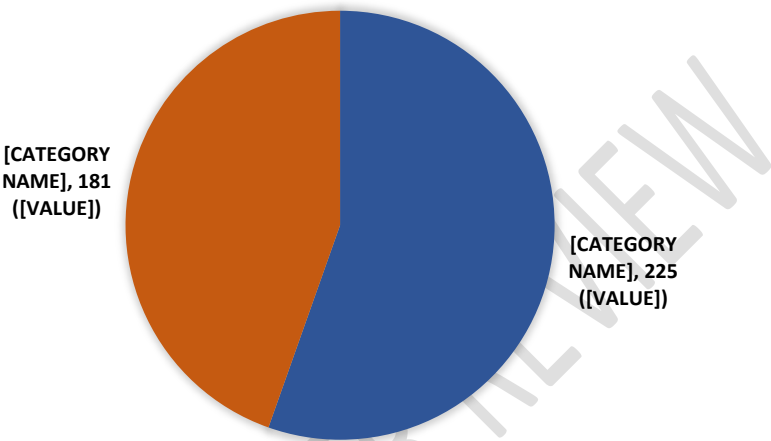


Figure 1. Overall Public Awareness level regarding organ donation and transplantation among Ha'il City community, Saudi Arabia

Table III clarified **Public attitude** towards organ donation and transplantation among Ha'il City community, Saudi Arabia. Exact of 30.5% of the study participants confirmed that they thought about donating their organs and 28.1% told they would think in it ,while 25.4% told they could do at special cases which were during life (30.1%), during brain death (14.6%) and 25.2% reported in both conditions. A total of 64.3% of the participants thought that there was a possibility that donated organs would be misused. Regarding to whom recipients persons could donate organs, family member was the most reported (66.7%), followed by any person (50.5%), and friends (40.6%). As for which age of the recipients person could donate organs, any age was the most answered (73.2%) while 13.3% fixed the recipient age less than 30 years. Considering nature of recipients to whom you could donate organs, 63.1% told it could be for any person, 30.3% reported for reasonable persons while only 0.7% could donate organ for mentally retarded person. As for which religion of recipients you could donate organs, 48.3% stated for any religion, while 45.1% chose only Muslims. Regarding most important factor when person

Comment [LKK13]: Recommended to highlighted the important findings only..The table already self explanatory

wanted to donate organs, degree of relation was the most selected (33.3%), followed by health status of recipient (26.4%), Proper deal of donated organ (13.1%), Age of recipient (3.7%), and Religion of recipient (2.7%). A total of 57.6% of the study participants supported the promotion of organ donation. The risks of organ donation answers were 68% thought that organ donation involved any risks for the donor. The most reported risks were Physical weakness (40%), followed by pain (34.1%), inflammations (26.7%), bleeding (22.6%), and anxiety / depression (12.6%) while 51.9% reported for all of them.

Table III. Public attitude towards organ donation and transplantation among Ha'il City community, Saudi Arabia

Attitude towards organ donation		No	%
Have you ever thought about donating your organs?	Yes, sure	124	30.5%
	At special cases	103	25.4%
	I will think	114	28.1%
	Impossible	65	16.0%
What are the special cases?	With brain death only	15	14.6%
	While living only	31	30.1%
	Both conditions	26	25.2%
	Others	31	30.1%
Do you think there is a possibility that donated organs will be misused?	Never	145	35.7%
	Sometimes	188	46.3%
	Many times	64	15.8%
	Usually	9	2.2%
Who are the people to whom you can donate organs?	Family member	271	66.7%
	Any person	205	50.5%
	Friend	165	40.6%
	College	88	21.7%
	None of them	29	7.1%
Which age of the people to whom you can donate organs?	< 30 years	54	13.3%
	30-50 years	24	5.9%
	> 50 years	8	2.0%
	Any age	297	73.2%
	None of them	23	5.7%
Which nature of people to whom you can donate organs?	Reasonable person	123	30.3%
	Irrational person	3	.7%
	Any one	256	63.1%
	None of them	24	5.9%
Which Religion of people to whom you can donate organs?	Muslim person	183	45.1%
	Non-Muslims person	3	.7%
	Any person	196	48.3%
	None of them	24	5.9%
Which of the following is the most important factor when you want to donate organs?	Degree of relation	135	33.3%
	Health status of recipient	107	26.4%
	Proper deal of donated organ	53	13.1%
	Age of recipient	15	3.7%
	Religion of recipient	11	2.7%
	None of the above	85	20.9%
Do you support the promotion of organ donation?	Yes	234	57.6%
	No\	60	14.8%
	Neutral	112	27.6%
Does organ donation involve any risks for the donor?	Yes	276	68.0%
	No	130	32.0%

What are the risks of organ donation	Physical weakness	108	40.0%
	Pain	92	34.1%
	Inflammations	72	26.7%
	Bleeding	61	22.6%
	Anxiety / depression	34	12.6%
	All of the above	140	51.9%
	None of the above	10	3.7%

Table IV showed Public perception of organ donation and transplantation among Ha'il City community, Saudi Arabia. The majority (87.7%) of participants perceived that organ donation is Humanitarian/religious duty, 69 (17%) considered it as source of money, and 71 (17.5%) stated other issues. A total of 54 (13.3%) participants reported that their family member donated an organ, while 42 (10.35) had friend who donated organ, 22 (5.45) knew a colleague and 25 (6.25) knew others who donated organs.

Comment [LKK14]: This Table can combine with Table III

Table IV. Public perception of organ donation and transplantation among Ha'il City community, Saudi Arabia

Perception of organ donation	No	%
Why is organ donation in general?		
<i>Humanitarian/religious duty</i>	356	87.7%
<i>For money</i>	69	17.0%
<i>Others</i>	71	17.5%
Do you know anyone who has donated an organ?		
<i>Family member</i>	54	13.3%
<i>Friend</i>	42	10.3%
<i>College</i>	22	5.4%
<i>Others</i>	25	6.2%
<i>None</i>	281	69.2%

Figure 2 entitled. Source of public information regarding organ donation and transplantation among Ha'il City community, Saudi Arabia. The most reported source of information was social media (76.4%), followed by mass media (57.9%), friends / relatives (34.2%), physician (24.6%), then others (16.7%).

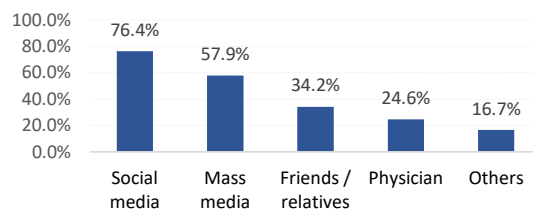


Figure 2. Source of public information regarding organ donation and transplantation among Ha'il City community, Saudi Arabia

Table V showed the Distribution of participants' awareness regarding organ donation by their bio-demographic data, perception and source of information. Exact of 49.6% of participants who thought that organ donation was risky had good awareness level compared to 33.8% of others who did not with recorded statistical significance ($P=.003$). Also, good awareness was detected among 60% of participants who had their information regarding organ donation from physicians in comparison to 52.5% of those who had information from friends / relatives and 51.1% of others from mass media ($P=.001$). Other factors were insignificantly associated with participants awareness level.

Table V. Distribution of participants' awareness regarding organ donation by their bio-demographic data, perception and source of information

Factors	Overall knowledge level				p-value
	Poor		Good		
	No	%	No	%	
Gender					
Male	89	56.3%	69	43.7%	.786
Female	136	54.8%	112	45.2%	
Nationality					
Saudi	221	55.3%	179	44.8%	.577 ^s
Non-Saudi	4	66.7%	2	33.3%	
Educational level					
Below secondary	7	63.6%	4	36.4%	.118
Secondary	54	47.4%	60	52.6%	
University	164	58.4%	117	41.6%	
Job					
Not working	26	65.0%	14	35.0%	.183
Student	169	53.0%	150	47.0%	
Governmental job	16	57.1%	12	42.9%	
Private job	14	73.7%	5	26.3%	
Marital status					
Not married	187	53.9%	160	46.1%	.133
Married	38	64.4%	21	35.6%	
Previously heard about organ donation					
Yes	214	54.7%	177	45.3%	.155
No	11	73.3%	4	26.7%	
Why is organ donation in general?					
Humanitarian/religious duty	196	55.1%	160	44.9%	.693
For money	34	49.3%	35	50.7%	
Others	40	56.3%	31	43.7%	
Does organ donation involve any risks for the donor?					
Yes	139	50.4%	137	49.6%	.003*
No	86	66.2%	44	33.8%	

Source of information

Social media	167	53.9%	143	46.1%	.001*
Mass media	115	48.9%	120	51.1%	
Physician	40	40.0%	60	60.0%	
Friends / relatives	66	47.5%	73	52.5%	
Others	36	52.9%	32	47.1%	

P: Pearson χ^2 test

§: Exact probability test

* $P < 0.05$ (significant)

Figure 3 clarified Reasons and drivers for organ donation refusal among Ha'il City community, Saudi Arabia. Religious reasons were the most reported barrier (31.9%), followed by being afraid of organ loss or misuse (30.6%), fear of post-operative pain (17.4%), afraid of being deformed (16%), donor risk (12.5%), and parents refusal (11.1%).

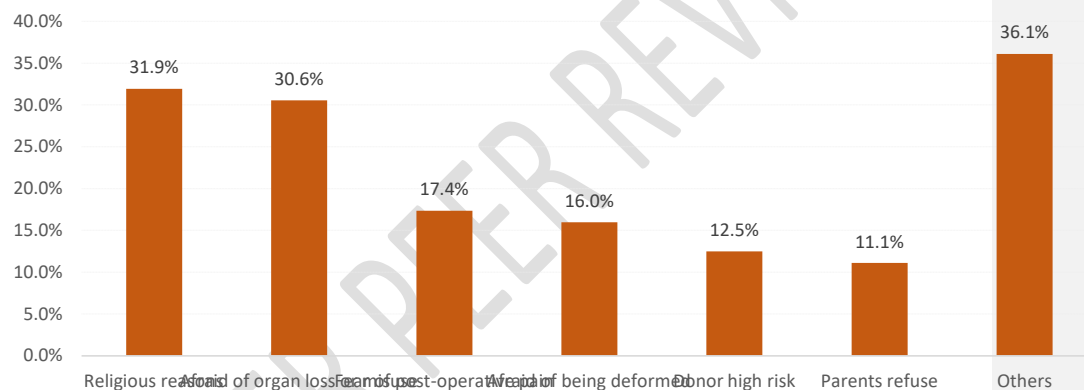


Figure 3. Reasons and drivers for organ donation refusal among Ha'il City community, Saudi Arabia

Discussion:

The present study assessed the knowledge, attitude, and refusal reasons toward organ donation among the Hail's City community, Saudi Arabia. Exact of 96.3% of the study participants heard about organ donation. However the overall awareness of participants was 44.6%. In contrast, a study took place in Riyadh in 2018 showed that the level of awareness was 74%. A possible explanation for the difference was the different in the sample size and different methodology.[9]

The present results revealed that 96.3% of participants heard about organ donation. This awareness was slightly high compared to a study done in India [10], which showed that about 86% participants were aware about the term organ donation [10].

In the present study, Organ donation as being from living-to-living person was reported only in 3.4% of the participants, while 29.3% defined as donation from dead to living, while the majority (66%) reported both types. Finding in the present study was comparable with a previous study done in India, in 2015, where 56% of their participants knew that organs could be donated both from living person as well as from cadavers [10].

In the present research, the most known organ that could be donated, was kidney (96.3%), followed by liver (92.4%). Similarly there was a study conducted in Al-Kharj, in 2017, Saudi Arabia [5]. When asked about the knowledge of organs that could be donated, the majority answered kidney 95.20%, followed by liver (70.95%) [5].

In the present work, when asking about who should give consent of donation after death, a total of 227 (55.9%) participants stated that consent should be given by parents. This observation was much lower than that reported in India, 2015, (100%) where their participants agreed that spouse or family should give consent [10].

In the present study attitude towards organ donation, exact of 30.5% of the study participants confirmed that they could donate their organs. This was higher than that reported in a previous study conducted in Al-Kharj, 2017, where only 24.5% of their participants were willing to donate their organs [5].

In the present research, the degree of relation was the most selected factor when person wanted to donate organ. This finding was similar to that of a study conducted in Morocco in 2018 which stated that the power of family relationship, could sometimes surpass all other factors for refusal [11].

As regards considering the religion of the recipient, in the present results, donating to any person (any religion) was the most chosen option (48.3%), so the religion of the recipient was not a barrier of organ donation. Contrarily to the present finding, different results were conducted in Pakistan, 2009, where their most important factor for donation was the religion of the recipient 29.6% [12].

In the present study A total of 64.3% of the participants thought that there was a possibility that donated organs would be misused. Similarly a study conducted in India,

Comment [LKK15]: This section should discuss the findings of the study and not repeated the findings from the results section

Comment [LKK16]: Recommended to explain the sample size calculation and the method of participants selection

Comment [LKK17]: Recommended to exclude the findings of the study in the discussion section

2015, revealed that 59% thought of the possibility that donated organ could be misused, abused or misappropriated [10]. Thus, we need a way to convince people about the fate of the donated organs to be kept and processed legally in a proper way following the law of organ donation that prohibits proceedings of any of the human organs that are removed for a purpose other than the purpose for which it was donated [13].

In the present survey, 68% of participants thought that organ donation had many risks for the donor. The most reported risks were physical weakness (40%), followed by pain (34.1%), inflammations (26.7%), bleeding (22.6%), and anxiety / depression (12.6%) while 51.9% rep. However, a study was done in Pakistan concluded that "35.4% of their respondents were unaware about organ donation harm to the organ donor" [14].

When asking about the cause of organ donation in the present survey, thankfully most of the respondents (87.7%) was because it was a Humanitarian/religious duty. This was consistent with al Dhahran study that "the majority of their participants (82.1%) stated that organ donation should be for the sake of God" [15].

Regarding the sources of public information for organ donation in the present work, the most reported source of information was social media (76.4%), followed by mass media (57.9%), friends / relatives (34.2%). Similarly in Riyadh a study revealed that the source of knowledge was mainly media (60%) followed by internet (20%), friends (17%) [16].

Conclusion:

In conclusion the overall level of awareness regarding organ donation in Hail, KSA is slightly poor (44.6% had good awareness). However we found some interesting findings that could improve the overall awareness, most of people who had good awareness had their information from physicians 60%, and the most reported source of information was social media 76.4%, so if we combine these two factors like, dedicated accounts for organ donation on social media organized by physicians (specialists) it would be a great way to improve the overall awareness.

Recommendation:

Organizing specialized conferences for organ donation can play a role in increasing the willing of organ donation, since many patients with fatal diseases nowadays are in urgent needs of organ donation. Also health education awareness campaigns about the diseases that their only treatment is organ transplantation should be announced in all media.

Finally, we hope that community awareness regarding organ donation will be improved, especially after the facilities provided by the Kingdom Saudi Arabia to register for organ donation through the "Tawakulna" program, and also after the initiative of His Majesty the King and his trusted Crown Prince to donate their organs after death.

Comment [LKK18]: Recommended not to include the findings data in this section

Comment [LKK19]: This is not the good recommendation.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

References :

1. Aldawood A, Al Qahtani S, Dabbagh O, Al-Sayyari AA. Organ donation after brain-death: experience over five-years in a tertiary hospital. Saudi journal of kidney diseases and transplantation : an official publication of the Saudi Center for Organ Transplantation, Saudi Arabia. 2007;18:60-4.
2. Shemie SD, Hornby L, Baker A, Teitelbaum J, Torrance S, Young K, et al. International guideline development for the determination of death. Intensive Care Med. 2014;40:788–97
3. Tilney NL. Transplant: From Myth to Reality. New Haven, London: Yale University Press; 2003.: 334.
4. Alam AA. Public opinion on organ donation in Saudi Arabia. Saudi J Kidney Dis Transpl 2007;18:54-9.
5. Agrawal, Sandeep, et al. "Knowledge and attitude towards organ donation among adult population in Al-Kharj, Saudi Arabia." Saudi Journal of Kidney Diseases and Transplantation 2017 ,28.(1):81.
6. Al-Ghanim SA. The willingness toward deceased organ donation among university students. Implications for health education in Saudi Arabia. Saudi Med J 2009;30:1340-5.
7. Saudi Center for Organ Transplantation: statistical summary, (2019). annual report.
8. Alqurashi KA, Aljabri KS, Bokhari SA. Prevalence of diabetes mellitus in a Saudi community. Ann Saudi Med 2011;31:19-23.
9. Riadh -- Almuleh A, Althebaity R, Alamri AS, Al-Rashed NA, Alshehri EH, Albalawi L, et al. Organ donation awareness and attitude among Riyadh City Residents, Saudi Arabia. J Nat Sci Med 2018;1:59-63.
10. Manish R. Balwani, Manoj R. Gumber, Pankaj R. Shah, Vivek B. Kute, Himanshu V. Patel, Divyesh P. Engineer, Dinesh N. Gera, Umesh Godhani, Mehin Shah & Hargovind L. Trivedi (2015) Attitude and awareness towards organ donation in western India, Renal Failure, 37:4, 582-588, DOI: 10.3109/0886022X.2015.1007820 .

11. MLA El Hangouche, Abdelkader Jalil, et al. "Knowledge, attitudes, and practice of organ donation in Morocco: A cross-sectional survey." *Saudi Journal of Kidney Diseases and Transplantation* 2018, 29(6) :1358. APA .
12. Saleem, Taimur, et al. "Knowledge, attitudes and practices survey on organ donation among a selected adult population of Pakistan." *BMC medical ethics* 10.1 (2009): 1-12.
13. Bureau of Experts at The Council of Ministers at KSA, <https://laws.boe.gov.sa/BoeLaws/Laws/Viewer/24716462-6dd0-483d-a2dcad0900d849ff?lawId=4a16fbc8-7f1d-4647-8acc-ad0900d849c2>
14. Khan, Nahida, Zahid Masood, and Sabeeka Zahra. "Knowledge and attitude of people towards organ donation." *Journal of University Medical & Dental College* 2011, 2(2): 15-21. APA
15. Mohamed, E., and A. Guella. "Public awareness survey about organ donation and transplantation." *Transplantation proceedings*. 2013 , 45 (10):, 2013.
16. Alsharidah, Dalia Saleh, et al. "Assessment of knowledge and attitude toward organ donation among the Saudi population in Riyadh City." *Saudi Journal of Kidney Diseases and Transplantation* 2018, 29(6): 1326.