

ORIGINAL ARTICLE

Knowledge and Attitude of the Public about Organ Donation in Jordan

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Abstract

Background: It has been proven that organ transplantation can save the lives of people who may have fatal medical conditions. However, there are regional disparities in the general public's understanding of organ donation and its associated concerns.

Aim: To assess the general knowledge and attitude of the Jordanian public towards organ donation.

Subjects and methods: A descriptive cross-sectional study, which was conducted on 340 participants; in Al Karak governorate, Jordan. A predesigned questionnaire was used to assess knowledge and attitudes about organ donation in association with sociodemographics.

Results: Total knowledge about organ donation and transplantation was found to be adequate in 60.9% of participants, where education was a strongly associated factor. As for total attitude, it was poor in most participants (86.5%), where sex was the significant associated factor.

Conclusion: It is crucial to raise awareness and cultivate a better attitude towards organ donation. Using the right medium, more campaigning should be done to influence people's views and boost their readiness to donate organs.

Keywords: Attitude, Organ donation, Jordan, Knowledge, Public.

INTRODUCTION:

The difficult and diverse process of confirming death is the first step in tissue and organ donation. Then, a precise set of inclusion/exclusion standards that define whether or not organs can be obtained from the donor are presented [1].

Patient care and survival are greatly impacted by organ donation, and one of the most difficult problems at the moment is the global imbalance between demand and availability of organs. The majority of organs that can be donated come from brain-dead individuals, however consenting to donation

needs family members' agreement, which is sometimes difficult and stressful and results in refusal of consent [2].

Worldwide organ donation shortage is mainly due to inadequate public knowledge, together with attitudes among the general public and medical professionals towards organ donation. Several factors, including one's related level of knowledge, education, and religion, might have an impact on the general public's attitudes about organ donation [3].

Transplanting organs is a life-preserving operation that has transformed contemporary medicine. The first heart transplant was carried out in Jordan in 1985, and the procedure has been governed by legislation since 1975. Organ donation is allowed in Jordan under specific rules, such as the five-degree rule, as per the Ministry of Awqaf's fatwa and the Jordanian Benefiting from Human Organs Law of 1977 [4].

According to several reports, Jordanians are statistically more eager to donate organs. Despite the hopeful findings, there is still a gap between awareness and genuine desire to donate organs, as seen by the disparity between registered organ donors and individuals who support it [5].

The government-sponsored steps to raise awareness about organ donation, including media publicity and instructional programs in schools and colleges. Several non-governmental organizations (NGOs), including the Jordan Society for Organ Donation and Transplantation and the Gift of Life Jordan, also launched educational initiatives to clarify common misconceptions about organ donation and transplantation, as well as to encourage people to register as donors [4,6].

Therefore, the current study aimed to assess the general awareness and attitudes of

the Jordanian population towards organ donation. In addition, the study investigated the factors that may influence the level of knowledge and attitudes.

SUBJECTS AND METHODS:

The method employed was a descriptive cross-sectional study. The study was carried out in Al Karak governorate, Al Karak city, Jordan. Al Karak city is a major city in the governorate with the highest population density.

Inclusion criteria: Adult competent population (age above 18), consenting to participate in the interview.

Assuming that Al Karak city total population was 21.678 according to worldmeters.info [7] and the prevalence of poor knowledge towards organ donation would be 65.9% [8], the sample size was calculated to be 340 at a 95% confidence level and 80% power using the online open-epi program [9]. A convenient sampling technique was adopted for the selection of participants.

A predesigned questionnaire [8] was used to assess the knowledge and attitudes of the public towards organ donation. The questionnaire consisted of three parts:

- Socioeconomics: age, sex, place of residence, education, occupation, marital status, and the source of knowledge about organ transplantation.
- Knowledge: fifteen questions related to organ donation, brain death, benefits of organ donation, and organ rejection.
- Attitudes: eight questions about attitudes to organ donation, registration as a donor, donation after death, promotion of organ donation among relatives.

The scoring system: answers were Yes, No, and Don't know. The correct answer took one point and the wrong answer and don't know answer took zero. Respondents who

scored >60% were considered to have adequate knowledge or good attitudes. Respondents who scored <60% were considered to have inadequate knowledge or poor attitudes [10].

Administrative and Ethical Design and Approval:

- Official permission was obtained from the Institutional Review Board (IRB) at the Faculty of Medicine, Mutah University, Jordan **No. #1292023**.
- Informed consent was voluntarily taken from the participants, after clarifying the aim, and methods of the study, and discussing the questionnaire.
- Confidentiality of data was ensured (by data coding) and data was only accessed by the researchers and for the purpose of the research.

Data analysis:

Statistical analysis was done by SPSS version 28 (IBM Co., Armonk, NY, USA). Categorical data were presented as frequency and percentage and analyzed using the Chi-square test or Fisher's exact test when appropriate. Two-tailed P values <0.05 were considered statistically significant.

Results:

A total of 340 participants (158 males and 182 females) were included in this questionnaire, more than half of them (64.1%) were over the age of 30 years. Most participants (82.1%) lived in urban areas. In terms of education, 52.9% and 39.4% of our participants had university and postgraduate degrees, respectively. Moreover, 77.9% of participants were employed and 80% were married.

Table 1: Sociodemographic characteristics of participants (n=340)

Variable	Category	N	%
Age (years)	<30	122	35.9
	>30	218	64.1
Sex	Male	158	46.5
	Female	182	53.5
Residence	Urban	279	82.1
	Rural	61	17.9
Education	Primary	7	2.1
	Secondary	19	5.6
	University	180	52.9
	Post-graduate	134	39.4
Occupation	Unemployed	75	22.1
	Employed	265	77.9
Marital status	Married	272	80.0
	Other	68	20.0

Total knowledge about organ donation and transplantation was found adequate in 60.9%

of participants. As for total attitude, it was poor in most participants (86.5%). [Figure 1].

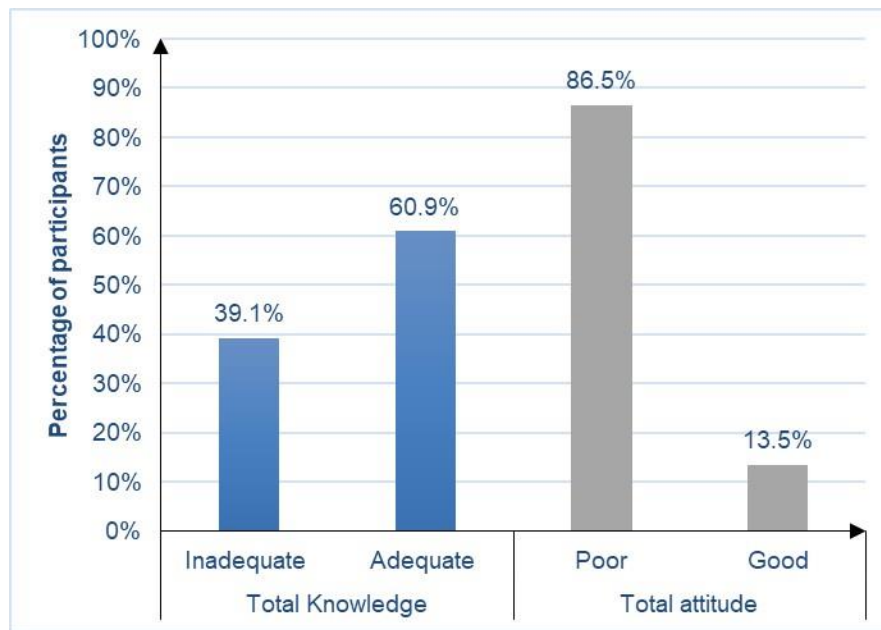


Figure 1: Total knowledge and attitude of participants.

There was a statistically significant relation between participants' education and total knowledge about organ donation and

transplantation ($P < 0.001$) as the proportion of participants with post-graduate degrees was higher in the adequacy of knowledge.

Table 2: Relation between sociodemographic characteristics and participants' total knowledge

Variable	Category	Total knowledge		P value
		Inadequate (n=133)	Adequate (n=207)	
Age (years)	<30	42 (31.6%)	80 (38.6%)	0.185
	>30	91 (68.4%)	127 (61.4%)	
Sex	Male	70 (52.6%)	88 (42.5%)	0.068
	Female	63 (47.4%)	119 (57.5%)	
Residence	Urban	105 (78.9%)	174 (84.1%)	0.231
	Rural	28 (21.1%)	33 (15.9%)	
Education	Primary	7 (5.3%)	0 (0%)	<0.001
	Secondary	7 (5.3%)	12 (5.8%)	
	University	91 (68.4%)	89 (43%)	
	Post-graduate	28 (21.1%)	106 (51.2%)	
Occupation	Unemployed	35 (26.3%)	40 (19.3%)	0.129
	Employed	98 (73.7%)	167 (80.7%)	
Marital status	Married	105 (78.9%)	167 (80.7%)	0.697
	Other	28 (21.1%)	40 (19.3%)	

There was a statistically significant relation between sex of participants and their total attitude towards organ donation and

transplantation ($P=0.019$) as the good attitude group included more female participants than the poor attitude one.

Table 2: Relation between sociodemographic characteristics and participants' total attitude

Variable	Category	Total attitude		P value
		Poor (n=294)	Good (n=46)	
Age (years)	<30	109 (37.1%)	13 (28.3%)	0.246
	>30	185 (62.9%)	33 (71.7%)	
Sex	Male	144 (49%)	14 (30.4%)	0.019
	Female	150 (51%)	32 (69.6%)	
Residence	Urban	246 (83.7%)	33 (71.7%)	0.050
	Rural	48 (16.3%)	13 (28.3%)	
Education	Primary	7 (2.4%)	0 (0%)	0.206
	Secondary	19 (6.5%)	0 (0%)	
	University	153 (52%)	27 (58.7%)	
	Post-graduate	115 (39.1%)	19 (41.3%)	
Occupation	Unemployed	62 (21.1%)	13 (28.3%)	0.275
	Employed	232 (78.9%)	33 (71.7%)	
Marital status	Married	239 (81.3%)	33 (71.7%)	0.132
	Other	55 (18.7%)	13 (28.3%)	

About 50% of the participants could not determine a specific cause for refusing organ donation, 17.6% of participants refused organ

donation because of fear, and 10.3% thought that the transplanted organ would not be properly used after donation. [Figure 2].

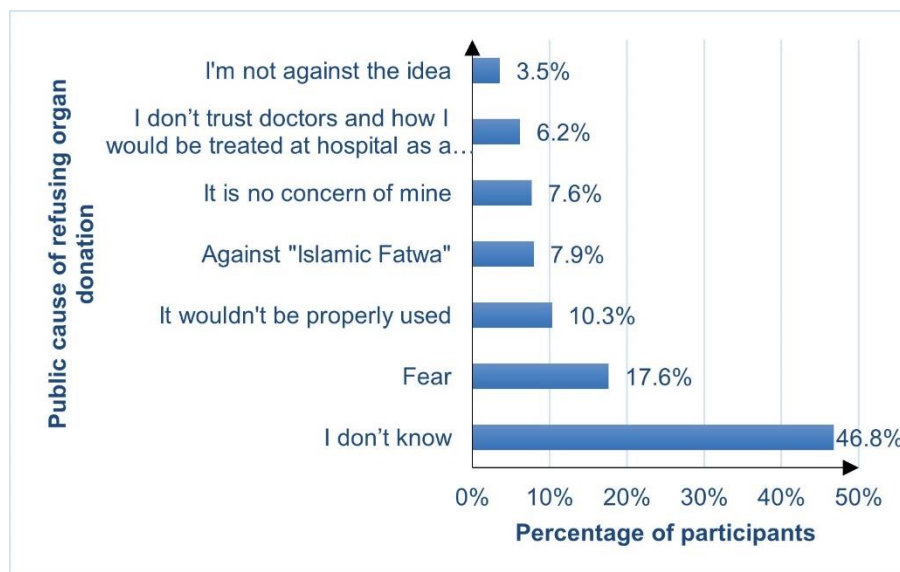


Figure 1: Reasons for the participants' organ donation refusal.

The most frequently reported source of knowledge about organ donation among participants was the internet (48.5%)

followed by radio and television (12.1%), university (11.5%), and family and friends (10.3%).

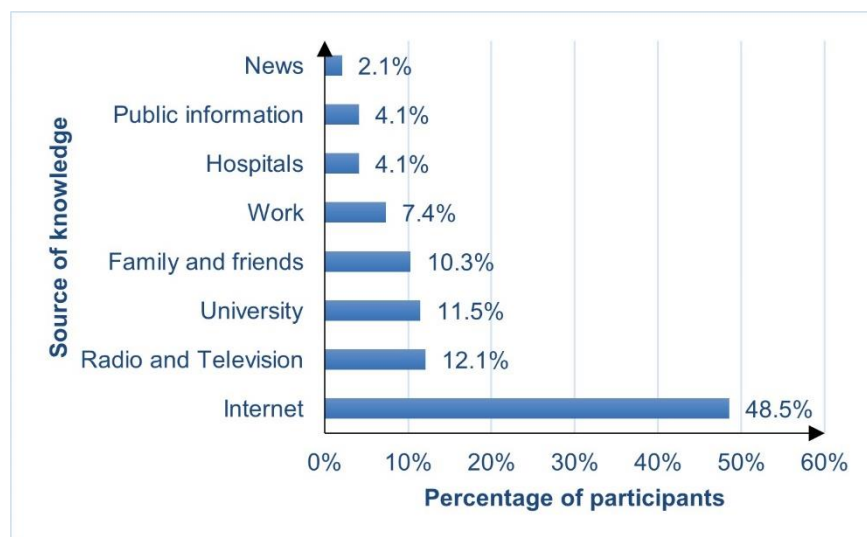


Figure 2: Bar-chart demonstrating participants' sources of knowledge.

DISCUSSION:

The act of donating a human organ or tissue, whether living or deceased, to a recipient in need of transplantation, is known as organ donation. Probably the only efficient therapy for organ failure is organ implantation [11].

In the current research, we found that total knowledge about organ donation and transplantation was adequate in 60.9% of participants.

These results were incomparable with a study that was carried out on families of trauma victims sent to Sina Hospital's emergency department in Tabriz, Iran, from 2013 to 2014 and reported that 73.1% of the studied people agreed with organ donation [12].

The findings of this study are also lower than that found in the study of Alwahaibi et al. [8] which revealed that 98.5% of college students were aware of organ donation. The same was found in a study which was conducted among M.G.M. Medical College

students, Aurangabad, Maharashtra, India which found roughly the same result, 98.5%. it may be explained as the previous studies were done on university medical students who had more information about the subject [13].

However, a study that was carried out among Saudi Arabia's adult population reported that only 44.7% of the participants had appropriate knowledge, which represents the lower knowledge of the ordinary public [14].

Additionally, a statistically significant relationship between participants' education and overall knowledge was discovered by the current research about organ donation and transplantation ($P < 0.001$) as the proportion of participants with post-graduate degrees was higher in the adequate knowledge group than the inadequate knowledge one.

Similar to our findings, the study reported that higher levels of knowledge were seen with progression in the academic semesters,

and there was a substantial correlation between knowledge and academic semesters [8]. This demonstrates a positive correlation between the level of education and knowledge.

On the other hand, in the current study; there was no statistically significant association detected between (participants' age, sex, residence, occupation, and marital status) and total knowledge about organ donation and transplantation.

A study conducted between December 2015 to December 2016 in Karachi, Pakistan on the general population produced the same findings as this study. In other words, there is no association between the previously mentioned factors and adequacy of knowledge [15].

In contrast, a different study observed a substantial relationship between gender and knowledge, with women having more knowledge (36.5%) than men (28.5%) [8]. These findings agree with another study which reported that females had better knowledge than males (51.5% – 18.2% respectively) [12]. These results, however, were not consistent with research done on medical students in South India, where about a third (34.6%) of the male students compared to the female students (24.6%) had sufficient knowledge [16].

In the present study, we observed that most participants (86.5%) had a poor overall attitude. This was in contrast with research which showed that 62% of the sample had a good attitude with 73.1% of the studied people agreeing with organ donation. It should be mentioned that 34.2% of them were well-informed about organ donation [12].

Another study done in Jazan, Saudi Arabia on adult population found that (58%) of the participants had a poor attitude level, and

only (9.4%) had a high positive attitude level. It refers to a more positive attitude to young age and being a student [17].

Additionally, we found that there was a statistically significant relation between sex of participants and their total attitude towards organ donation and transplantation ($P=0.019$), as the good attitude group included more female participants than the poor attitude one. Additionally, no statistically significant association was detected between (participants' age, residence, education, occupation, and marital status) and total attitude towards organ donation and transplantation.

According to a comparison with the research conducted in Saudi Arabia, the following characteristics were linked to a favorable attitude towards organ donation: younger age ($p = 0.028$), those who were single as opposed to married ($3.55 + 2.98$ vs. $3.03 + 2.75$), and employment ($p = 0.003$) [17].

This contrasts with a Saudi study conducted between July and September 2022, which showed high prevalence of positive attitudes in an adult population (66%). It revealed that male gender, young age <30 years, being unemployed, and married were associated factors that decrease the likelihood of having a positive attitude [18]. Moreover, other studies revealed that 48.8% of Moroccans and 60% of the general Saudi population, respectively, had declined to donate their organs [14,19].

In the current study, about half of the sample had no specific cause to refuse organ donation, 17.6% of participants refused because of fear, 10.3% thought that the transplanted organ wouldn't be properly used after donation, 7.9% believed it was against Islamic Fatwa, 7.6% thought that it wasn't their concern and 6.2% didn't trust doctors about the way they would be treated at hospital as donors while 3.5% weren't

against the idea of organ donation.

According to an interview conducted in 2022, 39% of Saudi Arabians declined to donate organs because they believed that their religion prevented them from doing so, despite the fact that Muslims make up the great majority of the country's population [17].

Similar findings were found in a study conducted at the Dhahran Military Hospital in Saudi Arabia between 2011 and 2012. Of the participants, 68.6% thought organ donation was legal, while 26.2% thought it was against Islamic tradition [20].

Just 10% of survey respondents said they would never donate an organ because of their religious convictions, according to a study done in Kuala Lumpur. It seems that religious barrier increasingly dissolves as people become more educated [21].

In contrast, organ donation is claimed to have saved hundreds of lives and helped others, which is consistent with Islamic values on helping others. It is explicitly mentioned in the Holy Qur'an and Sunna that Muslims should help one another and strive to preserve lives. The Qur'an accepts the removal of organs only as a way of treating the ailment; the success of the transplantation must be highly probable; the donor or the family must have consented to it. The view of Christianity about organ transplants is positive and supports any act of altruism [22].

Research analyzing constraints associated with organ donation was conducted, with a primary focus on Catholic Christians. According to the research, 10% of respondents stated that religion had no influence on their decision-making, while 17% of respondents declared they were unable to be involved because of their religious beliefs [23].

Finally, in the present study, the most

frequently reported source of knowledge about organ donation and transplantation among participants was the internet (48.5%), followed by radio and television (12.1%), university (11.5%) and family and friends (10.3%).

Consistent with our results, a study in 2023 reported that 84.3% of the sample responded that social networks and online sources were the most popular ways to learn about organ donation. Radio and television came in second with 27.8%, while friends and family came in third with 25.3%. Newspapers and posters both had a little role in educating readers about organ donation—12.7 and 9.8%, respectively [8].

Study limitations

Just one city was the subject of the investigation. Therefore, future studies should involve people from other cities to extrapolate the findings.

Another drawback was the absence of other faiths from the survey, which made it impossible to assess how participants' attitudes were influenced by their religion.

Conclusion and recommendations

The Jordanian population's awareness and attitudes about organ donation and transplantation were lacking. It was also shown that an individual's degree of education has a substantial impact on their knowledge and perception when deciding to donate organs. This opportunity should be exploited wisely, with campaigns and high-level officials focusing on increasing donations and shortening the waiting time in the transplantation pool.

The main inexpensive and readily available sources of information were social media and internet resources. Therefore, more has to be done to use these mediums to raise public awareness.

REFERENCES

1. Muco E, Yarrarapu SNS, Douedi H, Burns B. Tissue and Organ Donation. [Updated 2023 Jul 24]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK557431/>
2. Carola V, Morale C, Vincenzo C, Cecchi V, Errico L, Nicolais G. Organ donation: psychosocial factors of the decision-making process. *Frontiers in Psychology*. 2023 May 26; 14: 1111328.
3. Akbulut S, Ozer A, Firinci B, Demyati K, Saritas H, Yilmaz S. Assessment of Knowledge and Attitudes Toward Organ Donation Among School Teachers: First National Survey Study. In *Transplantation Proceedings* 2022 Apr 1 (Vol. 54, No. 3, pp. 575-581). Elsevier.
4. <https://www.jordannews.jo/Section-122/Health/Organ-donation-in-Jordan-A-disconnect-between-willingness-and-action-27916> (Accessed in September 2023).
5. Al-Qerem W, Carter N, Ling J. Attitudes to Organ Donation and Transplantation: An Insight From Jordan. *Experimental and clinical transplantation: official journal of the Middle East Society for Organ Transplantation*. 2022 Jun 1; 20(6): 602-8.
6. Bani Hani A, Bsisu I, Shatarat A, Sarhan O, Hassouneh A, Abu Alhuda R. Attitudes of middle eastern societies towards organ donation: the effect of demographic factors among Jordanian adults. *J Res Health Sci*. 2020; 5: 1-4.
7. <https://www.worldometers.info/world-population/jordan-population/> accessed September 2023.
8. whaAlwahaibi N, Al Wahaibi A, Al Abri M. Knowledge and attitude about organ donation and transplantation among Omani university students. *Frontiers in Public Health*. 2023 May 25; 11: 1115531.
9. Dean AG, Sullivan KM, Soe MM. Open Epi: Open-Source Epidemiologic Statistics for public health, version. www.OpenEpi.com, accessed September 2023
10. El-Hawy LL, Said HS. Public Opinion Regarding The New National Children's Obligatory Vaccination Schedule (2018). *Egyptian Journal of Community Medicine*. 2021 Jan; 39(1).
11. Bekele M, Jote W, Workneh T, Worku B. Knowledge and Attitudes about Organ Donation among Patient Companion at a Tertiary Hospital in Ethiopia. *Ethiopian Journal of Health Sciences*. 2021 Jan 1; 31(1).
12. Pouraghaei M, Tagizadieh M, Tagizadieh A, Moharamzadeh P, Esfahanian S, Nia KS. Knowledge and attitude regarding organ donation among relatives of patients referred to the emergency department. *Emergency*. 2015; 3(1): 33.
13. Kadam S, Shinde S, Shroff G, Gulanikar S. Knowledge and attitude about organ donation among medical students: an observational study from Aurangabad, Maharashtra. *Int J Curr Res Rev*. 2021 Jan; 13: 121-4.
14. Agrawal S, Binsaleem S, Al-Homrani M, Al-Juhayim A, Al-Harbi A. Knowledge and attitude towards organ donation among adult population in Al-Kharj, Saudi Arabia. *Saudi Journal of Kidney Diseases and Transplantation*. 2017 Jan 1; 28(1): 81-9.
15. Khalid F, Khalid AB, Muneeb D, Shabir A, Fayyaz D, Khan M. Level of knowledge and attitude regarding organ donation: a community-based study from Karachi, Pakistan. *BMC research notes*. 2019 Dec; 12(1): 1-5.
16. Darlington D, Anitha FS, Joseph C. Study of knowledge, attitude, and practice of organ donation among medical students in a tertiary care centre in South India. *Cureus*. 2019 Jun 13; 11(6).
17. Somaili M, Masmali A, Haqawi I, Al-Hulaibi M, AlHabji AA, Salami A, Ageel AA, Sultan Y, Alhazemi A, Moharg F, Almansour O. Knowledge and attitude toward organ donation among the adult population in Jazan, Saudi Arabia. *Cureus*. 2022 Jul 19; 14(7).

18. Alghamdi A, Alsaleh AA, Alfozan OA, Qutob R, Alaryni A, Bukhari A, Hakami OA, Alhusaini BA, Alzmamy SA, Alhudayris FS, Alshuaibi LK. Awareness, Attitude, and Beliefs Regarding Organ Donation Among the General Public in Saudi Arabia. *International Journal of General Medicine*. 2023 Dec 31; 4973-89.
19. El Hangouche AJ, Alaika O, Rkain H, Najdi A, Errguig L, Doghmi N, Aboudrar S, Cherti M, Dakka T. Knowledge, attitudes, and practice of organ donation in Morocco: A cross-sectional survey. *Saudi Journal of Kidney Diseases and Transplantation*. 2018 Nov 1; 29(6): 1358-65.
20. Mohamed E, Guella A. Public awareness survey about organ donation and transplantation. *InTransplantation proceedings* 2013 Dec 1 (Vol. 45, No. 10, pp. 3469-3471). Elsevier.
21. Rasiah R, Manikam R, Chandarsekaran SK, Thangiah G, Puspharajan S, Swaminathan D. The influence of socioeconomic and demographic variables on willingness to donate cadaveric human organs in Malaysia. *Medicine*. 2014 Nov; 93(23).
22. Aghaee MA, Dehghani M, Sadeghi MA, Khaleghi E. Awareness of religious leaders' fatwa and willingness to donate organ. *International journal of organ transplantation medicine*. 2015; 6(4): 158.
23. Mostafazadeh-Bora M, Zarghami A. Cultural and religious issues in organ transplantation: Crucial role in multiethnic countries. *Saudi Journal of Kidney Diseases and Transplantation*. 2017 Jan 1; 28(1): 188-9.

معرفة وسلوك الجمهور العام تجاه التبرع بالأعضاء في الأردن

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الملخص

الخلفية: لقد ثبت أن التبرع بالأعضاء يمكن أن تنقذ حياة الأشخاص الذين قد يعانون من حالات طبية مميتة. ومع ذلك، هناك تباينات إقليمية في فهم عامة الناس للتبرع بالأعضاء والمخاوف المرتبطة به. وتهدف الدراسة إلى تقييم المعرفة العامة والسلوك للشعب الأردني تجاه التبرع بالأعضاء.

منهجية الدراسة: دراسة وصفية مقطعية، أجريت على 340 مشاركاً في محافظة الكرك بالأردن. تم استخدام استبانة مصممة مسبقاً لتقييم الحالة الاجتماعية، والديموغرافية، والاتجاه المعرفي، والسلوكي.

النتائج: كانت المعرفة الإجمالية حول التبرع بالأعضاء كافية لدى 60.9% من المشاركين، حيث كان مستوى التعليم عاملاً مرتبطاً قوياً. أما السلوك العام فكان ضعيفاً عند معظم المشاركين (86.5%)، حيث كان الجنس هو العامل المرتبط الأقوى.

الاستنتاج: من الضروري رفع مستوى الوعي وتنمية السلوك الإيجابي تجاه التبرع بالأعضاء. وباستخدام الوسيلة المناسبة، فلا بد من القيام بالمزيد من الحملات للتأثير على آراء الناس وتعزيز استعدادهم للتبرع بالأعضاء.

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