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Knowledge, Attitudes, and Perceptions of Organ Donation among Medical and Nonmedical University Students in Lebanon: A Cross- Sectional Study

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Abstract

Background: Organ transplantation is a life-saving treatment for patients with end-stage organ failure; however, the global shortage of donor organs remains a major challenge. In Lebanon, organ donation rates remain low, and public awareness and attitudes toward organ donation may play an important role in influencing donation practices. This study aimed to assess the knowledge, attitudes, perceptions, and willingness toward organ donation among university students in Lebanon, by comparing findings between medical and non-medical students.

Methods: A cross-sectional study was conducted using a self-administered online questionnaire distributed to university students across several Lebanese institutions during the 2025–2026 academic year. The survey assessed socio-demographic characteristics, knowledge of organ donation and transplantation, attitudes and perceptions, willingness to donate, and perceived motivations and barriers. Data were analyzed using descriptive statistics and chi-square tests to compare responses between the two groups, with statistical significance set at $p < 0.05$.

Results: A total of 252 students participated, including both medical and non-medical students. Overall awareness of organ donation was high, with 89.5% of medical students and 79.0% of non-medical students reporting having heard about organ donation. Medical students demonstrated significantly higher knowledge regarding brain death, transplantation procedures, and legal aspects of organ donation. Willingness to donate organs in the future was similar in both groups (45.1% among medical students and 46.2% among non-medical students). The most common motivation for donation was the desire to save lives. Major barriers included distrust in the healthcare system, fear of body disfigurement, and lack of information.

Conclusion: Lebanese university students generally display favorable attitudes toward organ donation, but gaps remain in detailed knowledge and practical engagement with the donation system. Educational initiatives and public awareness campaigns may help address misconceptions and improve organ donation rates in Lebanon.

Introduction

Organ transplantation has become a critical medical therapy, offering life-saving treatment to patients with organ failure (White et al., 2014). The need for transplantable organs has risen steadily, driven by the growing burden of chronic conditions leading to organ failure, such as end-stage renal disease, liver disease, heart failure, and lung failure (Black et al., 2018), (Giwa et al., 2017).

Compared with patients who do not receive a transplant, transplant recipients experience substantial improvements in quality of life and significantly better long-term survival outcomes (White et al., 2014), (Grinyó, 2013), (Rana & Godfrey, 2019). Across many regions worldwide, advances in medical technology, healthcare infrastructure, and supportive policies have improved transplant success rates and increased the number of individuals seeking transplantation (Grinyó, 2013), (Giwa et al., 2017), (Platt & Cascalho, 2013). However, this progress has simultaneously contributed to an unprecedented shortage of available organs (Shafran, Kodish, & Tzakis, 2014), (Loua et al., 2020).

The great success of organ transplantation has yielded a significant increase of 70% in demand during the past decade (Odusanya & Ladipo, 2006), (Ehrle, Shafer, & Nelson, 1999). Worldwide, the current imbalance between supply and demand in various organs (mainly liver and heart) results in over 20% of people on waiting lists dying every year before receiving the needed organ (Cantarovich, 2002). Thus, the global shortage of organs remains profound. According to estimates from the World Health Organization, only about 10% of the worldwide demand for organ transplantation is currently being met (Giwa et al., 2017). In high-income countries such as the United States, approximately 103,000 individuals are listed for organ transplantation, with an estimated 17 patients dying each day while awaiting a transplant (Health Resources and Services Administration, 2024).

Similarly, in the United Kingdom, roughly 7,500 people are on the transplant waiting list, and 415 individuals died while waiting for a transplant during 2023/2024 (NHS Blood and Transplant, 2024).

The willingness to donate an organ depends on one's knowledge of and attitudes regarding the practice. Fan et al., demonstrated that the general public's willingness to donate organs in China was found to be positively correlated with knowledge and attitudes. Where this willingness may increase as more people get familiar with the notions of brain death and the transplant process (Fan et al., 2022).

In their study Stadlbauer V et al., also demonstrated high understanding of Austrian organ donation regulations, among the survey's 1945 Intensive Care Unit (ICU) nurses, health science students, and non-health science student participants (Stadlbauer et al., 2013). Addition-ally, Alkhatib AA et al. found that physicians who were identified as donors were more aware of issues linked to the organ shortage in a survey of 724 doctors from various disciplines in the USA (Alkhatib et al., 2014). Moreover, university students constitute the targeted group to examine since their beliefs and attitudes act as determinants influencing societal attitudes (Alwahaibi et al., 2023). As compared to other nations, Lebanon has one of the lowest rates of organ donation, with less than two donors per million people annually (NOOTDT, 2010).

Organ transplant operations only began in the Middle East in the 1970s. The idea of harvesting organs from people that had died from cardiac arrest or brain death encountered strong criticism, as a result, transplantations were exclusively performed using living donors. Such transplantation techniques were used due to the moral quandaries that come with the process, as well as legal and societal difficulties and strict religious views (Ariss et al., 2014).

In Lebanon, and according to the National Organization for Organ and Tissue Donation and Transplantation - NODLb the first organ transplantation unit opened in 1985, and the number of such centers has steadily increased over time, reaching 18 transplant units, of which five are dedicated to kidney transplantation, one to liver transplantation, and four to heart transplantation. The National Organization for Organ and Tissue Donation and Transplantation (NODLb) is a ministry-affiliated organization that was founded in 1999 by the Ministry of Health (MOH) and the Lebanese Order of

Physicians (LOP) and was given by the Lebanese Code of Ethics (Oct 2012, Art 30) the “exclusive responsibility” for the acquisition and trans-plantation of cells, tissues and organs. The Lebanese law 109/1983 allows “donation of human tissues and organs for medical and scientific purposes” where the family’s consent is needed if the donor was dead and had a donation card. If it is the case of a living donor, the donor should be > 18 years old, healthy, free of transmissible diseases, and have signed an informed consent. In addition, the donation should be free and unconditional to avoid commercialism (NOOTDT, 2010).

In Lebanon, in 2022, a study was conducted among medical students in a single university to determine knowledge and attitudes towards xenotransplantation, concluded that medical students have knowledge and positive attitudes towards the issue (Safi et al., 2022). However, in 2023 Lebanese adults showed indifference towards organ donation due to unfavorable religious and legal taboos (El Abed El Rassoul et al., 2023).

The perception of organ donation among the Lebanese university student’s population, by comparing findings between medical and non-medical students, to our current knowledge, has not been previously explored. Yet, given the presiding status in Lebanon, one might assume that the general public is aware of the concept of organ donation; however, their desire to donate is restricted by their cultural beliefs, taboos, and hurdles surrounding the subject. This study aims to assess the attitudes of Lebanese medical and non-medical university students to organ donation and to further evaluate their knowledge about this particular notion and their willingness to donate organs.

Materials and Methods

Survey and Research Design

This is a cross-sectional study based on the self-administered online survey that evaluates the knowledge, attitudes, perceptions, and practices related to organ donation among university students in Lebanon. The socio-demographic data include questions on age, gender, year of study, and field of study. It includes items to evaluate the participants' knowledge about organ donation in Lebanon, including procedures and legal and ethical frameworks.

Attitudes and beliefs are elicited on issues such as willingness to donate, reasons or obstacles to donation, preference of donors, ethical considerations, family influence, and confidence in the healthcare system.

The section on perception is measured through twelve statements rated on a five-point Likert scale ranging from strongly agreeing to strongly disagreeing to reflect the cultural, social, and personal perception of organ donation in Lebanon.

The last section on practices and intentions asks about whether the respondent carries an organ donation card, would be willing to register, discusses it with the family, would be willing to accept an organ transplant, and any suggestions to improve the rate of organ donation in Lebanon.

The questionnaire was adapted from previously validated surveys on organ donation among university students and health professionals. After a detailed review of these studies, relevant items were extracted and adapted to the Lebanese context (Hasan et al., 2019), (Bayraktar & Bayraktar, 2024), (Uzuntarla, 2018), (D’Alessandro et al., 2012).

Data Collection and Sample Size

The target of this study is university students in institutions spread all over the Lebanese state. Convenience sampling was done, in which 252 participants were sampled. The english version of the questionnaire was utilized. It was distributed in the 2025-2026 academic year for lebanese university students, including the Holy Spirit University of Kaslik, American University of Beirut, Lebanese American University, Lebanese University, University of Balamand, and Lebanese International University. The data was distributed using a variety of communication tools such as university emails and social media groups most likely frequented by university students.

Ethical Considerations

This research received an approval from the Research Ethics Committee (REC) and the Human Research Protection Program (HRPP) at the Holy Spirit University of Kaslik (Reference Number: HRPP/202610/FT/020). The research followed the principles outlined in the Declaration of Helsinki (World Medical Association, 2013).

There is complete voluntary participation, with all individuals being asked to read the information sheet on the study before participating by giving electronic consent in order to take the online questionnaire. No personal details (names, phone number, and email) were recorded, as all answers were kept anonymous. Data is safely kept for sole analysis use, and only the research team has a password for accessing the anonymous file, which is available on request by the corresponding author.

Data Analysis

The data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 23. Descriptive statistics were performed to summarize socio-demographic characteristics and survey responses using frequencies and percentages. The sociodemographic variables associations with the knowledge, attitudes, perception, and practice of the students on organ donation are pursued through inferential statistical chi-square tests. For statistical purposes, the threshold for significance is taken as $p < 0.05$.

Results

Table 1: Sociodemographic characteristics of participants (N = 252)

characteristics	% or Mean ± SD
Age (years)	21.73 ± 3.36
Gender	
Female	178 (70.6)
Male	74 (29.4)
Year of study	
Undergraduate	154 (61.1)
Graduate	98 (38.9)
Specialty of study	
Medical	133 (52.8)
Non-medical	119 (47.2)

Table 1 shows the characteristics of 252 university students that were used for the study, with the mean age of the participants being 21.73 ± 3.36 years, with females accounting for the majority of the population (70.6%). Most of the population study participants belonged to the undergraduate category (61.1%), while a majority of the study participants belonged to the medical specialty group (52.8%), with a smaller portion of the study participants belonging to the non-medical specialty group (Table 1).

Table 2. Awareness of organ donation and transplantation

	Medical		Non-Medical		P value
Item	**No (%)**	**Yes (%)**	**No (%)**	**Yes (%)**	
Heard about organ donation in Lebanon	14 (10.5%)	119 (89.5%)	25 (21.0%)	94 (79.0%)	0.022
Know anybody who donated an organ	98 (73.7%)	35 (26.3%)	96 (80.7%)	23 (19.3%)	0.231
Aware that transplants are performed in Lebanon	13 (9.8%)	120 (90.2%)	45 (37.8%)	74 (62.2%)	<0.001

Table 2 presents a view of the results concerning the awareness. 89.5% of medical students compared with 79.0% of non-medical students in Lebanon reported having been informed about organ donation, where it was statistically significant since p = 0.022. However, there was no statistically significant difference concerning whether the individuals had known people who donated an organ in their lifetimes. Regarding awareness that transplants are performed in Lebanon, medical students showed much higher knowledge (90.2%) than non-medical students (62.2%), and this difference was highly significant (p < 0.001) (Table 2).

Table 3. Knowledge of organ donation and transplantation

Items	Response	Medical n (%)	Non-medical n (%)	p-value
Hospitals where organ transplantation is performed in Lebanon	University hospitals	13 (9.8%)	19 (16.0%)	0.002
	Government hospitals	6 (4.5%)	13 (10.9%)	
	Private hospitals	36 (27.1%)	45 (37.8%)	
	All of the above	78 (58.6%)	42 (35.3%)	
Organs that can be transplanted in Lebanon	Kidney	76 (24.8%)	66 (27.5%)	0.788
	Liver	62 (20.2%)	45 (18.8%)	0.158
	Cornea	34 (11.1%)	30 (12.5%)	0.949
	Pancreas	29 (9.4%)	21 (8.8%)	0.409
	Lung	26 (8.5%)	23 (9.6%)	0.965
	Small intestine	15 (4.9%)	11 (4.6%)	0.596
	All the above	65 (21.2%)	44 (18.3%)	0.057
Do you know about the concept of brain death?	No	12 (9.0%)	44 (37.0%)	<0.001
	Yes	121 (91.0%)	75 (63.0%)	
Do you believe that brain death constitutes irreversible death?	No	14 (10.5%)	7 (5.9%)	<0.001
	Not sure	32 (24.1%)	72 (60.5%)	
	Yes	87 (65.4%)	40 (33.6%)	
Could an organ be taken from every dead person?	No	108 (81.2%)	93 (78.2%)	0.638
	Yes	25 (18.8%)	26 (21.8%)	
Do you know that organ donation after brain death is legal in Lebanon?	No	22 (16.5%)	35 (29.4%)	0.008
	Not sure	53 (39.8%)	52 (43.7%)	
	Yes	58 (43.6%)	32 (26.9%)	
Do you know that Lebanon has organ donation registry?	No	68 (51.1%)	79 (66.4%)	0.011
	Not sure	37 (27.8%)	25 (21.0%)	
	Yes	28 (21.1%)	15 (12.6%)	
Do you know where/how an organ is donated?	No	69 (51.9%)	84 (70.6%)	0.003
	Yes	64 (48.1%)	35 (29.4%)	
Are there limitations to organ transplantations such as age?	No	14 (10.5%)	16 (13.4%)	0.409
	Not sure	42 (31.6%)	44 (37.0%)	
	Yes	77 (57.9%)	59 (49.6%)	
Have you ever donated an organ?	No	133 (100.0%)	116 (97.5%)	0.104
	Yes	0 (0.0%)	3 (2.5%)	

Knowledge about the settings of organ transplantation and donation are presented in Table 3. Medical students were significantly more likely than their non-medical counterparts to know that organ transplantation in Lebanon is done in all government, private, and university hospitals (58.6% vs. 35.3%, $p = 0.002$). On the other hand, the non-medical students were more likely to choose private hospitals as the only place where organ transplantation is done.

Question on knowledge about organs that are transplantable in Lebanon allowed multiple answers. The organs most frequently chosen by both medical and non-medical students were the kidney, followed by the liver and the cornea. There were no statistically significant differences between medical and non-medical students in their choices of organs that are transplantable.

Concerning Brain death and relevant legal knowledge, medical students showed significantly better understanding of the concept of brain death compared with non-medical students (91.0% vs. 63.0%, $p < 0.001$). The proportion of medical students who believed that brain death is irreversible death was significantly higher ($p < 0.001$).

Knowledge of organ donation after brain death being legally permitted in Lebanon was higher among medical students, 43.6% versus 26.9% ($p = 0.008$). Awareness of an organ donation registry in Lebanon was also higher among medical students, 21.1% versus 12.6% ($p = 0.011$).

Medical students were significantly more likely than non-medical students to report knowing where or how an organ is donated (48.1% vs. 29.4%, p = 0.003). Actual organ donation was infrequent in both groups; it was reported by three participants, all from non-medical specialties (Table 3).

Table 4. Willingness to donate organs and associated motivations and barriers

Items	Response	Medical n (%)	Non-medical n (%)	p-value
Willingness to donate an organ in the future	Missing / Not applicable	0 (0.0%)	3 (2.5%)	0.315
	No	15 (11.3%)	12 (10.1%)	
	Undecided	58 (43.6%)	49 (41.2%)	
	Yes	60 (45.1%)	55 (46.2%)	
Motivations for future organ donation	To save lives	82 (61.7%)	65 (54.6%)	0.258
	To help others	63 (47.4%)	39 (32.8%)	0.018
	Moral responsibility	22 (16.5%)	13 (10.9%)	0.284
	Religious encouragement	11 (8.3%)	17 (14.3%)	0.198
	Motivated by family/friends	14 (10.5%)	13 (10.9%)	0.129
	Other	33 (24.8%)	26 (21.8%)	0.919
Barriers to future organ donation	Distrust in healthcare system	16 (14.4%)	11 (11.7%)	0.475
	Fear of body disfigurement	15 (13.5%)	13 (13.8%)	0.929
	Fear organs may be wasted/misused	15 (13.5%)	9 (9.6%)	0.316
	Lack of family support	13 (11.7%)	13 (13.8%)	0.764
	Inadequate information	11 (9.9%)	10 (10.6%)	0.970
	Religious reasons	14 (12.6%)	11 (11.7%)	0.734
	Other reasons	27 (24.3%)	27 (28.7%)	0.645

Willingness to donate an organ in the future, motivation, and barriers are represented in table 4. Overall, students expressed their willingness to donate organs in the future, and there was no statistically significant difference between medical (45.1%) and non-medical students (46.2%) (p = 0.315).

Multiple answers were allowed in the question on motivations to donate organs in the future. The most common motivation to donate organs among medical and non-medical students was saving lives, followed by helping others. There was a statistically significant difference in “to help others”, which was more common among medical students than among non-medical students (47.4% vs. 32.8%, p = 0.018). No statistically significant differences were found in other motivations, like saving lives (p = 0.258) or religious encouragement (p = 0.198).

No significant differences were noted between medical and non-medical students regarding the perceived barriers (Table 4).

Table 5. Donation preferences, ethics, and beliefs.

Items	Responses	Medical n (%)	Non-medical n (%)	p-value
Preferred recipient of donated organs	Anyone in need	75 (56.4%)	71 (59.7%)	0.089
	Family	56 (42.1%)	40 (33.6%)	
	Friends/Colleagues	1 (0.8%)	7 (5.9%)	
	Strangers	1 (0.8%)	1 (0.8%)	
Ethical acceptability of donating an organ for money	No	103 (77.4%)	85 (71.4%)	0.311
	Yes	30 (22.6%)	34 (28.6%)	
Would you encourage your family or friends to donate after brain death?	No	11 (8.3%)	14 (11.8%)	0.056
	Not sure	46 (34.6%)	55 (46.2%)	
	Yes	76 (57.1%)	50 (42.0%)	
Do you think religion in Lebanon encourages organ donation?	No	32 (24.1%)	38 (31.9%)	0.032
	Not sure	63 (47.4%)	63 (52.9%)	
	Yes	38 (28.6%)	18 (15.1%)	
Do you trust the Lebanese healthcare system to manage organ donation and transplantation fairly?	No	42 (31.6%)	53 (44.5%)	0.092
	Not sure	59 (44.4%)	40 (33.6%)	
	Yes	32 (24.1%)	26 (21.8%)	
Do you think organ donation and transplantation should be included in the school or university curriculum?	No	18 (13.5%)	26 (21.8%)	0.081
	Yes	115 (86.5%)	93 (78.2%)	
Do you currently have an organ donation card?	No	126 (94.7%)	112 (94.1%)	1.000
	Yes	7 (5.3%)	7 (5.9%)	
Have you ever discussed organ donation with your family?	No	88 (66.2%)	76 (63.9%)	0.791
	Yes	45 (33.8%)	43 (36.1%)	
If you had end-stage kidney or liver failure, would you accept a transplant from a deceased donor?	No	13 (9.8%)	11 (9.2%)	0.008
	Not sure	27 (20.3%)	45 (37.8%)	
	Yes	93 (69.9%)	63 (52.9%)	
Would you agree to donate your own organs after death?	No	11 (8.3%)	13 (10.9%)	0.770
	Not sure	48 (36.1%)	41 (34.5%)	
	Yes	74 (55.6%)	65 (54.6%)	
Strategies to increase organ donation in Lebanon	**Public education campaigns**	122 (91.7)	95 (79.8)	**0.006**
	Media and social media campaigns	110 (82.7)	85 (71.4)	**0.033**
	University / student campaigns	109 (82.0)	77 (64.7)	**0.002**
	Informing patients and families in hospitals	102 (76.7)	75 (63.0)	**0.018**
	Awareness by religious leaders	100 (75.2)	66 (55.5)	**0.006**

Table 5 presents donation preferences, ethics, attitudes, and beliefs among medical and non-medical students. The most preferred recipient of donated organs in both groups was “anyone in need”, reported by 56.4% of medical students and 59.7% of non-medical students. Donating to family members was the second most common choice). There was no statistically significant difference between the two groups in preferred recipient ($p = 0.089$).

Most students considered donating an organ for money ethically unacceptable. Acceptance of organ donation for money was low in both groups (22.6% of medical vs 28.6% of non-medical students), and the difference between groups was not significant ($p = 0.311$).

There was a statistically significant difference between the groups in perceptions regarding encouragement about organ donation from religion, with medical students more likely to believe that their religion encourages organ donation ($p = 0.032$). General trust in the healthcare system and support for

the incorporation of organ donation education into university curricula were quite high across both groups, but no significant differences were found between groups.

Only a small number of individuals indicated that they have an organ donation card (5.3% of medical students and 5.9% of non-medical students), but there were no significant differences between groups (P = 1.000). The acceptance of organ transplanting from death donors was found to be statistically more significant in medical students compared to other non-medical students (69.9% vs. 52.9%, p = 0.008).

Concerning strategies to improve organ donation, medical students were more likely to support public education campaigns (91.7% vs. 79.8%, p = 0.006), followed by media and social media campaigns (82.7% vs. 71.4%, p = 0.033), than non-medical students (Table 5).

Table 6. Attitudes toward organ donation

	Medical (%)					Non-Medical (%)					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	P values
I believe organ donation is an act of humanity and solidarity.	84 (63.2%)	37 (27.8%)	11 (8.3%)	1 (0.8%)	0 (0.0%)	69 (58.0%)	35 (29.4%)	15 (12.6%)	0 (0.0%)	0 (0.0%)	0.499
Organ donation in Lebanon is respected and valued by society.	15 (11.3%)	24 (18.0%)	53 (39.8%)	34 (25.6%)	7 (5.3%)	18 (15.1%)	21 (17.6%)	41 (34.5%)	29 (24.4%)	10 (8.4%)	0.706
In Lebanon, organ donation is sometimes seen as taboo or controversial.	30 (22.6%)	63 (47.4%)	33 (24.8%)	6 (4.5%)	1 (0.8%)	36 (30.3%)	50 (42.0%)	31 (26.1%)	1 (0.8%)	1 (0.8%)	0.296
People in Lebanon have limited knowledge about organ donation.	66 (49.6%)	49 (36.8%)	16 (12.0%)	1 (0.8%)	1 (0.8%)	55 (46.2%)	42 (35.3%)	15 (12.6%)	5 (4.2%)	2 (1.7%)	0.433
I believe doctors in Lebanon may not try their best to save a patient if they know the person is an organ donor.	12 (9.0%)	27 (20.3%)	58 (43.6%)	28 (21.1%)	8 (6.0%)	24 (20.2%)	32 (26.9%)	45 (37.8%)	11 (9.2%)	7 (5.9%)	0.012
Organ donation is not promoted enough in Lebanon compared to other countries.	60 (45.1%)	58 (43.6%)	12 (9.0%)	3 (2.3%)	0 (0.0%)	50 (42.0%)	56 (47.1%)	11 (9.2%)	1 (0.8%)	1 (0.8%)	0.168
Family approval is more important than personal choice in organ donation.	14 (10.5%)	21 (15.8%)	53 (39.8%)	26 (19.5%)	19 (14.3%)	20 (16.8%)	27 (22.7%)	36 (30.3%)	25 (21.0%)	11 (9.2%)	0.002
Signing an organ donation card in Lebanon is a trustworthy and safe process.	19 (14.3%)	29 (21.8%)	64 (48.1%)	16 (12.0%)	5 (3.8%)	21 (17.6%)	27 (22.7%)	51 (42.9%)	16 (13.4%)	4 (3.4%)	0.053
Organ donation is more acceptable when the recipient is a family member rather than a stranger.	38 (28.6%)	53 (39.8%)	25 (18.8%)	13 (9.8%)	4 (3.0%)	37 (31.1%)	45 (37.8%)	28 (23.5%)	6 (5.0%)	3 (2.5%)	0.627
Organ donation can improve Lebanon's healthcare image and trust.	50 (37.6%)	57 (42.9%)	21 (15.8%)	4 (3.0%)	1 (0.8%)	42 (35.3%)	52 (43.7%)	23 (19.3%)	1 (0.8%)	1 (0.8%)	0.108
The idea of organ donation makes me feel uncomfortable/anxious.	9 (6.8%)	22 (16.5%)	44 (33.1%)	31 (23.3%)	27 (20.3%)	24 (20.2%)	18 (15.1%)	35 (29.4%)	23 (19.3%)	19 (16.0%)	0.028

Table 6 shows attitudes toward organ donation among university students. Overall, both groups expressed generally positive attitudes. Most students agreed that organ donation is an act of humanity and solidarity, with high levels of agreement in both medical students (63.2% strongly agree and 27.8% agree) and non-medical students (58.0% strongly agree and 29.4% agree), with no significant difference between groups (p = 0.499). In addition, many participants in both groups believed that people in Lebanon have limited knowledge about organ donation, and responses were similar between the two groups (p = 0.433).

The most important statistically significant differences between the two groups were related to trust, social influence, and emotional discomfort. Non-medical students were significantly more likely to agree with the statement that doctors in Lebanon may not try their best to save a patient if they know the person is an organ donor ($p = 0.012$). Another significant difference was observed regarding the importance of family approval, where non-medical students were more likely to agree that family approval is more important than personal choice in organ donation ($p = 0.002$). A significant difference was also found for emotional reactions, as non-medical students were more likely to feel uncomfortable or anxious about the idea of organ donation compared to medical students ($p = 0.028$).

Many students believed that organ donation is not promoted enough in Lebanon ($p = 0.168$), and perceptions about the trustworthiness and safety of signing an organ donation card were also comparable between groups ($p = 0.053$) (Table 6).

Discussion

Knowledge and awareness of organ donation among Lebanese university students were generally high but uneven across educational backgrounds. Awareness that organ transplantation is performed in Lebanon was reported by 90.2% of medical students compared to 62.2% of non-medical students. However, fewer than half of participants (47.6%) correctly identified all hospital sectors in which transplantation is performed, and only 39.3% reported knowing where or how organ donation occurs. These findings indicate that while organ donation is a familiar concept among university students, detailed and actionable knowledge remains limited. Similar discrepancies between general awareness and in-depth knowledge have been reported internationally. In China, Fan et al. found that although 83–90% of respondents had heard about organ donation, fewer than 50% demonstrated adequate knowledge of donation procedures and systems (Fan et al., 2022). Likewise, a cross-sectional study among Saudi university students reported near-universal awareness of organ donation (97.6%), yet only 64.9% were aware that organ transplantation services were actively available in their country (Alghanim, 2010).

Understanding the concept of brain death represented one of the most notable knowledge gaps identified in this study. While awareness of the concept of brain death was reported by 91.0% of medical students, this proportion was significantly lower among non-medical students (63.0%). More importantly, only 65.4% of medical students and 33.6% of non-medical students believed that brain death constitutes irreversible death. These findings suggest that although many students are familiar with the term “brain death”, its medical and legal implications are not fully understood. Similar knowledge gaps have been reported in previous studies. In Saudi Arabia, a study conducted among medical students reported that although many participants had heard about brain death, 36% expressed uncertainty when questioned about the concept (Alnajjar et al., 2020). Misunderstandings surrounding the concept of brain death have been identified as an important factor influencing attitudes toward organ donation and willingness to donate organs (Morgan & Miller, 2002) (Rumsey et al., 2003).

In the present study, willingness to donate organs was similar between medical and non-medical students, with 45.1% of medical students and 46.2% of non-medical students responding “yes”, while 11.3% of medical vs 10.1% of non-medical students explicitly refused donation. This finding contrasts with international studies where medical education is associated with higher willingness. For example, in Germany, 78.2% of medical students reported written willingness to donate organs compared with 55.2% of non-medical students (Schaeffner et al., 2004). In Turkey, 71.2% of medical students expressed willingness, with education and clinical exposure positively influencing intent (Sengul & Sahin, 1992).

In our study, the primary motivation for future organ donation among students was altruism, particularly the desire to save lives. Among medical students, 61.7% reported “to save lives” as motivating factors. Non-medical students similarly prioritized saving lives (54.6%), suggesting that medical education may strengthen awareness of broader humanitarian and social responsibilities. Other motivations, such as moral responsibility (16.5% medical vs 10.9% non-medical) and religious encouragement (8.3% vs 14.3%) were less frequently reported. These findings are consistent with regional studies. Studies in Saudi Arabia and Turkey demonstrated that saving lives and helping others were the top motivations for medical students (50-70%), with non-medical students placing slightly more emphasis on religious and family influences (Moweshy et al., 2022) (Sengul & Sahin, 1992).

Regarding donation preferences, most students prioritized altruism over personal connections, with 56.4% of medical and 59.7% of non-medical students preferring to donate to “anyone in need”, highlighting that donation decisions are primary guided by humanitarian considerations rather than social proximity.

Ethical perspectives were similarly conservative; the majority rejected the idea of donating organs for financial gain (77.4% medical vs 71.4% non-medical), demonstrating widespread adherence to moral norms. Social perceptions revealed nuanced differences: although many students viewed organ donation positively, a notable fraction acknowledged that it is sometimes seen as taboo in Lebanon. These finding align with regional studies showing that university students support organ donation ethically and socially but are influenced by family, societal norms, and perceptions of public respect for donation (Al-Sharbatti et al., 2025) (Al-Salhi & Othman, 2024).

Strengths and Limitations

This study provides important insight into the knowledge, attitudes, and perceptions of organ donation among university students in Lebanon, mainly by including and comparing both medical and non-medical disciplines. The cross-sectional design does not allow causal relationships to be established. In addition, the use of convenience sampling and self-reported online responses may introduce selection and response biases, which may limit the generalizability of the findings.

Conclusion

This study highlights that Lebanese university students generally demonstrate positive attitudes toward organ donation, with many expressing willingness to donate organs in the future. However, important gaps remain in detailed knowledge, particularly regarding brain death, donation procedures, and the organ donation system in Lebanon. While medical students showed higher levels of knowledge in several areas, willingness to donate was similar across both medical and non-medical groups.

These findings suggest that increasing public education and integrating organ donation topics into academic curricula may help improve awareness, address misconceptions, and potentially increase organ donation rates in Lebanon.

Declarations

Acknowledgment

Holy Spirit University of Kaslik (USEK)

Ethics Approval

This research received an approval from the Research Ethics Committee (REC) and the Human Research Protection Program (HRPP) at the Holy Spirit University of Kaslik (Reference Number: HRPP/202610/FT/020).

Informed Consent

There is complete voluntary participation, with all individuals being asked to read the information sheet on the study before participating by giving electronic consent in order to take the online questionnaire. No personal details (names, phone number, and email) were recorded, as all answers were kept anonymous.

Consent for publication

Not Applicable.

Conflict of Interest

All the authors declare no competing interests.

Authors' contributions

All authors have contributed equally to this manuscript. All authors read and approved the final manuscript. The corresponding author is Rawad Affan, his email is: rawad.r.affan@net.usek.edu.lb

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Availability of data and materials

Only the research team will have access to the anonymized dataset and is available upon reasonable request from the corresponding author.

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