Proof send to: izadi111389@gmail.com
Tel: 09112705811

Masoudy Gh. [1],
PhD, Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iran. Email: remasoudy64@gmail.com. https://orcid.org/0000-0001-6947-8836 Tell: 09155404262

F. [2],
Msc in Epidmiology working at the Vice Chancellore for research, Shiraz University of Medical Sciences, Shiraz, Iran. Fatemerhsaeeidi1377@gmail.com https://orcid.org/0000-0003-3800-9345 Tell: 09033245400

Ansari H. [3],
PhD, Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iranan. sarih88@gmail.com. https://orcid.org/0000-0003-2755-7864. Tell: 09126309480

Izadirad H. [4*]
PhD, Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iran. Izadi111389@gmail.com https://orcid.org/0000-0002-9067-8661
*Responsible author: Hossein Izadirad, PhD, Email: izadi111389@gmail.com Tel:+989112705811, Postal Code: 9817699639, Postal Address:Zahedan University of Medical Sciences, School of Health, Dr. Hesabi Square, Zahedan, Iran

Knowledge, Attitudes, and Predictors of Posthumous Organ Donation Card Registration in non medical students on Sistan and baluchistan university

Background: Donation after brain death (DBD) serves as the most effective source of transplantable organs. However, Iran experiences a concerning disparity between potential and actual donors, with an alarming shortfall in conversion rates despite numerous annual brain death cases.This study aimed to evaluate knowledge, attitudes, experiences, and predictors of organ donor card registration among non-medical students in southeastern Iran.
Materials and methods: A cross-sectional study employing multi-stage random sampling was conducted from June 2022 to June 2023 at the University of Sistan and Baluchestan. Data collection utilized a validated questionnaire with strong content validity (CVI > 0.8, CVR > 0.62) and internal consistency (Cronbach's alpha: 0.71 for knowledge, 0.70 for attitude). Analysis incorporated descriptive statistics and analytical methods, including logistic regression, with significance set at $p < 0.05$.
Results: Among 320 participants (mean age 22.49 ± 2.11 years), females predominated (53.4%). Most students pursued Bachelor's degrees (90.6%) in Social Sciences (51.6%). Only 11.9% were registered donors. Knowledge levels were primarily moderate (53.1%), while attitudes were largely positive (96.6% moderate-to-good). The regression model (Nagelkerke $R^2 = 0.52$) identified personal Experiences as the sole significant registration predictor (OR: 3.86, 95% CI: 2.43-6.13, $p < 0.001$).
Conclusion: These results demonstrate a substantial intention-behaviour gap among students. Interventions should prioritize developing meaningful experiential learning opportunities through direct exposure to organ donation contexts and personal narratives from donors and recipients, rather than depending exclusively on conventional knowledge-based campaigns. Strategic partnerships with donor associations and integration of personal testimonies into educational programs are recommended.

Keywords: Knowledge, Attitude, Organ Donation, Students

Introduction

Donation after brain death (DBD) is considered the most efficient source of transplantable organs, as a single donor can provide multiple organs for different recipients. [1-3] Despite this, substantial international disparities in postmortem donation rates persist. [2, 4] For instance, in 2017, Spain, Portugal, and Belgium achieved 46.9, 34, and 33.6 deceased donors per million population (pmp), respectively, while the United States recorded 32 pmp figures that remain significantly higher compared with many other countries, including Iran, ranked 38th globally. [2, 3, 5] These gaps have severe consequences: it is estimated that globally up to 20 patients die each day while awaiting an organ transplant, resulting in a significant mortality each year worldwide. [3, 6-8]

Although Iran has over four decades of experience in organ transplantation and considerable potential for DBD, the conversion rate of brain-dead cases to actual donations remains lower than anticipated. Annually, 2500 to 4000 cases of brain death are reported in Iran; however, only about 10% result in organ donation.[9] National statistics reveal that approximately 26,000 patients are currently on the transplant waiting list; one patient is added every 10 minutes, and one patient dies every two hours due to organ shortage. Meanwhile, a single brain-dead donor has the potential to save up to eight lives and improve the quality of life for 53 patients. [2, 10] In 2017, out of around 3,000 eligible brain-death cases, only 926 resulted in actual donation. [9, 11, 12] These data emphasize the persistent impact of cultural, legal, organizational, and beliefs in reducing donation rates in Iran and the world. [13]

Multiple personal, familial, cultural, and systemic factors contribute to the decision-making process regarding organ donation. [13-15] Barriers such as religious or cultural beliefs, misconceptions about bodily integrity after death, uncertainty regarding the concept of brain death, and demographic characteristics (e.g., age, sex, education level, income) have been reported. [2, 6, 14, 16] In addition to these commonly assessed factors, individual and social experiences such as knowing a transplant recipient or donor in the family, having acquaintances who possess an organ donor card, or participating in donation-related community or student associations have emerged as key

motivators that may reinforce positive attitudes and willingness to participate in donation initiatives.[13] Such real-life encounters can help normalize the concept of donation, reduce fear and misperceptions, and strengthen emotional acceptance of postmortem organ donation.

University students form a vital group for educational interventions because of their relatively high literacy, broad social influence, and role in shaping cultural norms. However, most research has mainly focused on medical students. Evidence remains limited for non-medical students, despite their widespread representation and potential to influence societal behaviour. Recent findings indicate that structured approaches assessing knowledge, attitudes, behavioural intention, and personal social experiences can better predict the likelihood of registering as an organ donor. Therefore, evaluating these psychosocial and experience-based factors in non-medical populations is essential for developing more targeted and effective interventions.

In addition to cultural and educational barriers, national policy frameworks can significantly influence donation rates. For example, Italy's opt-out (presumed consent) system has improved deceased donation rates; however, the refusal rate remained at 28.6% in 2021, resulting in the loss of 730 potential donors. [5] Globally, significant regional differences are observed: in 2018, the Americas and Europe reported 55.0 and 42.7 transplants per million population (pmp), respectively, while countries such as India had much lower donation rates (0.34 pmp), reflecting sociocultural challenges. [5,11] These discrepancies indicate that improvements in medical infrastructure alone are insufficient; public acceptance and awareness are critical.

Previous studies examining families' decision-making about donation have identified psychological, cultural, and informational factors, including religious perceptions, death-related anxieties, and lack of accurate knowledge regarding organ donation procedures. [5,7] Although emerging innovations—such as blockchain-based donation management systems or xenotransplantation—offer new scientific and ethical possibilities, improving public knowledge and fostering supportive attitudes remain indispensable for increasing donation rates. [4,8]

Given the substantial gap between the need for transplantable organs and their availability, and considering the significant role of knowledge, attitudes, and direct and indirect personal experiences in shaping individuals' willingness to obtain an organ donor card, it is essential to investigate these determinants in influential social groups. Non-medical university students represent a critical yet understudied population in this regard. Therefore, the present study aims to assess the knowledge, attitudes, personal and social experiences, and predictors of organ donor card obtaining among non-medical students in relation to brain death, to identify key determinants affecting registration behavior. Findings from this research are expected to provide evidence-based guidance for educational strategies, policymaking, and national initiatives to increase organ donation and improve health outcomes.

Materials and Methods

Study setup and design

This cross-sectional study was conducted between June 2002 and June 2003 among students at the University of Sistan and Baluchistan, southeastern Iran. Ethical approval was obtained from the Ethics Committee of Zahedan University of Medical Sciences (IR.ZAUMS.REC.1398.369).

Study participants and sampling

To determine the sample size, considering a type I error of 0.05, a statistical accuracy of 0.151, and a variance of 1.33 from previous studies, [17] according to the following sample size formula, the required sample size for this study was 290 people, which, considering a 10% dropout rate, resulted in 320 people being included in the study.

$$n = \frac{z_{(1-\alpha/2)}^{2}\sigma^{2}}{d^{2}}$$

.A total of 320 students participated in the study, selected using a multi-stage sampling method. First, to ensure a representative sample across the university's diverse academic landscape, students were categorised into three main disciplinary groups based on their field of study: Social Sciences, Engineering, and Basic Sciences. Following this stratification, participants from these groups were recruited from various academic semesters using an availability (or convenience) sampling method. This approach facilitated the inclusion of a broad spectrum of students based on their accessibility and willingness to participate .Inclusion criteria were enrollment as a student

and willingness to participate. Participants who refused to continue while completing the questionnaire or who withdrew from the study were excluded.

Data collection tools and technique

A five-part questionnaire was developed. The first part collected demographic information, including age, sex, field of study, faculty (place of study), semester, educational level, and parents' educational level. The second part consisted of 9 questions assessing students' knowledge about the organ donation and transplantation process. This section evaluated concepts such as brain death, who can donate organs, consent conditions for donation from deceased individuals, which organs can be donated by living donors, signs of brain death, the possibility of donating whole organs or parts of organs, which organs cannot be donated by living individuals, and national laws related to organ donation and transplantation. Responses were categorized as *true*, *false*, or *I don't know*, with one point assigned for each correct answer and zero points for incorrect or "I don't know" responses. The third part examined students' attitudes toward organ donation and transplantation, emphasizing their understanding of its role in saving lives within the community. It broadly assessed individuals' attitudes in the areas of the act of donation, the value and importance of donation in society, their views on donating to all individuals or only to family members and relatives, their opinions and beliefs regarding posthumous donation, and their opinions and beliefs regarding donation from living individuals. This section comprised seven items measured using a five-point Likert scale ranging from *strongly disagree (1)* to *strongly agree (5)*. Responses were scored from one to five, with higher scores indicating a more positive attitude. According to Bloom's taxonomy, knowledge and attitude levels were classified into three categories: good (80–100% of the total score), moderate (60–79%), and poor (below 60%).

The fourth section assessed the personal and social experiences of participants regarding organ donation and transplantation processes. It included six items inquiring about: taking any action to obtain a donor card, membership in organ donation and transplantation associations, personal experience with organ donation, having a family member who has undergone transplantation or donated an organ, personally knowing someone who has received a transplant, and being acquainted with an individual who has registered for a posthumous organ donation card.. This section consisted of six items. Responses to the questions were dichotomous (yes or no), with one point assigned for a "yes" answer and zero points for a "no" answer.

Part Five evaluated students' willingness to donate organs after brain death, which was determined based on whether or not they had obtained an organ donation card.

Reliability and validity: The reliability of the questionnaire was assessed using Cronbach's alpha to evaluate internal consistency. The scales for knowledge and attitude demonstrated acceptable reliability, with values of 0.71 and 0.70, respectively. Content validity was evaluated using the Content Validity Ratio (CVR) and the Content Validity Index (CVI). All questions were retained, as each achieved a CVI of at least 0.8 and a CVR above the critical value of 0.62 (based on Lawshe's table for the number of experts).

Data analysis

The data were analysed using both descriptive and inferential statistics. Frequencies and percentages were employed to summarise categorical variables such as demographic characteristics, while continuous variables were expressed as mean and standard deviation. Associations between sociodemographic characteristics and participants' knowledge and attitudes towards organ donation were examined using the Chi-square test. Variables that were significant in bivariate analyses were included in multivariate logistic regression models to identify independent predictors. A p-value ≤ 0.05 was regarded as statistically significant.

Ethical considerations

This study was approved by the ethics committee of the Zahedan University of Medical Sciences with the code of ethics IR.ZAUMS.REC.1398.369. Written informed consent was obtained from the patients, and they were ensured that their information would remain confidential and that they had the right to withdraw from the study at any time. Numerical codes were used to keep the samples anonymous. All methods were carried out in accordance with relevant guidelines and regulations in the declaration.

Results

A total of 320 research students participated in the study. The analysis revealed a significant disparity between positive attitudes towards organ donation and actual commitment. Only a small minority of participants (11.9%, n=38) were registered as posthumous organ donors. However,

these registered individuals demonstrated significantly higher mean scores in knowledge (6.68 ± 1.41 vs. 5.78 ± 1.31, p<0.001), attitude (28.31 ± 3.69 vs. 26.54 ± 3.78, p<0.001), and experiences (9.42 ± 1.42 vs. 7.08 ± 1.10, p<0.001) compared to non-registered participants (Table 2). Despite generally positive attitudes (96.6% had moderate-to-good attitudes), a majority reported poor personal experiences (64.1%), and only 36.6% had taken any action to obtain a donation card (Table 1).

Variable	Register for Card Donation	Count (%)	Mean (SD)	Sig	**Categorization of Knowledge, Attitude and Experiences**		
					Good Count (%)	Moderate Count (%)	Poor Count (%)
Knowledge	Yes	38 (11.9)	6.68± 1.41	<0.001	33 (10.3)	170 (53.1)	33 (10.3)
	No	282 (88.1)	5.78±1.31				
Attitude	Yes	38 (111.9)	28.31±3.69	<0.001	142 (44.4)	167 (52.2)	11 (3.4)
	No	282 (88.1)	26.54±3.78				
Experiences	Yes	38 (111.9)	9.42±1.42	<0.001	23 (7.2)	92 (28.8)	205 (64.1)
	No	282 (88.1)	7.08 ±1.10				

Table 1. Descriptive Statistics of Knowledge, Attitude, and Organ Donation Experiences among Research Students Stratified by Posthumous Organ Donation Card Registrationgender **(N=320)**

Bivariate correlations indicated that organ donation experiences were significantly and positively correlated with both knowledge (r=0.279, p<0.01) and attitude (r=0.317, p<0.01). Attitude was also weakly correlated with the educational semester (r=0.181, p<0.01) (Table 4).

Sociodemographic factors showed limited influence. Faculty of study and parental education were significant factors. Students from the Basic Sciences faculty had significantly higher knowledge (p=0.003) and experience (p=0.001) scores. Higher parental education, particularly of the father, was significantly associated with higher scores in knowledge (p<0.001), experiences (p<0.001), and attitude (p=0.005). Other variables, including age, gender, and the student's own education level, showed no statistically significant association with knowledge or attitude scores (Table 2).

The logistic regression model (Nagelkerke R^2 = 0.52) identified that from all variables analyzed, only the level of personal Experiences was a significant independent predictor of organ donation card registration (OR: 3.863, 95% CI: 2.434–6.132, p<0.001). Knowledge, attitude, and all sociodemographic variables were not significant predictors in the multivariate model (Table 5).

Table 2. Sociodemographic characteristics of the participants and comparison of knowledge and attitude scores (N = 320)

Variable	**CAtrgory**	**Frequency (n)**	**Experiiences**	**Knowledge Mean ±SD**	**Attitude Mean ±SD**
Literacy	Bachelore	289 (90.3)	5.89±1.29	5.89±1.34	26.76±3.82
Level	PhD,- Msc	31 (9.7)	5.83±1.94	5.87±1.45	26.67±3.74
	Sig		0.265	0.78	0.81
Age	18-21	91 (28.4)	7.39±1.3	5.93±1.38	27.12±3.75
Mean:	22	73 (22.8)	7.42±1.42	5.91±1.39	26.54±3.87
22.49±2.11	23	67 (20.9)	7.34±1.27	5.89±1.42	25.88±4.32
	24 and over	89 (27.8)	7.28±1.43	5.82±1.26	27.21±3.31
	Sig		0.913	0.94	0.11
Educational	1-2	115 (35.9)	7.21±1.28	5.82±1.46	26.38±3.99
Semester	3-4	96 (30.0)	7.38±71.37	5.77±1.35	26.42±3.68
	5-6	61 (19.1)	7.69±1.69	5.96±1.35	26.75±3.45
	7-8	48 (15.0)	7.28±1.29	6.14±1.1	28.09±3.45
	Sig		0.163	0..3	0.37
Gender	Female	171 (53.4)	7.23±1.26	5.85±1.30	26.46±3.87
	Male	149 (46.6)	7.50±1.47	5.92±1.41	27.08±3.72
	Sig		0.14	0.662	0.147
Faculty	Engineering	89 (27.8)	7.08±1.25	5.89±1.46	27.19±3.37
	Social	165 (51.6)	7.29±1.25	5.69±1.17	26.45±3.54
	Basic	66 (20.6)	7.87±1.65	6.36±1.52	26.92±4.86
	Sig		0.001	0.003	0.315
Educational	Bachelore	290 (90.6)	7.32±1.29	5.89±1.34	26.73±3.86
Level	Msc , PhD	30 (9.4)	7.73±1.94	5.83±1.46	27.00±3.42
	Sig		0.11	0.8	0.68
Education	Illiterate	14 (4.4)	6.85±0.94	5.42±1.6	26.57±3.52
Mothers	primary	92 (28.8)	6.94±1.02	5.63±1.21	26.96±3.48
	diploma	74 (23.1)	7.06±1.17	5.86±1.39	26.05±3.75
	graguated	140 (43.7)	7.83±1.55	6.12±1.36	27±14.05
	Sig		<0.001	0.027	0.331
Education	Illiterate	11 (3.4)	7.36±0.8	5±1.94	24.36±
Father	primary	92 (28.7)	7±0.98	5.55±1.18	26.76±
	diploma	80 (25)	7.08±1.19	5.66±1.37	25.91±
	graguated	137 (42.8)	7.75±1.61	6.32±1.27	27.43±
	Sig		<0.001	<0.001	0.005

Table 3. Personal Experiences and Actions Regarding Organ Donation and Transplantation (n=320)

Variable	Category	Ferequency	Percentage
Action to obtain an organ donation card	Yes	117	36.6
	No	203	63.4
Membership in an organ donation association	Yes	66	20.6
	Yes	254	79.4
Organ donation to the family and relatives	Yes	4	1.3
	NO	316	98.8
Registered as an organ donor	Yes	38	11.9
	No	282	88.1
Knowing someone who has donated an organ	Yes	54	16.9
	No	266	83.1
Knowing someone who has undergone a transplant	Yes	92	28.8
	No	228	71.3
Knowing someone who has registered as a donor	Yes	102	31.9
	No	218	68.1

According to the results, the majority of research students have insufficient experience

4. Table 4. Bivariate Correlations Among Organ Donation Experiences, Knowledge, Attitude, and Selected Demographic Factors

	Knowledge	Attitude	Experiences	Age	Zemester
Knowledge	1	.117*	.279**	-.021	.068
Attitude	.117*	1	.317**	.014	.181**
Experiences	.279**	.317**	1	-.068	.069
Age	-.021	.014	-.068	1	.430*
Semester	.068	.181**	.069	.430**	1

According to findings, Organ Donation Experiences had a significant correlation with Knowledge, Attitude

Table 5. Logistic regression analysis for participation in obtaining a post-death organ donation card in non-medical students.

Classification table of predictivity of percentage correct for receiving a card donation after brain death								
Receiving an organ donation card	Observed	Receiving an organ donation card					Percentage Correct	
		Yes	No					
	Yes	98.2	5				86.6	
	No	52.6	20				50	
	Overal Percentage						92.8	
Variables Variables in the Equation	Variables in the equation						95% C.I.for EXP(B)	
	B	S.E.	Wald	df	Sig.	B	Lower	Upper
age	.036	.129	.078	1	.779	1.037	.806	1.334
Educational Semester	.045	.120	.143	1	.706	1.046	.827	1.324
Faculty (Basic science)			1.327	2	.515			
Faculty (Engineering)	.306	.741	.171	1	.680	1.358	.318	5.804
Faculty (Social Sciences)	.700	.631	1.230	1	.267	2.014	.584	6.942
Gender (Mail)	.230	.496	.215	1	.643	1.258	.476	3.324
F.Education (Graduated)			2.854	3	.415			
F. Education (Illiterate)	-17.453	10662.863	.000	1	.999	.000	.000	.
F. Education Primary	1.114	.783	2.026	1	.155	3.046	.657	14.121
F.Education (Diploma)	1.080	.694	2.417	1	.120	2.944	.755	11.483
M. Literacy (Graduated)			1.568	3	.667			
M. Literacy (illiterate)	-17.678	9589.578	.000	1	.999	.000	.000	.
M. Literacy (Primary)	-.417	.720	.335	1	.563	.659	.161	2.703
M. Literacy (Diploma)	-.909	.726	1.568	1	.210	.403	.097	1.671
Experiences	1.352	.236	32.875	1	.000	3.863	2.434	6.132
Knowledge	.117	.213	.299	1	.585	1.124	.740	1.707
Attitude	-.039	.071	.310	1	.578	.961	.837	1.104
Level of Education	-.030	.735	.002	1	.967	.970	.230	4.098
Constant	-14.424	4.001	12.996	1	.000	.000		
age	.036	.129	.078	1	.779	1.037	.806	1.334
Model	Nagelkerke R Square= 0.52							

F. Education: Father Education , M. Education

Discusson:

The primary objective of the present study was to determine the percentage of individuals who had registered for a posthumous organ donation card. The finding that only 11.9% of participants possessed a donor card aligns with the range of results observed in other Iranian studies, though it remains lower than rates reported in many developed nations.

Similar to our results, a study among students at Qom University of Medical Sciences found a card possession rate of 12.83% , [17] while research with medical students in Golestan University reported that 9.6% had taken steps to obtain one. [2] A national figure from the Iranian Organ Donation Association indicates that approximately 6% of Iran's population holds an organ donor card, confirming the generally low rate within the country. [20] Conversely, a study reporting a 19.5% possession rate among students was somewhat higher than our finding. [19] Globally, this rate stands in stark contrast to substantially higher figures from countries such as Australia (61%), the United States, the United Kingdom, and Canada (ranging from 25% to 75%). [21, 22] This disparity is further highlighted by the high donation rates in leading European nations like Spain (46.9 donors per million population), Portugal (34.0), and the United States (32.0), which underscores the significant gap between developed and developing countries, the latter often hampered by cultural barriers, lack of public awareness, and less developed healthcare infrastructure. [21, 22, 24] However, the rate from our study is higher than some regional reports, such as one from Jeddah, Saudi Arabia, where only 5.4% of the urban population possessed a donor card. [1, 25]

This study also revealed that participants' knowledge and attitudes were crucial factors. Only 10.3% of students had good knowledge, while 44.4% demonstrated a good attitude, indicating an overall profile of moderate knowledge paired with moderately positive attitudes. Similar to our results, a study on Iraqi students reported an improper attitude towards organ donation. [6] Other studies corroborate our findings, showing that most students had adequate knowledge regarding organ donation and explantation. [6-8] In contrast, a study among Omani students found that 70.2% held unfavourable attitudes. [1, 8] The challenges of organ donation—the most effective treatment for acute organ failure—are exacerbated by factors such as cultural barriers, religious beliefs, lack of public awareness, and ethical concerns. Overcoming these requires a comprehensive strategy involving educational programs, equitable allocation policies, increased consent rates, and investment in research. [22]

A key finding of this study is the significant positive correlation between organ donation experiences and participants' knowledge and attitudes. This indicates that individuals with greater exposure to organ donation issues tend to exhibit higher awareness, more favourable attitudes, and a greater likelihood of registering as donors. These results underscore the significance of cognitive and psychosocial factors in influencing donation decisions, which aligns with prior studies conducted both in Iran and internationally. [1, 2] Participation in organ donation is a complex process involving individuals and their families, where knowledge, attitude, and personal experiences are central to shaping willingness. [2, 17] Therefore, government and non-governmental organisations should actively develop programs that improve public understanding, foster positive attitudes, and provide meaningful exposure to organ donation to support informed decision-making. [3, 16, 18]

Analysis of knowledge levels showed that most students (53.1%) possessed only moderate knowledge about organ donation, with a mean score of 5.8 ± 1.35, corresponding to 65.48% of the total possible score. This reveals that despite knowledge levels being slightly above the mid-range, substantial gaps remain. Regarding attitudes, the findings were more favourable, with a mean score of 26.7 ± 3.81 (76.64% of the total), suggesting that although students' knowledge was moderate, their attitudes were generally positive. Contrary to our findings, Darlington et al. reported poor knowledge among Indian medical students, while studies from Ethiopia indicated that health science students had good knowledge and positive attitudes. [12, 13] Differences in attitudes were also observed across studies; Mahmoud Mohammed Ahmed et al. and Nasar Alwahaibi reported that only 24.39% and 25.66% of participants had favourable attitudes, respectively. [1, 6] In contrast, Jenadia Pearl Naidoo and Nour Abdo reported results similar to ours, noting that most medical students supported organ donation. [13, 19] This clear discrepancy between predominantly positive attitudes and only moderate knowledge indicates a need for targeted educational interventions to deepen understanding and translate favourable attitudes into informed decisions and actual behaviours. [2]

The logistic regression analysis provided critical insights, with the overall model explaining approximately 52% of the variance in card possession (Nagelkerke R^2 = 0.52). The most salient finding was that personal experience with organ donation emerged as the sole statistically significant predictor. Individuals with prior experiences had 3.86 times higher odds (OR = 3.863, 95% CI [2.434, 6.132], p < .001) of having a donation card. In contrast, knowledge (OR = 1.124, p = .585), attitude (OR = 0.961, p = .578), and all demographic and educational variables, including age, gender, academic semester, and parental education, were not significant predictors.

In conclusion, while the model effectively predicts card possession, the results distinctly highlight that tangible experience is a far more potent catalyst for action than knowledge or positive attitudes alone. This suggests that public awareness campaigns should evolve beyond mere knowledge dissemination and incorporate strategies that foster personal connection and experiential engagement with the concept of organ donation.

Strengths

This study provides valuable insights by focusing on the under-researched population of non-medical students. The use of multivariate logistic regression allowed for the identification of the most robust predictor, personal experience, while controlling for other variables. The simultaneous assessment of knowledge, attitude, and experience added methodological comprehensiveness.

Limitations

The cross-sectional design limits causal inference. Sampling from a single university reduces the generalizability of the findings to other cultural or educational contexts. Furthermore, the reliance on self-reported data may be susceptible to social desirability bias.

Conclusion

The present study reveals a critical disconnect among university students: while attitudes towards organ donation are generally positive, knowledge remains only moderate, and crucially, this positive disposition fails to translate into concrete action, as evidenced by low card registration rates. The analysis unequivocally identifies prior exposure or personal experience with organ donation as the most significant predictor of registration, far outweighing the influence of knowledge, attitudes, or any demographic and academic variables.

These findings compellingly argue that future interventions must move beyond traditional, knowledge-based awareness campaigns. To effectively bridge the intention-behaviour gap, public health strategies and educational programs should be strategically designed to provide effective and meaningful experiences. This can be achieved by facilitating direct exposure through partnerships with donor associations and transplant centers., Integrating personal narratives from organ recipients, donor families, and registered donors into university curricula and awareness campaigns , and Promoting student membership in relevant organ donation organizations to foster a sense of community and active participation.

Acknowledgement
The authors would like to express their sincere gratitude to all the students from the University of Sistan and Baluchestan who participated in this study. We also extend our thanks to the Research and Technology Department of Zahedan University of Medical Sciences for their administrative support and to the members of the Ethics Committee for their valuable guidance. We appreciate the efforts of our colleagues who assisted in the data collection process.

Abbreviation section
DBD: Donation after Brain Death
CVI: Content Validity Index
CVR: Content Validity Ratio
OR: Odds Ratio
CI: Confidence Interval
pmp: per million population

Financial support and sponsorship
This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The study was conducted as part of academic research at the University of Sistan and Baluchestan.

Conflicts of interest
The authors declare that there are no conflicts of interest regarding the publication of this paper.

Authors' contribution
Masoudy G (First Author), Study Conception/Design Supervisor/Methodology Developer/Main Manuscript Writer (35%); Saeidinejad F (Second Author), Data Collector/Literature Reviewer/Manuscript Preparer (15%); Ansari H (Third Author), Data Validator/Statistical Analysis Supporter/Manuscript Reviewer (15%); Izadirad H (Fourth Author/Corresponding Author), Study Design Co-Supervisor/Formal Analyst/Data Interpreter/Manuscript Drafter (35%).

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