

Original Research Paper

Knowledge, Attitude and Perception of Organ Donation Among Undergraduate Biomedical and Nursing Science Students at the University of Zimbabwe

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ABSTRACT

Background: There is a severe shortage of donor organs for transplantation in Zimbabwe. Since future healthcare providers will most likely be students studying medicine and nursing science today, this study sought to assess their knowledge, attitude and perception towards organ donation.

Methodology: This was a cross-sectional descriptive study that was conducted among first year biomedical science (BMS) and nursing science (ns) students in the department of human anatomy, university of Zimbabwe. A validated questionnaire was used to collect data which was analyzed using descriptive statistics for continuous data and the chi-square test for categorical data.

Results: Most of the students (BMS - 97.6%, ns - 85.8%) had heard about organ donation. Both groups had a high attitude (bms - 81.3%, ns - 72.3%) [$p = 0.0588$] and a positive perception (bms - 79.9%, ns - 81.8%) [$p = 0.7637$] towards organ donation. The majority of the students (bms - 91.9%, ns - 84.5%) supported organ donation, but were unwilling (bms - 68.4%, ns - 75.7%) to donate their organs after death.

Conclusion: While both groups of students understood, supported, and viewed organ donation positively, there was a noticeable gap between their positive attitudes and their personal willingness to donate. To bridge this gap and save lives, it's crucial to integrate organ donation into medical school curricula and launch public awareness campaigns. This could significantly increase the number of people willing to donate, which would in turn save more ill Zimbabweans.

Keywords: Anatomy, Organ Donation, Medical, Organ Shortage, Transplantation.

(Received – 5th July 2025, Peer Review Completed – 10th August 2025, Accepted – 20th August 2025)

Introduction

Organ donation is the act of donating an organ or tissue of a living or dead person to a living beneficiary [1] while organ transplantation is a surgical procedure in which a donated organ or tissue from one person is surgically transplanted into the body of a living person in order to replace a defective one [2]. Examples of organs that can be donated by a living person include bone marrow, blood, liver, pancreas, islets of Langerhans, kidney, part of intestine, and one testis while organs that can be harvested for donation from a dead person include the skin, cornea, heart, heart valve, blood vessel, liver, stomach, pancreas, kidney, intestine, testis, and the hand [3].

Organ transplantation is reported to help patients live a longer, healthier, better life, and saves money on medical care [2]. For example, kidney transplantation is reported to help someone live longer than staying on dialysis. In addition, donating one cornea is reported to help two people restore their sight while donating bones and other tissues is reported to help people with serious injuries to move better and have a better life [4]. Furthermore, life-saving heart, lung or liver transplantations are very important for treating people with irreversible diseases [3].

Rates of organ donation and transplantation differ across the world, but in general there is a shortage of donors [5-7] since more and more people need organs, but the supply of the organs from people is not enough to meet the demand [1]. For example, in the United Kingdom, annually hundreds of patients die while waiting for an organ donation and transplantation [8]. Some of the factors that contribute to the shortage of organ donors include cultural, traditional, and ethical issues especially in countries like China where organ donation is in conflict with these factors [9]. In Zimbabwe, despite the existence of the Anatomical Donations and Post-mortem Examinations Act [Chapter 15:01] which permits the donation of human bodies and organs for scientific and medical purposes [10] organ donation and transplantation is not available. In addition, the Zimbabwe Organ Donor Society, whose main objective to increase awareness about donation of organs is underfunded. Consequently, a considerable number of patients are reported to be suffering and dying from ailments that are treatable while the few who can afford the costs associated with organ donation and transplantation travel abroad to countries such as South Africa or India in order to access the service [11-13]. One of the reasons for the unavailability of the organ donation and transplantation service in Zimbabwe could be the fact that healthcare professionals are not well-versed on organ donation and transplantation, an observation reported to be associated with a high rate of organ donor refusal [8].

Since future healthcare providers will most likely be students studying medicine and nursing science today, the main objective of this study was to assess the knowledge, attitude and perception of organ donation among first year biomedical science (BMS) and nursing science (NS) students at the University of Zimbabwe so as to provide baseline data that would make it easier for policy-makers to address any gaps identified. Of note was that such a study could stimulate an interest and increased awareness among the students. This could result in some of them specializing in this area, advocating for organ donation and transplantation among Zimbabweans, and / or establishing an organ donation and transplantation service in Zimbabwean, thus contributing to serving the lives of ill Zimbabweans.

Methodology

A cross-sectional descriptive study was conducted among first year biomedical science (BMS) and nursing science (NS) students in March 2024 in the Department of Human Anatomy, Faculty of Medicine and Health Sciences, at University of Zimbabwe in Harare, Zimbabwe.

Inclusion and Exclusion

All eligible first-year BMS and NS students at the University of Zimbabwe were allowed to participate. Students who did not give their consent were excluded from the survey and incomplete forms were not considered.

Questionnaire Validation

The questionnaire was pre-tested using 10 Pharmacy students in order to identify the comprehensiveness of the questions and redundant questions, to assess the ease of administration of the questionnaire and questionnaire flow, and the time required by each student to complete the questionnaire. Minor changes to the questionnaire were made based on the students' comments.

The questionnaire, which consisted of three sections contained some self-developed questions and others that were sourced from [1]. The first section assessed knowledge of organ donation, and it focused on laws regarding organ donation and the demand for organs. The second section was on the student's attitude toward organ donation, that is, the role of organ donation in saving lives, supporting organ donation, and organ donation after death. The third section was on the students' perception of donated organs in terms of purpose, trust, willingness, and importance. The

questions in each section were open-ended requiring the following answers: - Yes, No, Don't Know.

Scores for Knowledge, Attitude and Perception

Ten questions were used to assess knowledge and the scores ranged from zero to ten. The students who scored less than 60% (0 – 5 out of 10) were considered as having poor knowledge, whereas those who scored greater than or equal to 60% (6 – 10 out of 10) were considered as having good knowledge [1]. The attitude and perception sections were assessed using eight questions each. Score percentages similar to those for the knowledge section were used to score the attitude and perception sections. Achievement of a score greater than or equal to 60% was regarded as having a high attitude or a positive perception, and achievement of a score less than 60% was regarded as having a low attitude or a negative perception.

Data Collection

Convenient sampling was used for this study and participation was voluntary. Data was collected through a self-administered questionnaire. After a scheduled anatomy lecture in the classes of the BMS and NS students, the purpose and usefulness of the study were explained to the students by one researcher. The questionnaires were distributed to those who were willing to participate in the study. No names or registration numbers were entered on the questionnaires and after the anonymous completion of the questionnaires (average time of 10 minutes) by the students, the questionnaires were collected by the researcher.

Data analysis

Only completed questionnaires were analyzed. Data entry was done using Microsoft Excel software (2010) and analyzed using Statistical Package for Social Science (SPSS) version 27 software. Descriptive statistics were used for continuous data and the chi-square test was used for categorical data to assess if there was any difference in knowledge, attitude and perception of organ donation between the BMS and NS students. A p-value equal to or less than 0.05 was considered statistically significant.

Ethical Approval

The study was approved by the Joint Research Ethics Committee of the Faculty of Medicine and Health Sciences at the University of Zimbabwe (Reference Number: 200/2024).

Results

Responses to the Knowledge Questions

A total of 218 biomedical students (BMS) and 152 nursing students (NS) participated in the study. Table 1 shows that most of the students (BMS-97.6%, NS-85.8%) had heard about organ donation. More than half (56.9%) of the BMS and a few (24.3%) NS knew that it is illegal to sell body organs. Less than half (42.6%) NS and more than half (53.6%) BMS were aware of Zimbabwean laws regarding organ donation. Slightly more than half BMS (51.7%) and less than half (40.5%) NS indicated that their religion allowed organ donation. Less than a quarter (BMS-23.4%, NS -15.5%) of the students knew of someone who had donated an organ, while most of them (BMS-190%, NS 77%) were aware that a donor can specify the organs that they are willing to donate. However, very few students (BMS-26.3%, NS-21.0%) were aware of someone who had received or was awaiting to receive a kidney or other organ. More than half of the BMS (52.2%) and less than half (45.3%) NS knew that there is age limit in organ donation. The majority of the students (BMS-76.6%, NS-70.3%) were aware that the demand for organ is higher than the present donation level. In addition, most of the students (BMS-97.1%, NS -93.2%) were aware that organ donation would save other people's lives. In terms of the overall knowledge on organ donation, BMS students (69.9%) had good knowledge about organ donation while NS students (48.6%) had poor knowledge (Table 3). This difference was statistically significant ($p=0.00008$).

Table 1: Knowledge and responses to knowledge questions (%)

QUESTION	Biomedical Science students			Nursing Science students		
	Yes	No	Don't know	Yes	No	Don't know
Have you heard about organ donation?	97.6	1.9	0.5	85.8	12.8	1.4
Is it illegal to sell organs in Zimbabwe?	56.9	3.3	39.7	24.3	27.0	48.7
Are there any laws regarding organ donation in Zimbabwe?	53.6	2.9	43.5	42.6	2.7	54.7
Does your religion allow you to donate an organ?	51.7	12.4	35.9	40.5	24.3	35.2
Do you know anyone who has donated an organ?	23.4	74.2	2.4	15.5	69.6	14.9
A donor can specify the organs that they are willing to donate	90.0	1.0	9.0	77.0	4.1	18.9
There is age limit in organ donation	52.2	10.5	37.3	45.3	11.5	43.2
Demand for organs is higher than the present donation level	76.6	0	23.4	70.3	2.7	27.0
Would organ donation save other people's lives?	97.1	1.0	1.9	93.2	2.7	4.1
Do you know anyone who received or is waiting to receive a kidney or other organ?	26.3	59.3	14.4	21.0	60.1	18.9
Knowledge		69.9			48.6	

Responses to the Attitude Questions

Most of the students (BMS-91.9%, NS-84.5%) supported organ donation while very few students (BMS- 31.6%, NS-24.3%) were willing to donate their organs after death (Table 2). In addition, 11.4% BMS and 17.6% NS indicated that they had been taught that organ donation was against their religion. However, 84.7% of BMS and 83.1% of NS students agreed that they would accept an organ transplant if their lives were in danger. The majority of the students (BMS- 79.4%, NS-72.3%) indicated that organ donation is important for their training program. Regarding the purchase of organs at a black market, few students (BMS-42.6%, NS-23.6%) indicated that organs can be bought and sold in the black market. Seventy seven percent of NS and 87.6% BMS students agreed that they would accept organ donation from non-relatives. Three quarters of both groups of students agreed that learning activities pertaining to organ donation should be a component of undergraduate medical education. In terms of overall attitude, the majority of the students had positive attitudes (BMS-81.3%, NS-72.3%) towards organ donation and the difference was statistically insignificant ($p=0.0588$).

Table 2: Attitude and responses to attitude questions (%)

QUESTION	Biomedical Science students			Nursing Science students		
	Yes	No	Don't know	Yes	No	Don't know
I support organ donation	91.9	5.7	2.4	84.5	10.1	5.4
I am willing to donate my organs after my death	31.6	52.2	16.2	24.3	57.5	18.2

I have been taught that organ donation is against my religion	11.4	74.2	14.4	17.6	62.8	19.6
I would accept an organ transplant for myself, if my life was in danger	84.7	7.2	8.1	83.1	6.8	10.1
Organ donation is important for my training program	79.4	5.3	15.3	72.3	10.8	16.9
Organs can be bought and sold in the black market	42.6	43.1	14.4	23.6	56.8	19.6
Do you agree with organ donation from non-relatives	87.6	5.7	6.7	77.0	14.2	8.8
Learning activities pertaining to organ donation should be a component of undergraduate medical education	74.6	12.4	12.9	75.0	9.5	15.5
Attitude		81.3			72.3	

Responses to the Perception Questions

Most of the students (Biomedical-76.6%, NS-81.8%) trusted that the hospital and doctors use donated organs for their intended purpose (Table 3). In addition, the majority of them (BMS-72.7%, NS-76.4%) believed that organ donation is a safe and effective practice for donor and recipient. Less than half of the students believed that it is important for a person to have all their parts of the body during burial, while more than half (BMS-63.6%, NS- 65.5%) indicated that the recipient should pay some money to the donor family. Almost all the students (BMS-93.3%, NS-91.8%) concurred that it is important to discuss the willingness to donate organs with the family members. Additionally, most of the students (BMS-87.1%, NS-75.7%) agreed that organ donation allows something positive to come out of a person's life. Furthermore, majority of the students (BMS-91.9%, NS-83.8%) believed that medical doctors try hard to save life regardless whether one was a donor or not. Less than 15% of the students were of the opinion that regular a funeral cannot be carried out for a deceased donor. Regarding overall perception, most of the students had positive perceptions (BMS-79.9%, NS-81.8%) towards organ donation and the difference was statistically insignificant ($p=0.7637$).

Table 3: Responses to perception questions (%)

QUESTION	Biomedical students		Science	Nursing Science students		
	Yes	No	Don't know	Yes	No	Don't know
I trust that the hospital and doctors use donated organs as they are intended to be used	76.6	15.3	8.1	81.8	8.8	9.4
I think organ donation is a safe and effective practice for donor and recipient	72.7	16.3	11.0	76.4	11.5	12.1
It is important for a person to have all their parts of the body during burial	41.1	37.3	21.5	45.2	29.1	25.7
The recipient should pay some money to the donor family	63.6	23.4	12.9	65.5	17.6	16.9
It is important to discuss the willingness to donate organs with the family members	93.3	5.3	1.4	91.8	4.1	4.1

Organ donation allows something positive to come out of a person's life	87.1	3.8	9.1	75.7	7.4	16.9
I think that doctors try hard to save my life no matter if I am a donor or not	91.9	4.3	3.8	83.8	6.7	9.5
Regular funeral cannot be carried out for a deceased donor	7.7	67.9	24.4	12.8	55.4	31.8
Perception		79.9			81.8	

Discussion

The University of Zimbabwe Faculty of Medicine and Health Sciences was chosen for this study as it is the largest and oldest medical school in Zimbabwe. It has previously assisted in the establishment of three smaller and newer medical schools in the following Universities: - the National University of Science and Technology (NUST), Midlands State University (MSU) and the Great Zimbabwe University (GZU). This helped to standardize medical training in Zimbabwe which is monitored by the Zimbabwe Council of Higher and Tertiary Education. The choice of BMS and NS students as a group to study was based on the fact that the group represented future health care professionals [1]. Previously, it has been observed that a positive attitude by people towards organ donation can be influenced by such a group as its members can both discuss medical topics with families or friends, and they can also disseminate information to the general public [7]. The results of the study showed that BMS students had a more comprehensive understanding of organ donation than NS students (69.9% and 48.6% respectively) and the difference between the two groups was statistically significant ($p = 0.00008$). This finding is similar to that reported by [14]. However, although the NS students had a lower score of 48.6% for knowledge than that of the BMS students of 69.9%, their score was slightly higher than the 40.5% reported for knowledge in a similar study by [15] in Iran. In another related study by [16] in India, the authors reported a much lower score of 29% for knowledge. According to [14] the reported differences in knowledge scores for organ donation can be attributed to the fact that education in this area is currently unregulated. It is therefore, in this context that BMS and NS students in this study suggested the urgent need for Universities to implement an organ donation and transplantation subject in their curricula.

In this study, a high attitude towards organ donation for both groups of students was observed (BMS - 81.3%, NS - 72.3%) [Table 2] but the difference between the two groups was not statistically significant ($p = 0.0588$). This attitude according to [17-18] is previously directly linked to the number of organs donated or the level of willingness of the public to donate organs. Therefore, the high attitude observed in this study is anticipated to lead to an increased willingness by the BMS and NS and the general population in Zimbabwe to donate organs for use by ill Zimbabweans who can benefit through organ transplantation.

Overall, the students had a positive perception of organ donation (BMS – 79.9%, NS – 81.8%) [Table 3] but the difference between the two groups was not statistically significant ($p = 0.7637$). Both groups agreed that organ donation is a safe and effective practice for both the donor and the recipient [Table 3]. This observation is consistent with similar studies by [19] and [20]. In addition, the students perceived that organ donation allowed something positive to come out of a person's life [Table 3]. This observation is also in agreement with the findings by [21] in Turkey, revealing that saving lives is the primary goal for organ donation.

The majority of BMS and NS students in this study supported organ donation and indicated that they would accept an organ transplant if their lives were in danger [Table 3]. On the contrary, most of these students were not willing to donate their organs after death [Table 3]. This observation revealed a discordance in perception between the students' support for organ donation and their unwillingness to become organ donors during or after life. Based on the observations made in this study, the majority of the students agreed that it was important to discuss the willingness to donate organs with family members [Table 3] and similar studies by [17,22-24] also reported the same results. In addition, less than half of the students (BMS - 41.1%, NS - 45.2%) [Table 3] indicated

that it is important for a person to have all their body parts during burial. This observation is consistent with the finding by [21] that the most common justification offered for refusing to donate organs was the desire to maintain integrity of the body. Furthermore, less than 15% of the students in the current study indicated that a regular funeral could not be held for a deceased donor [Table 3].

It is important to note that, despite the students having a fair amount of knowledge of organ donation, 48.3% and 59.5% BMS and NS students respectively indicated that their religion did not allow organ donation [Table 1]. All of the above observations possibly highlighted that there were cultural, traditional, and religious beliefs that could militate against organ donation in Zimbabwe. These observations are similar to those by [9] and so would need to be addressed through advocacy campaigns. The other reasons for reluctance to donate organs could probably be fear of the organs being used for organ trafficking, fear of body mutilation, and mistrust of the organ transplantation process [17]. These factors could also be addressed through both educational campaigns to increase knowledge and transparency of the process, and advocacy campaigns to encourage organ donation and transplantation.

Limitations of the study

Given that the questionnaires were distributed after a lecture, it was possible that some responses were discussed before being submitted, which could have biased the results. Students could have provided responses on what they believed to be socially acceptable or expected than what they truly thought. Additionally, students could have felt pressure to live up to expectations or perceived norms regarding organ donation.

Conclusion

The students had a fair knowledge, high attitude and a positive perception of organ donation. However, discordance between a student's support for organ donation and their unwillingness to donate their organs could possibly be ascribed to cultural, traditional, and religious beliefs. Therefore, to increase knowledge, attitude and perception of organ donation among healthcare professionals so as to have an organ donation and transplantation programme in Zimbabwe, there is an urgent need to establish a subject on this topic in curricula at medical schools and an advocacy programme for the general public. This could promote organ donation and transplantation, which could in turn increase levels of willingness to donate organs, hence saving more lives of ill Zimbabweans.

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Acknowledgements: The authors would like to thank the Department of Human Anatomy, College of Health Sciences, University of Zimbabwe for allowing us to carry out the study. Mr L Samu is acknowledged for his administrative assistance.

Conflict of Interest: Nil

Funding: Nil