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ORIGINAL ARTICLE

Perceptions and Understanding of Organ Donation Among Medical Undergraduates in Southeastern Nigeria

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Abstract

Background/Aim: Organ donation continues to be acknowledged globally as the preferred treatment for individuals with end-stage organ diseases. So far, it is one of the greatest advances of modern science and has resulted in many patients getting a new lease of life. This research focused on assessing the understanding and perspectives of undergraduate medical students regarding organ donation.
Methods: This descriptive survey was conducted among the undergraduate medical students at a government University in Anambra State of Nigeria. Data on knowledge and attitude were collected from the respondents using self-administered pre-tested questionnaires.
Results: More than 95 % of the participants demonstrated awareness of organ donation. Majority (43.4 %) identified a healthy living donor as an ideal candidate for organ donation. Participants who were clinical students were predominantly aware that the donor and recipient's blood groups must be compatible, as well as their human leukocyte antigens (HLA) being identical (OR = 2.2 and 2.5, respectively). They were also predominantly willing to donate their organs after death and to encourage their future patients to donate their organs (OR = 7.88 and 5.49, respectively). Pre-clinical students tended to agree more with the idea of keeping their bodies intact after death (OR = 6.41).
Conclusion: Organ donation should be given greater emphasis and introduced early in the medical curriculum. This will serve to improve knowledge and bring about a desirable attitudinal change among future medical practitioners.

Key words: Tissue donors; Organ transplantation; Willingness; Comprehension; Perception; Education, medical.

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Introduction

Organ donation is a procedure in which an individual grants consent for their organs to be harvested and transplanted into another person. This consent can be given either while the donor is alive or posthumously, with the approval of their next of kin.[1] It is one of the greatest advances of modern science and has resulted in many patients with terminal diseases getting a new lease of life.[2] It is the finest and most worthwhile resolution to end-stage organ failure.[3]

On a global scale, the World Health Assembly (WHA) and the World Health Organization (WHO) establish official decisions and guiding

principles to oversee and regulate various forms of transplantation.[4] However, Nigeria does not have a national registry for organ transplantation yet.[5] The process of organ transplantation has been in existence since the olden days as a myth but has become a reality with more knowledge in aspects of medicine such as immunology, anaesthesia and critical care.[2] As the demand increases, there is a need for innovative laws and policies on organ donation.[6] Challenges in organ transplantation have led to many forms of research in transplantation of organs such as liver, kidney, pancreas and heart.[2] Modern techniques currently used have led to more efficacious transplants with fewer complications.[7]

Organ donations have been found to be more in European countries than in other continents.[3] For example, in Africa, countries such as Algeria, Côte d'Ivoire, Ethiopia, Kenya, Namibia, Nigeria and Uganda possess the infrastructure for kidney transplants. However, due to the lack of comprehensive facilities, many major investigations are conducted abroad, making the cost prohibitively expensive and unaffordable for many.[4] In Sub-Saharan African countries such as Nigeria, organ donation has yet to gain significant traction, even among the educated population. This is due to a lack of awareness and accurate knowledge, as well as religious and cultural barriers, myths and misconceptions surrounding organ donation.[8] These barriers adversely affect the rate of organ donations whilst another major obstacle to organ donation is scarcity of organs to be used for transplantation.[9]

Medical professionals play a crucial role in disseminating accurate information and overcoming barriers to organ donation among the public. The understanding and perception of medical students towards organ donation are vital for the success of organ donation programs in any country.

Methods

This cross-sectional descriptive study was conducted among undergraduate medical students at Chukwuemeka Odumegwu Ojukwu University (COOU) in Anambra State, located in South Eastern Nigeria. The medical students consisted of preclinical students in their first, second or third year of medical education and clinical students in their fourth, fifth or sixth year. Stratified sampling technique was employed in the selection of 297 respondents from the clinical and pre-clinical students. Informed written consent was secured from the participating medical students prior to the commencement of data collection. Only medical students who gave their consent were recruited for the study. A structured, self-administered, pretested questionnaire was utilised for collection of data.

The collected data was entered, input and evaluated using SPSS version 20 and results were presented in tables. Significance testing was performed using the Chi-square test and logistic regression was applied to statistically significant variables to identify predictive factors, with a significance level (α) of 0.05.

Results

Most respondents 140 (47.1 %) were between the ages of 21 and 25 years. Mean age was 21.87, SD = 3.49. Female to male ratio was almost equal 1:1.03 (49.2 %: 50.8 %) and majority 276 (92.9 %) were single. An 173 (58.2 %) of the respondents were in the pre-clinical class and 167 (56.2 %) were Christians of Roman Catholic denomination (Table 1).

Table 1: Socio-demographic characteristics of respondents

Variables	Frequency (N = 297)	Percentage (%)
Age groups (in years)		
16 – 20	123	41.4
21 – 25	140	47.1
26 – 30	28	9.4
>30	6	2.0
Mean = 21.87, SD = 3.49		
Sex		
Male	151	50.8
Female	146	49.2
Class /level of study		
Clinical	124	41.8
Pre-clinical	173	58.2
Marital status		
Single	276	92.9
Married	21	7.1
Religion		
Roman Catholic	167	56.2
Anglican	68	22.9
Pentecostal	51	17.2
Others	11	3.7

SD: Standard deviation;

Table 2: Awareness of organ donation among respondents

Statements	Yes n (%)	No n (%)
Had ever heard of the term "organ donation"	284 (95.6)	13 (4.4)
Had ever heard of the term "organ transplantation"	282 (94.9)	15 (5.1)
Identified a healthy living donor as an ideal candidate for organ donation	129 (43.4)	168 (56.6)
Knew someone who had donated their organ	41 (13.8)	256 (82.2)
Knew anyone awaiting transplantation	35 (11.8)	262 (88.2)

Also, 284 (95.6 %) and 282 (94.9 %) of respondents had ever heard of the terms "organ donation" and "organ transplantation", respectively. Up to 129 (43.4 %) of the respondents identified a healthy living donor as a perfect candidate for organ donation. About 41 (13.8 %) of the respondents knew someone who had donated their organ while 35 (11.8 %) of them knew anyone awaiting transplantation (Table 2).

Majority of respondents 210 (70.7 %) agreed that their bodies should remain intact after death and 104 (35.0 %) agreed to gift their organs to eligible recipients upon their demise. Few (44.1 %) of the respondents would recommend organ transplantation to their future patients (Table 3 and 4).

The clinical students were more knowledgeable about organ donation and also support it

Table 3: Knowledge regarding organ donation among respondents

Statements		Yes n (%)	No n (%)	Don't known n (%)
Donors who have been certified as brain-dead should be promptly removed from ventilator support		75 (25.3)	96 (32.3)	126 (42.4)
Parents/guardians can make decisions for individuals with mental disability concerning organ donation		134 (45.1)	68 (22.9)	95 (32.0)
The blood group of the donor and recipient must be matched		204 (68.7)	30 (10.1)	63 (21.2)
HLA of donors and recipients must be identical		142 (47.8)	49 (16.5)	106 (35.7)
Organs from carriers of hepatitis B and C are eligible for donation except the liver		101 (34.0)	56 (18.9)	140 (47.1)
The presence of malignancy consistently serves as a contraindication for the donation of cadaveric organs		113 (38.0)	32 (10.8)	152 (51.7)
Heightened susceptibility to opportunistic infections is a frequent complication associated with all types of transplantation procedures		171 (57.6)	32 (10.8)	94 (31.6)
Transplant recipients are at an increased risk of developing cancer following the procedure		72 (24.2)	98 (33.0)	127 (42.8)
Cumulative knowledge level:				
	Above average	154 (51.9)		
	Below average	143 (48.1)		

HLA: human leucocyte antigen;

Table 4: Attitude to organ donation among respondents

Variable	Yes n (%)	No n (%)	Don't known n (%)
Do you advocate for organ donation?	147 (49.5)	65 (21.9)	85 (28.6)
Do you feel at ease talking/thinking about organ donation?	145 (48.8)	66 (22.2)	86 (29.0)
Do you agree to have your organs donated after you die?	104 (35.0)	115 (38.7)	78 (26.3)
Do you consent to the organ donation of your relatives?	77 (25.9)	139 (46.8)	81 (27.3)
Do you believe in preserving the integrity of your body after you die?	210 (70.7)	87 (29.3)	0 (0.0)
Do you worry about potential disfigurement of your body from organ donation?	160 (53.9)	106 (35.7)	31 (10.4)
Will you advise your future patients to donate their organs?	108 (36.4)	86 (29.0)	103 (34.7)
Will you recommend organ transplantation to your future patients?	131 (44.1)	44 (14.8)	122 (41.1)
Variable	**Law n (%)**	**Choice n (%)**	**Don't known n (%)**
Should organ donation be mandated by law or remain a voluntary choice?	11 (3.7)	279 (93.9)	7 (2.4)

Table 5: Test of association between level of study and knowledge and attitude variables among respondents

Variable	Preclinical n (%)	Clinical n (%)	p-value	OR (95 % CI)
Knowledge level				
Above average	65 (37.6)	89 (71.8)	0.000	4.23 (2.57 – 6.95)
Below average	108 (62.4)	35 (28.2)		
Do you advocate for organ donation?				
Yes	29 (33.0)	118 (95.2)	0.000	40.01 (15.74 – 101.71)
No	59 (67.0)	6 (4.8)		
Do you agree to have your organs donated after you die?				
Yes	20 (21.1)	84 (67.7)	0.000	7.88 (4.23 – 14.65)
No	75 (78.9)	40 (32.3)		
Do you believe in preserving the integrity of your body after you die?				
Yes	149 (86.1)	61 (49.2)	0.000	6.41 (3.68 – 11.19)
No	24 (13.9)	63 (50.8)		
Do you worry about potential disfigurement of your body from organ donation?				
Yes	119 (83.8)	41 (33.1)	0.000	10.47 (5.85 – 18.75)
No	23 (16.2)	83 (66.9)		
Will you advise your future patients to donate their organs?				
Yes	21 (30.0)	87 (70.2)	0.000	5.49 (2.89 – 10.40)
No	49 (70.0)	37 (29.8)		
Will you recommend organ transplantation to your future patients?				
Yes	21 (41.2)	110 (88.7)	0.000	11.22 (5.11 – 24.67)
No	30 (58.8)	14 (11.3)		

Table 6: Test of association between cumulative knowledge level and some variables among respondents

Variable	Above average n (%)	Below average n (%)	p-value	OR (95 % CI)
Sex				
Male	89 (57.8)	62 (43.4)	0.013	1.79 (1.13 – 2.83)
Female	65 (42.2)	81 (56.6)		
Do you advocate for organ donation?				
Yes	100 (81.3)	47 (52.8)	0.000	3.89 (2.10 – 7.19)
No	23 (18.7)	42 (47.2)		
Do you agree to have your organs donated after you die?				
Yes	73 (57.9)	31 (33.3)	0.000	2.76 (1.58 – 4.81)
No	53 (42.1)	62 (67.7)		
Do you believe in preserving the integrity of your body after you die?				
Yes	98 (63.6)	112 (78.3)	0.005	2.07 (1.23 – 3.46)
No	56 (36.4)	31 (21.7)		
Do you worry about potential disfigurement of your body from organ donation?				
Yes	69 (43.1)	91 (56.9)	0.000	2.92 (1.74 – 4.89)
No	73 (68.9)	33(31.1)		
Will you advise your future patients to donate their organs?				
Yes	81 (68.1)	27 (36.0)	0.000	3.79 (2.06 – 6.97)
No	38 (31.9)	48 (64.0)		
Will you recommend organ transplantation to your future patients?				
Yes	95 (84.1)	36 (58.1)	0.000	3.81 (1.87 – 7.78)
No	18 (15.9)	26 (41.9)		

(OR = 4.23 and 40.01, respectively). They were also predominantly likely to express willingness to have their organs harvested after death and to encourage their future patients to donate their organs (OR = 7.88 and 5.49, respectively). The pre-clinical students were more likely to agree that their bodies should not be tampered with after death (OR = 6.41) and were also more likely to fear their bodies would be disfigured if they donated organs (OR = 10.47) (Table 5).

The respondents that had an above average cumulative knowledge were more likely to be male than female (OR = 1.79). They were also more likely to support organ donation and agree to donate their organs upon their demise (OR = 3.89 and 2.76, respectively) (Table 6).

Discussion

Organ donation is widely recognised as the standard therapy for patients with advanced organ failure. As future health professionals, undergraduate medical students hold a crucial role in educating family, friends and society about the importance of donating organs for management of terminal organ disease. This study shows that most of respondents were single (92.9 %) and most of them (47.1 %) were between the ages of 21-25 years. These results align other research findings on organ donation among students in Nigeria, which reported similar demographics.[10, 11] However, a study conducted in China showed a lower percentage of singles (40.8 %), likely due to the different demographic focus on health professionals.[12] Interestingly, presented study found an almost equal female-to-male ratio (49.2 %: 50.8 %), similar to a study conducted at Ahmadu Bello University Zaria.[13]

Furthermore, a significant majority of respondents (95.6 % and 94.9 %) had ever heard of the terms "organ donation" and "organ transplantation," respectively. This level of awareness is comparable to studies among medical students in other universities.[13-16] In this study, a majority of the students (51.9 %) exhibited a cumulative knowledge level that was above average which is higher than that found among Omani University students where merely 34.1 % demonstrated a solid knowledge of organ donation.[14]

Despite this level of knowledge, only 49.5 % of respondents strongly advocated for organ donation, which is lower compared to studies carried in Maharashtra and Auckland, where support levels were 98 % and 99.3 %, respectively.[15, 17] Cultural and religious beliefs in presented study area may have contributed to this difference. The clinical students demonstrated higher knowledge (71.8 %) and support for organ donation compared to preclinical students (37.6 %). This trend is consistent with studies conducted in Nigeria and Turkey, where clinical exposure was found to enhance knowledge and willingness to donate organs.[11, 18]

In contrast, a study in South India showed a lack of knowledge among different levels of medical students,[19] whereas another study found high levels of support but a low inclination to donate organs.[20] Presented research further revealed that males had slightly more knowledge than females, a finding that is similar to a study in south India,[19] but contrasts with another study done elsewhere in Nigeria.[11] This element of gender is nonspecific as both males and females can evenly show extraordinary knowledge.

Regarding attitudes towards organ donation, 93.9 % of respondents agreed that it should be a choice, similar to a study among clinical students in another Nigerian university.[11] However, just 35 % were willing to donate their organs posthumously and 70.7 % believed their bodies should be kept intact, a finding that contrasts with another study done elsewhere in Nigeria.[13] These attitudes may be influenced by a lack of trust in medical institutions and the absence of laws guiding organ donation as seen in a study done in China.[12] However, a study done among medical students at University of Aukland revealed that 78.8 % would like to become organ donors after death.[17] In this study, 48.8 % of respondents were at ease when considering or discussing organ donation and 36.4 % will advise their patients to donate. This is far lower than the finding in Ethiopia where 80 % of respondents feel comfortable when considering or discussing organ donation and 78.4 % will motivate others to donate organs.[21]

Conclusion

Overall, the medical students demonstrated a good awareness of organ donation. The study also showed that an above average cumulative knowledge level had a positive impact on advocacy for organ donation and readiness to become a donor. It also impacted positively on the respondents' attitude with regards to recommending organ transplantation to their future patients as well motivating them to become donors. The respondents in the clinical class by virtue of their better knowledge, exhibited a better disposition and higher acceptance of organ donation. It is essential to provide undergraduate medical students with the right knowledge of and orientation regarding organ donation early and throughout their medical education. By doing so, they can become advocates for organ donation and motivate their future patients to follow this noble path.

Ethics

Ethical approval was sought and obtained from the Health Research Ethics Committee (HREC) of Chukwuemeka Odumegwu Ojukwu University teaching hospital (COOUTH), with HREC assigned number: COOUTH/CMAC/ETH.C/VOL.1/FN:04/135, dated 11 November 2021. Written informed consent was obtained from respondents.

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Conflicts of interest

The authors declare that there is no conflict of interest.

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Data access

The data that support the findings of this study are available from the corresponding author upon reasonable individual request.

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