

RESEARCH PAPER

**KNOWLEDGE OF ORGAN AND CORNEAL TRANSPLANTS
AND ATTITUDES TOWARD ORGAN AND CORNEAL
DONATION AMONG NON-HEALTH STUDENTS IN KWAME
NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
(KNUST), KUMASI-GHANA**

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ABSTRACT

Organ transplantation is a surgical procedure where a failing or damaged organ is removed and replaced with a new one from a donor. According to World Health Organization, the global prevalence of blindness in 2010 was 39 million people, among which 4% were due to corneal opacities. The main aim of the study was to determine the knowledge of organ and corneal transplant and attitude towards organ donation among non-health students at KNUST, Ghana. A descriptive cross-sectional study was conducted among non-health students from the College of Engineering, College of Arts and Built Environment, College of Humanities and Social Sciences and, College of Agriculture and Natural Resource in KNUST. Self-administered questionnaires were used for data collection where 250 participants were sampled using multistage and convenience sampling methods. Out of the study sample, 56.4% were males. The mean \pm SD age of participants was 22.13 ± 2.983 years. Digital media (76%) was the main source of information. Out of the respondents, 88.8% were aware of organ transplant whilst 17.2% were aware of corneal transplant. The organ transplant type mostly heard of by participants was kidney transplant (81.2%). Majority (54.8%) of the respondents were willing to donate their organs, out of which 67.6% were willing to donate after death whilst 32.4% were willing to donate whilst living. Love for humanity (34.0%) was the main reason for donating. Lack of information (47.6%) and complications after surgery (46.4%) constituted the main reason for unwillingness to donate. Digital media and healthcare professionals could be utilized to further the awareness of organ and corneal transplantation and donation. Educating and carrying out awareness programs and campaigns will help in clarifying misconceptions and myths and also increase the understanding of organ and corneal transplantations and donations.

Keywords: Organ, cornea, transplantation, donation, willingness

INTRODUCTION

Organ transplantation was started in the early 1930s. It gave new hope and a new life

to ailing patients when several kidney transplants were successfully performed in the 1950s (Linden, 2009). Globally, organ trans-

plantation saves thousands of lives. It is a complex issue comprising medical, legal, ethical, and social factors (Edwards, Essman and Thornton, 2007). Organs can be transplanted from a living donor or deceased donor (Edwards *et al.*, 2007) and examples of organs donated by living donors are livers and kidneys (Van Norman, 1999).

Corneal transplantation offers the potential for sight restoration to those who are blind from corneal diseases and it is the treatment of choice for corneal blindness and can successfully treat 80- 90% of corneal diseases in both the developed and especially the developing world (Dhaliwal, 2002; Feilmeier, Tabin, Williams and Oliva, 2010). Corneal transplant is one of the most globally practiced transplantation in humans (Matthaei *et al.*, 2017), however, there is also a risk of cornea rejection which occurs in about 20% of cases (Feilmeier *et al.*, 2010).

There are lots of ethical dilemmas concerning why people refuse to donate their organs some of which are; the body would be mutilated and disfigured; the believe that doctors will not save their lives if the doctors get to know they are donors, while others consent to donation for a lot of reasons like; believe in the satisfaction gained when one realizes a life has been saved through one's donation (Moloney and Walker, 2002).

A study conducted in the University of Malaya on awareness of corneal transplant among first year students of health courses reported that 86.0% were aware of eye transplant and donation with biomedical and medical students having higher awareness compared to others (Bharti, Reddy, Tajunisah and Ali, 2009). As a developing country, Ghana has no specific legislation, or guidelines, or administrative frameworks in respect to human organ and tissue donation and transplantation since no ethical or legal framework was available to govern the process (Banyubala, 2014). It is expected that with increasing public health concerns, a legislature will soon be in place and will require the cooperation of all to donate tissues and organs. Data on awareness, knowledge on transplant as well as citizens' willingness to donate or not

and the reasons for their choices is needed to aid and lessen the difficulties to implement meaningful donation policies and programs.

It is believed that university graduates in the societies if educated on corneal transplant and donation will be able to motivate their families as well as other members of the society on organ and tissue donation programs. Non health students were chosen for this study because, unlike health students who are likely to have considerable teaching, knowledge about organ and tissue donation, they might not have any teaching on this subject. However, since they are young, educated and can assess internet, television, newspapers, better than other groups in the society, getting to know their awareness and knowledge as well as their willingness can help grade other non-health citizens and be informed on best approach to get to all citizens. The principal objective of this study was to determine the knowledge of organ and corneal transplants and attitudes toward organ and corneal donations among non-health students in KNUST.

MATERIALS AND METHODS

A descriptive study type and a cross-sectional study design were employed on the non-health students from the College of Engineering, College of Arts and Built Environment, College of Humanities and Social Sciences and, College of Agriculture and Natural Resource in KNUST, Kumasi, using self- administered structured questionnaire. Convenience and multistage sampling methods were used to sample study participants. All students from first to fourth year who were present from the various colleges were enrolled after signing the consent form. Data collected was captured and analysed using Statistical Packages for Social Sciences (SPSS) version 21. Chi- Square was used to assess associations between categorical variables. P-values were obtained for the significant associations ($p < 0.05$). The study was approved by the Committee on Human Research Publication Ethics department of Kwame Nkrumah University of Science and Technology (KNUST).

RESULTS

Socio- demographic characteristics

The study comprised of 250 non-health stud-

dents with mean age of 22.13±2.983 (range;18-25years). (Table 1).

Awareness and knowledge of organ transplant

There was a high level of organ transplant awareness among the participants, 88.8% with 90.8% males aware of organ transplant (Fig.1). College of Art and Built Environment recorded the highest level of awareness of organ transplant (Table 2). In terms of academic level, 4th years were more aware of organ transplant (94.4%) than the other academic levels. Among the various religious affiliations, Muslims were more aware of organ transplant (89.2%) than the other religions (Table 2).

The primary source of respondents’ knowledge was the digital media (76.0%) which comprises (radio, television, and social media), followed by Healthcare providers, 32.0%. (Fig. 2).

Kidney (81.2%) transplant had the highest response in terms of their knowledge on the organs that can be transplanted (Fig. 3).

Knowledge and awareness of corneal transplant

Out of the respondents, 17.2% were aware of corneal transplant. 19.9% of males were aware of cornea transplant whilst 13.8% of females indicated that they were aware. The age-group 21-22years had the highest level of awareness (22.9%). Respondents belonging to the Islam religion (21.6%) were aware of corneal transplant than Christianity (16.7%) and Traditional (0.0%).

On knowledge on corneal transplant, 4.4% of the respondents believed that corneal transplant is done to replace the whole of the diseased eye (Fig. 4).

Table 1: Socio-demographic characteristics of respondents (N= 250)

Socio-Demographic characteristics	Freq	%
Age (years)		
≤18	8	3.2
19 – 20	39	15.6
21 – 22	109	43.6
23 – 24	64	25.6
24+	30	12.0
Sex		
Male	141	56.4
Female	109	43.6
College		
College of Agriculture and Natural Resources	70	28.0
College of Art and Built Environment	50	20.0
College of Humanities and Social Sciences	75	30.0
College of Engineering	55	22.0
Academic Level		
1st year	27	10.8
2nd year	92	36.8
3rd year	95	38.0
4th year	36	14.4
Religion		
Christianity	210	84.0
Islam	37	14.8
Traditional	3	1.2

%-Percentage of participants, Freq-Frequency of participants

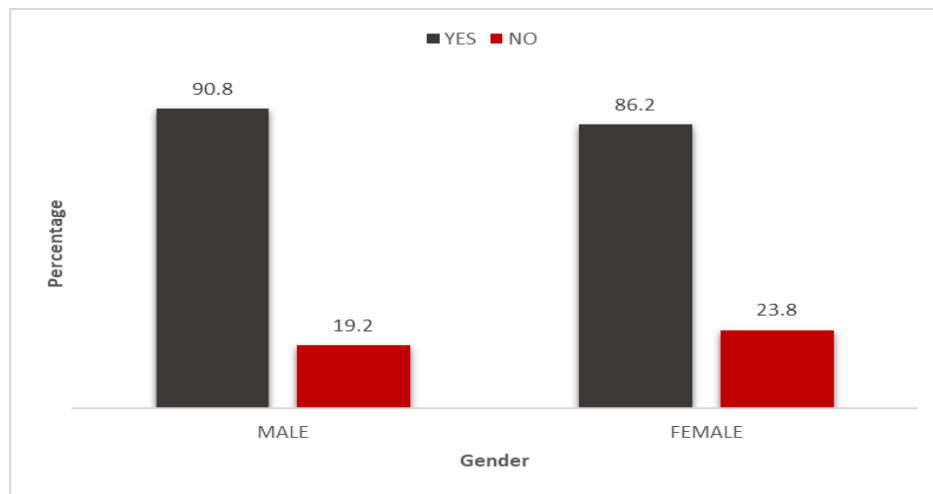


Fig. 1: Awareness of organ transplant among gender

Table 2: Association between socio-demographic characteristics of respondents and awareness of organ transplant (N= 250)

Variable	Aware n (%)	Not aware n (%)	χ^2	P-value
Age (years)				
≤18	7 (87.5)	1 (12.5)	7.442	0.114
19 – 20	31 (79.5)	8 (20.5)		
21 – 22	98 (89.9)	11(10.1)		
23 – 24	56 (87.5)	8 (12.5)		
24+	30 (100.0)	0 (0.0)		
Sex				
Male	128 (90.8)	13 (13.8)	1.275	0.259
Female	94 (86.2)	15 (13.8)		
Colleges				
College of Agriculture and Natural Resources	60 (85.7)	10 (14.3)	2.082	0.555
College of Art and Built Environment	47 (94.0)	3 (6.0)		
College of Humanities and Social Sciences	66 (88.0)	9 (12.0)		
College of Engineering	49 (89.1)	6 (10.9)		
Academic Level				
1st year	22 (81.5)	5 (18.5)	3.206	0.361
2nd year	80 (87.0)	12 (13.0)		
3rd year	86 (90.5)	9 (9.50)		
4th year	34 (94.4)	2 (5.60)		
Religion				
Christianity	187(89.0)	23(11.0)	1.496	0.473
Islam	33(89.2)	4 (10.8)		

Aware n (%) represents the frequency and percentages of respondents' responses who answered Yes to the awareness of Organ Transplant. Not aware n (%) represents the frequency and percentages responses of respondents who answered No to the awareness of Organ Transplant. Level of significance set at $p < 0.05$. Statistical significance tested with Chi-square test of independence.

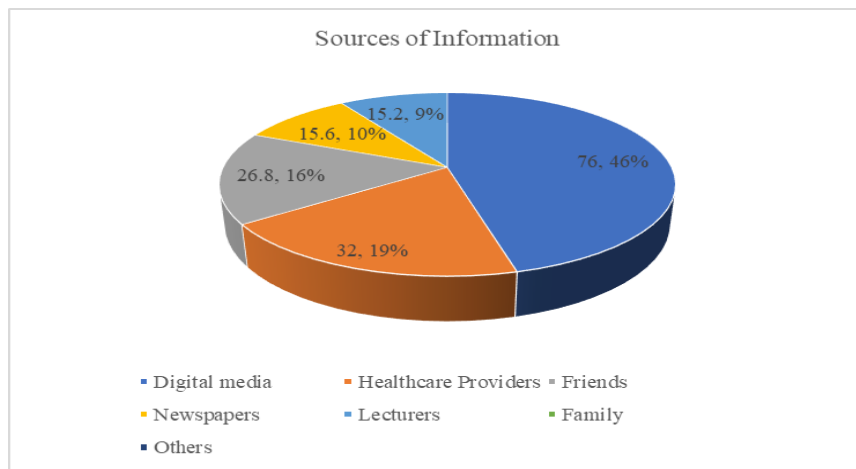


Fig. 2: Sources of Information

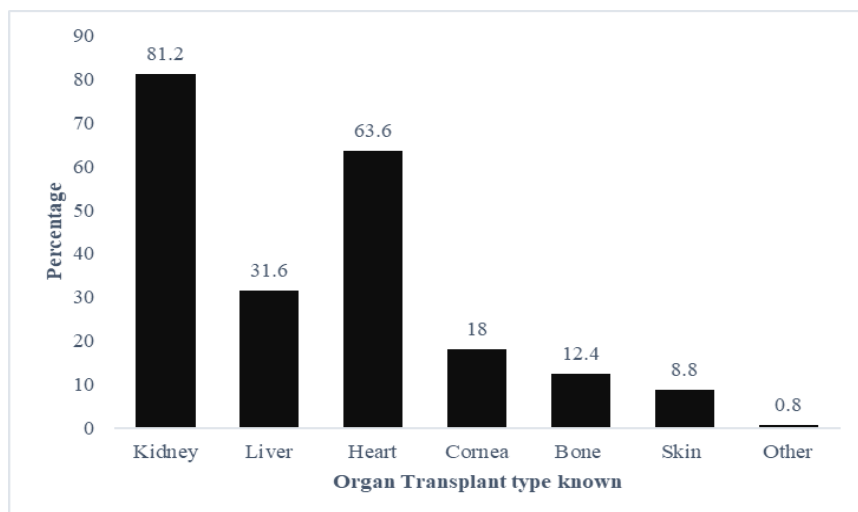


Fig. 3: Type of organ transplant known

Attitudes towards donation

All the participants responded to the willingness to donate organ question, out of which 54.8% were willing to donate. Majority of the participants were willing to donate after death than whilst living. The College with the highest preponderance in terms of willingness to

donate was College of Art and Built Environment (44%) (Fig. 5). Regarding the body parts that participants were most comfortable donating, Kidney (43.6%) was the organ most were willing to donate. For those willing to donate an organ, the major reason was the love for humanity (34.0%) across all the Colleges

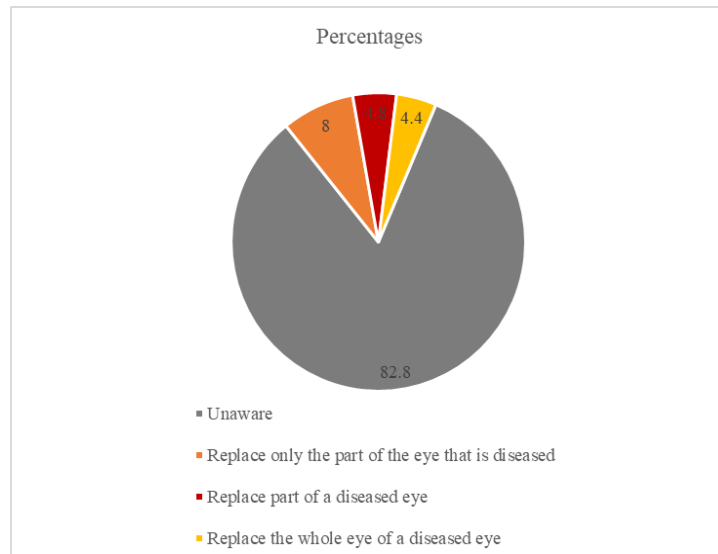


Fig. 4: Knowledge and awareness of corneal transplant

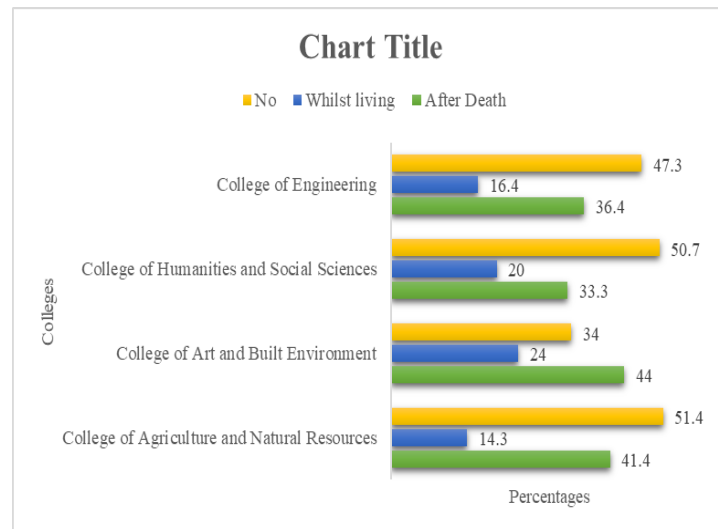


Fig. 5: Willingness to donate organ among the various Colleges

(Table 3).

Participants answered multiple response questions about reservations about donation and

majority of the participants indicated they did not have enough information to make that decision (47.6%) which was followed by; fear of complications after donation (46.4%); and lack

Table 3: Reasons for willingness to donate organ and cornea (N=250)

Variable	n	Percentage	χ^2	P-value
Love for humanity				
College of Agriculture and Natural Resources	23	67.6	0.603	0.896
College of Art and Built Environment	21	65.6		
College of Humanities and Social Sciences	24	64.9		
College of Engineering	17	58.6		
A noble gesture				
College of Agriculture and Natural Resources	10	29.4	1.234	0.745
College of Art and Built Environment	13	40.6		
College of Humanities and Social Sciences	11	29.7		
College of Engineering	10	34.5		
My religious obligation				
College of Agriculture and Natural Resources	0	0.0	3.739	0.291
College of Art and Built Environment	3	9.4		
College of Humanities and Social Sciences	3	8.1		
College of Engineering	1	3.4		
Kindness to others who need it				
College of Agriculture and Natural Resources	11	32.4	8.458	0.370
College of Art and Built Environment	6	18.8		
College of Humanities and Social Sciences	2	5.4		
College of Engineering	6	20.7		
Give others a chance for a better quality of life				
College of Agriculture and Natural Resources	16	47.1	4.051	0.256
College of Art and Built Environment	12	37.5		
College of Humanities and Social Sciences	20	54.1		
College of Engineering	18	62.1		
Others				
College of Agriculture and Natural Resources	4	5.7	12.000	0.285
College of Art and Built Environment	1	2.0		
College of Humanities and Social Sciences	0	0.0		
College of Engineering	1	1.8		

Variable represents reason for donating, n represents the number of participants who indicated yes to the variable, χ^2 represents Chi-Square value significant at $P \leq 0.05$

of trust in the Ghana Health System (36.8%).

DISCUSSION

In this study, it was observed that the 88.8% of the participants were aware of organ transplant with increasing awareness from 81.5% among first years to 90.5% and 94.4% among third and fourth years respectively while only 17.2% of the respondents were aware of corneal tissue transplant.

The majority of the participants in this present study had knowledge about Kidney transplant (81.2%), whereas similar result was reported by studies where more than 80% were aware of kidney transplant and donation (Annadurai, Mani and Ramasamy, 2013; Odusanya and Ladipo, 2006). The high awareness of kidney transplant in Ghana could also be due to the test transplants, using living related donors, that took place from 2008 to 2012 (Banyubala,

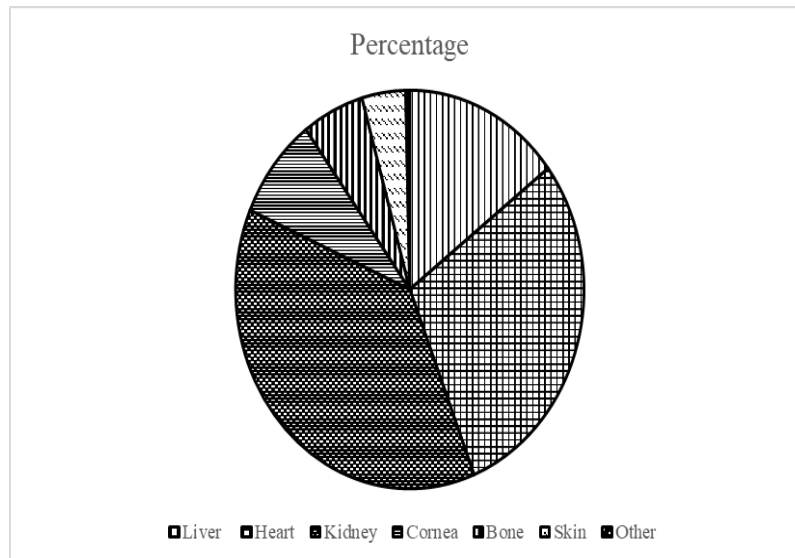


Fig. 6: Parts of the body participants are most comfortable donating (%)

2014) hence the first organ transplant done in Ghana which gained media attention .

In this study, it was observed that 76.0% out of the respondents reported digital media, 32.0% Healthcare providers, 26.8% Friends, 15.6% Newspapers, 15.2% Lecturers, 12.8% Family, and 0.4% Others (research papers) as the major sources of their knowledge regarding organ transplant and donation, which is similar to a study by Bilgel *et al.*, (Bilgel, Sadikoglu and Bilgel, 2006). A similar pattern was observed in a study conducted where media mainly television (61%), newspaper (60%), magazine (51%), radio (31%) were the sources of information (Bapat and Kedlaya) hammering on the media as a major source of information about organ transplant and donation.

This study observed that 56.8% of the students were willing to donate their organs while 60% participants were willing to donate in USA (Minniefield and Muti, 2002) and Pakistan (Ashraf *et al.*, 2005). A relatively lower result, 30%, was found in a study conducted in Nigeria (Odusanya and Ladipo, 2006) although there was 60% awareness of organ donation.

Out of the respondents in our study, 18.4% were willing to donate whilst living which is lower than a research conducted in China where 49.8% were willing to donate whilst alive (Zhang *et al.*, 2007). Despite the high level of awareness of organ transplant and donation in most studies, there was a negative attitude towards organ donation. This can be attributed to less public education to address the various misconceptions, religious beliefs and fears people harbor towards organ and tissue donation.

This study showed that 43.6% of the respondents were more comfortable donating their kidneys which is similar to the findings where 40.0% of the respondents were willing to donate their kidneys (Gordon, Patel, Sohn, Hippen and Sherman, 2015). A survey conducted on willingness of ophthalmologist in Nigeria to donate their eyes revealed 21.0% were willing to donate their eyes (Waziri-Erameh, Ernest and Edema, 2007).

Though ophthalmologists are eye health professionals who specialize in the treatment of eyes and performing eye surgeries, they still showed negative attitude towards eye donation. This

stipulates lucidly that, knowledge alone may not be the only barrier to organ and tissue donation but can be influenced by cultural beliefs, social implications, and personal opinions (Morgan, Hooper, Mayblin and Jones, 2006; Waziri-Erameh *et al.*, 2007).

Almost half of the respondents (47.6%) in this study were unwilling to donate their organs. Not enough information on donation (47.6%) was the primary reason for the unwillingness, followed by fears of complication after surgery for donation (46.4%), lack of trust in the Ghana Health System (36.8%). The main reservation towards organ and tissue donation in this study was lack of information, which is similar to the results reported in Saudi Arabia (Al-Ghanim, 2009) where the two primary reasons that hindered students from consenting to organ donation were inadequate knowledge or information, and personal attitude. Many studies such as a study conducted by Morgan *et al.*, in UK (Morgan *et al.*, 2006) laid much emphasis on the influence of cultural and religious barriers and practices with regards to organ donation, however in this study 6.4% of the respondents indicated religious beliefs as a concern for donation which influences their unwillingness to donate.

CONCLUSION

This study revealed a high awareness of organ transplant as well as a low level of awareness of corneal transplant among the non-health students at KNUST. Digital media was the primary source of information among the students. Love for humanity and the ability to give others chance for better quality of life were the main reasons for participants willingness to donate.

There is relatively low willingness, compared to the awareness level, to donate body parts with lack of information on transplantation and donation as the primary reason of respondents with fears of complication after surgery for the donation, lack of trust in the Ghana Health System as other reasons.

Much education and campaigns ought to be done about organ and tissue (cornea) transplant and donation through the digital media for ef-

tion policies in Ghana.

RECOMMENDATIONS

A well-planned campaign through the digital media, which seems to be a useful tool among university students for knowledge, is needed to increase the awareness and knowledge on organ/ tissue transplant and donation among the youth, who directly influence their family members and other members of the society. The campaign should also address the misconceptions associated with donation. Health professionals should be empowered to educate people who visit their facilities. These means should be utilized to increase the coverage of education on eye donation which will help to increase the number of eye donors and decrease the proportion of blindness due to corneal opacities.

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