

Perception of Corneal Transplant Among Medical Students in Kaduna, Nigeria

Bulus S Sano, FMCOPh*

Department of Ophthalmology, Faculty of Clinical Sciences, College of Medicine, Kaduna State University, Nigeria.

ORCID: 0009-0002-0766-0311.

*Correspondence:

Bulus S Sano, FMCOPh, Department of Ophthalmology, Faculty of Clinical Sciences, College of Medicine, Kaduna State University, Nigeria, Tel: +2348023636814.

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ABSTRACT

Background: Corneal disease remains a major cause of visual impairment worldwide, particularly in low- and middle-income countries. Although corneal transplantation is an effective treatment for corneal blindness, its uptake remains low, largely due to inadequate awareness, socio-cultural beliefs, and reluctance toward eye donation. Medical students, as future healthcare providers, play a crucial role in promoting eye donation and improving acceptance of corneal transplantation.

Objective: To assess the perception of corneal transplantation among clinical medical students in Kaduna State University, Kaduna, Nigeria.

Methods: A cross-sectional study was conducted among clinical students (400–600 level) of Kaduna State University using a pre-tested, self-administered questionnaire. A total of 250 students were selected through census sampling, and 227 consented to participate, giving a response rate of 90.8%. Data collected included socio-demographic characteristics and perceptions regarding corneal transplantation. The questionnaire reliability was confirmed using Cronbach's alpha (0.88). Data were analyzed using SPSS version 25, with descriptive statistics and inferential analyses including Z-test and chi-square test. Statistical significance was set at $p < 0.05$.

Results: The respondents had a mean age of 24 ± 2.568 years, with females constituting 61.7% and males 38.3%. Most respondents across different demographic groups acknowledged the importance of corneal transplantation in preventing or reversing blindness. However, a substantial proportion expressed concerns related to ethnic, cultural, and religious factors. Ethnic and cultural concerns increased significantly with age ($p = 0.0001$), indicating that respondents aged 26 years and above were more likely to reject corneal transplantation based on such beliefs.

Religious concerns were also reported across various demographic groups, although these associations were not statistically significant. Overall, demographic characteristics did not significantly influence the perception of corneal transplantation as an intervention for blindness.

Conclusion: While clinical students generally recognize the importance of corneal transplantation, socio-cultural and religious concerns persist and may influence attitudes toward eye donation. Strengthening educational interventions within medical training and promoting awareness through community and religious engagement may improve acceptance and advocacy for corneal donation and transplantation.

Keywords

Corneal transplantation, Perception, Medical students, Cultural beliefs, Nigeria.

Introduction

Cornea disease is an important cause of visual loss, though avoidable and its prevalence ranges from 7% to 7.9% in low to middle

income countries [1-3]. Cornea transplant has been successful in treating corneal blindness but its practice has remained relatively low [4,5]. Some of the reasons for this include unwillingness of potential donors to pledge their eyes [6,7] and failure of health care providers to educate potential donors [8,9]. In developing countries, unwillingness by potential donors has been attributed to some factors such as; socio- demographic factors [10,11]. poor awareness and knowledge [12,13]. erroneous spiritual/cultural beliefs (7,10), objection by family members [6,7]. and fear of the unknown [7,14]. Jagun et al. [15]. revealed that among final year medical students in Ogun tertiary institutions, fear of the unknown was the reason for failure to donate cornea in 45% of them with family objection accounting for 27.2%, need to keep body intact for burial 18.1% and donating cornea feels like signing a death wish accounting for 9% of failure to donate cornea. Similar reasons were also expressed by Singh et al in India [13].

In this study we aim to understand the perception of our future doctors and to encourage them to become advocates of eye donations/cornea transplant so that along with other eye care professionals they can form a formidable team to increase uptake of eye donation and cornea transplant.

Material and Methods

This study is a cross-sectional, pre-tested, self-administered questionnaire-based survey of all clinical students (400, 500 & 600 level) of Kaduna State University. The University was established in 2004, with campuses in Kaduna and Kafanchan and offers diverse undergraduate and post-graduate programs across 16 Colleges and faculties including the College of Medicine. A sample of 250 students were chosen by census sampling and administered questionnaires but only 227 gave consent representing 90.8% response rate. Information collected included those on socio-demographics (age, sex, race, religion, class) and perception of corneal transplant. Ethical clearance was obtained from BDTH Ethical review committee (Approval no. NHREC/BDKHREC/27/23B 29TH July 2025) and Helsinki declaration was adhered to. A pilot study was conducted among 30 pre-clinical students of same University in order to adjust the questionnaire. Reliability of the questionnaire was confirmed using the Cronbach's alpha (0.88) and data was analyzed using SPSS version 25 software. Mean, median, mode, range and standard deviation of individual's total score of perception factors were calculated. Z-score and chi-square were also used and statistical significance was set at 0.05. The questionnaire aimed at collecting information on demographic details and perceptions of cornea donation.

Results

Demographics

Demographic sample consisted of 250 students with 227 responding to the questionnaire giving a response rate of 90.8%. Age range was 20 -29 years with overall mean age of 24 years (Std. dev \pm 2.568). Mean age of male students was 25 years with Std. dev \pm 2.501 while the mean age of female students was 24 years with Std. dev \pm 2.505. There were 140 females (61.7%) and

87 males (38.3%) with a sex ratio M:F =1:1.62. Age group 23-25 constituted 59.0% (134) of the students while age group of 26 years and above had the least with 17.2% (39). Students in 500L constituted the highest with 39.2% (89) while 600L students were the least with 30.0% (68). Majority of the students were of Hausa tribe accounting for 62.6% (142) of the student's population with only 3 students (1.2%) of Igbo extraction.

The three major tribes in Nigeria are Hausa, Ibo and Yoruba. Muslim students were the majority with 73.1% (166) while other religions outside Christianity were only 1.3% (3). The major religions in Nigeria are Christianity and Islam.

Table 1: Demographics of the students.

Variable	Frequency	Percent	Cumulative Percent
Age			
20-22	54	23.8	23.8
23-25	134	59.0	82.8
\geq 26	39	17.2	100.0
Total	227	100.0	
Sex			
Male	87	38.3	38.3
Female	140	61.7	100.0
Total	227	100.00	
Level			
400L	70	30.8	30.8
500L	89	39.2	70.0
600L	68	30.0	100.0
Total	227	100.0	
Tribe			
Hausa	142	62.6	62.6
Yoruba	20	8.8	71.4
Igbo	5	2.2	73.6
Others	60	26.4	100.0
Total	227	100.0	
Religion			
Islam	166	73.1	73.1
Christianity	58	25.6	98.7
Others	3	1.3	100.0
Total	227	100.0	

Most respondents across different levels considered corneal transplant important in preventing or reversing blindness, 65.7% of respondents in 400L, 79.8% in 500L and 75.0% in 600L. Across age groups, majority identified corneal transplant important in preventing or reversing blindness with age group 20-22 (63.0%), 23-25 (76.9%) and 26 years or more 79.5%, while 78.2% males considered corneal transplant important compared to 71.4% females. Besides, 84.3% Christians believe corneal transplant is important in preventing blindness compared to 71.7% Muslims.

However, since all prevalence were greater than 0.05 the study concludes that their demographic characteristics do not significantly influence respondents' perception of the corneal transplant in preventing or reversing blindness.

Belief in ethnic concerns regarding the use of donor tissues increased with age with those aged 26 or more having 89.6% as against 68.5% of those aged 20-25 years. This was statistically significant and indicates that those 26 years and above are more likely to reject corneal transplant based on ethnic beliefs. Results of other demographic factors showed no statistical significance.

Table 2: Perception on Ethnic/Cultural concerns.

Demographic Variable	Do You Believe that there are Ethnic/Cultural Concerns		P Value
Age			
20-22	37 (68.5)	17 (31.5)	0.0001
23-25	120 (89.6)	14 (10.4)	
≥ 26	36 (92.3)	3 (7.7)	
Sex			
Male	79 (90.8)	8 (9.2)	0.054
Female	14 (81.4)	26 (18.6)	
Level			
400	55 (78.6)	15 (21.4)	0.190
500	78 (87.6)	11 (12.4)	
600	60 (88.2)	8 (11.8)	
Tribe			
Hausa	121 (85.2)	2 (14.8)	0.415
Yoruba	18 (90.0)	2 (10.0)	
Igbo	3 (60.0)	2 (40.0)	
Others	51 (85.0)	9 (15.0)	
Religion			
Christianity	51 (87.9)	7 (12.1)	0.568
Islam	139 (83.7)	27 (16.3)	
Others	3 (100.0)	0 (0.0)	

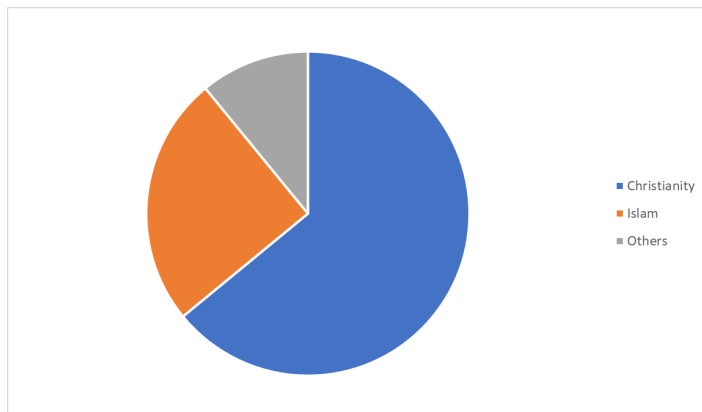


Figure 1: Religious concerns on corneal transplant by different faith.

Religious concerns were raised in 65.7% of respondents in age group 20-25 years as against 79.5% respondents in age group 26 years or more. Among the sexes 65.5% males raised religious concerns while 71.4% female had religious concerns. Across their level, 600L students showed more religious concerns with 75% respondents while 400L students had the least respondents with 65.0% of members showing religious concerns. Religious concerns were also expressed by Christians (77.6%), Muslims (66.9%) and others (33.3%).

These findings were not statistically significant.

Discussions

Corneal transplant offers a potential for recovery of vision in those with corneal related blindness. This opportunity however could be lost as a result of wrong perception regarding cornea transplant. This study is an attempt to unravel the perceptions of soon to be doctors that may be a hindrance to their pivotal role in encouraging donors and patients.

The age range of 20-26 years in this study is similar to that of Jagun et al. [15], in south-west Nigeria but different from another study in Delhi India [13]. The difference may be explained by the fact that this study and that of Jagun et al was on clinical students at the tail-end of their medical training while that of Delhi India was among first year medical students who as expected should be younger.

While this study and another in Nigeria [15] had more females, similar studies in Nigeria and abroad showed more male participants [7,13]. This difference may just be a coincidental finding.

Religious concerns was a major deterrent to corneal donation/transplant in a study in Toronto [16], and Hyderabad [17], which is similar to our study. This study revealed that religious concerns were also expressed across the different religions, tribes and levels of training. This finding is not surprising since Nigeria is a very religious country with Christianity and Islam considered the major religions. Because of the role of religion as a barrier to corneal donation/transplant there is need to target the Clergies and worship centers as places to intensify donation awareness campaigns. Clergies have vantage position in passing across health related information to their assemblies but may lack adequate knowledge and attitude towards organ donation/transplant [18,19]. In contrast, another study within Nigeria by Waziri-Erameh et al. [20], shows that the Christian faith was not a deterrent to organ donation/transplant among Nigerian Ophthalmologists.

Ethnic and socio-cultural concern was also found in this study to deter corneal donation with 74.3% acknowledging it. Okoye et al. in Enugu, Nigeria [7], and Singh et al. in Delhi, India [13], also raised ethnic and cultural concerns in their various studies. Ethnic and cultural inter-play and their dynamics may result in circumstances that lead to refusal to donate eyes and understanding the importance of cultural and ethnic factors and how it affects cornea transplant is crucial in tailoring donation campaign programs for maximum effect [21].

Conclusion

This study demonstrated that although most clinical students in Kaduna State University recognize the importance of corneal transplantation in preventing or reversing blindness, significant ethnic, socio-cultural and religious concerns still influence their perceptions. Ethnic and cultural beliefs were particularly notable, with older students more likely to express reservations

regarding corneal transplantation based on such beliefs. Religious concerns were also widely expressed across different demographic groups, reflecting the strong influence of religion within the Nigerian sociocultural context. The presence of these concerns among medical students—who are future healthcare providers and potential advocates for organ donation—highlights the need for strengthened educational interventions within medical training. Integrating comprehensive teaching on organ donation, transplantation ethics, and community health advocacy into the medical curriculum may help address misconceptions and improve attitudes toward corneal donation and transplantation. Furthermore, collaboration with community and religious leaders may be essential in addressing sociocultural barriers and enhancing public acceptance. Strengthening awareness among medical students will ultimately contribute to increased advocacy, improved donor recruitment, and greater uptake of corneal transplantation in Nigeria.

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