

## What Does the Medical Student Know about Eye Donation/Corneal Transplant?

### The University of Nigeria Scenario

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#### ABSTRACT

**Objective:** The study was designed to determine the knowledge of eye donation and corneal transplant among final year medical students of The University of Nigeria, Enugu Campus (UNEC).

**Methods:** Self-administered structured questionnaires were distributed to the members of the final year (graduating) class of the Medical College of UNEC in June 2007. Responses were obtained to questions bordering on eye donation and corneal transplant.

**Results:** One hundred and thirty-one students out of 183 eligible students participated in the study (response rate = 71.6%). One hundred and four students (79.4%) were aware of eye donation/corneal transplant. However, 95 students (72.5%) were not aware that the eyes can only be removed from a dead donor. Eighty-four students (64.1%) were not aware that eyes with cataract could be donated. Eighty-seven (66.4%) students were not willing to pledge their eyes for donation.

**Conclusion:** Medical students lack adequate knowledge about some aspects of eye donation and corneal transplantation. This may be a predictor of the level of awareness among the general public. Concerted innovative education and information dissemination strategies are required at this stage of national development to address the misconceptions surrounding eye donation and corneal transplant. There is a need to target medical students as future motivators, counsellors and eye donors. This should help advance the eye donation rates in Nigeria whenever the plans for the establishment of an eye-bank are finalized.

**Keywords:** Eye Donation, Corneal Transplant, Knowledge, Medical Student

## ¿Qué Saben los Estudiantes de Medicina Acerca de la Donación de Ojos/transplante de Córnea?

### Panorama de la Universidad de Nigeria

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#### RESUMEN

**Objetivo:** El estudio fue diseñado para determinar el conocimiento sobre la donación de ojos y el trasplante de la córnea entre estudiantes del último año de medicina en el Campus Enugu de la Universidad de Nigeria (UNEC).

**Métodos:** Se distribuyeron encuestas estructuradas auto-administradas entre los miembros de la clase del último año (graduandos) de la Facultad de Medicina de UNEC en junio de 2007. Se obtuvieron respuestas a preguntas en torno a la donación de ojos y el trasplante de córnea.

**Resultados:** Ciento treinta y un estudiantes de un grupo de 183 estudiantes elegibles, participaron en el estudio (tasa de respuesta = 71.6%). Ciento cuatro estudiantes (79.4%) conocían de la donación de ojos/trasplante de córnea. Sin embargo, 95 estudiantes (72.5%) no sabían que los ojos sólo pueden ser extraídos de un donante muerto. Ochenta y cuatro estudiantes (64.1%) no tenían conciencia de que se podían donar ojos con catarata. Ochenta y siete (66.4%) estudiantes no estaban dispuestos a ofrecer sus ojos para una donación.

**Conclusión:** Los estudiantes de medicina carecían de conocimientos adecuados sobre algunos aspectos de la donación de ojos y el trasplante de la córnea. Éste puede ser un predictor del nivel de conocimiento en el público general. Se necesita concertar una educación innovadora y estrategias de difusión de la información en esta fase de desarrollo nacional, a fin de abordar las concepciones erróneas en torno a la donación de ojos y el trasplante de córnea. Hay que hacer un trabajo de captación de los estudiantes de medicina como futuros motivadores, orientadores, y donantes de ojos. Esto debe contribuir a elevar las tasas de donación de ojos en Nigeria, en cuanto se concreten los planes para la creación de un banco de ojos.

**Palabras claves:** Donación de ojos, trasplante de córnea, conocimientos, estudiante de medicina.

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## INTRODUCTION

Nearly 80% of all corneal blindness is avoidable (1) and the developing world carries most of the global burden of corneal blindness. In Africa, corneal scarring is the cause of 70% of childhood blindness. Among causal factors implicated in corneal blindness are vitamin A deficiency, trauma, trachoma, onchocerciasis, leprosy, suppurative corneal infections, herpes simplex virus infections, ophthalmia neonatorum and harmful traditional eye medicines (2).

A reasonable proportion of such affected persons may regain their sight with corneal transplant. However, corneal transplant services are practically non-existent in Nigeria due to absent/scarcely eye banking facilities, lack of infrastructure and trained human resources and perceived lack of awareness regarding eye donation/corneal graft among the public. Since the Federal Government of Nigeria acknowledged the need for an eye bank and promulgated the decree No. 23 titled Corneal Grafting Decree 1973, not much was done in this regard. Consequently, thousands of Nigerians remain needlessly blind. There is thus a need to awaken public consciousness about eye donation/corneal transplant, even as the Ophthalmological Society of Nigeria (OSN) makes concerted efforts to establish an eye bank.

Well-informed medical students, along with healthcare workers, constitute a major population group that could help awaken public awareness, in order to encourage eye donation whenever the eye banks are fully established and operational. They could help inspire, educate and convince patients and their relatives/friends to make pledges towards eye donation, when they serve as doctors. It is necessary therefore, to explore their knowledge base on eye donation/corneal transplant that is available to them, and by extension, the general public's. The study aimed at determining the knowledge on eye donation/corneal transplant among final year medical students of the University of Nigeria.

## SUBJECTS AND METHODS

A cross-sectional survey of final year medical students of the University of Nigeria, Enugu campus, was conducted in June 2007. Self-administered structured questionnaires were used to elicit responses regarding biodata, awareness of eye donation/corneal transplant, willingness to donate their eyes,

reasons for wishing to donate or not donate their eyes. These questionnaires were developed following focus group discussions with a group of pre-registration House Officers employed in The University Teaching Hospital.

Verbal informed consent was obtained from all the respondents. Data analysis was done with Epi-info statistical software package version 6.04.

## RESULTS

One hundred and thirty-one students out of 183 eligible students participated in the study (response rate = 71.6%). The mean age was 26.9 years, standard deviation of 2.548. The majority (60.3%) of the students were males, while 52 (39.7%) were females (male/female ratio of 1.5: 1). The modal age group was the 21–30-year bracket (93.9%) while 6 (4.9%) and 2 (1.5%) belonged to the 31–40 and 11–20-year age groups respectively. Christians (93.1%) formed the largest bulk of the respondents. Tables 1 and 2 display the

Table 1: Responses bordering on knowledge of eye donation/corneal transplant (n = 131)

Item	Yes	No
Are you aware of eye donation/corneal transplant	104 (79.4%)	27 (20.6%)
The eyes can be removed only from a dead donor	36 (27.5%)	95 (72.5%)
The eyes should be removed within a specific time limit after death	117 (89.3%)	14 (10.7%)
The whole eyeball is removed from the donor	54 (41.2%)	77 (58.8%)
Eyes with cataract can be donated	47 (35.9%)	84 (64.1%)
Persons wearing glasses can be donors	66 (50.4%)	65 (49.6%)
Diabetic or hypertensive persons can be donors	41 (31.3%)	90 (68.7%)
Anyone irrespective of blood group can be a donor	77 (58.8%)	54 (41.2%)

relevant responses by the 131 medical students who participated in the study.

Statistical analysis for levels of significance using the chi-square test at 5% level revealed the following:

- Significantly more students knew about eye donation/corneal transplant ( $\chi^2 = 31.38$ ,  $df = 1$ ,  $p < 0.0001$ ). Out of these, 63 (60.6%) and 41 (39.4%) respectively stated that healthcare workers/books and media were the

Table 2: More responses bordering on knowledge of eye donation/corneal transplant (n =131).

Item	Yes	No
It is necessary to transport the donor to the hospital after death for donating eyes	67 (51.1%)	64 (48.9%)
The whole eyeball is transplanted to the recipient	38 (29.0%)	93 (71.0%)
Eye donation disfigures the donor's face	57 (43.5%)	74 (56.5%)
Are you aware of current plans to establish eye bank in Nigeria	9 (6.9%)	122 (93.1%)
Corneal transplant is not effective in black people	9 (6.9%)	122 (93.1%)
Would you donate a close relative's eyes upon untimely death	64 (48.9%)	67 (51.1%)
Would you pledge your eyes for donation?	44 (33.6%)	87 (66.4%)
Persons with hepatitis or AIDS can donate their eyes	21 (16.0%)	110 (84.0%)

main sources of awareness on eye donation/corneal transplant.

- Significantly more students did not know that eyes can be removed only from a dead donor ( $\chi^2 = 18.12$ ,  $df = 1$ ,  $p < 0.0001$ )
- Significantly more students did not know that eyes with cataracts can be donated ( $\chi^2 = 7.029$ ,  $df = 1$ ,  $p < 0.008$ )
- Significantly more students knew that eyes should be removed within a specific time limit ( $\chi^2 = 57.97$ ,  $df = 1$ ,  $p < 0.0001$ )
- More students did not know that diabetic or hypertensive persons can be donors ( $\chi^2 = 12.41$ ,  $df = 1$ ,  $p < 0.004$ )
- Significantly more students knew that corneal transplant can be effective in black people ( $\chi^2 = 73.61$ ,  $df = 1$ ,  $p < 0.0001$ )
- Significantly more students stated that donors' consent for donation was necessary before death ( $\chi^2 = 65.5$ ,  $df = 1$ ,  $p < 0.0001$ ). The majority (91.6%) stated that donors' consent was necessary and should be given before death while 11 (8.4%) stated that donors' consent was not always necessary and could be given by next-of-kin.
- Significantly more students were unwilling to pledge their eyes for donation ( $\chi^2 = 9.524$ ,  $df = 1$ ,  $p = 0.002$ )

One hundred and twenty-two students (93.1%) did not know of the current plans for establishing an eye bank in the country.

Altruism was stated to be the principal reason among all those willing to donate their eyes. Perceived objection by family members, health reasons, cultural factors, fear and lack of awareness on eye donation were cited as chief reasons for not wishing to pledge their eyes for donation. Table 3 shows the distribution of the 87 medical students who would not pledge their eyes for donation, with respect to the reasons for not doing so.

Table 3: Various reasons for not being willing to pledge their eyes for donation (n = 87)

Reason	Number	%
Family objection	26	29.9%
Unsuitability due to health reason	22	25.3%
Cultural reason with respect to separation of the eye from body	19	21.8%
Fear of the unknown	17	19.5%
Religious reasons (not to defile the body)	13	14.9%
Lack of awareness on eye donation	10	11.5%
No reason	17	19.5%

## DISCUSSION

As early as 1905, doctors had discovered that corneal blindness could be cured by carrying out a corneal transplant. More than 1000 corneal transplants are carried out in Australia annually, > 2400 in the United Kingdom (UK), and > 30 000 in the United States of America [USA] (3). This significant milestone was achieved only after many decades of unsuccessful attempts (4).

In most countries, especially in the developing ones, the number of corneas available do not meet the demand. Yet in some, there is no locally available and accessible corneal transplant service and no operational eye bank. In order to increase the potential for eye donation whenever such services become available in Nigeria, it may be imperative to promote awareness among potential donors and healthcare workers. Lack of appropriate knowledge may be a possible barrier to eye donation and it is essential to identify and eliminate all existing misconceptions. Medical professionals' attitudes towards eye donation can also be expected to influence eye donation rates (5). Medical students, after graduation might serve as terminal care doctors of suitable eye donors, therefore they would have a great opportunity to motivate patients or relatives to donate eyes (5). This is particularly true for patients seen in the Accident and Emergency departments, a highly underused group of potential donors of cornea (6). Active counselling by a trained and motivated group has been shown to elicit a high positive response to corneal donation requests (7).

Data from the present study suggest that the level of awareness of eye donation/corneal transplant among these students is high (87%), though 72.5% of the students were not aware that the eyes can only be removed from a dead donor. This is unlike a study in India which showed that 99.4% of the medical students were aware that eyes could be donated after death (8). In the present study, information by healthcare workers in the hospital and the mass media could be related to the level of awareness among these medical students. However, it is a matter of concern that the majority of students in the study were not aware that eyes can only be removed from a dead donor, 64.1% were not aware that eyes with cataract can be donated, 49.6% were not aware that be-

spectacled persons can be donors, 68.7% were not aware that diabetic or hypertensive persons can be donors and 66.4% were not willing to pledge their eyes. It is thus obvious that the information presently available to these students regarding eye donation/corneal transplant needs to be supplemented. Medical students who are inadequately informed or uncomfortable with the idea of eye donation will obviously not be good spokespersons for eye donation, when they become doctors. Willingness to donate was found to be associated with altruism. The low level of willingness to donate noted in this study contrasts markedly with the study in India (8) where 87.2% were willing to donate and in Singapore where 67% of the residents studied were willing to donate (9).

This low level of willingness and the reasons for not consenting need to be considered while creating awareness of eye donation among the medical students. The main reasons which include objection by family members, perceived unsuitability to donate due to health problems, cultural factors bordering on misconception regarding separation of one's eyes from the body on death, fear of the unknown (particularly if there is belief in life after death) and lack of awareness on eye donation can provide key themes for health information packages targeted at these students and the public. If these students are well-informed about eye donation and corneal transplant, they could be expected to influence eye donation rates (10). Medical students could be actively involved in eye donation campaigns in future, wherein after proper training in counselling techniques, they can act as counsellors for eye donors (8). This can reasonably curb the unwillingness of healthcare professionals to

facilitate donations, which had all along been ascribed to lack of initiative and fear of liability (11). There is thus more than ever a need to target these medical students as future motivators, counsellors and even donors. It is expected that this will help promote eye donation in Nigeria whenever the plans to establish the eye-bank are finalized.

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