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ORIGINAL ARTICLE

AWARENESS, KNOWLEDGE, AND ATTITUDE TOWARDS CORNEAL DONATION AMONG ADULTS IN A RURAL COMMUNITY IN ENUGU STATE, NIGERIA

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ABSTRACT

Introduction

Corneal blindness remains a major cause of visual impairment in developing countries. Corneal transplantation is an effective treatment for many corneal diseases; however, the shortage of donor corneas remains a major challenge. This study determines the awareness, knowledge, and attitude towards corneal donation among adults in a rural community in Enugu State, Nigeria.

Methods

This descriptive cross-sectional study was conducted among adults aged 18 years and above who attended a medical outreach programme in a rural community in Enugu State. Data were collected using a structured interviewer-administered questionnaire assessing socio-demographic characteristics, awareness, knowledge, and attitude towards corneal donation. Data were analysed using the Statistical Package for the Social Sciences (SPSS) version 23.0. Descriptive statistics were used to summarize the findings.

Results

A total of 170 participants were enrolled, comprising 47 (27.6%) males and 123 (72.4%) females, with a mean age of 48.3 ± 17.2 years. More than half of the respondents (57.1%) had poor knowledge of corneal donation, while 79.4% demonstrated poor awareness. Furthermore, 135 (79.4%) participants were unaware that individuals could voluntarily pledge to donate their corneas after death. Attitude towards corneal donation was generally poor, with 83.5% of respondents unwilling to donate their corneas after death.

Conclusion

Knowledge, awareness, and attitude towards corneal donation were generally poor among adults in this rural community. Community-based health education and sustained public enlightenment campaigns are needed to improve awareness, correct misconceptions, and promote acceptance of corneal donation.

Keywords: Corneal donation, corneal transplantation, awareness, knowledge, attitude, rural community, Nigeria.

INTRODUCTION

Corneal blindness is one of the leading causes of visual impairment worldwide and constitutes a major public health challenge, particularly in developing countries.[1–6] It is estimated that millions of people suffer from corneal blindness, many of whom could benefit from corneal transplantation, which remains the definitive treatment for restoring vision in eyes with irreversible corneal disease.[2,6] However, the availability of donor corneas remains grossly inadequate worldwide, resulting in a substantial gap between demand and supply.[7]

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Corneal transplantation depends entirely on the availability of donated corneal tissue obtained from deceased donors through organised eye banking systems.[7,9] Although advances in surgical techniques have significantly improved graft survival and visual outcomes, the shortage of donor corneas continues to limit access to this sight-restoring procedure, particularly in low- and middle-income countries.[6,7]

Several factors influence the availability of donor corneas, including public awareness, knowledge, cultural beliefs, religious considerations, misconceptions regarding body disfigurement after death, and willingness to donate.[10–12] Studies conducted in different parts of the world have shown that adequate knowledge and positive attitudes towards eye donation are associated with increased willingness to donate.[12,13] Conversely, poor awareness and misconceptions remain important barriers to corneal donation.[10,11]

In Nigeria, corneal transplantation is still developing, and eye banking services remain limited despite the growing burden of corneal blindness.[3,9] Although the National Health Act provides a legal framework for organ and tissue donation,[17] public awareness and acceptance of eye donation remain relatively low. Previous Nigerian studies have mainly evaluated knowledge and attitudes among medical students and healthcare workers,[15,18] with relatively few community-based studies assessing the general population.

Understanding the knowledge, awareness, and attitudes of the public towards corneal donation is essential for developing effective educational programmes and policies aimed at improving eye donation rates. This study therefore assessed the knowledge, awareness, and attitudes towards corneal donation among adults attending a medical outreach programme in Orba, Enugu State, Nigeria.

METHODS

Study design and setting

This was a community-based cross-sectional study conducted among adults attending a medical outreach programme in Orba, Udenu Local Government Area, Enugu State, Nigeria.

Study population

The study included adults aged 18 years and above who attended the outreach programme and provided informed consent to participate.

Data collection

Data were collected using a structured interviewer-administered questionnaire developed following a review of relevant literature. The questionnaire comprised four sections: socio-demographic characteristics, awareness of corneal donation, knowledge of corneal donation, and attitudes towards corneal donation.

The socio-demographic section obtained information on participants' age, sex, ethnicity, educational level, and occupation. The awareness section assessed whether participants had previously heard or read about corneal donation and transplantation. The knowledge section consisted of five questions assessing factual knowledge regarding corneal donation. Participants who correctly answered Questions 1, 2, and 5, identified by a corneal specialist as the key knowledge items, were classified as having **good knowledge**. Attitude was assessed using questions evaluating participants' willingness to donate their corneas after death and the reasons for their decisions. Factors influencing willingness to donate were also explored.

Statistical analysis

Data were entered and analysed using the Statistical Package for the Social Sciences (SPSS) version 23.0 (IBM Corp., Armonk, NY, USA). Continuous variables were summarised using means and standard deviations or medians, as appropriate, while

categorical variables were presented as frequencies and percentages.

Associations between socio-demographic variables and participants' awareness, knowledge, and attitudes towards corneal donation were assessed using the Chi-square test or Fisher's exact test where appropriate. Independent *t*-test was used to compare mean age and income between groups based on willingness to donate, while categorical variables such as sex and educational level were analysed using the Chi-square test. A *P*-value of <0.05 was considered statistically significant.

Operational definitions

Eye donation: The ante-mortem pledge by an individual to donate his or her eyes (corneas) after death for transplantation.[16]

Awareness: General knowledge of eye donation or corneal transplantation gained through hearing or reading about the subject.[16]

Knowledge: Possession of specific factual information regarding eye donation and corneal transplantation.[16]

Attitude: Participants' opinions, perceptions, or willingness regarding eye donation and corneal transplantation.[18]

Inclusion criteria

- Adults aged 18 years and above.
- Individuals who provided informed consent to participate in the study.

Exclusion criteria

- Individuals younger than 18 years.
- Individuals who declined consent.
- Individuals with unilateral or bilateral visually significant corneal opacity.
- Individuals with cognitive impairment that could affect their ability to provide reliable responses.

Ethical considerations

Ethical approval was obtained from the Health Research Ethics Committee of the Enugu State University of Science and Technology Teaching Hospital (Reference Number: ESUT/HREC/2024/030/09/67). Written informed consent was obtained from all participants before enrolment.

Confidentiality

Participants' information was treated with strict confidentiality. Completed questionnaires were anonymised, and electronic data were password-protected and accessible only to the research team.

RESULTS

A total of 168 participants were recruited into the study. Of these, 46 (27.4%) were males and 122 (72.6%) were females, giving a female-to-male ratio of approximately 2.7:1. Participants' ages ranged from 18 to 93 years, with a mean age of 48.3 ± 17.2 years. The socio-demographic characteristics of the respondents are presented in Table 1.

Table 1: Socio-demographic characteristics of the participants

Variable	Frequency (N=168)	Percentage (%)
Age Group		
18-30	28	**16.7**
31-50	69	**41.1**
51-70	57	**33.9**
71-95	14	**8.3**
Gender		
Male	**46**	**27.4**
Female	**122**	**72.6**
Marital Status		
Married	**117**	**69.6**
Single	**19**	**11.3**
Widowed	**32**	**19.1**
Educational level		
No Formal education	**41**	24.4
Primary School	**49**	29.2
Secondary school	**49**	29.2
Tertiary	**26**	**15.5**
Missing data	**3**	**1.7**

Table 2: Knowledge about eye donation

QUESTIONS	RESPONSES	
	Correct/yes	**Incorrect/Don't know**
1. Can a person with HIV* be an eye donor?	149 (88.7)	19 (11.3)
2. Can donated eye cure all blindness	16 (9.5)	152 (90.5)
3. Is it permissible to buy or sell human parts?	151 (89.9)	17 (10.1)
4. Is there an eye bank in Nigeria?	56 (33.3)	112 (66.7)
5. Which part of the eye can be donated?	7 (4.2)	161 (95.8)

*HIV= Human immunodeficiency

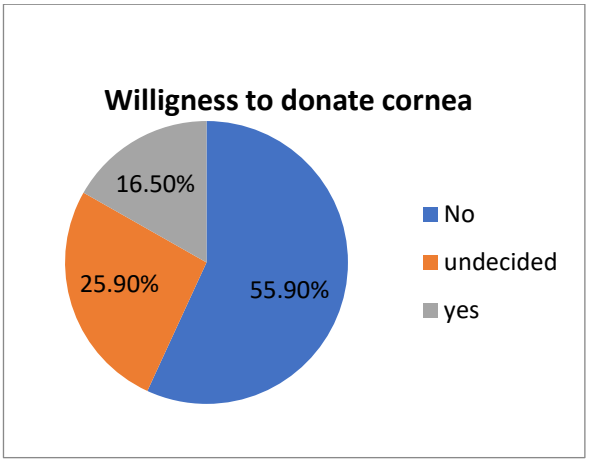

Figure 1: Attitude to willingness to donate cornea

Regarding educational status, information was available for 165 (98.2%) participants. Of these, 41 (24.4%) had no formal education, 49 (29.2%) had primary education, 49 (29.2%) had secondary education, and 26 (15.5%) had tertiary education. Most participants were Christians and belonged to the Igbo ethnic group, reflecting the predominant population of the study area (Table 1).

Awareness of corneal donation

A total of **166 (98.8%)** participants responded to the questions on awareness. Of these, **135 (80.4%)** were unaware of corneal donation. Similarly, **135 (80.4%)** did not know that individuals could pledge to donate their eyes after death.

Knowledge of corneal donation

Participants' responses to the knowledge questions are presented in Table 2. Most respondents 151 (89.9%) correctly knew that the sale of human organs is illegal, while 149 (88.7%) correctly identified that individuals living with HIV should not donate their eyes. However, only 56 (33.3%) knew that an eye bank exists in Nigeria, and just 7 (4.2%) correctly identified the part of the eye that is donated during corneal transplantation.

Overall, the findings indicate generally poor knowledge of corneal donation among the study participants.

Attitude towards corneal donation

The majority of respondents, 94 (55.9%), indicated that they would not pledge to donate their corneas after death. Forty-four (25.9%) were undecided, while only 28 (16.5%) expressed willingness to donate their corneas (Figure 1).

DISCUSSION

This study demonstrated poor awareness, limited knowledge, and generally unfavourable attitudes towards corneal donation among adults attending a medical outreach programme in Enugu State. These findings highlight the continuing challenges facing eye donation programmes in Nigeria, where limited public awareness remains a major barrier to increasing the availability of donor corneas.[1–3,7]

The study population was predominantly female (72.6%), with a mean age of 48.3 ± 17.2 years. This female predominance differs from previous Nigerian studies,[15] but is

comparable to reports from Italy, Hong Kong, and Jordan, where female respondents also predominated.[12,19,20] The difference may reflect variations in study settings, participant recruitment, and healthcare-seeking behaviour.

Knowledge of corneal donation was generally poor. Most participants were unaware that eye donation is possible after death, and only one-third knew that an eye bank exists in Nigeria. These findings contrast with reports from Ethiopia, Singapore, and Bhopal, where substantially higher levels of knowledge were reported.[1,14,21] The disparity may be attributable to greater public awareness campaigns, more established eye banking systems, and higher volumes of corneal transplantation in those settings. Conversely, our findings are comparable to those of a community-based study from Pakistan, which also reported poor public knowledge regarding organ donation.[22]

The present findings are also lower than those reported among medical students in southeastern Nigeria,[15] which is expected because healthcare students are more likely to have been exposed to information on organ and tissue donation during their training. Similarly, a study from southern Nigeria reported greater awareness of organ transplantation among healthcare-related participants than among the general population.[24] These observations suggest that educational background and exposure to health information are important determinants of knowledge regarding corneal donation.

Attitudes towards corneal donation were similarly unfavourable, with more than half of the respondents unwilling to pledge their corneas after death. This finding is not unexpected, considering the poor level of knowledge observed and the persistent cultural, religious, and traditional beliefs surrounding organ donation in many African communities.[24] In contrast, studies from Singapore, Ethiopia, and Pakistan reported substantially higher willingness to donate.[13,22,25] Previous studies have consistently demonstrated that better knowledge is associated with greater willingness to donate organs,[13,23] suggesting that improving public education may positively influence attitudes towards corneal donation.

The poor willingness to donate observed in this study underscores the need for sustained public enlightenment programmes. Health education delivered through mass media, schools, religious organisations, community leaders, and healthcare facilities could substantially improve public awareness and acceptance of corneal donation. Evidence suggests that educational interventions significantly improve knowledge and willingness to participate in organ donation programmes.[23,26] Strengthening eye banking services and increasing public awareness of the existing legal framework for organ donation under the Nigerian National Health Act may also improve public confidence and participation.[17]

CONCLUSION

The findings of this study demonstrate poor awareness, inadequate knowledge, and generally unfavourable attitudes towards corneal donation among adults attending a community medical outreach in Enugu State. These findings suggest that inadequate public awareness remains a major obstacle to increasing corneal donation and expanding access to corneal transplantation in Nigeria.

LIMITATIONS

This study was conducted in a single community and may not be representative of the general population of Enugu State or Nigeria. Furthermore, the cross-sectional design limits causal inferences regarding factors influencing knowledge and attitudes. Nevertheless, the study provides useful baseline information that may guide future public health interventions and larger population-based studies.

RECOMMENDATIONS

Comprehensive public awareness campaigns on corneal donation should be implemented through the mass media, healthcare facilities, schools, religious organisations, and community-based programmes. Public

education should also include information on the legal provisions governing organ donation in Nigeria to improve public confidence and acceptance. In addition, strengthening eye banking services and conducting larger multicentre population-based studies are recommended to support evidence-based policies aimed at improving corneal donation rates in Nigeria.

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