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ORIGINAL RESEARCH

Perception and Awareness of the Scourge of Glaucoma in Southwest Nigeria

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Abstract

Background: Glaucoma is a major public health problem, responsible for 8% of global blindness and the commonest cause of irreversible blindness. Increasing public knowledge of glaucoma would help reduce late diagnosis and blindness.

Objective: To assess public understanding of glaucoma and its consequences.

Methods: A cross-sectional descriptive survey using an electronic semi-structured questionnaire was conducted in two states of Southwest Nigeria.

Results: Four hundred and twenty-three [423] respondents participated in this study. The age range was 18-66 years, with a mean age of 38.7±9.6 years, and 46.1% of the participants were males. Out of the respondents, 360 (85.1%) had heard of glaucoma before the survey, but only 231 (54.6%) could provide accurate definitions of it. One hundred and forty-three (33.8%) knew that glaucoma can cause blindness, whereas only 32 (22.4%) knew that it can result in irreversible blindness. General healthcare workers (22%), social media, television, radio, and internet (19.9%), family members (17%), and eye care workers (14.8%) were identified as the primary sources of glaucoma awareness.

Conclusion: This study revealed a limited understanding of glaucoma, despite high awareness. It emphasises the need for eye care workers to provide targeted public education on the condition.

Keywords: Awareness, Blindness, Glaucoma, Nigeria, Optic nerve, Visual impairment.

Introduction

Glaucoma comprises a group of eye conditions that gradually harm the optic nerve, resulting in

permanent vision loss. It poses a significant public health issue, responsible for 8% of worldwide blindness, and is the leading cause of irreversible vision impairment. ^[1,2] Late diagnosis and treatment result in significant visual

impairment. ^[1] Globally, an estimated 60.5 million people were affected by glaucoma in 2010, with approximately 8.4 million suffering from blindness.^[2] This number is expected to increase to 111.8 million by 2040, according to Tham *et al.* ^[3]. Glaucoma affects 3.54% of people aged 40–80 worldwide. Primary open-angle glaucoma is most common in Africa, while primary angle-closure glaucoma is more prevalent in Asia.^[4]

Awareness of glaucoma varies; a study at Bowen University Teaching Hospital, Ogbomosho, reported a 60.8% awareness rate among hospital workers, ^[5] while Kizor-Akariawe *et al.* found a 65.5% awareness rate among community participants in Enugu.^[4] The National Blindness Survey in Nigeria reported a glaucoma prevalence of 5.02% in individuals aged 40 years and above.^[6] Among those affected, only 5.6% were aware of their condition, and 20% were already blind in at least one eye at the time of assessment. ^[6] In contrast, a hospital-based study conducted by Ezinne *et al.* in Enugu documented a prevalence of 18.15% among their patients. ^[1]

Glaucoma has been reported to affect the quality of life (QoL) of individuals. The World Health Organisation (WHO) defines QoL as an individual's perception of their position in life, influenced by cultural and value systems, as well as personal goals, expectations, and concerns. ^[7,8] A multicentre randomised controlled trial on advanced glaucoma demonstrated that primary trabeculectomy surgery was more effective than initial medical therapy in reducing intraocular pressure and slowing disease progression, while maintaining similar safety and enhancing quality of life over five years. ^[9] Hence, increasing public awareness and understanding of the different treatment options for glaucoma can help reduce late diagnoses, prevent blindness, and improve quality of life.

Misconceptions regarding glaucoma are prevalent; therefore, it is imperative to address these misunderstandings and disseminate accurate information. ^[10,11] Many individuals seek medical attention only at advanced stages due to ignorance and the 'silent' blinding nature of the disease. Some authors have associated this late presentation with advanced age, geographical distance from healthcare facilities, low literacy levels, and unemployment. ^[12] This survey aimed to evaluate public awareness of glaucoma and its significant risk of blindness.

Methods

Study design

This study was a descriptive, cross-sectional survey conducted between June and October 2024 after pilot testing. Data were collected through a semi-structured electronic questionnaire that gathered respondents' demographic details, along with questions about their awareness, knowledge, sources of information about glaucoma, and its impact on daily activities.

Sample size determination

A minimum sample size of 365 was calculated using the descriptive population study formula (using a glaucoma prevalence of 0.61,^[5] $Z = 1.96$, and $d = 0.05$). The sample size was increased to 600 to enhance accuracy and compensate for questionnaires that were not correctly completed. A total of 600 respondents were selected from Ogun and Osun states, two of the six states in the Southwest region of Nigeria.

Ethical consideration

The study was conducted in accordance with the Declaration of Helsinki. Ethical approval with certificate number OGHREC/468/2025/874/APP was obtained and other principles such as confidentiality,

voluntariness and informed consent were ensured.

Data collection

The selection of these states was based on their proximity to the two principal researchers. An electronic consent form was initially distributed to more than 700 individuals through convenience and snowball sampling methods via WhatsApp and E-mail platforms, utilising contact lists from local churches, mosques, and social groups in the two chosen states. A total of 665 individuals consented, and the final study included 300 male and 300 female respondents. Inclusion criteria included adults aged 18 years and older with documented phone numbers or e-mail addresses. Medical doctors and nurses were excluded from the survey [Appendix 1], as it was assumed that their professional knowledge would provide sufficient understanding of the condition.

Data analysis

The electronic data were exported to Microsoft Excel® and imported into SPSS version 25 for analysis. Descriptive statistics, including percentages, means, ranges, and standard deviations, were calculated.

Results

A total of 423 respondents completed the study out of the 600 selected, resulting in a response rate of 70.5%. Out of the total, 195 individuals (46.1%) were males, and 228 (53.9%) were females, with ages spanning from 18 to 66 years and a mean age of 38.7 ± 9.6 years. The majority belonged to the Yoruba tribe (369; 87.2%), followed by Igbo (48; 11.3%), and Hausa (6; 1.5%). Two hundred and seventy-nine (66%) respondents had attained a tertiary educational level, 119 (28%) held postgraduate degrees, and 25 (6%) possessed either primary or secondary education. Three hundred and seventy (87.4%)

were employed, whereas 53 (12.6%) were either unemployed or students.

Two hundred and sixteen respondents, representing 51.1%, wore prescribed glasses. While 85.1% (360/423) had heard of glaucoma before the survey, only 231 (54.6%) could accurately define the condition when asked to explain it. Most respondents obtained their information about glaucoma from either general health workers (22%) or social media (20%) (Table I).

Two hundred and seven respondents (49%) knew that glaucoma is an eye disease, but had no further information. Meanwhile, 143 (33.8%) had no idea what glaucoma is, and 17% knew that glaucoma causes blindness. Only 32/143 (22.4%) understood that this blindness is typically irreversible. Most respondents believed their economic activities (86.2%) and physical activities (84.6%) would be most impacted if they developed glaucoma (Table II).

A total of 102 (24.1%) respondents had previously undergone glaucoma screening, whereas 33 (7.8%) had been diagnosed with glaucoma. Additionally, 72 (17%) reported a family history of glaucoma among first-degree relatives. Regarding treatment options, 270 (63.8%) indicated they would not choose eye surgery if diagnosed with glaucoma; however, all the respondents expressed a preference for the use of eye drops.

Table I: Sources of information on glaucoma knowledge

Source of information	Frequency [n]
Health workers	93
Family members	72
Social media/internet	84
Eye care workers	63
Never heard of glaucoma	72
Others	39
Total	423

Table II: Effects of glaucoma on the different domains of Quality of Life

Domain of QoL	Frequency [N=423]	Percentages
Physical activity	358	84.6
Psychological activity	269	63.5
Social activity	262	61.9
Economic activity	365	86.2
Spiritual	226	53.4

Discussion

The response rate of 70.5% in this study was quite impressive, especially considering that the questionnaires were administered electronically. Individuals in developing countries, such as Nigeria, often face various internet access-related issues. Female respondents slightly outnumbered males, and most participants were Yoruba, likely since this is the dominant tribe in Southwestern Nigeria, where the study was conducted. At least 51% of respondents reported having received or currently wearing prescribed spectacles, indicating prior contact with an eye care professional. In contrast, only 24.1% stated they had been screened for glaucoma, reflecting a low screening rate.

This study found that 85.1% of participants were aware of glaucoma, which is higher than the 65.5% reported by Kizor-Akaraiwe *et al.* in Enugu, Nigeria. [4] However, of the 85.1% who had heard about glaucoma before the study, only 54.6% could give a reasonable definition of glaucoma, revealing that the remaining 45.4% of the respondents had poor knowledge of the disease. This is also supported by the findings of Kizor-Akaraiwe, where only 36.8% exhibited good knowledge, even though 65.5% were aware of the disease. [4] Heisel *et al.* in Ethiopia found that 44% of their participants had basic awareness of glaucoma, which was strongly correlated with their educational level. [13] Open-

angle glaucoma, the most common form in Africa, usually progresses without symptoms. It initially affects peripheral vision, so many people remain undiagnosed until it advances enough to impact their central vision. This has been linked to low patient awareness and knowledge about the disease. [3]

The present study showed that the main sources of glaucoma awareness were general healthcare workers (22%) and the media (19.9%). This aligns with the findings of Heisel *et al.*, who also found that healthcare workers (21.4%) were a significant source of glaucoma information; however, most participants (43.5%) obtained their information on glaucoma from the media (TV, the internet, and radio). [13] This suggests that eye care professionals, such as optometrists, ophthalmologists, ophthalmic nurses, and other specialists, may not be actively involved in community education about glaucoma. Therefore, the media can play a crucial role in informing and educating the public, and ophthalmologists should utilise it more for community glaucoma awareness. Damjri *et al.*'s review emphasises the importance of public education through all available channels to prevent glaucoma and enable early, effective treatment. They observed that both adult and paediatric glaucoma cases often reach ophthalmologists at advanced stages, mainly because symptoms go unnoticed and awareness remains limited in Pakistan and other developing countries. [14]

Only 17% of our participants reported having a first-degree relative with glaucoma, and just 7.8% were diagnosed with the disease and currently on treatment. This likely makes most responses quite subjective, as many have no direct experience with glaucoma. The low prevalence observed could also be because most participants have not undergone screening before, especially considering that the early stages of the disease are often asymptomatic. In Nigeria, among

individuals aged 40 and above, glaucoma has a prevalence of 5.02%. Open-angle glaucoma accounts for 86% of cases, while angle-closure glaucoma makes up 14%. Secondary glaucoma constitutes 8% of all cases. [6,7] Given that this is a chronic condition resulting in irreversible blindness necessitating long-term management, an effective public health strategy to address this issue would include fostering robust connections between the community and healthcare providers. This can be accomplished through the establishment of a comprehensive health system and the deployment of well-trained personnel, in conjunction with affordable resources and technologies. [14]

All participants expressed a preference for using eye drops as a treatment, while only 36.2% were confident they would opt for surgery if diagnosed with glaucoma. Previous studies in Africa have also shown that acceptance of surgery for glaucoma treatment is low, as Fadamiro and Ajite in Ekiti reported that only 17.4% of their participants accepted surgery for glaucoma. [15] Meanwhile, a study in Ghana and a multicentre study spanning ten countries in Sub-Saharan Africa (SSA) reported increases in the acceptance of surgical therapy to 62.1% and 69.3%, respectively. However, these rates were still lower than the acceptance of medical treatment observed in these studies, as also shown in the present study. [16,17] Another study in Bauchi, northeast Nigeria, noted that 7.7% of patients offered trabeculectomy accepted to have the surgery, but only 1.3% actually showed up for it. This may imply that the actual acceptance rate for surgery in the present study could be lower than what is currently documented at the point of being offered the surgery. [12] The fear of going blind was the main reason, and most respondents were from the Yoruba tribe, likely because this is the dominant tribe in southwest Nigeria. This is also the reason for rejecting surgery in all these studies, with the percentage ranging from 22% to 80%, followed by the cost of surgery. [12, 15-17]

Most of our participants knew that glaucoma is an eye disease, but only 34% understood that it can cause blindness, and only 21.7% of these understood that the blindness is irreversible. This reflects a very poor knowledge of the disease, as glaucoma is the leading cause of irreversible blindness worldwide. [2] Although the present study did not identify other major issues besides blindness, Lee *et al.* in Busan, Korea, documented fear of the unknown and a miserable quality of life as significant concerns regarding glaucoma. [18]

When evaluating how glaucoma impacts participants' quality of life (QoL) across physical activities, psychological well-being, social, economic, and spiritual domains, over 80% reported that their physical activities and financial status would be most affected if they developed the condition glaucoma. This may be because glaucoma is a chronic condition that permanently affects patients' vision, influencing their physical, social, psychological, and economic lives, as also noted by Sen *et al.*, in India. [19] Our findings align with those of Vuletić *et al.*, showing that the subjective quality of life (QoL) for blind and partially sighted individuals is below the expected normative range for the global population, estimated to be between 60% and 80%. [7] Factors influencing the subjective QoL of individuals with visual impairments include the severity and duration of their condition, participation in rehabilitation programs, and whether their blindness is congenital or acquired. Studies suggest that individuals with low vision report a better QoL than those who are completely blind, and those with congenital blindness tend to have a higher QoL compared to individuals with acquired blindness. [7] Additionally, Nnubia *et al.* found that using multiple medications for glaucoma did not independently affect patients' QoL when compared to the severity of their vision loss. [20] Therefore, understanding the extent to which

glaucoma-related complications impact quality of life can facilitate the formulation of effective treatment strategies, patient counselling, and overall management of individuals affected by this condition and its associated challenges, including blindness.^[17]

Limitations: The electronic nature of the questionnaire hindered complete interaction with selected individuals whose forms had incomplete responses.

Conclusion

This study revealed a high level of awareness regarding the term glaucoma; however, there was limited understanding of the nature of glaucoma and its devastating impact as a condition leading to irreversible blindness. Additionally, information about glaucoma is less likely to be obtained from eye care professionals. We recommend that eye care professionals be more deliberate in disseminating information and knowledge regarding glaucoma through expanded community health education initiatives. This should include utilising town hall meetings, schools, religious organisations, and other opportunities to enhance understanding and mitigate the prevalence of blindness caused by the condition.

Authors' Contributions: JOO and AOA conceived and designed the study. AOO and FVO analysed and interpreted the data. JOO, AOA and OAS drafted the manuscript. All the authors revised the manuscript for sound intellectual content and approved the final version of the manuscript.

Conflicts of Interest: None

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