Original Article

Assessing Knowledge and Attitudes towards Glaucoma Management among Healthcare Workers in a Teaching Hospital in South-West Nigeria: A Cross-Sectional Study

[1,2]A. D. Atere, [3]A. S. Igbinlade

1. Department of Medical Laboratory Science, Faculty of Basic Medical Sciences, Osun State University, Osogbo, Osun State, Nigeria. 2. Department of Public Health, Faculty of Health Sciences, National Open University of Nigeria, Osogbo Centre, Osun State, Nigeria. 3. Department of Nursing, Faculty of Health Sciences, National Open University of Nigeria, Nigeria

Abstract

Background: The global prevalence of glaucoma as an irreversible blindness source requires prompt diagnosis together with suitable treatments and knowledgeable patients for successful management. This study is aimed to evaluate the knowledge and attitude toward glaucoma management by healthcare workers at the UNIOSUN Teaching Hospital at Osogbo, Nigeria.

Materials and methods: A descriptive cross-sectional survey was conducted among 212 healthcare workers selected through convenience sampling. The research team used a structured and self-administered questionnaire to gather information which was analyzed using descriptive and inferential statistics running on SPSS version 25.

Results: Health workers showed a good level of knowledge about glaucoma-related risk factors (81.6%) and a moderate level of knowledge about its management strategies (mean score 71.2%). Knowledge levels varied among these groups based on their professional cadre, where the medical doctors and optometrists exhibited a higher proportion of good knowledge. Attitudes towards glaucoma management emerged to be favourable, with 94.3% realizing the importance of treatment, and 65% displaying an overall positive attitude. However, only 72.2% felt confident in educating patients on the other.

Conclusion: Although participants showed overall acceptable attitudes and knowledge scores, the wide range found across cadres and the modest managerial knowledge do indeed make it imperative for targeted continuing professional education to strengthen tertiary-healthcare management capacity in glaucoma.

Keywords: Glaucoma, Attitude, Intraocular pressure, Healthcare workers, Blindness

Introduction

Glaucoma is a progressive, chronic optic neuropathy characterized by damage to the optic nerve and loss of the visual field, leading to ultimate irreversible blindness.[1,2] It is a major cause of blindness worldwide, disabling more than 60 million people.[1] Elevated intraocular pressure (IOP) remains the most significant modifiable risk factor, although glaucoma often occurs in individuals with normal IOP.[2] Other recognized risk factors include increasing age, a positive family history of glaucoma, African ancestry, myopia, systemic hypertension, diabetes mellitus, and long-term corticosteroid use.[3,4] Because the condition is often asymptomatic in its early stages, it is called the "silent thief of sight," with patients showing up for help only after significant permanent vision loss occurs.[3]

Glaucoma management is standard and crucially depends upon reduction in IOP to retard the damage to the optic nerve. This IOP reduction is obtained from pharmacological interventions by prostaglandin analogs, beta-blockers, and carbonic anhydrase inhibitors, laser procedures, and surgery when it is indicated. Additionally, effective management demands regular checking of patients and should include regular visual field tests, monitoring of optic nerve health, patient education, and compliance with long-term care. Despite these efforts, the scourge of glaucoma remains high in Nigeria, sub-Saharan Africa. The prevalence rate of glaucoma among individuals aged 40 years or older is about 5.02% and the lack of

Correspondence to:

Dr. Adedeji D. Atere
E-mail: adedeji.atere@uniosun.edu.ng
ORCID: https://orcid.org/0000-0002-8802-3762

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access to screening and specialist treatment services is resulting into late presentation.[5,6]

Despite the challenges in Nigeria, different factors such as lack of diagnostic equipment, limited availability of specialists, and low public awareness widen the treatment gap.[6] Healthcare workers play an essential role in the early detection of the disease, patient counseling, referral, and management of glaucoma. Their knowledge affects clinical decision-making, whereas their attitude influences patient education, counseling quality, and commitment to long-term care.

Previous studies demonstrated variations in health care workers' levels of knowledge and attitude towards glaucoma care. Padmajothi *et al*.[7] noted that though hospital personnel were aware about glaucoma, many lacked knowledge of the risk factors and management strategies, especially among the non-ophthalmic staff. In the same light, Ayodapo's study in Nigeria[8] reported moderate knowledge but a poor understanding of proper management methods. In a similar vein, other studies conducted in Nigeria and other countries revealed that there are knowledge gaps concerning glaucoma among health care workers, especially outside ophthalmic specialist practice.[9,10]

Knowledge deficits could result in suboptimal attitudes regarding patient counseling and long-term control of diseases. Gupta et al.[11] highlighted that knowledge-practice gaps result in missed screening chances and inadequate follow-up care. Moreover, poor patient education results in patients' failure to comply with the treatment regimen, exacerbating this condition in glaucoma patients.[12,13]

Considering the substantial burden of glaucoma in Nigeria and the pivotal role of healthcare providers in mitigating preventable blindness, it is therefore necessary to assess the knowledge and attitudes of healthcare workers towards management of glaucoma. This study aims to determine the level of knowledge and attitudes regarding glaucoma management among healthcare workers in a teaching hospital in the South-Western Nigeria, with the aim of identifying gaps that may inform targeted educational and institutional strengthening interventions.

Research Methodology

Study Design

A descriptive cross-sectional study design was employed to assess the knowledge and attitudes of healthcare workers toward glaucoma management at UNIOSUN Teaching Hospital, Osogbo, Nigeria. Cross-sectional surveys are widely used in health research to evaluate knowledge and attitudes at a single point in time.[10,11] This design allowed for the collection of data without longitudinal follow-up and facilitated the identification of knowledge gaps and attitudinal patterns that may influence glaucoma management within the institution.

Study Population

The study population comprised healthcare workers at UNIOSUN Teaching Hospital, Osogbo, including doctors, nurses, medical laboratory scientists, optometrists, pharmacists, and other clinical staff involved in patient care. Participants were selected because of their potential role in the identification, referral, counseling, and management of patients with glaucoma within the hospital setting. Eligibility criteria were set on healthcare workers who had spent at least six months within the institution and involved directly in patient care or screening services. Staff exclusively working in non-clinical or administrative units were excluded, as were those with minimal involvement in patient management.

Sample Size and Sampling Technique

The Taro Yamane formula allowed researchers to compute a sample size of 212 healthcare workers to study when the margin of error was set at 5%.[8]
The sample size for the study was determined using the Taro Yamane formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where:
n = sample size
N = population size (in this case, 500 healthcare workers)
e = level of precision or sampling error (e = 0.05)
Assuming a 95% confidence level and a 5% margin of error (e = 0.05), the required sample size will be calculated as:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{500}{1 + 500(0.05)^2}$$

$$n = \frac{500}{1 + 1.25}$$

$$n = \frac{500}{2.25}$$

$$n = 222.22$$

$$n = 222$$

Therefore, the required sample size for the study was approximately 222 healthcare workers.

A non-probability convenience sampling technique was used to recruit participants for the study. Approximately 500 healthcare professionals across various cadres at UNIOSUN Teaching Hospital

constituted the accessible population. During their respective professional meetings, available healthcare workers were approached and informed about the study, and those who voluntarily consented were enrolled until the required sample size was achieved. This approach was adopted due to situational constraints and difficulty in assembling staff from a healthcare setting with varying schedules, making it an efficient way of reaching a heterogeneous mix of cadre in an institution. A total of 222 questionnaires were administered, of which only 212 were well completed and included in the analysis.

Data Collection Instrument

The study adopted a structured self-administered questionnaire for evaluating knowledge and attitudes of healthcare staff towards glaucoma management. The questionnaire had three parts, which were demographic variables, knowledge-based items, and attitude-based items.

.A 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was used for the assessment sections. Specifically:

- Knowledge: 20 items, total score 20–100 (Poor ≤49, Moderate 50–74, Good 75–100).
- Attitude: 10 items, total score 10–50 (Negative ≤24, Neutral 25–34, Positive 35–50).

All the questions were closed-ended, with the sole aim of collecting data for quantitative analysis. The questionnaire was adapted from validated KAP instruments for a health service.[14] To ensure its clarity, reliability, and contextual relevance, the tool was pre-tested among health workers in another tertiary health facility similar to the study site. Appropriate modifications needed were done based on feedback before the tool could finally be handed out to the target audience.

Validity and Reliability

The instrument underwent review by experts to determine content and construct validity. A panel of experts which consisted of ophthalmologists, optometrists, and health care educators assessed the questionnaire for its clarity, relevance, and adequacy in measuring the key domains of glaucoma-related knowledge and attitude. The instrument was adapted from previously validated studies.[7] Reliability of the questionnaire was assessed using Cronbach's alpha, which yielded a coefficient of 0.85, indicating good internal consistency.[5]

Data Collection Procedure

The data collection procedure started after receiving ethical permission from the Institutional Review Board of Osun State Health Research Ethical Committee (OSHREC). Informed consent was obtained from all participants before they completed the questionnaire. Staff members received the questionnaires while attending their regular meeting so they could answer without external interference. The researchers provided a brief summary of study objectives and ensured participants their information would remain confidential and anonymous.

Data Analysis

The data was analyzed using the Statistical Package for the Social Sciences (SPSS), version 25. Descriptive statistics (frequencies, percentages, means, and standard deviation) was used to summarize participants' socio-demographics, knowledge scores, and attitude scores. Chi-square testing was also employed when it came to establishing associations between respondents' socio-demographic variables (age, gender, profession, and years of work experience), and their levels of knowledge, and attitude regarding glaucoma management. The study accepted $p < 0.05$ as statistically significant.

Ethical Considerations

Ethical approval for the study was granted by the Institutional Review Board of OSHREC with registration number OSHREC/PRS/569T/648. All participants were informed about the study's aims and their voluntary participation. In addition, informed consent was obtained so that participants knew for sure their responses would be treated as confidential. Anonymized data were collected for this study to prevent personal identification of any participant. The principles adhered to in this study follow the Declaration of Helsinki, which focuses on respect for persons, beneficence, and justice in medical research.[15]

Results

Demographic Information

The sample for the study was made up of 212 health care workers. The average age of the respondents was about 36.1 ± 9.8 years which showed that the workforce was relatively young. The majority of the healthcare workers were in the age group 30–39 years (approximately 34.4%), and a small percentage fall in the early adulthood age range of 20–29 years (30.2%), whereas only 11.7% fell in the age range of 50 years and above. There was a slight predominance of the female gender with 117 females (55.2%) and 95 males (44.8%). As relates to category of the profession, Medical Laboratory Scientists was predominant, constituting the largest group at 46.2%, followed by Nurses with 20.0%, Community Health Extension Workers (CHEW) with 11.8%, Doctors with 9.2%, Pharmacists with 6.7%, and Optometrists with 6.2%.

Table 1: Sociodemographic Characteristics of Respondents (n = 212)

Category	Frequency	Percentage
Age Group in years		
20-29	64	30.2
30-39	73	34.4
40-49	52	24.1
50-59	22	10.4
≥60	3	1.4
Mean Age ± SD	36.1 ± 9.8	
Female		55.2
Male		44.8
Professional Cadre		
Medical Laboratory Scientist	98	46.2
Nurse	42	20.0
Doctor	20	9.2
Optometrist	13	6.2
Pharmacist	14	6.7
Community Health Extension Worker (CHEW)	25	11.8
Years of Experience		
<5 years	70	33.0
5-10 years	58	27.4
11-15 years	45	21.2
16-20 years	17	8.0
>20 years	22	10.4
Highest Qualification		
BSc/BNSc	118	55.7
Postgraduate degree	60	28.3
Specialist Training	22	10.4
MBBS	12	5.7
Marital Status		
Married	128	60.4
Single	78	37.0
Divorced	3	1.6
Widowed	1	1.0
Religion		
Christianity	158	74.5
Islam	49	23.1
Others	5	2.4

In relation to years of practice, 33.0% were below 5 years, 27.4% were within 5–10 years, and the majority, 39.6%, had practiced more than 10 years. In terms of their highest educational qualification attained, the majority of the healthcare workers had a BSc/BNSc degree (55.7%), and 28.3% had received postgraduate-level advances (Table 1).

Knowledge of Glaucoma

Table 2 shows the distribution of professional cadres (medical lab scientists 46.2%, nurses 20.0%, doctors 9.2%, optometrists 6.2%, pharmacists 6.7%, CHEW 11.8%, others 8.0%). High levels of knowledge were found with doctors (77.8% good) and optometrists (83.3% good), emphasizing their clinical focus on eye care. Pharmacists and medical lab scientists showed moderate to good knowledge, while nurses and public health workers had predominantly moderate levels of knowledge. This highlights the variation per cadre, which could be better dealt with if training was targeted to improve glaucoma management awareness.

Attitudes towards Glaucoma Management

The majority of healthcare workers (65.0%) demonstrated a positive attitude toward glaucoma management based on the composite attitudinal scale

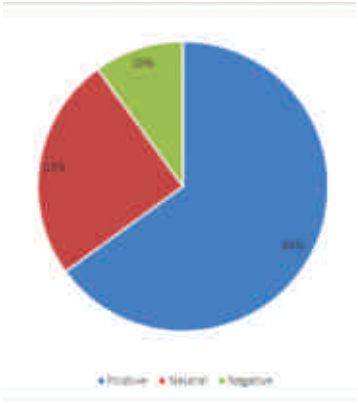

Figure 1: Attitudes towards Glaucoma Management among Healthcare Workers at UNIOSUN Teaching Hospital

Table 2: Distribution of Knowledge Levels on Glaucoma Management across Professional Cadres (n = 212)

Profession	n (%)	Poor Knowledge n (%)	Moderate Knowledge n (%)	Good Knowledge n (%)
Medical Lab Scientists	98 (46.2%)	22 (24.4%)	37 (41.1%)	31 (34.5%)
Nurses	42 (20.0%)	9 (23.1%)	18 (46.2%)	12 (30.8%)
Doctors	20 (9.2%)	1 (5.6%)	3 (16.7%)	14 (77.8%)
Optometrists	13 (6.2%)	0 (0%)	2 (16.7%)	10 (83.3%)
Pharmacists	14 (6.7%)	2 (15.4%)	5 (38.5%)	6 (46.2%)
CHEW	25 (11.8%)	5 (21.7%)	10 (43.5%)	8 (34.8%)
Others	17 (8.0%)	4 (23.5%)	7 (41.22%)	6 (35.3%)
Total	212 (100%)	43 (20.3%)	82 (38.7%)	87 (41.0%)

*Others include radiographers, physiotherapist,

scores. However, 25.0% exhibited a neutral attitude, while 10.0% showed a negative attitude. Although the overall disposition toward glaucoma management is favorable, the proportion of neutral and negative attitudes suggests the need for strengthened institutional support and continuous professional education to further enhance positive engagement in glaucoma care (Figure 1).

Discussion

The study evaluated the level of knowledge and attitude of health care workers in relation to the management of glaucoma at UNIOSUN Teaching Hospital, Osogbo. The respondents showed a favorable level of knowledge (81.6%) of the risk factors associated with glaucoma and a moderate level of knowledge (mean score 71.2%) of the disease management, alongside predominantly positive attitudes toward care. Therefore, this indicates that the awareness level within this institution is generally satisfactory, although it differs considerably according to professional cadre.

The observed knowledge levels are consistent with previous Nigerian studies that reported moderate-to-good understanding of glaucoma among healthcare workers, especially among non-ophthalmic staff.[8,16] Similar patterns were reported in Ethiopia and Kenya, whereby higher levels of awareness were complemented by considerable variations in the depth of therapeutic knowledge based on profession.[10,17] In this study, doctors and optometrists showed higher proportions of good knowledge, likely reflecting their greater exposure to eye care services and specialized training, as also reported in studies from India and other tertiary settings.[7,11]

Glaucoma management attitudes were broadly positive as 94.3% participants indicated the significance of treating this ailment and 65% achieved a general positive attitude score. Similar positive attitudes have been reported from Kenya and Saudi Arabia.[17,18] Healthcare staff with positive attitudes are essential, as they affect patient counseling, referral practices, and long-term disease management. However, only 72.2% of healthcare staff in our study felt that they could effectively educate patients about glaucoma. Patients may lack the education that would allow them to fully comprehend the need for adherence and follow-up due to insufficient counseling at the crucial stage of glaucoma management.[1,19] Studies establish that suboptimal treatment outcomes and poor adherence are an end result of low patient education.[13,20,21]

The variation in knowledge and counseling confidence seen in this study supports the importance of continuous professional development, especially for non-specialist cadres. Targeted training initiatives strengthen and the interprofessional collaboration must enhance the deepening of knowledge and patient education capacity. On the whole, while the awareness and attitude are positive, specific educational strategies are essential to improve the management of glaucoma in tertiary health settings.

Limitations of the study

Possible limitations in the study include recall bias due to responses and the nature of self-reported questionnaires. The cross-sectional study design ruled out the possibility of following changes in time despite logical conclusions. Moreover, selection bias based on non-probability convenience sampling is expected from this study, affecting representativeness. Another limitation concerns the generalizability of the results of this study when confined to a single tertiary institution, by implication.

Conclusion

The study revealed it was generally safe for healthcare workers to have knowledge of glaucoma risk factors and to have a healthy attitude on glaucoma management. However, the knowledge they had on managing glaucoma was moderate, with variations depending on professional cadre. Therefore, these findings call for glaucoma management capacity improvement through appropriate educational training in tertiary health centers.

Recommendations

The staff training programme should include programs on glaucoma management to increase knowledge and skill across the different professional cadres through in-service training. It is undoubtedly true that an interdisciplinary learning session might help to enhance counselling skills on patients suffering from glaucoma as well as improve a message that is consistent in the care of the glaucoma patient. Consequently, the provision of an enabling environment by the institution for continuous education will help vanquish bad attitudes as well as improve the higher quality of glaucoma management in tertiary care institutions.

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