Awareness and knowledge of glaucoma among workers in a Nigerian tertiary health care institution.

Komolafe O. Opeyemi†, Omolase O. Charles ¹, Bekibele O. Charles², Ogunleye A. Olakunle¹, Komolafe A. Olutoyin³, Ojehomon O. Faith¹

¹Department of Ophthalmology, Federal Medical Centre, Owo. Nigeria.

²Department of Ophthalmology, University College Hospital Ibadan. Nigeria.

³Department of Pharmaceutical Services, Federal Medical Centre Owo. Nigeria.

* Corresponding author

Email addresses:

KOO: kopeyemi@yahoo.co.uk
OOC: omolash2000@yahoo.com
BOC: cob150@yahoo.com
OAO: olakunletolulope@yahoo.com
KAO: kopeyemi@yahoo.co.uk
OOF: ojehomonfaith@yahoo.com.
Abstract

Background

Glaucoma blindness is only avoidable with early detection and treatment. Workers in health care facilities can be useful in promoting public awareness on glaucoma and this they can do effectively if they have a fair knowledge of the disease process. The aim of this study is to report on the level of awareness and knowledge about glaucoma among workers in a health institution in south western Nigeria.

Methods

Workers of the Federal Medical Centre Owo, Nigeria, a tertiary Health Care Institution were stratified into clinical and administrative directorate and random sampling technique was used in selecting 120 participants from each directorate. Structured questionnaire was used to capture the socio – demographic, awareness and level of knowledge of glaucoma among the participants. Data were analyzed using the SPSS version 18. Statistical tests employed included the Independent t test and Pearson’s chi square test for the categorical variables.

Results

Two hundred and sixteen participants completed the questionnaire. The male to female ratio was 1:1.23. The mean age of the participants was 35.07 ± 07 years. 148 (68.6%) participants have heard of glaucoma comprising of all participants from clinical directorate and only 28 from the administrative directorate. There was no statistically significant difference (p > 0.05) in level of knowledge between participants in the clinical and administrative directorate about the knowledge on the aspect of the vision that is first affected in glaucoma, the painless nature of glaucoma among most African and the irreversible nature of glaucoma blindness.
Conclusions

Even though the level of awareness of glaucoma among workers in our Health Institution is higher than what has been reported among the general population and newly diagnosed glaucoma patients, this has not translated to good knowledge base. There is the need to update the knowledge base of these workers if they are to be useful in propagating information of the irreversible blindness that could arise from delay in glaucoma diagnosis and treatment.

Background

Glaucoma is the second leading cause of blindness by the World Health Organization’s estimate of 2002.[1] The Nigeria National blindness survey reported glaucoma blindness prevalence of 0.75% and second only to cataract blindness. [2] It is a disease which progresses slowly with few, if any, noticeable symptoms in its early stage.

Since glaucoma blindness is only avoidable with early detection and treatment, it is necessary to case find asymptomatic individuals in the target population. [3] However for people to present to eye care givers, there is the need for them to know about glaucoma and also know about the benefit of early detection.

In recognition of this the, World Glaucoma Association (WGA) in partnership with the World Glaucoma Patient Association (WGPA) have joined forces to launch a global initiative aimed at raising awareness of Glaucoma through an annual World Glaucoma Day. [4]

Glaucoma awareness dwells on haven heard of the disease or having any kind of correct association with it while the knowledge aspect deals with the level of
understanding of the eye disease called Glaucoma. Low level of glaucoma awareness and knowledge had been reported in studies conducted among Nigerians [5, 6] and Ghanaians [7]. Also among Caucasians [8 – 13], rates between 22.9% and 93% had been reported for awareness with low level of between 2.3% and 35% for knowledge. None of these studies was conducted among health workers.

We believe that health care personnel can be used in promoting the public awareness on glaucoma, however, this they will do effectively if they themselves are aware with a fair knowledge of the disease condition.

We set out this survey to evaluate for the level of awareness and knowledge about glaucoma among the workers in a Health Institution in South Western Nigeria and also comparing these levels between those in the clinical and administrative directorate of the Health Institution. It is expected that those in the clinical directorate because of their medical education background should be more aware and more knowledgeable about glaucoma than those in the administrative directorate.

Information from this survey could be of value in the counselling of glaucoma patients in clinical practice.

Methods

The study was approved by the Ethical Review Committee of the Federal Medical Centre Owo, Nigeria. All the participants also gave an informed consent to participate in the survey.

The study population consisted of the workers of the Federal Medical Centre Owo, Nigeria. This centre is a Tertiary Health Institution located in Owo, South Western Nigeria with staff strength of about 1,200 at the time of the survey. There are two major directorates in the hospital which are the clinical directorate comprising of the medical doctors, nurses, pharmacists, physiotherapist and laboratory staff and the
administrative directorate comprising staff in the administrative, account and audit section.

The survey was conducted in March 2009.

A convenient sample size of 240 participants was selected for the survey with 120 from each of the directorate. Simple random sampling technique was used in selecting the participants.

A structured questionnaire comprising of 20 closed questions was designed by OOK to capture information about the demographics, awareness and knowledge on glaucoma. It was designed to be brief and understandable and participants were asked to answer all questions to the best of their knowledge. The questionnaires were self administered and participants were not allowed to take the questionnaire away.

The questions used for the survey were validated by first testing them on 10 consecutive literate non glaucoma patients presenting to the eye clinic of the Federal Medical Centre Owo, Nigeria and modifications made before use in the survey.

The survey awareness assessment questions consisted of the following:

- Haven heard of the condition glaucoma and the source of information.

The section on knowledge assessment consists of questions on the following:

- What glaucoma is?
- The likely risk factors for glaucoma.
- The presence of symptom in early glaucoma and the likely outcome of untreated glaucoma.
• The aspect of vision that is affected early in glaucoma and the reversibility of glaucoma blindness.

• The ways of preventing glaucoma blindness.

• Whether activities such as stress, reading, computer use can make glaucoma worse.

Data were analyzed using the SPSS version 18. Statistical tests employed included the Independent t- Test and Pearson’s chi square test for the categorical variables. P value of less than 0.05 was considered significant (2 – sided).

Excluded were the staff of the eye clinic in the centre.

**Results**

All the one hundred and twenty participants from the clinical directorate completed the questionnaire while only 96 from the administrative directorate agreed to participate giving an overall participation rate of 90%.

There were ninety eight male with a male to female ratio of 1:1.23. The mean age of all the participants was 35.07 ± 07 years (23 – 58 years). There was no significant difference between the mean ages of the participants from the two directorates. (p = 0.077; independent sample t – Test)

Table 1 shows the socio – demographic profile of the participants.

Of the one hundred and forty eight (68.6%) participants who have heard of glaucoma, 120 (55.6%) are from the clinical directorate while only 28 (13.0%) are from the administrative directorate a difference which was statistically significant (p < 0.0001).

Table 2 shows the source of information about glaucoma among the participants. The source of the information included lectures and seminar while in school in 62 (41.9%) participants, from doctors / ophthalmologist in 36 (24.4%) participants.
One hundred and eighteen (79.7%) of the participants out of the 148 who have heard of glaucoma knew it as an increase in pressure that damages the back of the eye. Fifty (33.8%) of these participants had no knowledge about any of the risk factors associated with glaucoma.

There was no statistically significant difference ($p > 0.05$) in level of knowledge between participants in the clinical and administrative directorate about the knowledge on the aspect of the vision that is first affected in glaucoma, the painless nature of glaucoma among most African and the irreversible nature of glaucoma blindness.

Table 3 shows the response of the participants to questions on knowledge and awareness of glaucoma.

One hundred and ten (77.9%) participants felt that patients with early glaucoma do have symptom. 136 (93.2%) participants recognized the need for a regular eye examination as a way of preventing glaucoma blindness.

One hundred (65.6%) participants (82 participants from the clinical directorate and 18 participants from the administrative directorate) felt stress and excessive thinking can make glaucoma worse, the difference in the response between participants from the two directorates was also not statistically significant ($p = 0.662$).

... 

Discussion

Some studies [5, 6] have evaluated for awareness and knowledge of glaucoma among Nigerians but our survey to the best of our knowledge is the first to be conducted among workers in a Health Institution. Agbeja – Baiyeroju et al [14] assessment on chronic open angle glaucoma among workers in a Tertiary Health Institution in South Western Nigeria was basically an epidemiological review on prevalence and risk factor rather than an awareness and knowledge assessment. Participants from the two directorates could be found comparable as there was no
statistically significant difference in their age and they all had a minimum of High School or even better level of education and may make the response of the participants to be seen as reliable. However the background knowledge of medical education among those in the clinical directorate may have biased the response in the favour of this group.

To many patients, all hospital workers are “doctors or nurses” and are expected to be knowledgeable about such chronic condition as glaucoma and such health workers could effectively serve as agent for dissemination of correct information on glaucoma and the irreversible blindness that can arise from it.

The percentage among our study cohort that have heard of glaucoma compares favourably with the 70% reported by Livingstone et al [10] among adult Australian population and the 72% reported by Gasch et al [13] among general eye service clinic patients in USA. However the level of knowledge displayed by the participants could be adjudged as poor. Although most of the participants claimed to be aware of glaucoma especially those in the clinical directorate, only a few appreciated the absence of symptom in early glaucoma while a considerable proportion still felt that conditions such as stress, excessive reading and computer use could make glaucoma worse.

In a survey in Sagamu, South Western Nigeria among newly diagnosed glaucoma patients Bodunde et al [6] reported 27.3% glaucoma awareness. Even though their study shares the same ethnic and geo – political characteristic with our study, the two study populations differed. The inclusion of participants with medical knowledge in our survey obviously made the difference. Should we exclude participants from the clinical directorate, it will reduce the awareness level among the remaining participants to just 13%.
The poor level of knowledge displayed by the participants in the clinical directorate on such basic knowledge as the asymptomatic nature of early glaucoma among blacks and the presumed factors that could worsen glaucoma could have been as a result of the low interest of such participants in ophthalmology while in training as most got their information from seminars and lectures while in training.

In Nigeria, the curriculum of the medical and nursing schools and the other paramedical training colleges involves period of lectures and rotation through ophthalmology during which knowledge on some important eye diseases are imparted. Some regard such teachings as mere prerequisite to passing examination rather than knowledge to be retained and passed on. Another factor could have accounted for the low knowledge could be the interval between graduation and the time the questionnaire was administered. However this was not assessed in this study. Also some of the participants who are not in the core clinical section such as the laboratory and physiotherapy sections might not have had much of previous teaching contact on glaucoma. Studies in West African sub region on glaucoma awareness [6, 7] had reported a positive correlation between the level of education and the degree of awareness, same cannot be said of the level of knowledge.

The absence of such symptoms as pain in glaucoma among the Nigerian population and the relative preservation of the central vision until late in the disease process remain key factors for the late presentation of glaucoma patient as well as poor treatment compliance. Unfortunately most of the participants in the administrative division had very poor knowledge on these two issues and as such would obviously not be in the best position to create the awareness on the need for glaucoma screening among individuals with identifiable risk factor.

Participants from the clinical directorate were significantly more knowledgeable on the possible treatment for glaucoma and the resulting blindness from untreated...
glaucoma (p < 0.05). This also obviously reflects the source of information on
glaucoma for the participants as lot of emphasis are laid upon such during school
lectures and seminar.

There is need to exploit other means to improve the knowledge base of health
workers on glaucoma outside those working in the eye clinic. Stakeholders involved
in prevention of glaucoma blindness which would include bodies like the Ophthalmological Society of Nigeria (OSN) and Glaucoma Societies could partner
with licensing and health regulatory bodies in Nigeria like the Nigerian Medical and
Dental Council, the Pharmaceutical Council of Nigeria and the Nursing Council of
Nigeria such that lectures centred on enhancing knowledge on glaucoma could be
included in the curriculum of the Continuous Medial Education (CME) and
continuous professional development programme.

Contact with doctors and Ophthalmologist did not seem to have improved on the
knowledge on glaucoma. Most of such consultation were made for presbyopic
correction (a yet to be published article) obviously in a busy ophthalmology outpatient
clinic hence making it difficult to conduct a proper health education on such chronic
potentially blinding condition as glaucoma as much emphasis is placed on service
provision and less on health education.

**Conclusions**

Even though the level of awareness of glaucoma among the health workers is fair,
their knowledge base is low almost comparable with the level reported among the
general population. It may be difficult to involve them in the creation of awareness
about the scourge of glaucoma blindness except measures are employed to improve
their knowledge base which could be in the form of continuous professional
development program.
Competing interests

'The authors declare that they have no competing interests'.

Authors' contributions

KOO participated in study design, performed the statistical analyses and drafted the Manuscript, OOC and OAO participated in study design and in the data collection. KAO and BOC participated in the study design and critically appraised the manuscript, OOF participated in data collection and critically appraised the manuscript.

All authors read and approved the final manuscript.

Acknowledgements

Financial Support: None.

References


Tables

Table 1

**DEMOGRAPHIC PROFILE OF THE PARTICIPANTS**

<table>
<thead>
<tr>
<th>Test</th>
<th>ALL GROUPS</th>
<th>CLINICAL DIVISION</th>
<th>ADMINISTRATIVE DIVISION</th>
<th>Test statistics; p value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SEX</strong></td>
<td>M = 98 F = 118</td>
<td>M = 60 F = 60</td>
<td>M = 38 F = 58</td>
<td>$\chi^2 = 2.335$ p = 0.133</td>
</tr>
<tr>
<td><strong>AGE (YRS)</strong></td>
<td>Mean ± SD</td>
<td>35.07 ± 7.05</td>
<td>35.83 ± 7.47</td>
<td>34.13 ± 6.40</td>
</tr>
<tr>
<td></td>
<td>Median (yrs)</td>
<td>34.0</td>
<td>35.0</td>
<td>33.5</td>
</tr>
<tr>
<td></td>
<td>Range (yrs)</td>
<td>23 - 58</td>
<td>23 - 58</td>
<td>25 - 49</td>
</tr>
<tr>
<td><strong>RELIGION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>198 (91.7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Islam</td>
<td>18 (8.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EDUCATIONAL LEVEL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>12 (5.6%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>204 (94.4%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University degree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
M = Male; F = Female.

Table 2

SOURCE OF INFORMATION ABOUT GLAUCOMA

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture, Seminar</td>
<td>62</td>
<td>41.9%</td>
</tr>
<tr>
<td>Doctor / Ophthalmologist</td>
<td>36</td>
<td>24.4%</td>
</tr>
<tr>
<td>TV / Media</td>
<td>32</td>
<td>21.6%</td>
</tr>
<tr>
<td>Optician</td>
<td>10</td>
<td>6.8%</td>
</tr>
<tr>
<td>Family member</td>
<td>8</td>
<td>5.4%</td>
</tr>
</tbody>
</table>
### TABLE 3:
RESPONSE OF THE PARTICIPANTS TO QUESTIONS ON KNOWLEDGE AND AWARENESS OF GLAUCOMA.

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>Clinical Division</th>
<th>Admin Division</th>
<th>( x^2 )</th>
<th>p  value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you heard of the condition glaucoma</td>
<td>Y = 120 N = 0</td>
<td>Y = 28 N = 68</td>
<td>124.054</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>(55.6%)</td>
<td>(13.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is glaucoma</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A whitening that grow across the eye obscuring vision</td>
<td>8 (5.4%)</td>
<td>6 (4.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase in pressure that damage the back of the eye</td>
<td>106 (71.6%)</td>
<td>12 (8.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age related problem</td>
<td>0 (0.0%)</td>
<td>2 (1.4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>6 (4.1%)</td>
<td>8 (5.4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong Risk factor for glaucoma</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectacle wear</td>
<td>18 (12.2%)</td>
<td>2 (1.4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Without treatment, glaucoma patient will go blind</td>
<td>108</td>
<td>12</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>(73.0%) (8.1%)</td>
<td>(12.2%) (6.8%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glaucoma affect central vision before side vision</td>
<td>28</td>
<td>92</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>(18.9%) (62.2%)</td>
<td>(5.4%) (13.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients with early glaucoma have symptom</td>
<td>94</td>
<td>26</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>(63.5%) (17.6%)</td>
<td>(14.5%) (8.1%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most glaucoma among the Black race is painful</td>
<td>46</td>
<td>74</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>(31.1%) (50.0%)</td>
<td>(17.9%) (12.2%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you know the treatment for glaucoma?</td>
<td>78</td>
<td>42</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>(53.4%) (28.8%)</td>
<td>(4.1%) (13.7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What can be done to prevent glaucoma blindness?</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Regular exercise | 0 (0.0%) | 2 (1.4%) |
<table>
<thead>
<tr>
<th>Healthy nutrition.</th>
<th>4 (2.7%)</th>
<th>4 (2.7%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular eye examination.</td>
<td>114 (78.1%)</td>
<td>22 (15.1%)</td>
</tr>
</tbody>
</table>

Lost vision from glaucoma can be restored by treatment.  
T = 28  F = 92  T = 8  F = 20  0.338  0.626
(18.9%)  (62.2%)  (5.4%)  (13.5%)  

Stress and excessive thinking can make glaucoma worse.  
T = 82  F = 38  T = 18  F = 10  0.170  0.662
(53.4%)  (25.7%)  (12.2%)  (6.8%)  

Prolonged computer use can make glaucoma worse.  
T = 58  F = 62  T = 14  F = 14  0.025  1.00
(39.2%)  (41.9%)  (9.5%)  (9.5%)  

Lot of reading can make glaucoma worse.  
T = 58  F = 62  T = 10  F = 18  1.456  0.293
(39.2%)  (41.9%)  (6.8%)  (12.2%)  

Y = Yes; N = No; T = True; F = False.