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Awareness and knowledge of glaucoma among adult ophthalmic patients Attending Central Eye Clinic/Benghazi

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Original Research Article

Abstract

Background:The risk of blindness caused by glaucoma is higher when individuals lack awareness and understanding of the condition. Delay in the diagnosis of glaucoma is also a significant factor contributing to blindness. The level of awareness of glaucoma in the Libyan population is not known.

Aim: to determine the level of glaucoma awareness among Libyans and provide baseline data for better allocation of public health resources.

Material and methods:The study was conducted at the Out-Patient Ophthalmology Clinic affiliated with Benghazi Teaching Eye Hospital. Data were collected through a face-to-face interview using a structured questionnaire during the first week of January 2024. The collected data was tabulated, coded, and analyzed using the SPSS program for Windows 7, version 23, and $P < 0.05$ was considered statistically significant.

Results:hundred eighty-five participants were interviewed, with a mean age of 47.8,12.34 (range from 35-80) years. Out of which 156 (84.3%) had heard about glaucoma, but only 32 (17%) were aware of glaucoma based on the study's definition of awareness, 50% were in the age group30-39 years (P= 0.04), 69% were female (P=0.02), 72% were government employees (P=0.04), 91%were not diabetics (P= 0.03)and 47% got their information from family and friends (P<0.001). Regarding knowledge of glaucoma, 34.3% of the aware participants had good knowledge, 59.5% had average knowledge, and 6.2% had poor knowledge.

Conclusion: awareness of glaucoma among attendants in the Ophthalmology Clinic Benghazi is low (17%), with half of those aware being in the age group of 30-39 years, with females being more aware than males. The primary source of information for them was family and friends (47%). To address this issue, effective educational campaigns and media strategies are needed to raise awareness levels and prevent blindness caused by glaucoma. WAwareness, Glaucoma, knowledge, blindness, Libya.

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Introduction

Glaucoma is a type of optic neuropathy, related to the progressive loss of ganglion cells and axons of the retina, which causes defects in the visual field. It is considered to be the leading cause of irreversible blindness in the world[1].Generally, most people with glaucoma are unaware of their disease, in part because there are no specific symptoms in its initial stages, which significantly delays diagnosis[2].

An estimated 64 million people globally have glaucoma[3], of whom 6.9 million (10.9%) are reported to have moderate or severe distance vision impairment or blindness due to more severe forms of the disease.[4]

Primary open-angle glaucoma (POAG) is the most frequent of the presentations, causing three-quarters of glaucoma cases.[5] It is a silent disease that can go unnoticed in its early stages until it worsens to the point when it impairs a patient's vision, visual field, and quality of life.[1]

A large body of research suggests that blindness due to glaucoma is also linked to inadequate awareness and understanding of the condition and that a delayed diagnosis of glaucoma is a significant risk factor for blindness.[1,6] Also, research revealed that one-third of individuals had reached blindness before consulting a doctor or receiving medical attention.[7]

Increasing public awareness improves adherence and slows the progression of the disease by encouraging ophthalmological examinations, targeted screening, and active engagement in follow-ups and treatments.[8] Thus, patient education and awareness initiatives are critical components of the global fight against blindness.[9]

According to a cross-sectional study conducted in Libya in 2010, the prevalence of blindness was found to be 3.25%, with glaucoma accounting for 24% of the cases.[10] The level of awareness of glaucoma in the Libyan population is not known. Therefore, this study aims to provide baseline data for better allocation of public health resources and may help in the prevention of blindness in glaucoma patients.

Material and methods:

A hospital-based cross-sectional study was conducted at the Out-Patient Ophthalmology Clinic affiliated with Benghazi Teaching Eye Hospital.

Data were collected through a face-to-face interview using a structured questionnaire involving persons aged 35 years and above visiting the hospital out patient department during 1st week of January 2024.

The questionnaire was adapted from previous studies[6,11,12,13]and consists of three parts to collect socio-demographic information and assess glaucoma awareness and knowledge, it was translated into Arabic (local language).Participants were enrolled in the study using convenient sampling after obtaining informed consent and according to the Helsinki Declaration.

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This study investigated the impact of sociodemographic and health-related factors on glaucoma knowledge and awareness. Independent variables included gender, age, educational level, occupation, history of hypertension, history of diabetes, family history of glaucoma, and history of previous eye examinations.

Aware definition:

If a participant responded positively to the question "Have you ever heard of glaucoma?" and provided at least one answer such as "Glaucoma is high eye pressure," "Glaucoma causes damage to the eye nerve," or "Eye disease causes visual field loss," they were considered aware of glaucoma. Simply being familiar with the term "glaucoma" did not indicate awareness of the condition; therefore, merely hearing the term was not considered sufficient for awareness.[11]

Knowledge:

Twelve questions modified from previous research[6, 11-13]were utilized to assess the participant's knowledge level on glaucoma. Each correct response was awarded one point.

The knowledge level was classified into three categories: poor level (1-4), average level (5-8), and good level (9-12).

The collected data was tabulated, coded, and analyzed using the SPSS program for Windows 7, version 23.A descriptive analysis was carried out, which involved calculating frequencies, percentages, means, and standard deviations. A Chi-square analysis was used to find relationships between categorical variables. $P < 0.05$ was considered statistically significant.

Results:

A total number of 185 participants were interviewed, the mean participants' age was 47.8±12.34 (range from 35-80) years. Of these, approximately 93 were female accounting for 50.3% of participants. Table 1 shows the sociodemographic data of the participants.

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Table 1: Sociodemographic data of participants (N= 185)

Parameter	Number (%)
Gender	
Male	92 (49.7)
female	93 (50.3)
Age (years)	
30-39	54 (29.2)
40-49	55 (29.7)
50-59	37 (20)
60-69	24 (13)
70 and more	15 (8.1)
Nationality	
Libyan	179(96.8%)
Non-Libyan	6 (3.2%)
Region	
Benghazi	153(82.7%)
Outside Benghazi	32 (17.3%)
Education level	
Illiterate and primary school	52 (28.1)
Intermediate and high school	60 (32.4)
Graduated and above	73 (39.5)
Occupation	
Housewife	57 (30.8)
Government employe	92 (49.7)
Self employed	16 (8.6)
Retired	20 (10.8)

Awareness of glaucoma

Out of the 185 participants interviewed, 156 (84.3%) heard about glaucoma but only 32 (17%) were aware of glaucoma according to to our definition of awareness, see Table 2

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Table 2: Awareness of glaucoma

Variable	Number (%)
Heard of Glaucoma (n=185)	
Yes	156 (84.3)
No	29 (15.7)
Explaining the meaning of Glaucoma (n=156)	
Glaucoma is high eye pressure	21 (11.4)
Glaucoma causes damage to the eye nerve	4 (2.2)
Eye disease causes visual field loss	7 (3.8)
Don't know	124 (67)
Awareness of glaucoma (n=185)	
Aware	32 (17.3)
Not aware	153 (82.7)

All the participants who were aware in the study were Libyan with a mean age of 42.18±9.22 years(range 35-63)years, 50% of them were in the age group(30-39years), which was found to be statistically significant (*P*= 0.04) and 22 (68.6%) were female which was also statistically significant (*P=0.02*). Table 3 shows the awareness of glaucoma and related variables.

Table 3: Awareness of glaucoma and related variables (N= 32)

Variable	Number (%)
Age (years)	
30-39	16 (50)
40-49	8 (25)
50-59	5 (15.6)
60-69	3 (9.4)
Gender	
Male	10 (31.2)
Female	22 (68.8)
Education level	
Illiterate and primary school	5 (15.6%)
Intermediate and high school	10 (31.2%)
Graduated and above	17 (53.2%)

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Occupation	
Housewife	7 (21.9)
Government employee	23 (71)
Self employed	1 (3.1)
Retired	1 (3.1)
Family history	
Yes	9 (28.1)
No	21(65.6)
Don't know	2 (6.3)
Family member with Glaucoma	
Father	1 (11.1)
Mother	3 (33.3)
Brother	0 (0)
Sister	0 (0)
Others (2nd degree relative)	5 (55.6)
Source of information about glaucoma	
TV- Radio – Newspaper/magazine	6 (18.8)
Hospitals, Clinics, Clinical Employees	11 (34.3)
Family, Friends	15 (46.9)
Social media	0 (0)
Previous eye examination	
Never	5 (15.6)
Within 6 months	15 (46.9)
6 months to year	5 (15.6)
More than a year	7 (21.9)
Previous intraocular pressure measurement	
Yes	9 (28.1)
No	23 (71.9)
History of Diabetes Mellitus	
Yes	3 (9.4)

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No	29 (90.6)
History of hypertension	
Yes	7 (21.9)
No	25 (78.1)

The level of education did not seem to have any significant impact on awareness as 17 (53.2%) of aware participants had graduated and the P value for this was 0.26.

Twenty-three (72%) of aware participants were government employees which was found to be statistically significant (P=0.04).

A statistically significance relation was found between awareness and Diabetes Mellitus,

29 (90.6%) of aware participants were not diabetics (P= 0.03)

Out of all the participants who were aware of glaucoma, 15 (47%) got their information from family and friends, and this was found to be statistically highly significant (P<0.001). However, no statistically significance relation was found between awareness and time of last visit (P= 0.56), or Family history of glaucoma (P=0.55).

Knowledge of glaucoma

Out of the 32 participants who were aware of glaucoma, 11 (34.3%) had a good knowledge score (9-12), 19 (59.5%) had an average knowledge score (5-8), and the remaining two (6.2%) had poor knowledge score (1-4).

There was no correlation between the level of knowledge and variables such as gender, age, level of education, occupation, diabetic or hypertensive status, time of last ophthalmological visit, family history of glaucoma, or source of information about glaucoma

Discussion

Glaucoma is an irreversible disease that may remain asymptomatic until it becomes advanced. Early detection and treatment are key steps in preventing blindness from glaucoma. [6]

One in three people with glaucoma lose their sight before seeking medical attention. Therefore, increasing public awareness and understanding of glaucoma is critical to promoting public health behaviors and identifying unknown cases. Providing patients with the necessary information may be a clinically beneficial and cost-effective approach to reduce the progression of visual field deterioration and improve their compliance with treatment. [14]

A hospital-based cross-sectional study was conducted at the ophthalmology clinic affiliated with the Benghazi Teaching Eye Hospital to determine the level of awareness and knowledge of glaucoma among adults attending the hospital's outpatient clinic.

In the current study to be considered aware, participants must not only be familiar with the term "glaucoma" by answering the question "Have you ever heard of glaucoma?", but should also provide at least one accurate response to one of the previous questions mentioned before in methodology section. As many participants knew the

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term "glaucoma" but did not know much about it. The confusion between glaucoma and other eye conditions may explain why previous studies reported higher awareness levels. [15]

Out of 185 participants interviewed, 156 (84.3%) heard about glaucoma, but only 32 (17%) met the criteria for being aware of glaucoma. All aware participants were Libyan with a mean age of 42.18 ± 9.22 years. Among them, 69% were female (P=0.02), and 72% were government employees(P=0.04). There were 29 (91%) aware participants who are not diabetics (P= 0.03) and 47% of aware participants got their information from family and friends (P<0.001). No significant relation was found between awareness and time of last visit (P= 0.56), or family history of glaucoma (P=0.55).

In Tehran, research was conducted on inhabitants with a mean age of 56.2±9.0 (range 45 to 95) years, which revealed that 46.6% of Iranian participants were familiar with glaucoma, while only 19.2% were able to provide a simple, correct definition of the disease.[16] Our study results are comparable to this 19% figure, based on our definition of awareness.

In a study conducted on glaucoma patients from Upper Egypt, it was found that only 15.5% of the patients were aware of glaucoma. [17]However, it's important to note that the study defined awareness as simply having heard of glaucoma. On the other hand, our definition of awareness is broader, and therefore we consider their results to be much lower compared to ours. That study found that the lower percentage of awareness could be attributed to several factors, such as a lack of resources, caregiver time, knowledge, training, and practices for prevention, detection, and treatment.[17]

In Jordan, the level of awareness was much higher than our study results, with 81.6% of the population being aware of the disease. However, the definition of awareness in Jordan's study included having simply heard about the disease. [13]On the other hand, in their study, only 34.2% of participants were able to define glaucoma correctly which is still considered higher than our results, which they attributed to their population's high educational level in addition to strong social and family ties encouraged information sharing about diseases as family members, friends, and relatives were the primary sources of information about glaucoma for most participants. [13]

A study carried out in Ethiopia, using the same awareness definition as ours, showed a significantly higher level of awareness (35.1%) as compared to our study. [11] This difference in awareness levels could be attributed to the recent increase in attention given to glaucoma, as well as the expansion of eye care services provided by the growing number of eye care professionals in Ethiopia. [18]

A study was conducted on 5000 residents of rural North India, they found that although 3602 (73%) participants had heard about glaucoma, only 409 (8.3%) were aware of it after answering four additional questions. [19]This low percentage of awareness could be due to the location of residence in rural areas, unlike our study which was conducted in a hospital-based setting.

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The mean age of the aware participants in the present study was 42.18±9.22 years and half of them fell in the age group30-39years, which was found to be statistically significant (P= 0.04). this is consistent with a previous study demonstrating that individuals in the age range 35–44 years were more aware than those who were older. [11]

In our study, we found a statistically significant relationship (P=0.02) between gender and awareness. Out of all the participants who were aware of glaucoma, 22 (69%) were female. Previous studies have conflicting reports regarding the relationship between gender and level of glaucoma awareness. Some studies suggest that females tend to have a higher level of awareness, [6,20]while others suggest that males are more aware.[21,22]However, some studies have not found any significant relationship between gender and glaucoma awareness.[23,24]There appear to be diverse correlations between age, gender, and awareness of glaucoma, which may be due to differences in the target population and educational systems of various communities.[16,19]

In the present study, 17 (53%) of the aware participants were graduated, this was statistically not significant (P= 0.26). multiple studies showed that awareness was associated with higher education levels[13,19]Although a study done in Switzerland found that there is no correlation between awareness and the level of education.[25]

However, it was found that 32 (72%) of participants who were aware were government employees which was statistically significant (P=0.04), this is consistent with a previous study that showed that occupational status is significantly associated with the level of knowledge in the community,[21]being employed with a constant income is associated with more awareness. [26]In contrast,other studies have found no association between occupational status and knowledge of glaucoma, [11,16]

In the present study, out of all the participants who were aware of glaucoma, 15 (47%) got their information from family and friends, and this was found to be statistically significant (P<0.001). However, no statistically significance relation was found between awareness and time of last visit (P= 0.56), or Family history of glaucoma (P=0.55).

Several studies have shown that close friends and family are the most common sources of glaucoma information, [12,19, 27] while others have shown that media, such as television, [26] or healthcare professionals are the main sources of information.[28]

A study done in Southall; west London,-showed the crucial role of media in raising awareness of glaucoma. In their study, before they did the health campaign, only 22% of people had heard of glaucoma, and the majority had learned about it from their general practitioner, friend, or relative. However, after the public health education initiative, 69% of people had heard about glaucoma from the radio, and the percentage of people who had heard of glaucoma had risen to 53%.[29]

There is a statistically significant relationship between glaucoma awareness and Diabetes Mellitus, according to the findings of our study, as 29 (91%) of participants who were aware of glaucoma were not diabet-

ics (P= 0.03), which is consistent with the findings of other researchers such as _Soqia Jet al [12]and Al-Naggar et al [26]who also found no relation between chronic diseases and the awareness of glaucoma. This suggests that physicians can play a positive role in increasing screening rates by referring more patients to ophthalmologists. [30, 31]

In our study, 32 participants were aware of glaucoma, out of which 11 (34.3%) had good knowledge, 19 (59.5%) had average knowledge, and the remaining two (6.2%) had poor knowledge, This is better than the Syrian study which showed people with good knowledge were only 8%, people with average knowledge were 15% and the people with poor knowledge were 77%. [12] Thus, 94% of the aware participants in our study had average to good knowledge, compared to only 23% in the Syrian study. This difference in knowledge levels may be related to the definition of awareness in both studies. In the Syrian study, awareness was defined as having heard of glaucoma,and it is obvious that knowledge is determined by the awareness definition. [12]

However, the 34.3% of good knowledge in our study is lower compared to previous studies conducted in Ethiopia (49.6%) [11]and Southwest Nigeria (88.3%). [32]This difference in knowledge levels could be attributed to the public awareness campaigns conducted in Ethiopia to educate people about glaucoma. [18]Additionally, the participants in the southwestern Nigeria study were health workers, who were expected to have a better understanding of the disease.[32]

This is the first glaucoma awareness study in Libya; however, it was limited by the fact that it was conducted in an ophthalmology clinic. As a result, it cannot be depended on to represent the community's overall awareness of glaucoma. It just provides a basic idea, and another population-based study needs to be performed to acquire a more exact knowledge of glaucoma awareness.

Conclusion

This study revealed a low awareness of glaucoma (17%) among attendants to the Out-Patient Ophthalmology Clinic associated with Benghazi Teaching Eye Hospital, with half of them being in the age group of 30-39 years. Among the aware participants, 69% were females, and their primary information source was family and friends (47%). This highlights the low level of awareness among the Libyan population about the disease.

Recommendations

Effective educational campaigns and media strategies are needed to improve knowledge levels and reduce blindness caused by glaucoma.We recommend doing the questionnaire after a campaign on different platforms to educate people about glaucoma and test their awareness of it.

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