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Assessment of the Level of Knowledge of Users of the Ophthalmology Service on Primary Open-Angle Glaucoma at the Bougouni District Hospital in Mali

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Abstract **Original Research Article**

Introduction **:** Primary open-angle glaucoma is the leading cause of irreversible blindness worldwide. It is a pathology whose symptomatology evolves quietly, which is what makes it so serious. Patients' knowledge and attitudes toward glaucoma are important factors in its management. Indeed, people's knowledge of the pathologies is generally insufficient and attitudes are sometimes erroneous, even harmful. The objective of this study was to assess the level of knowledge of users of the ophthalmology department on primary open-angle glaucoma. Patients and methods:This was a quantitative, cross-sectional and descriptive prospective study. It was carried out from February 1, 2024 to May 31, 2024 at the Bougouni district hospital. ***Results***: A total of 317 participants were collected, among whom, non-schooled cleaning women were the majority, the average age was 50.28 years and the sex ratio M/F = 0.96. 72.6% had already heard of glaucoma and 61.7% had a good level of knowledge. Socio-demographic characteristics such as age, sex and health profile correlated with the level of knowledge were not statistically significant. ***Conclusion***: The level of knowledge of our participants was good.

Keywords : Level of Knowledge, Glaucoma, District Hospital, Bougouni.Despite These Results, We Must Focus on Raising Awareness to Maintain And/Or Improve These Results.

INTRODUCTION

Glaucoma is a progressive optic neuropathy with characteristic alterations of the optic nerve head (structural damage) and corresponding alterations of the visual field (functional damage), under the influence of several risk factors, the most frequent of which is ocular hypertension, the iridocorneal angle being open [1, 2].

Primary open-angle glaucoma is believed to cause 6.7 million cases of blindness [3, 4]. The overall prevalence of subjects over 40 years of age varied by region: United States 1-5%, Caribbean 7-9%, Europe 1-3%, Asia 1-4%, Australia 2-3%, Africa 1-8% [5], and depending on the breed, it is from 0.71 to 7% [6, 7].

In Africa,Several studies have been carried out on the epidemiology of POAG, notably that carried out in Benin by L. Yehouessi in 2009, which found a prevalence of 5.5% [8], in Cameroon two studies carried out on glaucoma had estimated the prevalence of GPAO at 4.3% [4].

In Mali, it was 5.68% in rural areas according to a published study [9], in 2019. Due to the absence of suggestive functional signs before the very late stage, it is estimated that between 51 and 58% of POAGs go undiagnosed in melanoderms, thus explaining the severity of this disease [2]. This would be due to a lack of knowledge of the disease by patients. In Togo, BALO and al [10], showed that patients were unaware of the disease in a study published on glaucoma.

We know that effective and efficient glaucoma management requires patient acceptance and adherence to the various treatment modalities and monitoring programs. This is only possible if both users and patients are well informed about the disease.

As part of improving the quality of eye care provision, we conducted this study, the objective of which is to assess the level of knowledge of users of the ophthalmology service at the Bougouni reference health center.

PATIENTS AND METHODS

This was a quantitative, cross-sectional and descriptive prospective study. It was carried out fromFebruary 1, 2024 to May 31, 2024 at the Bougouni district hospital. Have been included all users who came for consultation in the ophthalmology department, aged 18 or over, who agreed to give their consent. The sampling was based on the exhaustive recruitment of users who participated in the survey and met the inclusion criteria during the period; this is how we constituted a sample of 317 cases. The datahave been collected from a questionnaire designed for this purpose using the interview method, comprising three parts:

- Socio-demographic characteristics,
- Ophthalmological medical history,
- The level of knowledge about glaucoma

The dependent variable was users' knowledge about primary open-angle glaucoma and the independent variables included: users' socio-demographic characteristics, and users' sources of information; ophthalmic medical history and the number of participants who had heard of glaucoma.

We proceeded to the operationalization of the dependent component, by determining criteria that we coded according to two types of score: 0 (zero) for wrong answer, 1 (one) for right answer.

These scores were used to assess the level of knowledge about primary open-angle glaucoma based on a certain number of points obtained. The sum of the points obtained and classified in intervals made it possible to obtain three levels of assessment: From 1 to 3: low level of knowledge; from 4 to 5: moderate level of knowledge; from 6 to 7: good level of knowledge. Data entry and analysis were carried out using the software Excel spreadsheet and transferred to SPSS 20 for statistical analysis.

RESULTS

During the study period we surveyed 317 users of the ophthalmology department of the Bougouni reference health center.

The average age of patients was 50.28 years old with extremes of 18-95 years old. The Sex ratio M/F, was 0.96 (Table I). Women at home (housewives) represented38.5% followed by farmers and liberals with respectively22.4% And18.3%(Table I).Regarding the level of education,53.9%of our users had no level of education against26.5% of secondary level and12.9% ofprimary level. Regarding ophthalmological medical history;5.2% of our users had GPAO compared to 17.0% of hypertensives and 8.3% of diabetics (Table II).

Glaucomatous disease was generally known by the majority of our participants (**Table III)**. Sources of information on glaucoma werethe media, followed by health workers at 36% and 26% respectively (Graph 1).

Only 8.3% of participants had a low level of knowledge about glaucoma compared to 61.7% with a good level (Figure 1). There was no statistically significant association between socio-demographic characteristics, ophthalmic medical history and knowledge level ($p > 0.05$). (Table IV)

Annexes:

Table I: Distribution of participants according to sociodemographic characteristics of participants

	Staff	**Percentage**
Sex		
Male	155	48.9
Female	162	**51.1**
Age		
18-39	108	**34.1**
40-59	91	28.7
60-79	104	32.8
80-99	14	4.4
Occupation		
Civil servants	39	12.3
Peasants	71	22.4
Liberals	58	18.3
Housewives	122	**38.5**
Students	14	4.4
Others	4	1.3
Not specific	9	2.8
Educational level		

Primary	41	12.9
Secondary	84	26.5
Superior	21	6.6
Not in school	171	**53.9**
Residence		
Urban	159	**50.2**
Rural	149	47.0
Not specific	9	2.8

Table II: Distribution of participants according to ophthalmological medical history.

	Staff	**Percentage**
HTA	39	17.0
Diabetes	19	8.3
GPAO	12	5.2
Others	16	7.0
Nothing to report	143	62.4

HTA (Arterial Hypertension) **GPAO** (Primary open-angle glaucoma)

Table III: Distribution according to participants' knowledge of glaucoma

Items	**YES**	**NO**	**NSP**
Have you ever heard of glaucoma?	72.6%	27.4%	0%
Is glaucoma reversible?	75.1%	15.3%	9.6%
Is glaucoma blinding?	83.5%	12.1%	4.3%
Can you get glaucoma without knowing it?	86.6%	7.4%	6.1%
Should a glaucoma sufferer have his family diagnosed?	94.3%	2.2%	3.5%
Is glaucoma treatable?	90.0%	5.2%	4.8%
Is the treatment lifelong??	68.4%	17.1%	14.5%

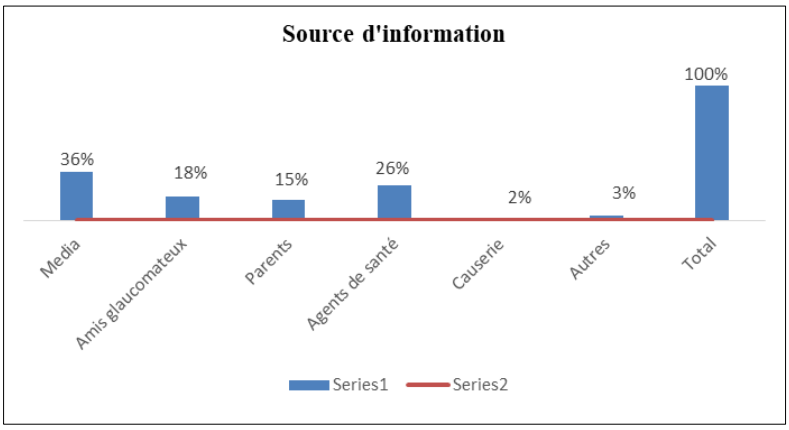

Chart 1: Distribution of participants according to information sources.

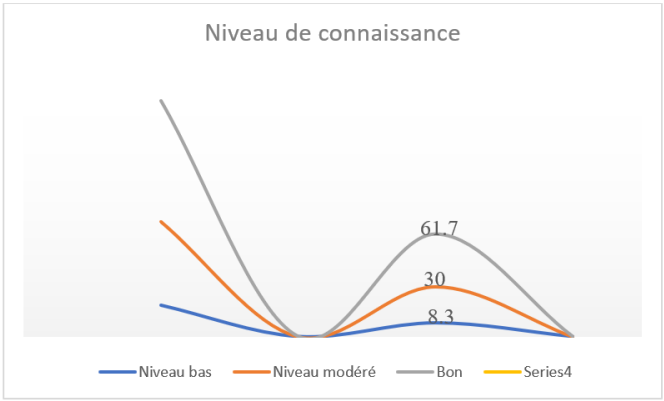

Chart 2: Distribution of participants according to level of knowledge

Table VI: Distribution of participants according to sociodemographic characteristics, ophthalmological medical history according to the level of knowledge

Items	Down	Moderate	Good	p value
Age				0.797
18-39	6 (8.7%)	22 (31.9%)	41 (59.4%)	
40-59	5 (7.1%)	23 (32.9%)	42 (60.0%)	
60-79	8 (10.0%)	22 (27.5%)	50 (62.5%)	
80-99	0 (0.0%)	2 (18.2%)	9 (81.8%)	
Sex				0.647
Male	11(9.7%)	35(31.0%)	67(59.3%)	
Female	8(9.7%)	34(35.1%)	75(72.2%)	
Educational level 0.159				
Primary	4 (14.3%)	12 (42.9%)	12 (42.9%)	
Secondary	3 (4.5%)	22 (33.3%)	41 (62.1%)	
Superior	0 (0.0%)	6 (33.3%)	12 (66.7%)	
Not in school	12 (10.2%)	29 (24.6%)	77 (65.3%)	
Occupation				0.501
Civil servants	2 (5.9%)	9 (26.5%)	23 (67.6%)	
Peasant	7 (15.2%)	16 (34.8%)	23 (50.0%)	
Liberal	3 (7.0%)	15 (34.9%)	25 (58.1%)	
Housewife	7 (8.0%)	21 (23.9%)	60 (68.2%)	
Students	0 (0.0%)	5 (55.6%)	4 (44.4%)	
Others	0 (0.0%)	1 (20.0%)	4 (80.0%)	
Not specific	0 (0.0%)	1 (25.0%)	3 (75.0%)	
Ophthalmic medical history				0.123
HTA	1 (2.6%)	16 (41.0%)	22 (56.4%)	
Diabetes	3 (15.8%)	1 (5.3%)	15 (78.9%)	
GPAO	2 (16.7%)	2 (16.7%)	8 (66.7%)	
Others	1 (6.3%)	7 (43.8%)	8 (50.0%)	
Nothing to report	12 (8.4%)	42 (29.4%)	89 (62.2%)	

DISCUSSION

Sociodemographic Aspects:

Non-educated housekeepers in the 18-39 age group, with an average of 50.28, were predominantly represented at 34.1%, followed by the 60-79 age group at 32.8%, with extremes of 18-95. This result is comparable to that of Michael A *et al*., [11], in a survey on awareness and attitude towards glaucoma among a rural adult population of Osun State in Southwest Nigeria in 2011 and found a mean age of 49.73 years with extremes [18; 90]; of that ofParveen Rewri *et al*., [12], in a survey on glaucoma awareness, knowledge and practice among rural residents of North India in 2010 where the average age was 52 years Andde Sovogui MD and al [13], in an investigation into theknowledge, attitudes and practices relating to cataracts and glaucoma in the population of Conakryin Guinea in 2020, who found an average age of 42.41 years. However, it is different from that ofAssavedo Codjo Rodrigue Abel *et al*., [14], din an article entitled "Knowledge, attitudes, practices relating to primary open-angle glaucoma" in northern Benin in 2019 where the average age was 33.01 years old.

The age range of our series was different from that of Sovogui MD and al [13], in Guinea in 2020, which find an age group more represented by 41-60 years or 39.50% followed by 61-80 years or 32.30%, 18-40 years or 26.60%, and that of De-Gaulle and al [15], in Ghana in Akbokobi in 2016 [15], where the 40-49 age group was the most represented, i.e. 35.7% with extremes from 18 to 70 years. This difference can be explained by the fact that this age group is more active and motorized, and yet confronted with ocular aggressions. Also this survey preceded an eye surgery campaign where the participants were mainly elderly people. Regarding gender, with sex ratio M/F=0.96, our series approaches that of De-Gaulle and al [15], in a survey on glaucoma awareness, knowledge, risk perception and eye screening behavior among residents of Akbokobi in Ghana, where women were predominantly dominant with 60.3%, however it differs from that of Sovogui MD and Assavedo Codjo Rodrigue Abel [13, 14], at whose housemen were in the majority, i.e. 52.40% and 52.40% respectively.61.13% and a sex ratio of 1.57 and 1.10.

This difference can be explained by the fact that women attend the service more than men, as shown by monthly reports.

In relation to the profession our series differs from that of Sovogui and al [13]. OrTradesmen and pupils/students were the most represented, with 21.8% and 19% respectively, followed by civil servants with 18.70% and housewives with 18.40%. On the other hand, in the series of Assavedo Codjo Rodrigue Abel *et al*.,

[14], the secondary level was the majority, i.e. 46.35%.This difference is explained by the fact that people in the trades can declare themselves as housewives or farmers, in addition, women and men are mostly known in household and rural activities in our study area. The majority of those who were not in school were followed by those at secondary level and primary level, i.e. 53.9%, 26.5% and 12.9% respectively.This result is similar to that of Sovogui MD *et al*., [13], where theilliterate people were in the majority, at 45.10%, followed by higher education at 36.40% and secondary education at 18.50%. Furthermore, in the series ofAssavedo Codjo Rodrigue Abel *et al*., [14],secondary level was the majority, i.e. 46.35%. This state of affairs is explained by the fact that Mali and Guinea have almost the same culture and the same population where the school enrollment rate would be low compared to Benin.

Participants' Ophthalmological Medical History

More than half of the patients had no medical history, i.e. 62.4%. The medical history was dominated by hypertension and diabetes, with respectively17% and 8.3%. Thehistory of GPAO represented5.2%. Which is close to the 5.68% frequency of GPAO in rural areas in Mali [9].

Knowledge About Glaucoma

In our series, 72.6% of our participants had already heard of glaucoma and 5.2% had glaucoma. Our study corroborates that of Parveen Rewri *et al*., [12],in India where 73% of participants had heard of GPAO and Diala W Abu Hassane and al [16], in a study on glaucoma awareness and knowledge among outpatients at Jordan University Hospital, in which 81.6% of respondents had heard of glaucoma. Similarly, it was similar to that of Philip Tetteh Djeagbo *et al*., [17], in a survey on the level of awareness and knowledge of glaucoma among Ghanaian undergraduate students in Ghana i.e.83.33%. This state of affairs is explained by the fact that glaucoma being an irreversible eye disease, a lot of awareness communication on screening is done.

Regarding the source of information, the majority of our patients were informed through the media, followed by health workers, glaucoma friends and parents, respectively 36%, 26%, 18%, 15%. Our results are similar to those of Philip Tetteh Djeagbo and al [17],where the main source of information was the media, i.e. 49.4%.However, they differ from those of Diala W Abu Hassan *et al*., [16], where information was provided mainly by family members, parents, friends or 66.6% followed by the media 13.3%, doctors or ophthalmologists 12%; and those of Parveen Rewri *et al*., [12]. In India, where participants received more information from parents and friends, medical staff, and the media (46%, 33%, and 21%, respectively). This situation is explained by the fact that our populations communicate less about their health problems and are more attached to the media.

Regarding the level of knowledge of our participants, more than half had a good level of knowledge about GPAO, i.e. 61.7%; those who had a moderate level were at 30% and the low level 8.3%. Our result differs from that of Diala W Abu Hassan *et al*., [16], who had found52.4% low level of knowledge in North India. Most of our participants knew that GPAO is blinding either83.5%. The majority of participants, 86.6%, knew that POAG could manifest itself without symptoms at the onset of the disease and that it could be contracted without realizing it. Most users, 94.3%, thought that the disease could be hereditary and that descendants should be screened. Therapeutic modalities, including treatment and lifelong monitoring, were known in 68.4% of cases. The irreversibility of blindness caused by the disease was known only by15.3% of participants.

The results of our series are close to those ofPhilip Tetteh Djeagbo and al [17], who reported that the majority of participants stated that glaucoma can cause blindness (77.3%); that treatment is possible (60.7%). He also found that 38.3% of his series believed that glaucoma can be hereditary and 25% stated that it can occur without symptoms. According to De_Gaule and al [15], reported that 99.1% of the people surveyed in his series knew the blinding nature of glaucoma in the absence of adequate treatment, only 28.8% knew the irreversibility of blindness due to glaucoma, which was higher than our rate of 15.3% of cases. On the other hand, 64.4% knew the insidious nature of glaucomatous disease. In the series of De-Gaulle and al [15], 99.1% of respondents agreed that glaucoma causes blindness. About 64.4% of them also said that it was possible to have glaucoma without knowing it; 28.8% of respondents agreed that blindness due to glaucoma is irreversible.

In our series, statistical tests showed that there was no statistically significant association between demographic characteristics, namely age, sex, level of education and level of knowledge of glaucoma, respectively P = 0,797; P = 0,647; P = 0.159. This result is similar to that of Philip Tetteh Djeagbo and al [17], at whose house,There was no statistically significant association between glaucoma knowledge and other demographic factors such as age, sex, and education level ($P > 0.05$); and that of Parveen Rewri and al [12], in India where age and gender were not linked toknowledge of glaucoma, respectively (P = 0.37) and (P = 0.99). However, our series differs from that of Sovogui MD and al [13], where there was a statistically significant link between sociodemographic characteristics (sex, age and level of education) and knowledge of glaucoma, respectively $P < 0.05$ in each case. This difference can be explained by the media-based eye care campaigns that we organize at the district level, and the awareness messages during these campaigns where all social classes are informed.

CONCLUSION

This cross-sectional study assessing the level of knowledge of service users about primary open-angle glaucoma revealed that more than half of the participants had a good level of knowledge about glaucoma. The level of knowledge was not related to socio-demographic characteristics. Despite these results, we must focus on raising awareness to maintain and improve these results.

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