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Original Research Article

A Cross-Sectional Questionnaire Study on Awareness and Knowledge of Glaucoma among the People Attending Ophthalmology Outpatient Department in a Tertiary Care Centre in Kerala

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Abstract:

Background: This is the second leading causes of preventable blindness worldwide. It is associated frequently but not invariably with the raised intra-ocular pressure 3, eventually resulting in loss of vision and blindness

Methods: Structured questionnaire were given in English and Malayalam. Questionnaire contains two parts first part for name age gender demographic data and second part regarding awareness and knowledge of glaucoma. Hospital-based cross-sectional study. Participants grouped as Group 1: Not heard of glaucoma and we collected the demographic data only. Group 2: Heard of glaucoma, were given the full questionnaire for answering. Illiterate participants were assisted by trained personnel. Awareness about glaucoma is analysed by those who all Responded "Yes" to Q1 (Have you heard of glaucoma) Knowledgeable about glaucoma is analysed depending on the Correct responses to glaucoma-related questions Descriptive statistics used. Percentages were calculated for each response.

Results: Among 690 participants attending the ophthalmology outpatient department, 280 individuals (40.6%) were found to be aware of glaucoma and were further assessed for knowledge regarding the disease. Significant gaps in glaucoma-related knowledge, only 47.1% correctly identified high intraocular pressure as a key feature of glaucoma. A large proportion 63.6% either wrongly equated glaucoma with cataract or were unsure, suggesting a common misunderstanding between the two conditions. Similarly, awareness of risk factors was suboptimal: only 45% recognized increasing age as a risk, and 38.6% understood the significance of family history. Alarmingly, just 34.3% were aware that glaucoma is often asymptomatic in its early stages, and only 29.3% correctly denied that glaucoma always causes defective vision from the outset. When participants were asked whether they had ever undergone glaucoma screening by an eye doctor, 30.0% reported that they had been screened. In contrast, a significant 60% had never undergone any form of glaucoma screening. Importantly, when asked whether they had advised their family members to get screened for glaucoma, only 46.4% had encouraged family screening.

Conclusion: This there is considerable gap between glaucoma awareness and actual participation in screening practices, underscoring the need for proactive screening programs and patient education initiatives to promote early detection. Community-level glaucoma awareness programs are urgently needed. And also utilizing OPD visits for patient education and focused health education campaigns addressing key misconceptions can bridge the knowledge gap. More focus on educating about asymptomatic nature and irreversible blindness may help in improving early diagnosis and compliance.

Keywords: Knowledge, Glaucoma, Screening, Public Health, Preventable Blindness.

Introduction

Glaucoma is an acquired group of ocular disorders, can be defined as a chronic progressive loss of retinal ganglion cells and axons which results in optic nerve injury characteristic appearance of the optic disc and a specific pattern of the visual field defects. [1] This is the second leading causes of preventable blindness worldwide. [2] It is associated frequently but not invariably with the raised intra-ocular pressure, [3] eventually resulting in loss of vision and blindness. [4]

The disease can progress even in individuals with normal IOP, making diagnosis more challenging.4 More than 70 million people are affected by Glaucoma worldwide and around 10% of them developed blindness bilaterally. [2]

Studies has shown that the prevalence of disease increases with age and>90% are unaware of the disease. [5] Glaucoma, however presents perhaps an even greater public health challenge than cataracts because the blindness caused by Glaucoma is irreversible. Identification of the risk factors and screening are important for early detection and intervention before the irreversible damage. [6] Approximately 8% of global blindness is due to Glaucoma, in addition to the projection of 76 million for 2020, and 111.8 million for 2040. [7] Rapid Assessment of Avoidable Blindness which was conducted in 2006-07, estimated Glaucoma is responsible for 4.4 % cases of blindness in the above 50 years population in India. [8]

Glaucoma is considered as the "silent killer of eye "as it is asymptomatic initially and thus remains mainly undiagnosed in the population. [9] Poor knowledge leads to late diagnosis and this delay in diagnosis of Glaucoma is a key factor in glaucoma related blindness which is irreversible. [10,11]

Studies have shown that a significant proportion of patients are only diagnosed during unrelated eye examinations, missing the critical window for early intervention. Despite advances in diagnostic technologies, the absence of symptoms early in the disease limits patient-initiated health-seeking behaviour. [12] Therefore, community-based awareness campaigns and integration of glaucoma screening into general health checkups are essential. Primary care physicians and optometrists can play a key role in early detection by recognizing risk factors and referring at-risk individuals. [13] Furthermore, public health policies must emphasize the need for periodic screening after the age of 40, especially in populations with a high prevalence of the disease.

Aims and Objectives

This study aims to find the awareness and knowledge about glaucoma in the patients attending Ophthalmology outpatient department and to assess the level of awareness and knowledge about Glaucoma in the above population. Assessment of awareness will help us in understanding the need for improving information, education and communication model and need for raising new strategies for Glaucoma awareness.

Materials and Methods

Hospital-based cross-sectional study conducted at the Ophthalmology OPD, Government Medical College, Palakkad, from January 2021 to December 2021. Study was approved by the ethics committee of the Institution.

Sample Size: 690 patients aged > 40 years who gave consent to participate were included.

Based on the results of awareness was 14.6% observed in an existing article [14] using the below equation and with 95% confidence and 80% power the minimum required sample size will be 562.

Eligibility Criteria:

Inclusion: Age > 40 years, consent to participate.

Exclusion: Patients already diagnosed with glaucoma.

Data Collection: Structured questionnaire was given in English and Malayalam. Questionnaire contains 2 two parts first part for name age gender demographic data and second part regarding awareness and knowledge of glaucoma

Participants grouped as

Group 1: Not heard of glaucoma and we collected the demographic data only.

Group 2: Heard of glaucoma, were given the full questionnaire for answering.

Illiterate participants were assisted by trained personnel.

Definitions of terms used in the analysis in this study:

Awareness about glaucoma is analysed by those who all Responded "Yes" to Q 1 (Have you heard of glaucoma).

Knowledgeable about glaucoma is analysed depending on the correct responses to glaucoma-related questions.

Statistical Analysis: Descriptive statistics used. Percentages were calculated for each response.

Results

The below table summarizing the demographic profile of the study participants (n = 690).

Table 1: Demographic Characteristics of Study Participants (n = 690)

Demographic Parameter	Category	n (%)
Group Classification	Group 1 (Unaware)	410 (59.4%)
	Group 2 (Aware)	280 (40.6%)
Mean Age		56.3 years (Range: 40–85)
Gender Distribution	Male	340 (49.3%)
	Female	350 (50.7%)
Education Level	Illiterate	166 (24%)
	Primary (1st–5th std)	248 (36%)
	Secondary (6th–12th std)	186 (27%)
	Higher (Graduate & above)	90 (13%)
Socioeconomic Status (Modified Kuppuswamy)	Upper	35 (5%)
	Upper-middle	138 (20%)
	Lower-middle	276 (40%)
	Upper-lower	207 (30%)

Among 690 participants attending the ophthalmology outpatient department, 280 individuals (40.6%) were found to be aware of glaucoma and were further assessed for knowledge regarding the disease.

Among those aware, the most common source of information was healthcare providers, with 47.1% reporting that they had learned about glaucoma from a doctor. Media sources such as television, internet, and newspapers were cited by 38.2%, while 14.7% had heard about glaucoma through friends or relatives, reflecting the role of both professional and informal channels in awareness generation.

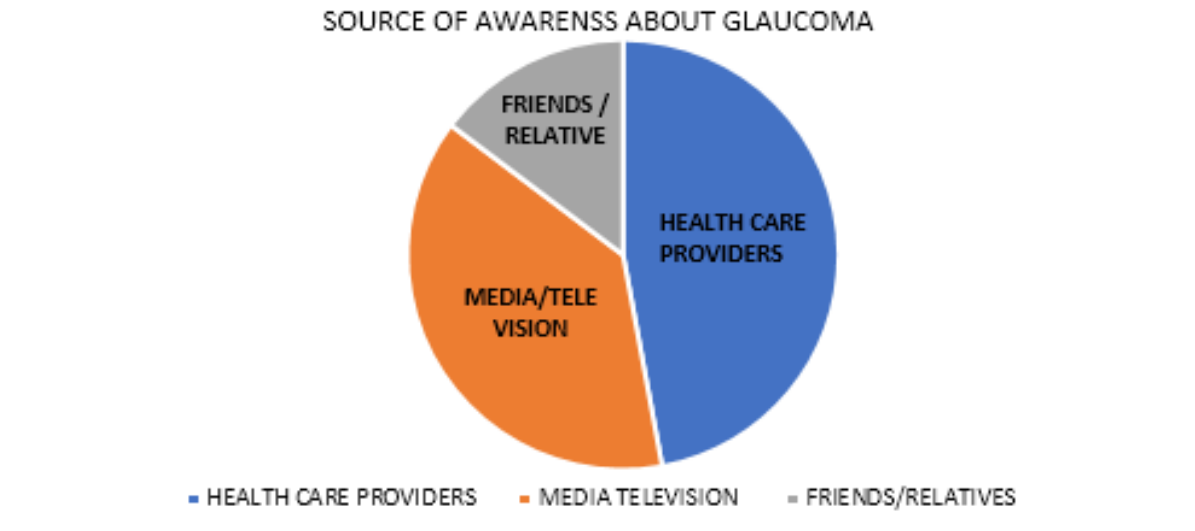

Figure 1: Source of Awareness

Despite this awareness, the study highlights significant gaps in glaucoma-related knowledge. Only 47.1% correctly identified high intraocular pressure as a key feature of glaucoma. A large proportion 63.6% either wrongly equated glaucoma with cataract or were unsure, suggesting a common misunderstanding between the two conditions. Similarly, awareness of risk factors was suboptimal: only 45% recognized increasing age as a risk, and 38.6% understood the significance of family history. Alarmingly, just 34.3% were aware that glaucoma is often asymptomatic in its early stages, and only 29.3% correctly denied that glaucoma always causes defective vision from the outset.

Encouragingly, 57.1% were aware that glaucoma could lead to blindness, and nearly 48.6% believed that early diagnosis and treatment could prevent it. However, a concerning 72.1% mistakenly thought spectacles could cure glaucoma or were uncertain. These findings emphasize the need for targeted education to bridge knowledge gaps and prevent avoidable blindness.

Table 2: Knowledge Assessment of Glaucoma Among Aware Participants (n = 280)

	Question	Correct Answer	Correct (n)	Incorrect (n)	Don't Know (n)
1	Glaucoma is related to high eye pressure	Yes	132 (47.1%)	66 (23.6%)	82 (29.3%)
2	Glaucoma is same as cataract	No	102 (36.4%)	93 (33.2%)	85 (30.4%)
3	Risk increases with age	Yes	126 (45.0%)	54 (19.3%)	100 (35.7%)
4	Risk more if family member has glaucoma	Yes	108 (38.6%)	67 (23.9%)	105 (37.5%)
5	Glaucoma is asymptomatic initially	Yes	96 (34.3%)	83 (29.6%)	101 (36.1%)
6	Glaucoma always has defective vision	No	82 (29.3%)	122 (43.6%)	76 (27.1%)
7	Glaucoma can cause blindness	Yes	160 (57.1%)	48 (17.1%)	72 (25.8%)
8	Glaucoma can be cured by spectacles	No	78 (27.9%)	119 (42.5%)	83 (29.6%)
9	Blindness preventable with early diagnosis/treatment	Yes	136 (48.6%)	61 (21.8%)	83 (29.6%)
10	Screening by an eye doctor helps in early detection of glaucoma	Yes	182 (65.0%)	38 (13.6%)	60 (21.4%)
11	Glaucoma blindness can be prevented by early diagnosis and treatment	Yes	136 (48.6%)	74 (26.4%)	70 (25.0%)
12	Do you know about treatment options available for glaucoma?	Yes	116 (41.4%)	108 (38.6%)	56 (20.0%)

Finally, when participants were asked whether they had ever undergone glaucoma screening by an eye doctor, only 84 individuals (30.0%) reported that they had been screened. In contrast, a significant 60% (168) had never undergone any form of glaucoma screening, and 10.0% (n = 28) were unsure about their screening status.

Among the 280 participants who were aware of glaucoma, 28 individuals reported that they were diagnosed glaucoma patients. Of those diagnosed, the majority 20 patients were on regular treatment with eye drops, reflecting the widespread use of medical therapy as the primary management approach. A smaller number had undergone additional interventions: 3 participants reported receiving laser treatment, 2 participants had undergone glaucoma surgery, and another 3 participants were receiving a combination of treatments.

Among the 28 participants who reported being diagnosed with glaucoma, most were found to be compliant with regular follow-up protocols.

The majority (64.3%) attended follow-up visits every 3 to 6 months, while a smaller proportion (21.4%) followed up annually. A few patients (14.3%) reported irregular or missed follow-ups, indicating the need for better reinforcement of long-term disease monitoring. Regarding the duration of treatment, over half (53.6%) had been on treatment for more than two years, while 32.1% had started treatment within the last one to two years, and 14.3% were newly diagnosed within the past year.

Importantly, when asked whether they had advised their family members to get screened for glaucoma, only 46.4% had encouraged family screening.

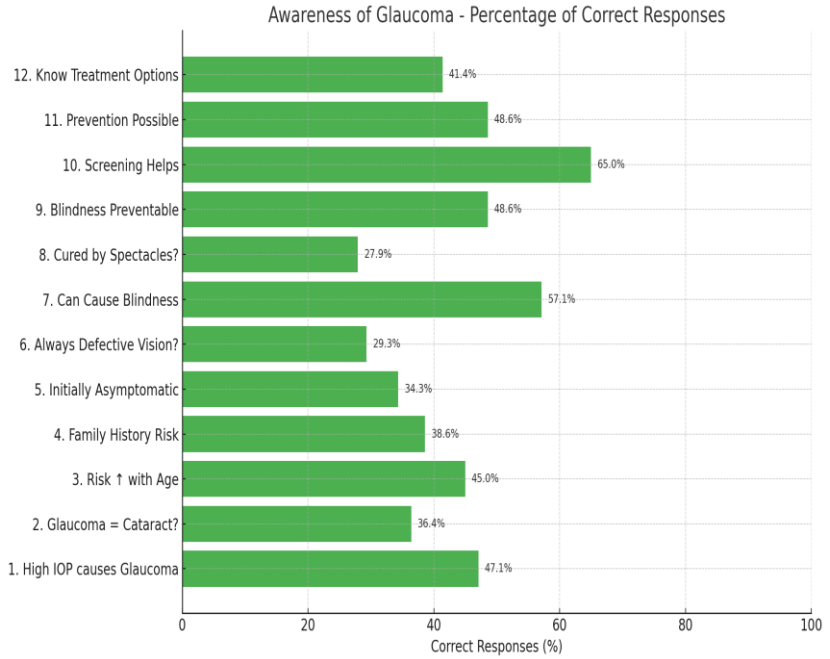

Figure 2: Awareness of Glaucoma

Discussion

Glaucoma progresses slowly with very minimal or no symptoms, an early diagnosis of Glaucoma is thus vital for its effective management and prevention of blindness. One of the most important and effective actions for early detection of Glaucoma and its management may be raising public knowledge and awareness regarding the disease. [7]

Awareness of Glaucoma means whether an individual has heard of the disease or not. The knowledge aspect means assessing the level of understanding of the disease called Glaucoma. Assessment of awareness is the first step in the planning of disease management. Lack of awareness and non-availability of appropriate screening procedures are among the major reasons for non-diagnosis or late diagnosis of Glaucoma. [15]

From the above study Among 690 participants 280 individuals were found to be aware of glaucoma and were further assessed for knowledge regarding the disease.

Table 3: Conclusions about the knowledge of glaucoma

	Question	Conclusion
1	Glaucoma is related to high eye pressure	Less than half knew glaucoma is related to IOP-indicates a gap in basic understanding.
2	Glaucoma is same as cataract	Only one-third could distinguish between glaucoma and cataract. Misconceptions are common.
3	Risk increases with age	Less than half aware of age as a risk factor. Education is needed on risk profiling.
4	Risk more if family member has glaucoma	Only 38.6% knew family history is a risk-low awareness of hereditary link.
5	Glaucoma is asymptomatic initially	Only a third aware that glaucoma is initially silent—this can delay diagnosis.
6	Glaucoma always has defective vision	High rate of misconception; many believe vision is always defective early on.
7	Glaucoma can cause blindness	Majority knew blindness can occur-awareness of severity is relatively better.
8	Glaucoma can be cured by spectacles	Most believe spectacles can cure glaucoma—serious misinformation exists.
9	Blindness preventable with early diagnosis/treatment	Just under half aware that blindness is preventable-need for promoting early screening.
10	Screening by an eye doctor helps in early detection of glaucoma	Majority understood the value of screening, but over one-third still misinformed or unaware.

11	Glaucoma blindness can be prevented by early diagnosis and treatment	Less than half understood that timely intervention can prevent glaucoma-related blindness.
12	Do you know about treatment options available for glaucoma?	Regarding treatment awareness, only 41.4% of participants reported knowing about available options, with eye drops being the most recognized modality. Awareness of laser and surgical treatments was significantly lower, indicating the need to improve public knowledge about the full spectrum of glaucoma management options.

Only 30% of individual who had heard about glaucoma had undergone screening, this highlights a substantial gap between awareness and preventive action. Despite a reasonable proportion of participants recognizing the importance of screening in earlier questions, the actual uptake of glaucoma screening remains low. This emphasizes the need for strengthening community outreach, integrating routine glaucoma screening into general ophthalmic consultations for at-risk populations, and educating patients on the importance of early detection to prevent irreversible vision loss.

28 people were glaucoma patients, suggest that while glaucoma is not uncommon even among the general outpatient population, most patients rely on pharmacological therapy. The relatively lower number of patients undergoing surgical or laser procedures may reflect early-stage diagnosis or limited access to advanced care. This underscores the importance of sustained awareness and follow-up to ensure disease control and prevent progression.

Even in patients diagnosed with glaucoma family members got screened less than 50%. The genetic predisposition and the asymptomatic nature of early glaucoma, these findings highlight a critical gap in awareness transmission within families. This underscores the need for counselling glaucoma patients not only about their own disease management but also about the importance of educating and screening their first-degree relatives.

Conclusion

In this study, only 40.6% of participants were aware of glaucoma, and media were reported as the primary source of information. Among those who were aware, the depth of knowledge was limited. More than 50% still harbored misconceptions, such as believing that glaucoma is the same as cataract or that it can be cured with spectacles. This highlights a significant gap between glaucoma awareness and actual participation in screening practices, underscoring the need for proactive screening programs and patient education initiatives to promote early detection.

Glaucoma often progresses silently without symptoms, making it imperative that individuals are educated about its asymptomatic nature and the irreversible blindness it can cause. Community-level glaucoma awareness programs are urgently needed to enhance understanding and encourage timely check-ups. Incorporating patient education during routine outpatient visits can serve as a practical and cost-effective strategy to disseminate accurate information. Furthermore, targeted health education campaigns addressing common myths and misconceptions may greatly improve health-seeking behavior. Involvement of primary healthcare providers in early risk identification and counseling can further expand the reach of glaucoma awareness. Integrating glaucoma messages into existing public health outreach-such as diabetic or hypertensive clinics-could also enhance the impact of awareness efforts. Ultimately, improving awareness and correcting misconceptions will play a critical role in increasing screening uptake, early diagnosis, and compliance with treatment.

Recommendations

- Focused health education campaigns addressing key misconceptions.
- Counseling during OPD visits, especially for at-risk groups.
- Media-based awareness should be complemented with accurate messaging from healthcare providers.

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