

Effect of Structured Counselling on Glaucoma Screening Consent in a Tertiary Care Ophthalmology Clinic

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Abstract

Background: Glaucoma is one of the major causes of the non-reversible blindness globally, commonly occurring without any symptoms until late stages. Screening during early stages is very important but a lack of awareness and the lack of proper knowledge is the primary obstacle in the way of early diagnosis, especially in the low and middle-income nations. The extent to which awareness is also converted into screening behaviour is not clear even in tertiary care setting. The aim of the study was to determine the extent of awareness and knowledge of glaucoma among adults visiting a tertiary care ophthalmology outpatient department, and to estimate the effect of structured counselling on willingness to screening of glaucoma. **Material and Methods:** The study was a hospital-based descriptive study that comprised 350 adults aged ≥ 45 years and the 1st-degree relatives of glaucoma patients. The questionnaire was in form of a structured interviewer-administered questionnaire on glaucoma awareness (Section S1) and glaucoma knowledge (Section S2). The scores of composite awareness and knowledge were obtained. There was a provision of standardized glaucoma counselling after which written consent on screening of glaucoma was taken. The statistics of analysis of data involved descriptive statistics and suitable comparative tests. **Results:** Thinking (awareness of glaucoma): Only 38.9 percent of the participants were previously aware of glaucoma and objective knowledge levels were moderate (mean knowledge score: 5.18 ± 1.94). The knowledge about glaucoma as the disease without symptoms and irreversible vision loss was so low. After the counselling, the percentage of the respondents who agreed to have their glaucoma screened was 12.6%. An increase in the scores in higher awareness was related to the willingness to be screened but overall compliance was low. **Conclusion:** As tertiary eye care was available, glaucoma understanding and awareness were still poor and single-session counselling did not produce significant influence on the immediate uptake of screening. More focused education methods and other screening interventions are needed to enhance the prevalence of glaucoma at an early stage.

Keywords: knowledge, screening, counselling, awareness, tertiary care hospital, Glaucoma.

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INTRODUCTION

Glaucoma is a heterogenous cluster of chronic optic neuropathies that are associated with progressive retinal ganglion cell loss and associated visual field defects. It is a primary cause of irrevocable blindness in the world, and the loss of vision tends to go unnoticed up to the advanced stages of the disease.^[1] High intraocular pressure (IOP) is a great risk factor and glaucoma may also occur in people with normal IOP, which makes earlier detection and diagnosis difficult. Since glaucoma can permeate permanent structural and functional damage thus the only effective strategy to avoid vision loss is an early diagnosis and a visit as soon as possible.^[2]

The burden of glaucoma among the world is on the increase. Glaucoma was estimated to have affected over 64 million individuals in 2013 which is expected to rise to over 110 million by 2040, mainly due to the ageing of the population and the increased life expectancy.^[3] The burden was projected to be a considerable percentage of the low- and middle-income nations, where the access to eye care services and the arranged screening campaigns can be reduced. In spite of the improvement in diagnosis technique

and available curative arrangements, glaucoma still remains a major cause of preventable blindness across the globe.^[4]

In India glaucoma causes blindness in individuals nearly 12 percent after cataract, and it is the second most common cause of blindness after cataract. In contrast to cataract-related blindness, blindness caused by glaucoma is irreversible and would be controlled in many cases through an early diagnosis.^[5] But still, the population-based studies in other parts of India have constantly shown the awareness and level of knowledge on glaucoma to be low. Not all people know that the disease does not show symptoms in its proving stage or that the loss of sight that appears under glaucoma is irreversible. Consequently, many patients will manifest themselves at eye care centres

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when they have already experienced extensive visual loss.^[6] Awareness is critical in affecting health seeking behaviour especially on chronic disease, which is asymptomatic like glaucoma. Patients with glaucoma knowledge, understanding of the disease and its outcomes, will be more willing to get frequent eye tests and undertake screening or therapy when recommended.^[7] Past researches have revealed that education level, history of eye test, family background of glaucoma, and relationship with health practitioners are some of the factors that determine the level of awareness. Nevertheless, their awareness and correct knowledge of glaucoma may still be poor even in the groups of patients hospital attendees, which can indicate the weaknesses in educating patients during clinical appointments.^[8]

The tertiary care centres would also be a significant point of contact to the people who have a higher risk of glaucoma such as the elderly people and the families of those diagnosed with the disease. Such environments offer the exclusive chance to introduce directed awareness intervention and determine their short-time effects on screening disposition.^[9] Effective brief counselling has been found to enhance glaucoma awareness and increase its focus among patients with the aim of encouraging them to pursue preventive eye checkups. The level to which such interventions have become actual screening uptake is however not well-evidenced especially in North Indian tertiary care settings.^[2,3]

It is therefore imperative to assess the effect of structured glaucoma awareness and counselling in a tertiary care setting that will guide clinical practice and the population health policy. Awareness of baseline, the common areas where knowledge is lacking, and the evaluation of change in the readiness to participate in screening after counselling can be used to maximize the awareness-based intervention. This evidence can be especially applicable to the context of resource-constrained health systems, in which including glaucoma education into regular, outpatient care could constitute a cost efficient strategy of lessening the burden of irreversible blindness.

MATERIALS AND METHODS

Study design and setting: It was a descriptive study in a hospital based study research situated at the Department of Ophthalmology at the tertiary care teaching hospital of Ghaziabad, Uttar Pradesh, India. The research was conducted within the study period following the permission of the Institutional Ethics Committee and following the principles of the Declaration of Helsinki.

Study population and sample size: A sample of adults (45 years and older) presenting to the ophthalmology outpatient department including first-degree relatives of patients diagnosed with glaucoma was included in the study. Patients who had been previously diagnosed with glaucoma or had been undergoing therapy of glaucoma were eliminated. Those not willing were also locked out. The 4.5% level of error and 95% level of confidence were used to calculate the sample size on the 25 percent prevalence of

the awareness of glaucoma expected in a former Indian-based series of hospitals, and the 25 percent prevalence of glaucoma was used as the basis of the sample size calculations. The sampler was calculated to be about 356 and considering feasibility, the final sample size of 350 was incorporated under systematic sampling.

Data Collection and Counselling Procedure: Informed consent was collected and a structured interviewer-assisted questionnaire was administered to the participants in their native language. The questionnaire was split in two parts as follows: Section 1 (S1): Awareness and perception, which measures previous awareness regarding glaucoma, knowledge of its lack of symptoms, potential irreversible vision impairment, perceived seriousness, information sources, and attitudes to screening. Section 2 (S2): Assessment of knowledge, family risk, role of intraocular pressure, diagnostic tool, loss of vision, factual knowledge about glaucoma.

After the questionnaire was completed, the participants were assigned standardized glaucoma counselling by the trained ophthalmology personnel. Administered counselling was based on the nature of glaucoma as a silent disease, risk factors, the significance of early detection, the methods of screening that are available, and long-term management. The willingness of participants to go through with the screening of glaucoma was a part of the main outcome of the study after the counselling.

Outcome Measures and Statistical Analysis: According to composite scores, awareness and knowledge were measured. The awareness score (S1 Awareness Score) was based on the responses that were conscious of awareness (score range 0-7), whereas the Knowledge Score (S2) was calculated as correct answers on 15 items of facts (score range 0-15). The higher the scores the better the awareness or knowledge. Information was tabulated on Microsoft Excel and was analyzed through the STATA MP version 17. The demographic characteristics, responses in the questionnaires, awareness scores, knowledge scores, and post-counselling screening consent were summarized using descriptive statistics. The continuous variables were also used in the form of mean + standard deviation or median with interquartile range, whereas the categorical variables were used in the form of frequencies and percentage. Correlation among awareness, knowledge, demographics, and screening consent was examined with the help of relevant statistical tests. A p-value of less than 0.05 was taken to mean that it was significant.

RESULTS

Characteristics of Study Population: There were a total of 350 participants in the study. The average age of the study patients was 54.8 $\pm$ 7.7 years (44-90 years). Most of the participants were of age group 50-59 years (39.7%), then there were the 45-49 years age group (33.4%). The study population that was male was 59.7% and the female population was 40.0. Over half of the interviewees were either graduates or postgraduates (64.0%). [Table 1] presents a summary of the demographic traits of the study population in detail.

Awareness and Conceptions About the Glaucoma: Baseline awareness of glaucoma was low. Only 38.9 percent of the respondents said that they had heard of glaucoma before the

poll. Participants had an awareness of glaucoma as the cause of permanent blindness (30.9%), and 36.0% of the respondents understood that the disease can be asymptomatic. Only a third (28.3) stated that they had been recommended by a healthcare provider to screen glaucoma. [Table 2] represents the distribution of the awareness and perception variables.

Knowledge of Glaucoma: The objective knowledge of the glaucoma was generally low. The average level of knowledge is 5.18 ± 1.94 and the distribution of the scores occurred in the lower part of the scale (0-15). The highest rates of correct answers were found in the questions of correctness of medication adherence even without the symptoms and the level of knowledge on diagnosis, hereditary risk factors, and irreversibility of sight loss was low. In [Table 3], the correct answers of the main knowledge items are summarized.

Post-Counselling Consent of Glaucoma Screening: After the counselling, 44 (12.6) participants agreed to be screened in glaucoma, with 87.4% refusing. This indicates a relative short-term effect of single-session counselling to screening uptake. The outcomes of post-counselling consent are provided in [Table 4].

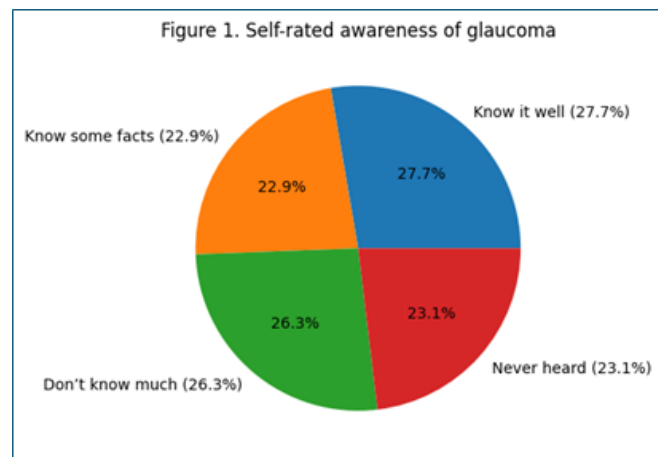


Figure 1: Self-rated awareness of glaucoma among participants

[Figure 1] shows the self-rated glaucoma awareness of the participants. Although 27.7% stated that they were very familiar with glaucoma, 23.1% did not know the disease. The rest of the participants have given recognition of limited or partial knowledge with the identification of gaps in perceived knowledge despite the availability of tertiary

eye care. [Figure 2] demonstrates the distribution of the scores of glaucoma knowledge of the participants. The median score in terms of the knowledge was 5 with an Interquartile range of 4-6, which shows the general low and moderate level of knowledge and distribution at the bottom part of the scale. Correlation between the awareness level and the post-counselling consent to glaucoma screening is shown in [Figure 3]. The participants who had a higher level of awareness had a higher tendency to agree to a screening, though, a significant percentage refused the screening at all levels of awareness.



Figure 2: Distribution of glaucoma knowledge scores

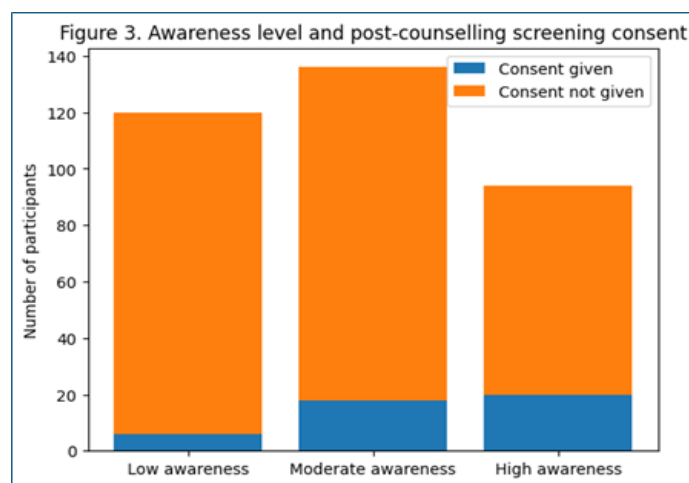


Figure 3. Relationship between awareness score and screening consent.

Table 1: Demographic characteristics of the study population (N = 350)

Variable	Category	n (%)
Age group (years)	45–49	117 (33.4)
	50–59	139 (39.7)
	60–69	75 (21.4)
	≥70	17 (4.9)
Gender	Male	209 (59.7)
	Female	140 (40.0)
Educational status	≤Primary	53 (15.1)
	Secondary/High school	73 (20.9)
	Graduate and above	224 (64.0)

Table 2: Awareness and perception regarding glaucoma (Section S1) (N = 350)

Awareness variable	Yes n (%)
Heard of glaucoma	136 (38.9)
Aware of permanent vision loss	108 (30.9)
Aware of asymptomatic nature	126 (36.0)
Belief in early detection through eye check-ups	140 (40.0)
Prior advice for glaucoma screening	99 (28.3)

Table 3: Knowledge about glaucoma: item-wise correct responses (Section S2) (N = 350)

Knowledge domain	Correct n (%)
Glaucoma can be asymptomatic	112 (32.0)
Vision loss is irreversible	121 (34.6)
Can run in families	125 (35.7)
Can occur with normal IOP	113 (32.3)
Diagnosed using specialized tests	103 (29.4)
Requires lifelong follow-up	112 (32.0)

Table 4: Post-counselling consent for glaucoma screening (N = 350)

Consent status	n (%)
Yes	44 (12.6)
No	306 (87.4)

DISCUSSION

The current study assessed the awareness, knowledge, and willingness of the adults in the reception of the tertiary care ophthalmology outpatient department to undergo glaucoma screening. Although there was access to specialized eye care, the baseline level of awareness and the knowledge of glaucoma were not ideal and the short-term adoption of screening after the counselling diverse was still low. These results highlight inescapable discrepancies in awareness, comprehension and preventive action, even in clinical practice.

Only 38.9 percent of the participants had heard of glaucoma before the survey in the present study. This degree of awareness is quite low compared to what was achieved in the Aseer region of Saudi Arabia in which Alamri et al. established high awareness with significant misconception as regards disease progression and screening behaviours.^[9] The difference is drawn out in terms of the impact of educational background on awareness of glaucoma and there is a likelihood that levels of awareness in the population of healthcare-related participants do not indicate the levels of awareness in the general patient population.

Substantially poor awareness has also been indicated in the context of patients visiting tertiary eye care centers in South Asia. Sultana et al. reported poor glaucoma awareness and knowledge among the patients in a tertiary eye hospital in Bangladesh even after direct exposure to the ophthalmic services.^[10] These results are very similar to the current research and would support the idea that even being exposed to eye care facilities does not ensure to have the appropriate knowledge of the disease.

The African based hospital studies have recorded similar findings. The study by Kebede et al. demonstrated that there was a lack of awareness among adults patients in an ophthalmic outpatient department in Ethiopia where the education level has emerged as the crucial factor in the level of awareness.^[11] In the current research, the better awareness and knowledge scores were equally linked with

higher educational status, which proves this relationship to be stable meeting the requirements of various geographical locations.

The unwillingness to take glaucoma screening (12.6) found in the current study is comparable to the results in India who reported that there are behavioral barriers associated with screening. According to Sayeed and Sayed, fear of diagnosis, perceived insignificance and absence of symptoms was a significant disincentive to the screening uptake by ophthalmology outpatients in Jodhpur.^[12] These are the barriers which are probably serving in limiting the post-counselling consent that we observed in the present study despite the organized counselling efforts.

There is additional population-based data related to Saudi Arabia proving that awareness does not always result into correct knowledge. Ahmedhussain et al. discovered that though moderate percentage of respondents had the knowledge about glaucoma, there was lack of knowledge about the irreversibility of loss of eyesight and the necessity of lifetime follow-up.^[13] This lack of linkage between the knowledge and the awareness was also reported in the current study whereby objective knowledge scores were low, although perceived awareness was moderate.

On high-risk screening has been examined in literature. Nitikarun and Kongsap showed that the uptake of screening for persons at the first-degree relative was higher in community-based, though compared with a hospital-based approach to screening.^[14] The low consent rate of the current hospital-based investigation implies that some means of alternative outreach can be more effective in the translation of awareness to action.

Research geared at studying population at risk has also brought to light knowledge shortcomings. Dossari et al. have found that even diabetic patients in Saudi Arabia, where there is high risk with the development of ocular morbidity, had poor awareness with glaucoma.^[15] This is because the status of risk is not a sufficient indicator of proper understanding or compliance with screening, as revealed by these findings.

The conflict-based and resource-restricted areas have also provided information that indicates that this issue is global. It

was found that Soqia et al. reported low awareness and little knowledge of glaucoma among the visitors to the hospital in Damascus, Syria, although they had access to public healthcare facilities.^[16] The consistency of results in diverse healthcare systems highlights the general problem of the needed glaucoma education.

In the Indian scenario, additional data on this topic is found at Jodhpur, which again confirms psychosocial and systemic obstacles as the main causes of restricting the screening uptake. Sayeed and Sayed highlighted that counselling is sometimes not enough, unless it is supported by a series of education and involvement of the community.^[17] This is in line with the low influence of single-session counselling which was realised in the current study.

The lack of knowledge does not lie with patients only. According to Nayak and colleagues, medical students who are studying in Eastern India and medical professionals had suboptimal knowledge levels and inconsistent practice patterns, even in the case of glaucoma.^[18] This has significant implications, where poor knowledge of the provider may restrict the effective education and counselling of patients.

Surprisingly, researchers who have been involved in the research involving diagnosed consumers of glaucoma have indicated increased levels of awareness relative to the general population that represents the outpatients. Vats et al. found an improved level of awareness and knowledge amongst patients who had primary open-angle glaucoma and who were admitted in a tertiary care centre in the Western part of India.^[19] It is implied that diagnosis itself is a strong education stimulant, and the education more timely and effective intervention is needed before it is too late.

On the whole, the data provided in the current research are in line with recent international and national research on the subject of low awareness, low levels of knowledge, and low screening rates of glaucoma, even in tertiary care facilities. These findings demonstrate how awareness approaches, incorporation of glaucoma education into outpatient care, and consideration of models of community-based screening should be considered as sustained and multifaceted so that early detection and avoidable blindness can be minimized.

CONCLUSION

The current research shows that awareness and objective knowledge about glaucoma is not optimum in relation to the adults who are seen in a tertiary care outpatient ophthalmology department, though they have the option of seeking specialized eye care services. The percentage of the participants who knew about the asymptomatic character of glaucoma and the chances of irreversible loss of vision was relatively small, highlighting the continuing lapses in the knowledge of patients.

Even though there was a slight improvement in the readiness to receive glaucoma screening due to structured counselling, the response rate on consent after counselling was low. This brings out the little effect of single-session counselling on immediate screening behavior and implies

that awareness may not be enough in driving preventive action. There are probably strong influences of behavioral, psychosocial, and systemic barriers that affect the decisions of screening.

These results highlight the importance of continuous and recurring glaucoma education, the need to embed the specific awareness messages into the regular outpatient care provision, and the need to learn more about community-based screening systems and strategies focused on families. Enhanced patient education can occur at different points in care, leading to better outcome of early detection, higher screening uptake, and eventually lessening the practice of irreversible glaucoma-related blindness.

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