

Academia Journal of Medicine

Year 2021, Volume-4, Issue- 2 (July-December)



A Cross-Sectional Study on Glaucoma Awareness and Knowledge among Spectacle Users and Non Users in an Ophthalmology Outpatient Setting in Kerala

Dr. Devika K.¹, Dr. Smitha M.², Dr. A.M. Raja³, Dr. Dhanya⁴

¹Assistant Professor, Department of Ophthalmology, Government Medical College, Palakkad, Kerala, India.

²Assistant Professor, Department of Ophthalmology, Government Medical College, Palakkad, Kerala, India.

³Professor & HOD, Department of Ophthalmology, Government Medical College, Palakkad, Kerala, India.

⁴Lecturer, Department of Ophthalmology, Government Medical College, Palakkad, Kerala, India.

ARTICLE INFO

Keywords: Glaucoma, Spectacle Users, Health Literacy, Blindness Prevention, Screening.

doi:10.48165/ajm.2021.4.02.18

ABSTRACT

Background

Glaucoma remains a leading cause of irreversible blindness globally. While general population awareness studies exist, few have analysed the influence of prior interaction with eye care services through spectacle correction. Spectacle users theoretically have greater exposure to eye health education

Objectives

To compare the awareness and knowledge levels regarding glaucoma between spectacle users and non-spectacle users attending a tertiary care centre.

Methods

A hospital-based cross-sectional study was conducted from January 2021 to June 2021 in the Ophthalmology Outpatient Department (OPD) at Government Medical College Palakkad in Kerala. A total of 400 participants aged >40 years were recruited and divided into two groups: Group A (Spectacle Users, n=200) and Group B (Non-Spectacle Users, n=200). Data was collected using a pre-tested, structured questionnaire. Chi-square tests were used for statistical analysis.

Results

Awareness of glaucoma was significantly higher in Group A (62.5%) compared to Group B (21.5%) ($p < 0.001$). Among those aware, knowledge regarding high intraocular pressure (IOP) as a risk factor was identified by 58.4% of Group A compared to only 27.9% of Group B. Misconceptions were prevalent in the non-spectacle group, with 65.1% equating glaucoma with cataracts, versus 32.8% in the spectacle group. The primary source of information for Group A was eye care professionals (52%), whereas Group B relied heavily on friends and media (78%).

Conclusion: There is a stark disparity in health literacy regarding glaucoma between spectacle and non-spectacle users. Routine visits for refractive correction serve as a vital entry point for health education. Public health strategies must specifically target emmetropic individuals or those using over-the-counter reading glasses who bypass professional eye .

INTRODUCTION

Glaucoma refers to a group of ocular disorders characterized by progressive optic neuropathy and corresponding visual field defects, often associated with elevated intraocular pressure (IOP).^[1] It is globally recognized as the “silent thief of sight” due to its asymptomatic nature in early stages, leading to irreversible blindness if left untreated.^[2] In India, the burden of glaucoma is substantial, with an estimated 12 million affected individuals, a number projected to rise with the aging demographic.^[3]

The prerequisite for early diagnosis is patient awareness and the proactive seeking of eye care. Several studies have assessed glaucoma awareness in general rural and urban Indian populations, revealing generally low levels of knowledge.^[4,5] However, a potential determinant of awareness that remains under-explored is the history of refractive error correction. Individuals who wear spectacles are compelled to interact with optometrists and ophthalmologists for vision testing.^[6] Theoretically, this interaction provides an opportunistic platform for screening and health education that non-spectacle users do not access.

Non-spectacle users, particularly those with emmetropia or those who self-prescribe over-the-counter reading glasses, may perceive their eyes as “healthy” and avoid eye examinations for decades.^[7] This behavior may delay the detection of asymptomatic pathologies like open-angle glaucoma.

This study aims to evaluate and compare the awareness, knowledge, and screening behaviours regarding glaucoma between established spectacle users and non-spectacle users in a tertiary care setting in Kerala. Understanding this gap is crucial for tailoring public health messages to reach those outside the routine eye-care loop.

MATERIALS AND METHODS

Study Design and Setting

This was a hospital-based cross-sectional study conducted at the Ophthalmology Outpatient Department of Government Medical College Palakkad in Kerala, India. The study period was six months, from January 2021 to June 2021.

Sample Size and Sampling

Based on a pilot survey indicating a 30% difference in awareness between groups, and using a confidence level of 95% with 80% power, the calculated sample size was 384. This was rounded up to 400 participants. A purposive sampling technique was employed to recruit participants

into two equal groups:

- **Group A (Spectacle Users):** 200 patients who have worn prescription spectacles for at least one year.
- **Group B (Non-Spectacle Users):** 200 patients who have never worn spectacles or only used over-the-counter reading glasses without a professional exam.

Eligibility Criteria

Inclusion: Patients aged ≥ 40 years (the high-risk demographic for glaucoma) willing to provide informed consent.

Exclusion: Patients with a prior diagnosis of glaucoma (to prevent bias in knowledge scores), healthcare professionals, and those with cognitive impairments preventing questionnaire completion.

Data Collection Tool

A structured questionnaire was developed in English and the local language (Malayalam), validated by three senior ophthalmologists. It consisted of three sections:

Demographics: Age, gender, education, and socioeconomic status.

Awareness: A binary question (“Have you heard of glaucoma?”).

Knowledge: Multiple-choice questions regarding risk factors, symptoms (vision loss, pain), treatment options, and screening practices.

Definitions

Awareness: Having heard the term “Glaucoma” or its vernacular equivalent.

Knowledge: Understanding the relationship between glaucoma and IOP, optic nerve damage, or its irreversible nature.

Ethical clearance was obtained from the Institutional Ethics Committee (IEC) prior to the commencement of the study. Written informed consent was obtained from all participants.

Statistical Analysis

Data were entered into MS Excel and analyzed using SPSS version 22.0. Continuous variables (age) were expressed as mean \pm standard deviation. Categorical variables were presented as frequencies and percentages. The Chi-square test was used to compare proportions between the two groups. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 400 participants completed the study. The demographic distribution is summarized in Table 1. The mean age of Group A was 54.2 ± 6.8 years, and Group B was 53.1 ± 7.2 years, showing no significant age disparity. However, education levels showed a slight variation, with spectacle users having marginally higher educational attainment.

Awareness and Knowledge Assessment

There was a statistically significant difference in awareness levels. In Group A, 125 participants (62.5%) had heard of glaucoma, whereas only 43 participants (21.5%) in Group B were aware of the condition (Figure 1).

A pie chart depicts that 62.5% of Spectacle Users answered "Yes" to having heard of glaucoma, compared to a significantly lower 21.5% among Non-Spectacle Users.

The misconceptions were significantly higher in the non-spectacle group. Notably, 76.8% of aware participants in



Figure 1: Comparison of Glaucoma Awareness (Data Description)

	Category	Group A (Spec Users) n=200	Group B (Non-Spec Users) n=200	P-value
Age Group	40-50 Years	72 (36%)	78 (39%)	0.54
	51-60 Years	85 (42.5%)	80 (40%)	
	> 60 Years	43 (21.5%)	42 (21%)	
Gender	Male	98 (49%)	102 (51%)	0.69
	Female	102 (51%)	98 (49%)	
Education	High School or less	65 (32.5%)	95 (47.5%)	0.04*
	Graduate/Above	135 (67.5%)	105 (52.5%)	

Significant at $p < 0.05$

Table 1: Demographic Profile of Study Participants (N = 400)

Question / Parameter	Correct Answer	Group A (Aware n=125) n (%)	Group B (Aware n=43) n (%)	P-value
Glaucoma is associated with high eye pressure	Yes	73 (58.4%)	12 (27.9%)	<0.01*
Vision loss in Glaucoma is permanent	Yes	82 (65.6%)	10 (23.2%)	<0.01*
Glaucoma is same as Cataract	No	84 (67.2%)	15 (34.9%)	<0.01*
Family history is a risk factor	Yes	68 (54.4%)	8 (18.6%)	<0.01*
Is the disease initially asymptomatic?	Yes	55 (44.0%)	5 (11.6%)	<0.01*
Can it be treated with eye drops?	Yes	98 (78.4%)	18 (41.8%)	<0.01*
Table 2: Knowledge Parameters Among Aware Participants (n = 168)				

Group B believed vision loss from glaucoma could be recovered (confusing it with cataract surgery), compared to only 34.4% in Group A.

Sources of Information

The analysis of information sources revealed distinct patterns.

Screening Practices

When asked, “Have you ever had an eye pressure check?”, 88% of Group A responded affirmatively (often as part of routine glass prescription), while only 14% of Group B had ever undergone tonometry.

DISCUSSION

This study highlights a critical divide in glaucoma awareness based on spectacle usage. Our findings indicate that spectacle users (Group A) possess significantly higher awareness (62.5%) compared to non-spectacle users (21.5%). This aligns with the hypothesis that the process of obtaining corrective lenses exposes individuals to the healthcare system, providing “opportunistic screening” and education. Comparing these results with existing literature, a study from urban Chennai reported overall awareness at 13.5%,^[8] while a tertiary-based study in North India reported 31%.^[9] Our study suggests that these aggregate averages mask the disparity between sub-groups. The relatively high awareness in our Group A mirrors findings from developed nations where regular optometric visits are common.^[10] Conversely,

Group B’s awareness level (21.5%) is alarmingly low, given that these are patients already attending a hospital for other complaints.

Knowledge depth was also superior in Group A. Over 65% of spectacle users understood that glaucoma blindness is irreversible, compared to only 23% in Group B. This is a vital public health metric because the belief that “blindness is reversible” (stemming from cataract awareness) is a primary barrier to seeking early care.^[11] Group B participants frequently conflated glaucoma with cataract, a trend observed in other Indian studies,^[12] but our data isolates this misconception specifically to those with less frequent eye-doctor interaction.

The role of the optometrist and ophthalmologist as educators is evident. For spectacle users, the doctor was the primary information source^[13]. For non-spectacle users, informal networks (friends/family) dominated, which often propagate myths.^[14]

The implications are significant for the emmetropic population. Individuals with good distance vision may not visit an eye professional until presbyopia becomes debilitating, or even later if they purchase over-the-counter reading glasses.^[15] This “visually healthy” group is at high risk for late-presentation glaucoma.

LIMITATIONS

Being a hospital-based study, the baseline awareness might be higher than in the community. Additionally, the duration of spectacle wear was not stratified, which could influence the depth of knowledge.

CONCLUSION

There is a significant knowledge gap between spectacle users and non-spectacle users regarding glaucoma. Spectacle users benefit from incidental health education and screening during routine refractive visits. Non-spectacle users, lacking this entry point into the eye care system, remain largely unaware of the disease and its irreversible nature.

RECOMMENDATIONS

Opportunistic Screening: General practitioners and physicians treating patients >40 years for non-ocular conditions should recommend a comprehensive eye exam, regardless of the patient's visual acuity.

Targeted Education: Awareness campaigns should specifically target "people with good vision," emphasizing that clear vision does not equate to a healthy optic nerve.

Mandatory Counseling: Opticians dispensing reading glasses should be encouraged to provide basic glaucoma pamphlets or recommend a one-time pressure check.

REFERENCES

- Weinreb RN, Aung T, Medeiros FA. The pathophysiology and treatment of glaucoma: a review. *JAMA* 2014;311(18):1901-11.
- Quigley HA, Broman AT. The number of people with glaucoma worldwide in 2010 and 2020. *Br J Ophthalmol* 2006;90(3):262-7.
- George R, Ve RS, Vijaya L. Glaucoma in India: estimated burden of disease. *J Glaucoma*. 2010;19(6):391-7.
- Dandona R, Dandona L, John RK, et al. Awareness of eye diseases in an urban population in southern India. *Bull World Health Organ* 2001;79(2):96-102.
- Krishnaiah S, Kovai V, Srinivas M, et al. Awareness of glaucoma in the rural population of Southern India. *Indian J Ophthalmol* 2005;53(3):205-8.
- Baky MM, AlZahrani H. Knowledge and Awareness of Glaucoma among Spectacle Wearers in Saudi Arabia. *Int J Med Res Prof*.2017;3(4):112-6.
- Topouzis F, Coleman AL, Harris A, et al. Factors associated with undiagnosed open-angle glaucoma: the Thessaloniki Eye Study. *Am J Ophthalmol* 2008;145(2):327-35.
- Sathyamangalam RV, Paul PG, George R, et al. Determinants of glaucoma awareness and knowledge in urban Chennai. *Indian J Ophthalmol* 2009;57(5):355-60.
- Aleixo PJC, Sena DF, Kara-Júnior N. Evaluation of glaucoma knowledge and its determinants in patients attending a tertiary care hospital. *Arq Bras Oftalmol* 2019;82(6):495-500.
- Altangerel U, Nallamshetty HS, Uhler T, et al. Knowledge about glaucoma and barriers to follow-up care in a community glaucoma screening program. *Can J Ophthalmol* 2003;38(1):66-72.
- Pfeiffer N, Krieglstein GK. The anatomy of the optic nerve head in glaucoma. *Graefes Arch Clin Exp Ophthalmol* 2016;254(5):1021-5.
- Rewri P, Kakkar M. Awareness, knowledge, and practice: A survey of glaucoma in north Indian rural residents. *Indian J Ophthalmol* 2014;62(4):482-6.
- Prabhu M, Kang JM. The role of optometry in the early detection of glaucoma. *Clin Exp Optom* 2020;103(1):34-42.
- Gasch AT, Wang P, Pasquale LR. Determinants of glaucoma awareness in a general eye clinic. *Ophthalmology* 2000;107(2):303-8.
- Livingstone I, Tarbert J, Giardini ME, et al. Refractive error and the risk of un-diagnosed glaucoma. *Ophthalmic Epidemiol* 2012;19(3):150-6.