VOLUME - 15, ISSUE - 04, APRIL - 2026 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Ophthalomology

# GLAUCOMA AWARENESS IN MEDICAL PROFESSIONALS

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**ABSTRACT** **Background:** Glaucoma is a leading cause of irreversible blindness worldwide, and early detection plays a critical role in preventing visual morbidity. Non-ophthalmic medical practitioners often serve as the first point of contact for patients and are essential in early recognition and referral. However, their level of awareness regarding glaucoma remains uncertain. **Aim:** To assess the knowledge of glaucoma among non-ophthalmic medical professionals and to evaluate differences between physicians and other specialties. **Materials and Methods:** This cross-sectional study included 289 medical practitioners. Data were collected using a structured questionnaire assessing knowledge of glaucoma definition, common types, risk factors, and treatment goals. Statistical analysis was performed using the Chi-square test, with $p < 0.05$ considered significant. **Results:** Among 289 participants, physicians constituted 51.2% and other specialties 48.8%. Overall, 63.0% correctly identified the definition of glaucoma, with physicians demonstrating better knowledge than other specialties (68.9% vs 56.7%, $p < 0.001$). Only 48.1% correctly identified primary open-angle glaucoma as the most common type, with a high level of uncertainty among other specialties (38.3%). Knowledge of risk factors was limited, with only 40.1% demonstrating correct responses, while 45.3% showed partial knowledge. Understanding of treatment goals was relatively better, with 66.4% correctly identifying intraocular pressure reduction as the primary objective. Significant differences were observed between physicians and other specialties across all domains ($p < 0.001$). **Conclusion:** Knowledge of glaucoma among non-ophthalmic practitioners is moderate but insufficient, particularly regarding risk factors and disease types. Targeted educational interventions are essential to improve early detection and referral practices.

**KEYWORDS :** Glaucoma Awareness, Medical Professionals, Primary Open-Angle Glaucoma, Risk Factors, Intraocular Pressure, Ophthalmology

## INTRODUCTION

Glaucoma is a major public health problem and one of the main causes of permanent blindness in the globe. The World Health Organization states that glaucoma affects millions of people in various populations and is responsible for a significant percentage of blindness worldwide. Since the condition frequently remains asymptomatic until advanced stages, early identification and adequate care are crucial to preventing irreversible visual loss.[1]

Primary open-angle glaucoma (POAG), the most prevalent kind of glaucoma, develops gradually and is sometimes first identified during a regular ocular checkup. Primary Angle Closure Glaucoma also poses a significant diagnostic challenge, frequently progressing undetected until acute crisis or advanced damage occurs. The most significant modifiable risk factor for the development of glaucoma is elevated intraocular pressure (IOP), yet the condition can also strike those with normal IOP. Advanced age, a family history of glaucoma, African or Asian origin, diabetes mellitus, hypertension, myopia, trauma and long-term corticosteroid usage are additional significant risk factors.[2]

Due to its stealthy growth and absence of early signs, glaucoma remains a significant issue despite advancements in diagnostic methods and treatment approaches. According to studies, around 50% of people with glaucoma go misdiagnosed, especially in underdeveloped nations.[3] Delays in diagnosis and treatment are mostly caused by a lack of understanding among the general public and medical experts. The burden of glaucoma-related vision impairment can be significantly decreased by early detection of people at risk and prompt referral to ophthalmologists.

When it comes to determining who could be at risk for glaucoma, medical specialists are essential. Patients with systemic conditions like diabetes or hypertension, which are linked to an increased risk of glaucoma, are often seen by doctors, general practitioners, and experts in other disciplines. Therefore, early detection and referral depend on medical professionals' awareness and expertise of glaucoma's diagnosis, risk factors, clinical presentation, and care.[4]

Healthcare professionals' awareness of glaucoma varies, according to earlier research. Due to their specialized training, ophthalmologists often exhibit high levels of knowledge, while other medical professionals might not be as knowledgeable with glaucoma risk factors and treatment approaches. This discrepancy might result in lost chances for early vision impairment identification and prevention.[5] Raising knowledge among non-ophthalmic healthcare professionals might facilitate prompt patient referrals for ophthalmic examination and improve multidisciplinary teamwork. Programs for continuing medical education and educational interventions have been proposed as successful ways to increase healthcare providers' understanding of glaucoma. Physicians and other specialists may have a better awareness of common eye illnesses if ocular health education is increased.[6]

Therefore, evaluating medical professionals' awareness is a crucial first step in determining knowledge gaps and creating focused training initiatives. Research assessing healthcare professionals' understanding of glaucoma might reveal areas that need development and offer insightful information about existing knowledge levels. The goal of the current study was to assess the degree of glaucoma awareness and knowledge among medical professionals from various specializations,

such as first line physicians, and other medical specializations. This study intends to detect disparities in knowledge levels within specialties and highlight the need of enhancing glaucoma education among healthcare professionals by examining responses pertaining to the description, types, risk factors, and treatment goals of glaucoma.

## AIMS AND OBJECTIVES

### Aim

To assess the level of awareness and knowledge regarding glaucoma among medical professionals.

### Objectives

1. Evaluate medical professionals' understanding of glaucoma fundamentals including its definition, common types, risk factors, and primary treatment goals.
2. Compare the levels of glaucoma awareness across physicians, and other medical specialists.

## MATERIALS AND METHODS

**Study Design:** This study was a cross-sectional observational survey conducted to assess the awareness and knowledge of glaucoma among non-ophthalmic medical professionals.

**Study Setting:** The study was conducted among healthcare professionals working in various non-ophthalmic clinical specialties, including general medicine and other medical and surgical disciplines.

**Study Population:** The study population consisted of non-ophthalmic medical practitioners, including physicians (general practitioners and physicians) and doctors from other specialties involved in patient care.

**Sample Size:** A total of 289 non-ophthalmic medical professionals was included in the analysis.

### Inclusion Criteria

- Medical professionals actively practicing in clinical settings
- Physicians (general practitioners and physicians)

### Exclusion Criteria

- Medical students and interns
- Incomplete questionnaire responses

### Data Collection Method

Data was collected using a pre-validated, structured questionnaire designed to evaluate knowledge and awareness of glaucoma. The questionnaire comprised the following sections:

- Demographic details (age and gender)
- Professional category (physicians and other specialties)
- Knowledge of glaucoma definition
- Awareness of the most common type of glaucoma
- Knowledge of glaucoma risk factors
- Awareness of treatment goals

All participants completed the questionnaire anonymously to ensure confidentiality and minimize response bias.

### Statistical Analysis

Data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) software, version 25. Descriptive statistics, including frequencies and percentages, were used to summarize participant characteristics and responses. Associations between professional category (physicians vs other specialties) and knowledge variables were assessed using the Chi-square test. A p-value of $<0.05$ was considered statistically significant.

## RESULT

**Table 1: Age Distribution (n = 289)**

| Age Group | Frequency | Percentage (%) |
|---|---|---|
| Under 30 years | 60 | 20.8 |
| 30–40 years | 47 | 16.3 |
| 41–50 years | 87 | 30.1 |
| ≥51 years | 95 | 32.9 |
| Total | 289 | 100 |

The majority of participants were aged ≥51 years (32.9%), followed by 41–50 years (30.1%), indicating a predominance of experienced clinicians.

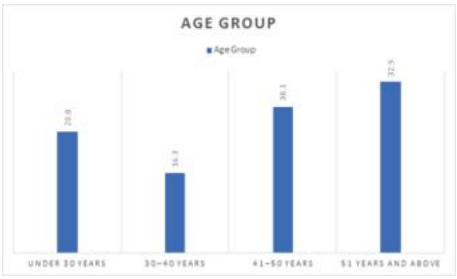


**Table 2: Gender Distribution (n = 289)**

| Gender | Frequency | Percentage (%) |
|---|---|---|
| Female | 143 | 49.5 |
| Male | 144 | 49.8 |
| Prefer not to say | 2 | 0.7 |
| Total | 289 | 100 |

Male participants constituted a slight majority (49.8), with a balanced gender distribution overall.

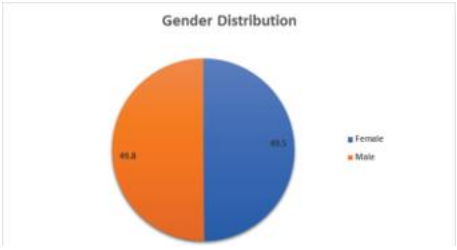


**Table 3: Specialty Distribution**

| Professional Category | Frequency | Percentage (%) |
|---|---|---|
| Physicians | 148 | 51.2 |
| Other Specialties | 141 | 48.8 |
| Total | 289 | 100 |

## RESULT

Physicians formed a slightly larger proportion (51.2%) compared to other specialties (48.8%), indicating a balanced representation of non-ophthalmic practitioners.

**Table 4: Knowledge of Glaucoma Definition**

| Group | Correct | Incorrect | Not Sure | Total |
|---|---|---|---|---|
| Physicians | 102 (68.9%) | 36 (24.3%) | 10 (6.8%) | 148 |
| Other Specialties | 80 (56.7%) | 45 (31.9%) | 16 (11.4%) | 141 |
| Total | 182 (63.0%) | 81 (28.0%) | 26 (9.0%) | 289 |

$p < 0.001$

## RESULT

Overall, 63.0% of participants correctly identified the definition of glaucoma. Physicians demonstrated significantly better knowledge compared to other specialties (68.9% vs 56.7%). Incorrect responses and uncertainty were high overall but higher among other specialists, indicating a need to strengthen basic conceptual understanding of glaucoma.

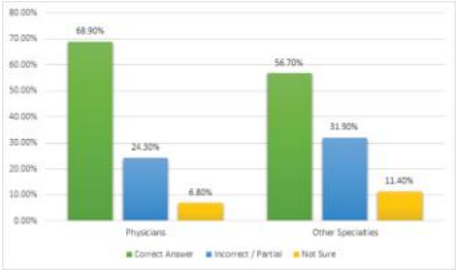

**Table 5: Knowledge of Most Common Type**

| Group | Correct | Incorrect | Not Sure | Total |
|---|---|---|---|---|
| Physicians | 86 (58.1%) | 33 (22.3%) | 29 (19.6%) | 148 |
| Other Specialties | 53 (37.6%) | 34 (24.1%) | 54 (38.3%) | 141 |
| Total | 139 (48.1%) | 67 (23.2%) | 83 (28.7%) | 289 |

$p < 0.001$

Less than half (48.1%) of participants correctly identified POAG as the most common type. Physicians performed better, while a large proportion of other specialists (38.3%) were unsure.

**Table 6: Knowledge of Risk Factors**

| Group | Correct | Partial | Not Sure | Total |
|---|---|---|---|---|
| Physicians | 73 (49.3%) | 58 (39.2%) | 17 (11.5%) | 148 |
| Other Specialties | 43 (30.5%) | 73 (51.8%) | 25 (17.7%) | 141 |
| Total | 116 (40.1%) | 131 (45.3%) | 42 (14.5%) | 289 |

$p < 0.001$

Only 40.1% of participants correctly identified glaucoma risk factors. Partial knowledge was the most common finding (45.3%), particularly among other specialties.

**Table 7: Knowledge of Treatment Goal**

| Group | Correct | Incorrect | Not Sure | Total |
|---|---|---|---|---|
| Physicians | 111 (75.0%) | 23 (15.5%) | 14 (9.5%) | 148 |
| Other Specialties | 81 (57.4%) | 31 (22.0%) | 29 (20.6%) | 141 |
| Total | 192 (66.4%) | 54 (18.7%) | 43 (14.9%) | 289 |

$p < 0.001$

Two-thirds (66.4%) of participants correctly identified lowering intraocular pressure as the treatment goal. Physicians showed better understanding than other specialties.

## DISCUSSION

The present study evaluated the level of knowledge regarding glaucoma among non-ophthalmic medical practitioners, including physicians and other specialty doctors, and revealed several important gaps in awareness despite a relatively experienced participant population. The age distribution showed that most of the participants were ≥51 years old (32.9%), followed by those between 41 and 50 years old (30.1%). This suggests that the majority of respondents were likely seasoned doctors who provided long-term patient care. Studies evaluating physician awareness have shown similar age distributions, with senior physicians making up a significant share of responders because of their increased clinical experience and participation in continuing medical education programs.[7] Despite this, our study's ongoing knowledge gaps indicate that clinical expertise might not be enough to guarantee appropriate awareness of ocular disorders like glaucoma.

The current study's gender distribution revealed a small male majority (49.8%), although overall representation was balanced. This is consistent with patterns found in previous research on the healthcare workforce.[8] Gender, however, did not seem to have a significant impact on knowledge levels, indicating that specialized training and educational exposure are more important than demographic considerations in predicting glaucoma awareness.

The study concentrated on 289 non-ophthalmic practitioners. Physicians made up 51.2% of the sample, while other specialties made up 48.8%, indicating a well-balanced multidisciplinary group. This is especially significant since non-ophthalmic doctors frequently function as patients' initial point of contact and are vital in the early identification and referral of glaucoma cases. Prior research has highlighted that primary care physicians' and non-specialists' ignorance of glaucoma is often the cause of delayed diagnosis.[3]

With 63.0% of participants providing accurate answers, the study's general understanding of the concept of glaucoma was moderate (Table 4). Compared to other disciplines, physicians showed considerably more knowledge (68.9% vs. 56.7%, $p < 0.001$). However, about one-third of individuals gave inaccurate answers or expressed uncertainty, suggesting significant gaps in basic comprehension. Tenkir et al. revealed similar results, showing problems even among medical experts, with just 60–70% of healthcare workers properly identifying glaucoma as a progressive visual neuropathy.[9] In a similar vein, a research by Rewri et al. discovered that general practitioners' knowledge of glaucoma was inadequate, with many of them unable to characterize the condition precisely.[10] These findings are clinically significant because inadequate understanding of glaucoma may lead to missed opportunities for early diagnosis.

Only 48.1% of participants in the current study correctly identified primary open-angle glaucoma (POAG), the most prevalent form of glaucoma (Table 5). Again, physicians outperformed other specialties (37.6%) in terms of performance (58.1%); but, a significant percentage of participants, particularly in other specialties (38.3%), were doubtful. POAG makes up the majority of glaucoma cases globally and is frequently asymptomatic in its early stages, therefore this lack of knowledge is alarming.[1] Studies carried out in underdeveloped nations have shown similar patterns, with fewer than half of non-ophthalmic practitioners accurately identifying POAG as the most prevalent subtype.[11] This information gap might lead to late-stage patient presentations and delayed referrals.

Only 40.1% of participants correctly identified glaucoma risk factors, and 45.3% showed incomplete awareness, according to the current study (Table 6). Although total knowledge was still insufficient, physicians demonstrated greater understanding than other specialties (49.3% vs. 30.5%). Glaucoma is known to be predicted by risk factors such as elevated intraocular pressure, aging, family history, and systemic diseases like diabetes.[2] Nonetheless, prior research has repeatedly demonstrated that non-specialists frequently lack a thorough knowledge of these aspects. Ichhpujani et al., for example, found that fewer than half of general practitioners knew important glaucoma risk factors, which resulted in lost screening opportunities.[13] As our study showed, incomplete information can lead to uneven clinical treatment and a failure to recognize high-risk people.

It is encouraging to see that participants' understanding of the main purpose of glaucoma therapy was comparatively better, with 66.4% correctly recognizing the lowering of intraocular pressure (IOP) (Table 7). Compared to other disciplines (57.4%), physicians showed greater awareness (75.0%). This result is in line with earlier studies that indicate treatment-related knowledge is frequently more easily recalled than disease-specific epidemiological or diagnostic knowledge.[5] Nonetheless, the existence of erroneous answers (18.7%) and ambiguity (14.9%) suggests that a sizable fraction of practitioners could still be unclear about management concepts. Inadequate knowledge among referring physicians may have a negative impact on patient outcomes since glaucoma care necessitates lifetime monitoring and adherence to medicine.

The statistically significant difference between first-line physicians and other specialties ($p < 0.001$), with physicians exhibiting comparatively superior awareness, was a constant finding across all knowledge categories in our investigation. This might be explained by increased exposure to managing chronic illnesses and systemic disorders that are frequently linked to glaucoma. However, knowledge levels were subpar even among physicians, highlighting the need for focused educational initiatives. Internal medicine practitioners

outperformed surgical or non-clinical specialties in similar trials, although they still showed significant knowledge gaps.[14]

The study's conclusions have significant clinical and public health ramifications. One of the main causes of permanent blindness in the world is glaucoma, and avoiding visual impairment requires early identification.[1] Identification of at-risk persons and prompt referrals are critical tasks for non-ophthalmic practitioners. However, this study's moderate to low awareness indicates that many chances for early detection would be lost. It is crucial to increase non-specialists' understanding of glaucoma through workshops, continuing medical education (CME), and the incorporation of ocular training into general medical curricula.

Additionally, the large percentage of participants with incomplete knowledge emphasizes the necessity of organized training programs that include risk factors, screening procedures, referral standards, and fundamental definitions. To increase early detection rates, multidisciplinary teamwork should be a key component of public health policies. Research has demonstrated that focused training initiatives greatly enhance primary care providers' knowledge and referral procedures.[15]

In conclusion, the current study shows that although physicians are generally more knowledgeable than practitioners in other disciplines, non-ophthalmic practitioners' general understanding of glaucoma is still inadequate. Although knowledge of treatment objectives is somewhat improved, there are still significant gaps in our understanding of the disease's description, risk factors, and common kinds. These results highlight the critical need for educational initiatives to raise non-specialists' understanding of glaucoma, which is necessary for early detection, prompt referral, and the avoidance of permanent blindness.

## CONCLUSION

The present study highlights that knowledge regarding glaucoma among non-ophthalmic medical practitioners remains suboptimal despite a predominantly experienced study population. Significant gaps were found in all categories, especially in knowing glaucoma risk factors and identifying the most prevalent disease subtype, even though physicians showed comparatively higher awareness than other specialties. Even while there was more information on treatment objectives, it was still not enough to guarantee the best possible patient care and prompt referrals. Since non-ophthalmic practitioners are frequently the initial point of contact in the healthcare system, these findings are clinically significant. A delayed diagnosis, late-stage presentation, and an elevated risk of permanent vision impairment can all be caused by a lack of awareness. The large percentage of participants exhibiting incomplete knowledge further highlights the necessity of thorough and organized teaching methods. It is imperative that non-specialists receive more training on glaucoma through seminars, continuing medical education programs, and the incorporation of ocular subjects into general medical curriculum. Raising knowledge among these professionals can greatly improve early identification, proper referral, and eventually lessen the burden of blindness caused by glaucoma.

## REFERENCES


1. Tham YC, Li X, Wong TY, Quigley HA, Aung T, Cheng CY. Global prevalence of glaucoma and projections of glaucoma burden through 2040: a systematic review and meta-analysis. Ophthalmology. 2014;121(11):2081-2090.
2. Weinreb RN, Aung T, Medeiros FA. The pathophysiology and treatment of glaucoma. JAMA. 2014;311(18):1901-1911.
3. Quigley HA, Broman AT. The number of people with glaucoma worldwide in 2010 and 2020. Br J Ophthalmol. 2006;90(3):262-267.
4. Cook C, Foster P. Epidemiology of glaucoma: what's new? Can J Ophthalmol. 2012;47(3):223-226.
5. Mansouri K, Medeiros FA, Weinreb RN. Global glaucoma awareness and knowledge among healthcare professionals. Curr Opin Ophthalmol. 2015;26(2):96-101.
6. Kyari F, Abdull MM, Bastawrous A, Gilbert CE, Faal H. Epidemiology of glaucoma in sub-Saharan Africa: prevalence, incidence and risk factors. Middle East Afr J Ophthalmol. 2013;20(2):111-125.
7. Al-Shammari KF, Al-Ansari JM, Al-Khabbaz AK, Honkala E. Barriers to seeking preventive dental care by Kuwaiti adults. Med Princ Pract. 2007;16(6):413–9.
8. World Health Organization. Delivered by women, led by men: a gender and equity analysis of the global health workforce. Geneva: WHO; 2019.
9. Tenkir A, Solomon B, Deribew A. Glaucoma awareness among people attending ophthalmic outreach services. BMC Ophthalmol. 2010;10:17.
10. Rewri P, Kakkar M. Awareness, knowledge, and practice: a survey of glaucoma in North India. Indian J Ophthalmol. 2014;62(4):482–6.
11. Krishnaiah S, Kovai V, Srinivas M, Shamanna BR, Rao GN, Thomas R. Awareness of glaucoma in India. Br J Ophthalmol. 2005;89(12):1559–64.
12. Weinreb RN, Aung T, Medeiros FA. The pathophysiology and treatment of glaucoma. JAMA. 2014;311(18):1901–11.
13. Ichhpujani P, Bhartiya S, Kataria M, Topiwala P. Knowledge, attitudes and self-care practices associated with glaucoma. J Curr Glaucoma Pract. 2012;6(3):108–12.
14. Abdull MM, Gilbert C, Evans J. Primary open angle glaucoma awareness. Eye (Lond). 2015;29(8):1029–36.
15. Cook C, Foster P. Epidemiology of glaucoma: what's new? Can J Ophthalmol. 2012;47(3):223–6.