

Original Research Article

# Awareness and knowledge of glaucoma among the general Saudi public

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## Abstract

**Background:** Glaucoma is a disease that results in increased intraocular pressure (IOP) and decreased visual acuity. It is the second leading cause of blindness and leading cause of irreversible blindness in the world.

**Aim:** To assess the level of awareness and knowledge of glaucoma in the general Saudi public and to identify possible factors contributing to the level of awareness.

**Materials and methods:** A cross-sectional study using a validated questionnaire was conducted among the general Saudi Public with a sample size of 1233 was conducted. Level of awareness, and knowledge were evaluated.

**Results:** 64% reported that they had heard of glaucoma, whereas (36%) did not hear about glaucoma. Age group and level of education had significant effect on the awareness of glaucoma. The majority 701 (56.8%) thought that headache was a symptom of glaucoma, with only 110 (8.9%) said glaucoma presented with no symptoms.

**Conclusion:** The Saudi general public has demonstrated an adequate awareness and knowledge of glaucoma.

## Key words

Glaucoma, Awareness, Saudi, Public.

## Introduction

Glaucoma is a nonspecific term used for several ocular diseases that ultimately result in increased intraocular pressure (IOP) and decreased visual acuity. Currently it is the second leading cause of

blindness after cataract and the leading cause of irreversible blindness in the world [1]. Diagnosis is usually made late when the optic nerve is irreversibly damaged. Thus, raising public awareness about the condition may potentially contribute to less devastating consequences [2].

It's been estimated the incidence of Primary Open Angle Glaucoma (POAG) at 2.4 million people per year. Blindness prevalence for all types of glaucoma was estimated at 5.2 million people with 3 million cases caused by POAG [3, 4]. Several risk factors are well established for glaucoma including family history and increasing age. The higher the IOP, the more likely advanced glaucoma is to occur, the more severe it is and the more likely it is to worsen progressively [5, 6]. The prevalence rate of the disease among people above forty years is 8.5% and those above 30 years being 7.7%. The main objective of this study is to assess the level of awareness and knowledge of glaucoma in the general Saudi public and to identify possible factors contributing to the level of awareness.

## Materials and methods

### Study design and setting

This quantitative observational cross-sectional study was conducted in social media platforms including twitter and Facebook in Kingdom of Saudi Arabia, from January 2017 to July 2017.

### Study participants and sampling technique

The study population included all the general Saudi public who were using social media. Convenience sampling technique was used to collect the data.

The number of participants was calculated, and participant number of 1200 would provide a statistically significant result. A total of 1233 responses were received.

### Study Instrument

The participants were surveyed by means of a self-administered questionnaire, which was closely adapted from previous studies in literature. The questionnaire consisted of two sections: 1) questions about general and demographic information of the respondents, 2) questions assessing the awareness and knowledge of glaucoma. Awareness was assessed by asking the participants if they ever heard of glaucoma. Knowledge was assessed by

asking participants what clinical scenarios and risk factors are related to glaucoma.

A pilot study was conducted on a separate set of participants ( $N = 25$ ) to assess suitability of the questionnaire prior to data collection. Permission from the institutional review board of King Saud University was obtained before conducting the study, and written informed consent was also obtained before participation.

### Statistical analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23 (SPSS Inc., Chicago, Illinois, USA). Results were expressed as numbers and percentages for categorical data, and mean, standard deviation, and range for continuous data. P-values  $\leq 0.05$  were considered statistically significant.

## Results

The socio-demographic characteristics of participants were as per **Table - 1**. The majority of participants (44.7%) were from the central area of Saudi Arabia, and the number of male participants (53.7%) was slightly higher. Additionally, participants were more likely to have a bachelor's degree or higher compared to other education levels.

In total, (64%) reported that they had heard of glaucoma, whereas (36%) did not hear about glaucoma. **Table - 2** shows the association between awareness of glaucoma and participants characteristics. Age group and level of education had significant effect on the awareness of glaucoma ( $p = 0.03$  and  $p = 0.006$ , respectively), whereas Geographic area, gender, occupation, and socioeconomic level were not significantly related.

Among the respondents who were aware of glaucoma majority 701 (56.8%) thought that headache was a symptom of glaucoma, 322 (26.1%) said it presented with pain in the eyes, whilst 100 (8.1%) did not know of the

presentation of glaucoma. 110 (8.9%) said glaucoma presented with no symptoms.

**Table – 1:** Socio-demographic characteristics of the respondents.

<b>Geographic Area</b>	<b>n (%)</b>
Central	552 (44.7)
Eastern	200 (16.2)
Western	153 (12.4)
Southern	328 (26.6)
<b>Age (years)</b>	
18-24	435 (35.2)
25-34	164 (13.3)
35-44	398 (32.2)
45 and above	236 (19.1)
<b>Gender</b>	
Male	663 (53.7)
Female	570 (46.3)
<b>Level of Education</b>	
Elementary or less	102 (8.2%)
Intermediate	89 (7.2)
Secondary	59 (4.7)
Diploma	300 (24.3)
Bachelor's degree or higher	683(55.)
<b>Socio-economic level</b>	
Low	200(16.2)
Intermediate	598(48.4)
High	400(32.4)
No answer	35(2.8)

**Table – 2:** Association between participants' characteristics and awareness of glaucoma.

<b>Characteristics</b>	<b>Awareness of glaucoma P value</b>
Geographic Area	0.433
Age groups	0.0326
Gender	0.21
Occupation	0.463
level of education achieved	0.006
Socioeconomic Level	0.646

Analysis of the source of knowledge of glaucoma revealed that majority of the respondents (34.8%) mentioned Internet as the source of knowledge, followed by family/friend (23.9%), broadcast media (18.4%), printed media (16.5%), health

professionals (8.7%), other sources (8.7%), and public health campaign (8.1%).

## **Discussion**

This is the first study in Saudi Arabia to assess awareness and knowledge of glaucoma among the general Saudi Public. We have demonstrated a high level of awareness (64%) in the general Saudi population. This high level of awareness is consistent several previous studies including a study by Nkum G, S. Lartey, et al. [7] on adult patients attending an eye clinic at a teaching hospital in Ghana where 74% were aware of glaucoma. A study by Attebo K, et al. [12] on the awareness of glaucoma in the Australian population have shown 93% awareness of the population with only 29% knowledge of glaucoma. Gasch, et al. [13] study on the American population have also demonstrated a high level of awareness. On the other hand, Dandona, et al. [10] in their study on the Indian population have found an extremely low level of awareness (2.9%) where they have included 1859 sample. A low level of awareness was demonstrated by Tenkir, et al. [8] in south western Ethiopians (2.4%). These differences may be in part due to the geographic areas, different questionnaires, and the quality of education available to the public [9].

Regarding the determinants of awareness in this study we have found that Age and education are significantly associated with glaucoma awareness. Considering that most of the sample consisted of individuals with higher education as well as relatively younger population, these results are significant. Nkum G, S. Lartey, et al [7] study demonstrated a significant association between education and awareness of glaucoma, but no association with age, gender or ethnicity which is consistent with this current study. Another study by Kaweh, et al. [11] in Switzerland found no association between demographic factors and awareness of glaucoma. Gasch et al [13] study found no association between awareness and ethnicity.

We have demonstrated an excellent level of knowledge in the Saudi public as the majority was able state Headache as a symptom of glaucoma as well as eye pain. This is constant with Nkum G, S. Lartely, et al. [7] study.

## Conclusion

The Saudi general public has an adequate awareness and knowledge of glaucoma. This reflects the intensive efforts made by the government and the well-established awareness programs in the country.

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