

## DETERMINANTS OF GLAUCOMA AWARENESS IN URBAN PUNJAB

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### ABSTRACT

**Objective:** To assess the awareness about glaucoma and the factors affecting it in urban Punjab population.

**Study Design:** Cross-sectional study.

**Place and Duration of Study:** Study was conducted in March-April 2011 in Rawalpindi District Punjab, Pakistan.

**Material and Methods:** Glaucoma awareness study was conducted on urban population of Rawalpindi, Islamabad, Lahore and Taxila. Individuals belonging to medical profession (doctors, nurses and paramedics etc) were not included. Demographic details and educational status of all participants were documented. A brief structured close-ended study questionnaire was used to collect information about their awareness of risk factors, treatment aspects and complication of glaucoma.

**Results:** There were 729 participants in the study. Majority were females (60.1%) and adults (76.1%). Literacy level of 40.2% was up to matriculate level. The study indicated that the awareness level about glaucoma was low especially about the recognition of high-risk groups and symptoms. Only one-third of respondents i.e. 32.6% had an idea about the symptoms of the disease and 27.4% participants had awareness of glaucoma as a blinding eye disease. Determinants of glaucoma awareness amongst study participants were gender, age, education level and occupation.

**Conclusion:** Awareness of glaucoma was quite low among the urban population in Punjab. There is need of increased public health education to reduce glaucoma associated blindness and its burden on society.

**Keywords:** Blindness, Glaucoma, Red eye.

### INTRODUCTION

Glaucoma is the second leading cause of preventable blindness in the world. It is estimated that more than 60.5 million people over the whole world are affected by glaucoma<sup>1</sup>, 47% of them live in Asia; a large majority with angle closure glaucoma. Glaucoma causes irreversible blindness and people are generally not aware of this serious disease<sup>2</sup>. Decreased central vision and field loss in glaucoma is irreversible and reduces the ability of the individuals to work as independent and useful members of the society<sup>3,4</sup>. Increased public awareness about glaucoma may increase the chances of identifying undetected cases and hence improving the quality of life<sup>5</sup>. Some of the studies have examined the knowledge for glaucoma in different regions of the world<sup>6,7</sup>. Previous studies conducted in US, UK,

Germany, Nepal and India show that 7 to 70% of participants reported that they were unaware of glaucoma<sup>8-10</sup>. Age and level of education are the factors related to the awareness level of glaucoma<sup>11,12</sup>.

To the best of our knowledge no prior study is done in the urban Punjab evaluating glaucoma awareness and its determinants. This study aims at understanding glaucoma awareness and the factors related to it.

### MATERIAL AND METHODS

We conducted a cross sectional study in March-April 2011. A non-probability convenient sampling technique was used. Study was approved by the ethical committee and institutional review board of Shifa International Hospital Islamabad.

Data was collected from urban community in Rawalpindi, Taxila, Lahore and Islamabad by Ophthalmology students, technicians, doctors and paramedics. People of medical profession such as doctors, nurses and paramedics were excluded from study. Sample included students of different universities in Islamabad and vicinity, workers of government and

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nongovernment organizations and banks .It also included the patients and their attendants visiting different departments of the hospital for reasons other than eye problems.

The questionnaire was pilot tested on 20 randomly selected people in waiting areas of

questions regarding the need of screening for eye diseases, mode of presentation, risk factors, duration of treatment required for glaucoma (Annex-1). Various risk factors of glaucoma (open and closed angle) addressed in this study were age, positive family history, raised intra

**Table-1: Socio-demographic characteristics of study participants (n=729).**

Demographic Variables	Frequency (%)
<b>Age ( yrs)</b>	
<16 yrs.	174 ( 23.9%)
16-25 yrs.	232 ( 31.8%)
26-35 yrs.	230 (31.6%)
36-45 yrs.	79 ( 10.8%)
46-55 yrs	7 ( 1.0%)
> 55 yrs.	7 ( 1.0%)
<b>Gender</b>	
Male	291 (39.9%)
Female	438 (60.1%)
<b>Occupation</b>	
Banker	151 (20.7%)
Students/teachers	397 (54.5%)
Miscellaneous	181 (24.8%)
<b>Education</b>	
Upto Matric	293 (40.2%)
Graduate	195 (26.7%)
Postgraduate	241 (33.1%)
<b>Information sources</b>	
Newspaper	193 (26.5%)
TV	338 (46.4%)
Doctor	159 (21.8%)
Journal	39 (5.3%)

**Table-2: Frequency distribution of Glaucoma Awareness among study participants (n=729).**

Variables	Yes (%)	No (%)
Eye Examination is needed only for visual problems	296 (40.6 %)	433 (59.4%)
Above 40 eye pressures should be checked annually	128 (17.6 %)	601 (82.4%)
In Glaucoma there will always be pain in my eyes.	491 (67.4 %)	238 (32.6%)
Some of the eye diseases run in family like glaucoma.	414 (56.8 %)	315 (43.2%)
Glaucoma is a Blinding eye diseases	200 (27.4 %)	529 (72.6%)
Eye drops if used on their own can cause glaucoma	292 (40.1 %)	437 (59.9%)
Prolong use of some eye drops for red eyes can cause glaucoma	294 (40.3 %)	435 (59.7%)
I know that Glaucoma medications are for lifelong	218 (29.9 %)	511 (70.1%)

OPD and necessary modifications and clarifications were made to make it brief and understandable by general public. Most of the questions were close ended. We collected information about the awareness of glaucoma after collecting demographic details. Data were collected about their gender, age, occupation, educational status, a close relative or friend in medical/ paramedic profession and sources of health education. Respondents were asked

ocular pressure, pain associated with vision loss, and prolong or over the counter use of topical steroids for conjunctivitis (red eye) etc.

Sample size was calculated by using WHO sample size calculator software. In Pakistani population the reported prevalence of blindness is 2.7%<sup>13</sup> and prevalence of glaucoma is 7.1%<sup>14</sup>. Glaucoma causes irreversible blindness. Our estimated sample size was almost 700 to cover

all aspects of eye diseases causing blindness (Confidence level = 95%).

Statistical analysis was performed using SPSS statistical software version 16. We calculated frequencies of the demographics and awareness level of glaucoma knowledge. Chi Square test was applied to calculate significance between various study variables and awareness of glaucoma.

## RESULTS

Study population included 729 respondents, 438 (60.1%) were females and 291 (39.9%) were males. Majority of study population were adults, age greater than 16yrs (76.1%). Mean age was 24.81yrs (Range 13-86 years). A major portion of respondents were college and university students and teachers (83.4%). The most common source of medical information for the group (46.4%) was Television. Literacy level of 40.2% was up to matriculate level. Only 16.6% individuals had a close relative or friend in medical/ paramedic profession (table-1).

Less than half of the participants (40.6%) think that they will need to consult an ophthalmologist only if they have eye symptoms. Only one-third of the respondents i.e. 32.6% had an idea that glaucoma is not always associated with pain, and 27.4% participants had awareness of glaucoma as a blinding eye disease. Majority of people were unaware that prolong use of topical eye drops either as self medication or after prescribed for red eye can lead to glaucoma (59.9% and 59.7% respectively). (Table-2).

Chi square analysis of various risk factors showed that age ( $p < 0.00$ ), higher education level ( $p 0.003$ ) and male gender were more aware about importance of routine eye examination and intraocular pressure check up after 40 years of age. Amongst various professions 51.0% were bankers. Occupation was also strongly associated with awareness about eye routine eye exam ( $p < 0.001$ ). No association was found between a close friend/ relative in medical profession and any of the factors determining glaucoma awareness ( $p$  value 0.251 to 0.967).

## DISCUSSION

Glaucoma mostly develops gradually and cause painless loss of vision. Patients of open angle glaucoma usually have advanced damage in at least one eye before they recognize their problem. It is estimated that one third of glaucomatous patients develop irreversible loss of vision before they seek medical advice<sup>15</sup>. This study examined the awareness level of individuals in clusters of urban Punjab about various factors of glaucomatous eye disease. The study was undertaken to identify information that would help to improve the awareness about eye diseases in general and glaucoma in particular.

Amongst our respondents 27.4% identified glaucoma as a blinding eye disease. Although relatively poor level of awareness it is better than 2.4% aware of glaucoma in a population based study done in southern India<sup>10</sup> and in a survey conducted in an ophthalmic outreach clinic in Southern Ethiopia<sup>16</sup>. Knowledge levels between Hong Kong (10.2%)<sup>17</sup> and Chennai (8.7%) are less than in this study, but this difference could be due to the inclusion of rural population in the two population based surveys. In another study in urban Chennai 13.5% were aware of glaucoma. Contrary to these results awareness levels were remarkably high in developed countries like United States 72% and Australia 93%, probably because these countries have better developed health care systems with early detection of serious eye problems<sup>18,19</sup>.

As far as the demographics related to awareness of eye disease are concerned age, gender, occupation and type of information sources remained the main indirect determinants of glaucoma awareness in our study group. Some studies have found a strong relationship with age<sup>8,10</sup> whereas others have found reverse relationship with age but education as a stronger attribute<sup>16</sup>. In our study males were generally more aware of the disease; this is in contrast with another study which showed females to be more knowledgeable about this blinding illness<sup>12</sup>.

In a study conducted by Sathyamangalam RV et al<sup>12</sup> only 8.11% participants considered

increased IOP as a risk factor for glaucoma. Our study population had slightly better idea about it, 17.6% of the respondents think that eye pressures need to be checked after the age of forty in the absence of any eye symptoms.

Television is the most common source of medical information of our study group 338 (46.4%) whereas newspaper 193 (26.5%), and Doctors 159 (21.8%) were the other important sources. Other studies have reported friends<sup>20</sup> and mass media as important information resources<sup>21</sup>.

The results have shown that people did not have a clear idea about the mode of presentation and inheritance of the disease. They generally pay more attention to serious visual symptoms such as sudden decrease in vision and red eye with loss of vision. Most of them (67.4%) have misconception about the symptoms that everyone will have pain with glaucoma. Studies have shown that people with family history of glaucoma have more knowledge about the disease<sup>12</sup>. A large number of our participants (43.2%) were not aware that this serious disease has a familial nature. This clearly explains why this disease continues to be a serious blindness issue despite advances in diagnostics and medical and surgical treatment options.

## CONCLUSION

People generally have low awareness of glaucoma signs and symptoms. We have strongly felt the need of screening to detect this important cause of blindness. Mass screening and media awareness is needed to educate patients to the significance of premonitory symptoms and to control this important cause of irreversible blindness.

## CONFLICT OF INTEREST

This study has no conflict of interest to

declare by any author.

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