



# Awareness and knowledge of glaucoma in rural population of Bihar

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**ABSTRACT:** In 1999, WHO launched a global initiative “Vision 2020”, aimed to eliminate avoidable blindness by the year 2020. Glaucoma being the leading cause of irreversible blindness was also included in the initiative. The study aims to evaluate the awareness and knowledge of the rural population of developing state of Bihar regarding glaucoma.

**KEYWORDS:** Glaucoma, Awareness, Knowledge, Blindness

## I. INTRODUCTION

In year 1999, WHO along with 20 NGOs (non-governmental organisations) which were involved in eye care, prevention and management of blindness, launched a global initiative, “Vision 2020”. The initiative aimed to eliminate avoidable blindness by the year 2020. Out of the 16 causes of avoidable blindness, glaucoma stands as the second leading cause of blindness, and the leading cause of irreversible blindness worldwide. By 2020, an estimate of 79.6 million people, majority belonging to female sex and Asian origin will be suffering from glaucoma<sup>1</sup>. Satyamangalam et al., (2009) had reported that majority of the glaucoma patients are unaware of the condition they are suffering from<sup>2</sup>. Screening programmes have played a pivotal role in achieving the objectives of “Vision 2020” initiative. Participation in these screening programmes depends on the awareness of the population regarding the condition being screened. The literature mentions that one of the most important factor for blindness caused by glaucoma is its late diagnosis, which is associated with the lack of knowledge about the condition. This can be inferred from the fact that one-third of the glaucoma patient are visually impaired even before getting any ophthalmological care<sup>2-4</sup>.

As explained by previous literature, prior knowledge about the condition being screened will increase the number of participants in the programme, which will increase the diagnosis of

the condition in early stages, thus leading to its prevention or cure with ultimate goal of better vision being achieved. The present study aims to assess the awareness and knowledge regarding glaucoma, of the rural population of developing state of Bihar.

## II. MATERIALS & METHODS

The study was conducted in six villages of Bihar, including 1240 participants. The study period extended from June 2017 to February 2020. A questionnaire was designed to collect information about knowledge and awareness of glaucoma among these participants. The questionnaire was first prepared in English, and then was translated to local languages (Hindi, Maithli, Maghi) as per the population in target. Trained individuals administered the questionnaire. Along with the questionnaire, they also recorded the demographic features of the participant such as gender, age, profession, and education. The questionnaire was being tested in a pilot study and was equipped with consistency checks. To validate our questionnaire, it was compared with Hong – Kong study questionnaire.

To avoid the interviewer bias, verbatim administration of the questionnaire was done. Once participant’s awareness about glaucoma was established depending upon their positive or negative response on being asked whether they have heard about “glaucoma”, only then their knowledge about the condition was assessed. The participants were asked for the source of their information on glaucoma.

The statistical analysis of the data procured was done with the help of SPSS software (version 23.0)

## III. RESULTS

The mean age of participants was 46.12 ± 9.03 years. The socio-demographic characteristics



of the participants are being mentioned in Table 1. The majority of males were farmers by profession and had completed their primary education. The females were mostly housewives with primary education. More than the quarter of participants had either completed their secondary education or had higher education enabling them to get a government job or be a teacher.

Only 108 (8.7%) participants were aware of the term “glaucoma”, out of which 61% had knowledge of the condition (Table 2).

Among the participants almost 6.3 % considered that increased IOP can be a risk factor for glaucoma. Table 2 mentions the knowledge among the participants about the factors that pose as risk for glaucoma. Of the 108 aware participants, almost 61% had knowledge about glaucoma (Table 2 & 3). Knowledge of various treatment modalities of glaucoma was shown by approximately 7% participants who were aware of the condition.

Sociodemographic Characteristics	N (%)
<b>Gender</b>	
Male	910 (73.38%)
Female	330 (26.62%)
<b>Age group</b>	
35-44	511 (41.2%)
45-54	372 (30%)
55-64	193 (15.6%)
65-74	116 (9.3%)
≥75	48 (3.9%)
<b>Profession</b>	
Housewife	265 (21.37%)
Farmer	649 (52.33%)
Government job	78 (6.2%)
Business	148 (11.9%)
Teacher	83 (6.7%)
Others	17 (1.37%)
<b>Education</b>	
Illiterate	226 (18.2%)
Primary	611 (49.3%)
Secondary	285 (22.9%)
Higher	118 (9.5%)

Variables	Total n = 1240 (%)
<b>Awareness</b>	
Have you heard about glaucoma?	
Not aware of glaucoma	1132 (91.3%)
Is glaucoma treatable?	124 (10 %)
<b>Knowledge</b>	
<b>Risk factors for glaucoma</b>	
<b>One factor</b>	
Obesity	2 (0.16%)
Increased IOP	78 (6.3%)
Chronic smoking	10 (0.8%)
Family history of glaucoma	12 (0.9%)
Diabetes	6 (0.48%)
<b>Two factors</b>	
IOP and Obesity	20 (1.6%)
IOP and family history	60 (4.8%)
<b>Three factors</b>	
IOP, obesity and family history	38 (3.06%)
<b>IOP: intraocular pressure</b>	

Association between the demographic characteristics, awareness, and knowledge was not observed statistically

Variables therapies for treating glaucoma	Total n = 1240 Yes (%)
<b>Aware of only a single therapy</b>	
Eye drops	20 (1.6%)
Surgery	40 (3.2%)
Laser treatment	8 (0.64%)
<b>Aware of two therapies</b>	
Eye drops and Surgery	1 (0.08%)
Eye drops and Laser	7 (0.56%)
Surgery and Laser	13 (1.04%)
<b>Aware of more than two therapies</b>	
Eye drops, Surgery and Laser	5 (0.4%)
Treatment not known	4 (0.32%)
Can't say / No Answer	24 1.92%



Author	Year	Country	Study population	Awareness of glaucoma %	Knowledge of glaucoma %
Present study	2020	India	Rural population - Adults above 30 years	8.7	5.3
Sathyamangalam et al <sup>2</sup>	2009	India	Urban population - Adults above 40 years	13.3	8.7
Krishnaiah et al <sup>6</sup>	2005	India	Rural population: Above 15 yrs	0.27	0.012
Saw et al <sup>5</sup>	2003	Singapore	Tertiary eye hospital patients - Adults 35 yrs and above	23	Not Reported
Lau et al <sup>7</sup>	2002	Hong Kong	Community - Adults above 40 years	78.40	10.20
Gaschet al <sup>8</sup>	2000	United States	General eye service patients - All Ages	72	Not Reported
Mitchell et al <sup>9</sup>	1996	Australia	Community - Adults above 49 yrs	93	Not Reported

#### IV. DISCUSSION

For early detection and treatment of this asymptomatic and irreversible condition, awareness and knowledge plays a pivotal role. As has been previously reported that, more than one – third of the patients suffering from glaucoma became blind before getting any medical attention<sup>2,5</sup>.

Table 4 depicts the difference among populations about awareness of glaucoma. The rural population of India though lacks behind the urban population with respect to awareness and knowledge regarding glaucoma, but over the years the scenario has changed, as Krishnaiah et al reported an awareness of 0.27 % in South Indian rural population which has increased to 8.7% as per present study. This rise can be attributed to increased literacy rate, increase in reach of national health programmes to rural parts of the country<sup>6</sup>.

Countries having better literacy rate, good reach of health programmes and services depicted better awareness regarding the concerned issue<sup>6-9</sup>. The proportion of undiagnosed glaucoma cases are alarming in view of the low awareness regarding the disease in our rural and urban population.

Health education regarding glaucoma, especially to the population at risk is the need as awareness regarding the condition was observed mostly in families who have had individuals with history of glaucoma. The literature appreciates the fact that illiteracy and unawareness regarding glaucoma are associated<sup>2,4,7-9</sup>.

The study concludes that the rural population of Bihar suffers from lack of awareness and knowledge about glaucoma. No gender based difference was observed in these aspects, and illiteracy was observed to act as the main barrier. The findings suggest that increasing the reach of health education will help to curb the issue.

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