



## Original Article

# Glaucoma Awareness- Study from North India

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## Abstract

**Background:** *Glaucoma is one of the second leading cause of blindness worldwide which is a serious concern especially in developing country like India where majority of glaucoma patients at the time of presentation are already blind in one eye. Thus to reduce the visual disability, recover the quality of vision & life, early diagnosis & treatment of glaucoma is mandatory. In order to prevent, early diagnosis & manage glaucoma awareness of glaucoma plays important role & thus makes lot of difference.*

**Aims:** *The objective of the study was to see awareness among rural population regarding glaucoma which is potentially blinding ocular disease.*

**Materials & Methods:** *The present cross sectional observational study was conducted to assess the awareness regarding glaucoma in rural population using pilot tested semi-structure question-naire which was explained to every participant in their local language for better understanding. Data regarding awareness, source of knowledge about glaucoma etc was collected.*

**Results:** *Among 230 participants maximum number of participants i.e. 64.3% were seen in age group of  $\geq$  60yrs while males outnumbered females i.e.61.7% in the present study. Only 26.1% of participants were aware of glaucoma & source of information among aware was friends/relatives (80%). About 30 % of aware participants knew that glaucoma is treatable & 20% answered that blindness in glaucoma patients can be prevented.*

**Conclusion:** *Awareness and knowledge of glaucoma in rural population is low. Awareness of glaucoma in rural population is very important as rural area caters 70% of Indian population & knowledge regarding glaucoma helps in prevention of blindness due to glaucoma.*

**Keywords:** *Awareness, Glaucoma, Knowledge, Rural.*

## Introduction

Blindness is a serious concern especially in developing country like India & effects the

socio-economical status of a person permanently.<sup>[1]</sup>

Glaucoma cause irreversible blindness but can be preventable. The prevalence of glaucoma is 67

million worldwide whereas approximately 11 million Indians are affected by glaucoma.<sup>[2]</sup> In India, after cataract and uncorrected refractive errors, glaucoma is the third most common cause of blindness with a prevalence of 5.8% among the blind.<sup>[3]</sup> Majority of cases are diagnosed at an advanced stage of the disease whereas 50 - 90% of the glaucoma cases remain undiagnosed. The lack of awareness about glaucoma is one of the probable reason for the late presentation which significantly increase the risk of glaucoma blindness.<sup>[2]</sup> Eye health education is significant step in early diagnosis of glaucoma that influences people to take part in regular ophthalmologic care. Population need to be recognized and targeted who are at maximum risk for developing the disease & having inadequate knowledge about it. Due to availability of medical & surgical technologies in treatment of glaucoma, health education might play a central role in early diagnosis & better treatment.<sup>[4]</sup> Hence, the present study was done to know the awareness of glaucoma in rural population of Jammu province with an effort to provide education and preventive eye care to decrease morbidity of the disease.

### Material and Method

The present study was cross-sectional observational study conducted at government tertiary hospital of Jammu. Total of 230 patients were involved in this study. All the participants explained purpose of study & informed consent was taken from every participant prior to study. Data regarding awareness, source of knowledge about glaucoma etc was collected using pilot tested semi-structure question-naire which was explained to every participant in their local language- Dogri and Hindi for better understanding. All the participants were subjected to inclusion & exclusion criteria.

### Inclusion Criteria

- People aged 20 years or older having cataract.
- Either sex & rural area people.

### Exclusion Criteria

- Diagnosed cases of glaucoma
- Subjects not willing to participate in study

The opening questions in the questionnaire were brief, simple & in patient's understandable language-Do you know anything about glaucoma or increased eye pressure? Only if the response to this question was yes, they were allowed to take up the rest of the questions evaluating awareness and knowledge about glaucoma. However, lack of awareness means not having heard the term itself.

**Statistical analysis:** Analysis of data was done using statistical software MS Excel / SPSS version 17.0 for windows. Data presented as percentage (%) as discussed appropriate for quantitative and qualitative variables.

### Observation & Results

Out of total 230 participants maximum number of participants i.e. 64.3% were seen in age group of  $\geq$  60yrs followed by 20.4% in 51-60yrs. Males constituted 61.7% while females were 38.3% in present study. 100% participants were from rural background. Farmers comprised 33% followed by housewives ie 27.8%. (Table no. 1)

Regarding awareness, out of 230 subjects, 26.1% were aware of glaucoma & 73.9% were unaware of glaucoma. (Table no.2)

About source of information, multiple responses were given but friends/relatives were the major source of knowledge among aware group ie 80%.(Table no.3)

Total of 26.7% participants answered what happens in glaucoma i.e. pressure increase/pain/redness. Only 35% participants knew that there is no age limit for glaucoma. Anyone (diabetics, hypertensive etc.) can have glaucoma was answered by 68.3%. Vision decrease/pain/redness occur in glaucoma patients was answered by 63.3%. A total of 30% participants knew that glaucoma is treatable while 58.3% of participants didn't knew anything regarding type of treatment modality for glaucoma available in their area. About 75% of participants didn't knew anything

regarding duration of treatment whereas 20% of participants answered that blindness in glaucoma patients can be prevented & believed that regular follow up is necessary in glaucoma.(Table no.4)

**Table no. 1** Sociodemographic characteristics of participants:

	Number of participants	Percentage
<b>Age (in years)</b>		
≤40	13	5.7
41-50	22	9.6
51-60	47	20.4
≥60	148	64.3
<b>Sex</b>		
Males	142	61.7
Females	88	38.3
<b>Residence</b>		
Urban	0	0
Rural	230	100
<b>Occupation</b>		
Farmers	76	33
Housewives	64	27.8
Laboures	31	13.5
Others	59	25.7

**Table no. 2** Awareness about glaucoma among participants

Do you know about disease glaucoma?	Number of participants	Percentage
Yes (n)	60	26.1
No	170	73.9

**Table no. 3** Source of information about glaucoma?

Source*	Number of participants (n=60)	Percentage
Television/radio/internet	12	20
Friends/relatives	48	80
Doctors	10	16.7
Any other source	4	6.7

**Table no.4** Knowledge of subjects who were aware of glaucoma

Question	Number of participants (n=60)	Percentage
<b>Is glaucoma treatable?</b>		
Yes	18	30
No	10	16.7
Don't know	32	53.3
<b>What happens in glaucoma?</b>		
Pressure increase/pain/redness	16	26.7
Age related disease affecting vision	8	13.3

Don't know	36	60
<b>Is there any age limit for glaucoma?</b>		
Yes	11	18.3
No	21	35
Don't know	28	46.7
<b>Who can have glaucoma?</b>		
Anyone	41	68.3
Don't know	19	31.7
<b>How will you come to know that you have glaucoma?</b>		
Vision decreases/pain/redness	38	63.3
Don't know	22	36.7
<b>Which type of treatment modality for glaucoma are available?</b>		
Medical/surgical	25	41.7
Don't know	35	58.3
<b>How long is the treatment of glaucoma?</b>		
On & off	10	16.7
Life long	5	8.3
Don't know	45	75
<b>Is it possible to prevent blindness in glaucoma in patients?</b>		
Yes	12	20
No	10	16.7
Don't know	38	63.3

### Discussion

Optic neuropathy which is gradually progressive is glaucoma, may lead to permanent blindness & worldwide in the year 2000 it affects 66.8 million people. The prevalence of glaucoma range from 4.96% to 14.6% in India.<sup>[5]</sup> The disease is a non-symptomatic. In order to halt the progression of disease, early diagnosis & effective treatment is necessary. Thus, ocular morbidity due to glaucoma can be reduced, by creating awareness of glaucoma which is also cost effective. Blindness caused due to glaucoma is 5.80%, according to NPCB.<sup>[2]</sup> The purpose of this study was to assess and analyze the awareness & knowledge of glaucoma among the rural population. The data must be considered seriously by public health authorities because we found that despite the importance given to glaucoma in both private & public eye care

facilities, the level of awareness and knowledge about this condition was low.

In the present study, out of total 230 participants maximum number of participants i.e. 64.3% were seen in age group of  $\geq 60$  yrs followed by 20.4% in 51-60 yrs. Males constituted 61.7% while females were 38.3% in present study. 100% participants were from rural background. Sandhya R et al in a study on 300 subjects found that 88 (29.33%) were in age group 51-60 years followed by 86 (28.6%) in 41-50 years. Males comprised of 132 (44%) whereas females were 168 (56%).<sup>[2]</sup>

Regarding awareness, out of 230 subjects, 26.1% (60) were aware of glaucoma & 73.9% (170) were unaware of glaucoma in the present study. Padgul SB et al in their study demonstrated that only 14% of study population were aware of glaucoma.<sup>[4]</sup> In comparison to the urban population awareness of glaucoma in rural population is very poor & those who were aware among urban had sensible knowledge of the disease.<sup>[6]</sup> Information about glaucoma was very deprived among the rural people who were aware of the disease. Poor knowledge and awareness of glaucoma in the rural areas might be due to incomplete access to medical and diagnostic care. Krishnaiah S et al. in their study in rural population of south India found greater awareness of disease among males, literate & high socioeconomic groups.<sup>[7]</sup> Sandhya R et al in a study on 300 subjects found that only 15 participants were heard about glaucoma & among them only 5 were actually 'aware' while the rest had very less knowledge.<sup>[2]</sup>

About knowledge of glaucoma in the present study, total of 60% participants didn't know what happens in glaucoma whereas 46.7% participants didn't know anything regarding age limit for glaucoma. Anyone can have glaucoma was answered by 68.3%. Glaucoma patients complain of vision decrease/pain/redness answered by 63.3%. Out of 60, 30% participants knew that glaucoma is treatable whereas 58.3% of participants were not aware of anything regarding type of treatment modality for glaucoma available

in their area. About 75% of participants didn't know anything regarding duration of treatment whereas 20% of participants answered that blindness in glaucoma patients can be prevented & believed that regular follow up is necessary in glaucoma.(Table no.4) Therefore, knowledge regarding glaucoma is very poor in the present study. Glaucoma is largely asymptomatic, due to which diagnosis is delayed and also blindness due to glaucoma is irreversible, regarding this awareness must be created that could affect the attitude & concern about glaucoma.<sup>[2]</sup> The prevalence of glaucoma in rural India is 2.6%, which is probably higher compared to that of urban community.<sup>[8]</sup> In the present study the awareness & knowledge was better among rural population of Jammu & Samba district in comparison with other districts.

In rural population education and socioeconomic position play important role in the level of awareness of glaucoma. In present study maximum participants were uneducated & it has been shown in table 01 that 33% were farmers and 13.5% were labourers. Uneducated population of rural India were less aware about glaucoma and this drift was similar to those stated from other countries like the United States and Canada.<sup>[9-10]</sup>

To generate greater awareness & experience to information concerning a variety of eye diseases including glaucoma, sufficient access and appropriate use of eye care services are mandatory.<sup>[11]</sup>

### Limitations of study

Sample size is less & for actual awareness sample size must be larger. Moreover, the sample comprises of people attending hospital for cataract surgery.

### Conclusion

Focus of study was on the level of awareness regarding glaucoma among rural population & this study clearly reveals extremely poor awareness regarding glaucoma. For early detection and better

treatment outcome of glaucoma, proper health education through target specific outreach program is necessary.

### Recommendations

Authors strongly recommend that awareness in the community can be created by various programs about glaucoma which can give a significant boost for promoting preventive ophthalmic care. Awareness can be improved by providing detailed disease related information to patients, like symptoms, prevention, management etc. To bring in an attitude change regarding glaucoma, strategies need to be devised to increase awareness. In order to increase the affectivity of all glaucoma programs, there is a need to identify interventions that reinforce people's attitude above the perceived level of awareness about glaucoma.

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### Declaration

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### References

1. Shamanna BR, Dandona L, Rao GN. Economic burden of blindness in India. *Indian J Ophthalmol* 1998;46:169-72.
2. Sandhya R, Abhilasha Sinha, Niharika Shetty. Study of Awareness of Glaucoma among Ophthalmology out patients in a 2-Tier City, Tumkur. *Indian Journal of Clinical and Experimental Ophthalmology* 2015;1(3):156-158.
3. Thomas R, Paul P, Rao GN, Muliyl JP, Mathai A. Present status of eye care in India. *Surv Ophthalmol* 2005;50:85-101.
4. Padgul SB, Rao DP, Amaresh G. Glaucoma awareness in rural population – A hospital based study *Indian Journal of Clinical and Experimental Ophthalmology* 2017;3(1): 42-44.
5. Chaturvedi GD, Chaturvedi R. Prevalence of glaucoma in patients with type 2 diabetes mellitus at tertiary care hospital of Gwalior. *Indian Journal of Clinical and Experimental Ophthalmology* 2016;2(1):14-16.
6. Dandona L, Dandona K, John R, McCarty C, Rao G: Awareness of eye diseases in an urban population in southern India. *Bull World Health Org* 2001;79:96-102.
7. Krishnaiah S, Kovai V, Srinivas M, Shamanna B, Rao G, Ravi T: Awareness of glaucoma in the rural population of Southern India. *Indian J Ophthalmol* 2005;53:205-8.
8. Ramakrishan R, Nirmalan PK, Krishnadas R, Thulasiraj RD, Tielsch JM, Katz J, *et al* . Glaucoma in a Rural Population of Southern India, The Aravind Comprehensive Eye Survey. *Ophthalmology* 2003;110:1484-90.
9. Gasch AT, Wang P, Pasquale LR. Determinants of the glaucoma awareness in a general eye clinic. *Ophthalmology* 2000;107: 303-8.
10. Noertjojo K, Maberley D, Bassett K, Courtright P: Awareness of eye diseases and risk factors: identifying needs for health education and promotion in Canada. *Can J Ophthalmol* 2006;41:617-23.
11. Saw SM, Gazzard G, Friedman D, Foster PJ, Devereux JG, Wong ML, *et al*. The awareness on glaucoma and the health beliefs of patients who suffer from primary acute angle closure glaucoma. *Br J Ophthalmol* 2003;87:446-9.