



ASSESSMENT OF GLAUCOMA AWARENESS AMONG PEOPLE ATTENDING HEALTHCARE REFERRAL CENTRE

Ophthalmology

Dr. Bhumika N Shah*	Assistant professor, Department of Ophthalmology, Dr. M.K. Shah Medical College and Research Centre, Ahmedabad. *Corresponding Author
Dr. Romil N Patel	Senior resident, Department of Ophthalmology, Dr. M.K. Shah Medical College and Research Centre, Ahmedabad.
Dr. Kunal G Patel	Senior resident, Department of Ophthalmology, Dr. M.K. Shah Medical College and Research Centre, Ahmedabad.

ABSTRACT

Background: Glaucoma is a major public health problem in the India as well as world. Community based surveys reported that only 10% to 50% of people with glaucoma are aware about they have disease.

Aim & Objective: The aim of this study to evaluate awareness about different aspect of glaucoma including symptoms, treatment.

Methodology: This cross-sectional analytical study was done among people attending the Ophthalmology Out Patient Department at GMERS Medical College and Hospital Gandhinagar. Total 350 students were included in the study. A structured interview with fixed approach was used to collect data. The order of the questions was specified. Questionnaire has been validated by subject experts.

Results: Mean age was 38.3 ± 13.8 years. Majority of the study participant were male (60.9%), literate (83.7%) and belonged to class III and above SE class (52.2%). Only 36.0% participants heard about glaucoma. Asymptomatic glaucoma and irreversible nature vision loss was known to 14.2% and 8.8% of participants. Awareness about glaucoma was significantly low in participants of 21 to 60 year age group, education below secondary, SE class 4 & 5 and laborer.

Conclusion: Awareness of glaucoma is very poor in persons attending GMERS medical college, Gandhinagar. There is need for community-based health education programmes to increase the level of awareness and knowledge about glaucoma.

KEYWORDS

Awareness, Education, Glaucoma, Socio economic class

INTRODUCTION:

Glaucoma is a disorders characterized by progressive optic neuropathy which cause a specific pattern of irreversible visual field defects and characteristic appearance of the optic disc that are associated frequently but not invariably with raised intraocular pressure.¹

Glaucoma affects 70 million people with nearly 10% are bilaterally blind and leading cause of irreversible blindness worldwide. Glaucoma can remain asymptomatic until it is severe; resulting in a higher prevalence is much higher than the known number. Community based surveys reported that only 10% to 50% of people with glaucoma are aware about they have disease.²⁻⁷

Major risk factors for open angle glaucoma includes elevated intraocular pressure advanced age, positive family history, myopia, black race, decreased corneal thickness, hypertension, diabetes, eye injury, history of steroid use, male gender.^{8,9} Risk factor for angle closure glaucoma include mainly: Asian ethnicity, female sex, hyperopia, shallow anterior chamber, small corneal diameter, short axial length, steep corneal curvature, shallow anterior chamber depth, thick & relatively anteriorly positioned lens, small axial length to lens ratio.^{8,9}

Under normal circumstances people should seek treatment early in disease to prevent further vision loss as well as to preserve the quality of life. However, the motivation to do so seems to be most likely related to the knowledge of glaucoma risk factors, signs and symptoms and an understanding natural history of the disease.¹⁰

AIM & OBJECTIVES:

The Objective of this survey was to evaluate awareness about different aspect of glaucoma including symptoms, treatment and identify association between awareness and their socioeconomic level, residence, educational level and occupation etc.

MATERIALS & METHODS:

This cross-sectional analytical study was conducted among 350 people attending the Ophthalmology Out Patient Department at GMERS Medical College and Hospital Gandhinagar during November 2016 to October 2017 after getting permission from institutional ethics committee. Psychiatric patients, patients with poor general condition and who denied to participate were excluded from the study. Informed consent was obtained from the respondents before taking interviews.

Respondents were assured of confidentiality and privacy. A structured interview with fixed approach was used to collect data. The order of the questions was specified. Questionnaire has been validated by subject experts.

STATISTICAL ANALYSIS:

The data was collected with predesigned proforma and entered in Microsoft Excel 2010. The data was analyzed with Epi info version 7.1. Continuous data was presented with mean and standard deviation while categorical data was presented with frequency and percentage. Comparison of continuous data between two groups was analysed with independent T test and more than 2 groups was analysed with ANOVA test. P value less than 0.05 was considered as significant.

RESULTS:

Table 1 shows majority 78.9% people were between the age of 21-60 years with mean age of 38.3 ± 13.8 years and 60.9% study population were male. About 30.90% of respondents were graduates and also 16.3% respondents were illiterate. More than 1/3rd (36.0%) of the respondents were from socio-economic class-III. Nearly half (51.4%) persons were urban resident. More than 3/4th (77.7%), respondents were married. Majority of the respondents did laborer (29.7%).

Only 126 people (36.0%) have heard about glaucoma. Only 81 persons (23.1%) have said that high intraocular pressure is a risk factors for glaucoma. Knowledge regarding symptoms was varies between 7.7% to 14.2%. Only 102 persons (29.1%) knew that it's a treatable condition. Only 54 persons (15.4%) stated that frequent follow up is necessary even if disease is under control. Major source information was friends or relative or family members (66, 18.8%) and hand out (65, 18.6%).

Table 1: Characteristics of Study Population

Characteristics	Frequency	Percentage
Age Group (yr)		
<20	31	8.9%
21 – 40	168	48.0%
41 – 60	131	37.4%
> 60	20	5.8%
Mean $\pm$ SD	38.3 ± 13.8	
Sex		
Female	137	39.1%

Male	213	60.9%
Education		
Illiterate	57	16.3%
Primary	70	20.0%
Secondary	47	13.4%
Higher Secondary	68	19.4%
Graduate	108	30.9%
Socio Economic Class		
Class I	71	20.3%
Class II	96	27.4%
Class III	126	36.0%
Class IV	44	12.6%
Class V	13	3.7%
Residence		
Semi urban	76	21.7%
Urban	180	51.4%
Village	94	26.9%
Marital Status		
Married	272	77.7%
Single	78	22.3%
Occupation		
Household work	58	16.6%
Labour work	104	29.7%
Office work	95	27.1%
Outdoor work	50	14.3%
Student	43	12.3%
Dependency		
Dependent	92	26.3%
Independent	258	73.7%

Table 2: General Awareness related to Glaucoma

Correct Knowledge about...	Frequency	Percentage
Awareness about disease		
Have you ever heard about term glaucoma?		
- No	224	64.0%
- Yes	126	36.0%
Glaucoma is a blinding disease	105	30.0%
Awareness of different types of glaucoma	9	2.6%
Normal IOP of eye	13	3.7%
Correct knowledge about risk factor	112	32.0%
- Family History	89	25.4%
- High IOP	81	23.1%
- Old Age	49	14.0%
- Diabetes	38	10.9%
- Obesity	11	3.1%
- Cataract	9	2.6%
- Other	5	0.9%
Awareness about symptom		
It is possible that glaucoma occurs without symptom	50	14.2%
Deterioration in vision	46	13.1%
Irreversible vision loss	31	8.9%
Visual field are missing	34	9.7%
Variation in colour and contrast sensitivity	27	7.7%
Difficulty in climbing stairs	30	8.6%
Difficulty in seeing in darkroom after moving from bright room	31	8.6%
Trouble in following line or print or finding the next line	26	7.4%
Awareness about treatment		
Glaucoma is a treatable condition	102	29.1%
Knowledge about Treatment options available	105	30.0%
- Drugs	93	26.6%
- Surgery	44	12.6%
- Laser	55	15.7%
Early treatment slowdown the disease progress	82	23.5%
Treatment of glaucoma is lifelong.	66	18.8%

If the treatment is stopped in between is it is not effective	18	5.1%
Frequent follow-up is necessary even if disease remain under control	54	15.4%
Treatment of glaucoma should be continue even after surgery	16	4.6%
Cost of treatment		
- Cheap	1	0.3%
- Costly	12	3.4%
- very costly	37	10.6%
- Don't know	300	85.7%
Source of information		
NA	224	64.0%
Friends / Relatives /Family members	66	18.9%
Handout	65	18.6%
TV	39	11.1%
Eye Camp	21	6.0%
Doctor	15	4.3%
News Paper	5	1.4%

Table 3 shows factors associated with poor knowledge of glaucoma. Out of 17 marks, average score of glaucoma knowledge was 2.75 ± 3.59 . Participants of 21 to 60 year age group, education below secondary, SE class 4 & 5 and laborer had poor knowledge of glaucoma as compared to other participants.

Table 3: Factors associated with knowledge of glaucoma

Characteristics	Knowledge score (out of 17)	p value
Age group		
<20	4.39 ± 4.01	<0.01
21 to 40	2.35 ± 3.52	
40 to 60	2.74 ± 3.53	
>60	3.75 ± 3.14	
Gender		
Female	3.15 ± 3.75	0.10
Male	2.5 ± 3.47	
Education		
Illiterate	1.95 ± 2.66	<0.001
Primary	1.3 ± 2.43	
Secondary	1.32 ± 2.72	
Higher secondary	3.46 ± 3.58	
Graduate	4.31 ± 4.23	
Residence		
Urban	2.95 ± 3.75	0.07
Rural	2.23 ± 3.05	
SE class		
class 1	3.46 ± 4.01	<0.001
class2	3.52 ± 3.94	
class3	2.37 ± 3.26	
class4	1.25 ± 2.3	
class5	2 ± 3.08	
Marital status		
Married	2.49 ± 3.44	0.07
Single	2.97 ± 3.94	
Occupation		
Student	4.63 ± 4.03	< 0.01
Office work	4.12 ± 4.073	
Household work	2.34 ± 2.971	
Outdoor work	2.22 ± 3.599	
Labour work	1.22 ± 2.238	
Dependency		
Dependant	2.92 ± 3.65	0.09
Independent	2.48 ± 3.53	
Total	2.75 ± 3.59	

DISCUSSION:

Glaucoma is an insidious disease which leads to irreversible blindness. Early diagnosis and treatment can prevent its blinding consequences. Lack of awareness is the major causes of delayed diagnosis of glaucoma.¹¹ This study assesses the awareness and knowledge about glaucoma among persons attending tertiary healthcare referral centre.

In the present study, mean age was 38.3 ± 13.8 years. Majority of the study participant were male (60.9%), literate (83.7%) and married

(77.7%). Nearly half of the participants were belonged to class III and above SE class (52.2%) and from urban area (51.4%). In the study of Maharana PK et al.¹¹, mean age was 43.0 ± 15.0 years and 53.0% were male. In the study of Rewri P et al.¹² and Manhas A et al.¹³ more than 2/3rd participants were more than 40 years old (72.0% and 94.3% respectively).

In the present study, only 36.0% participants heard about glaucoma. Rewri P et al.¹² observed that about 73% participants heard term 'glaucoma'. Other studies in India reported awareness between 0.32% to 13.5%.^{6,12,14-16} In the present study, asymptomatic glaucoma and irreversible nature vision loss was known to 14.2% and 8.8% of participants. Rewri P et al.¹² reported that knowledge about the irreversible nature of vision loss was reported in 4.6% of the participants. Maharana PK et al.¹¹ observed that 18% and 24% participants were about asymptomatic course and irreversible nature of vision loss in glaucoma respectively.

In the present study, awareness regarding treatment was also low as only 29.1% knew that glaucoma was a treatable condition and 15.4% participants were aware about importance of regular follow up in glaucoma. If individuals are aware about glaucoma symptoms and treatment, it would favorably affect their attitude towards glaucoma.

Most common source information in the present study was from friends or relative or family members (18.8%) and hand out (18.6%). Maharana PK et al.¹¹ also reported that close acquaintances were source of information in 51% of participants.

In the present study, awareness about glaucoma was significantly low in participants of 21 to 60 year age group, education below secondary, SE class 4 & 5 and laborer. Similar findings were reported by other studies.^{6,9,13,17,18} Rewri P et al.¹² awareness of glaucoma was not related to age and gender but literate participants were four times more likely to be aware than illiterate participants. Krishnaiah S et al.¹⁵ also supported this findings. Sathyamangalam RV et al.⁶ observed that determinants of glaucoma awareness were higher levels of education, females, age, religion and family history of glaucoma.

CONCLUSION:

Our study has indicated the glaucoma awareness was very less. Lower level of education and lower SE class were associated with lack of awareness and close acquaintances were the main source of information about glaucoma. Awareness can be raised by educational message transmission through mass media, putting posters at ophthalmic centres, providing health education to patients and their families, and incorporating glaucoma education into the curriculum of school. Community based programs should be conducted periodically to screen people in the community and to provide early treatment. Ophthalmic assistant and other healthcare professionals should have appropriate training to encourage communities. Medical officers should be taught for tonometry and optic disc assessment using direct ophthalmoscope.

LIMITATIONS:

It was a hospital-based study enrolling patients accessing an eye care facility so findings were not generalized to community. Sample size was small in our study.

REFERENCES:

1. Khurana AK, Khurana B. Comprehensive Ophthalmology: With Supplementary Book-Review of Ophthalmology. 4th ed. New Delhi: New Age international limited; 2007: 210.
2. Quigley HA, Broman AT. The number of people with glaucoma worldwide in 2010 and 2020. Br J Ophthalmol 2006 Mar 1;90(3):262-7.
3. Leite MT, Sakata LM, Medeiros FA. Managing glaucoma in developing countries. Arq Bras Oftalmol 2011 Apr;74(2):83-4.
4. Rotchford AP, Kirwan JF, Muller MA, Johnson GJ, Roux P. Temba glaucoma study: a population-based cross-sectional survey in urban South Africa. Ophthalmol 2003 Feb 1;110(2):376-82.
5. Hennis A, Wu SY, Nemesure B, Honkanen R, Leske MC, Barbados Eye Studies Group. Awareness of incident open-angle glaucoma in a population study: the Barbados Eye Studies. Ophthalmol 2007 Oct 1;114(10):1816-21.
6. Sathyamangalam RV, Paul PG, George R, Baskaran M, Hemamalini A, Madan RV, Augustian J, Prema R, Lingam V. Determinants of glaucoma awareness and knowledge in urban Chennai. Indian J Ophthalmol 2009 Sep;57(5):355.
7. No Title Budenz DL, Barton K, Whiteside-de Vos J, Schiffman J, Bandi J, Nolan W, Herndon L, Kim H, Hay-Smith G, Tielsch JM, Tema Eye Survey Study Group. Prevalence of glaucoma in an urban West African population: the Tema Eye Survey. JAMA Ophthalmol 2013 May 1;131(5):651-8.
8. Klein BE, Klein R, Lee KE. Heritability of risk factors for primary open-angle glaucoma: the Beaver Dam Eye Study. Invest Ophthalmol Vis Sci 2004 Jan 1;45(1):59-62.
9. De Voogd S, Ikram MK, Wolfs RC, Jansonijs NM, Witteman JC, Hofman A, de Jong PT.

Is diabetes mellitus a risk factor for open-angle glaucoma?: Rotterdam Study Ophthalmol 2006 Oct 1;113(10):1827-31.

10. Gyawali R, Sarkar N. Glaucoma awareness in a hospital presenting population in Eastern Nepal. J glaucoma 2014 Dec 1;23(9):594-8.
11. Maharana PK, Rai VG, Pattebahadur R, Singhi S, Chauhan AK. Awareness and knowledge of glaucoma in central India: a hospital-based study. Asia-Pacific J Ophthalmol 2017 May 1;6(3):243-9.
12. Rewri P, Kakkar M. Awareness, knowledge, and practice: a survey of glaucoma in north Indian rural residents. Indian J Ophthalmol 2014 Apr;62(4):482.
13. Manhas A, Manhas GS, Manhas RS. Glaucoma Awareness-Study from North India. JMSCR. 2019;7(04):475-9.
14. Dandona R, Dandona L, John RK, McCarty CA, Rao GN. Awareness of eye diseases in an urban population in southern India. Bull World Heal Organ 2001;79(2):96.
15. Krishnaiah S, Kovai V, Srinivas M, Shamanna BR, Rao GN, Thomas R. Awareness of glaucoma in the rural population of Southern India. Indian J Ophthalmol 2005 Jul 1;53(3):205.
16. Bairwa M, Rajput M, Sachdeva S. Modified Kuppuswamy's socioeconomic scale: social researcher should include updated income criteria, 2012. Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine. 20.