



A Study to Assess the Visual Status and Ocular Morbidities followed by Treatment at a Trust Hospital of People Aged 40 Years and above Residing in a Locality of Bhopal City: A Camp-Based Approach

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Abstract

Introduction: Of all the senses, sight must be the most delightful – Helen Keller. Even though of great importance, ophthalmic problems are very prevalent and widely ignored amongst people of all strata.

Objective: To assess the visual status of people aged 40 years and above; to identify and treat ophthalmic morbidities; refer patients to trust hospital; and evaluate their treatment seeking behavior.

Methodology: This study was conducted as a camp-based approach in an NGO office for patients residing in that locality of Bhopal. Doctors were invited from a trust hospital for conducting the ophthalmological examination. Participants underwent an eye examination comprising visual acuity, color vision test using Ishihara plates, and external and internal ocular eye health examinations. A structured questionnaire was also administered to the participants to collect sociodemographic data. The patients were prescribed medications and those requiring further investigations or surgeries were referred and sent to the trust hospital by the arranged transport.

Results: The camp was attended by 194 people residing in the colony. The prevalence of any form of ophthalmic problem was seen in 91 people (46.9%). 53 patients amongst these were referred to a trust hospital and sent, of which 12 people did not seek treatment, 26 were operated for cataract, 1 for pterygium and 2 for chalazion. Twelve patients were prescribed treatment for various other conditions. Poor health-seeking behavior was seen as none of the patients identified had sought any care before. Also, they were unaware of their visual status. The main barrier to seek care was unavailability of ophthalmology units in the accessible hospitals.

Conclusion: creating awareness about the importance of ocular health is needed. Facilities of ophthalmological treatment should be made available even in smaller units of healthcare.

Keywords: Ocular morbidities, Camp based approach

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Introduction

Of all the senses, sight must be the most delightful – Helen Keller. Even though of great importance, ophthalmic problems are very prevalent and widely ignored amongst people of all strata. Approximately 285 million people are visually impaired in the world today and this number is continuously increasing steadily. 39 million people are blind and 246 million people have low vision.¹ Out of them, 175 million people are suffering from cataract and refractive errors in all ages all over the world, out of which more than 90% visually impaired people live in low-income countries, where ocular morbidities are major concern to the public health. Of all these, 80% visual impairment can be prevented, treated or cured. Developing countries suffer loss of 8% extra years due to disability (Years Lost due to Disability).²

The overall prevalence of ocular morbidities in India is reported to be very high. It has been reported to vary from 20% to 90% in many studies.³⁻⁵ Approximately 71 million people above the age of 60 years suffer from correctable visual impairment in the low-income countries.²

Major causes of blindness globally, in order of frequency are: cataract, uncorrected refractive errors, glaucoma, age-related macular degeneration, corneal opacities, diabetic retinopathy, blinding trachoma and eye conditions in children such as cataract, retinopathy of prematurity and vitamin A deficiency.⁶

Ocular morbidity is defined as a condition in study subject, recognized or suspected, ocular or vision abnormality, which requires treatment or surveillance.⁷ About 90% of blindness in the developing region is avoidable, i.e., preventable or curable. Cataract can be cured with affordable surgery, refractive errors can be corrected with simple optical devices; xerophthalmia and trachoma are easily preventable.⁸

Recent estimates state that prevalence of blindness in India (presenting vision, 6/60 in better eye) was 8.5%. This prevalence varied from 4.2% to 13.7% across various districts in India.⁹

In the year 1976, National Programme for Control of Blindness was launched with the target to decrease the prevalence of blindness from 1.4% to 0.3%. Goal for the 10th Plan was to reduce prevalence of blindness to 0.8% by 2007. During the 11th plan, the scheme is to consolidate gains in controlling cataract blindness and also initiate activities to prevent and control blindness due to other causes.¹⁰

Despite the national program, other causes of blindness are increasing in India and there is lack of locally available data on ocular morbidities; therefore, the present study

was conducted to know the prevalence of common ocular morbid conditions such as refractive error, cataract, dry eye, diabetic retinopathy, age-related macular degeneration, etc., and to know about their epidemiological determinants.

Objectives

- To assess the visual status of people aged 40 years and above;
- To identify and treat ophthalmic morbidities;
- Refer patients to trust hospital;
- Evaluate the barriers in treatment seeking

Methodology

This study was conducted as a camp-based approach in an NGO office for patients residing in that locality of Bhopal. A date was decided and information was circulated in the locality by distributing pamphlets across the nearby colonies. Doctors and ophthalmic technicians were invited from a trust hospital for conducting the ophthalmological examination on the camp day. All the participants who were above the age of 40 years were included in the study. Those below 40 years were examined and treated but were not included in the study group. Verbal consent was taken from the participants for interview and examination. A structured questionnaire was administered to them so as to collect the sociodemographic details. Modified BG Prasad was used for classification of socioeconomic status of participants. Also, presenting ocular complaint, history of present complaint, past history and history of any other systemic illnesses such as diabetes and hypertension along with family history was entered in the questionnaire. Participants underwent an eye examination comprising visual acuity, color vision test using Ishihara plates, and external and internal ocular health examinations.

Visual acuity was recorded as presenting and best corrected using the Snellen chart and the following definitions were used for the same

- Visual impairment: visual acuity of <6/18 in the better eye
- Low vision: visual acuity of <6/18, but ≥6/60 in the better eye
- Blindness: visual acuity of <6/60 in the better eye

A detailed external and internal ocular examination was carried out in a less illuminated room comprising of examination of eyelids, eyelashes, palpebral and bulbar conjunctiva, cornea, sclera, pupil, iris and lens.

Intraocular pressure was measured using Schiottz tonometer, and IOP of >21 mm of Hg was considered for screening of glaucoma.

Dry eye was assessed using Schirmers strips and wetting; <10 mm was considered as dry eye.

Fundus was examined using direct ophthalmoscope.

The patients were prescribed medications and those requiring detailed further investigations or surgeries were referred and sent to trust hospital by the arranged transport.

The data was entered in MS-Excel and analyzed using Epi-info.

Results

The camp was attended by 194 people of the age 40 years and above residing in the locality. The other 38 participants were aged <40 years and thus excluded from the study group. All the participants gave their verbal consent for interview and examination.

Table 1. Distribution of Participants according to Their Sociodemographic Characteristics

Sociodemographic Characteristic	Frequency	Percentage
Age		
40–49	44	22.7
50–59	73	37.6
60–69	56	28.9
>70	21	10.8
Gender		
Male	109	56.2
Female	85	43.8
Religion		
Hindu	167	86.1
Muslim	22	11.34
Christian	2	1.02
Sikh	3	1.54
Social Class		
Upper class	35	18
Upper middle class	51	26.3
Middle class	63	32.5
Lower middle class	33	17
Lower class	12	6.2
Education Status		
Illiterate	8	4.2
Primary	10	5.2
Middle	21	10.8
High school	37	19.1
Higher Secondary	45	23.2
Graduate	42	21.6
Post graduate and above	31	15.9

In Table 1 that shows the sociodemographic characteristics of the people attending the camp, majority of them belonged to the age group of 50–59 years (37.6%) while

very few belonged to the group of >70 years (10.8%). Male constituted 56.2% while women constituted 43.8%. There was higher proportion of Hindu participants.

Table 2. Distribution of Participants according to Their Presenting and Corrected Visual Acuity of Better Eye

Category of Visual Impairment	Visual acuity in the Better Eye	Presenting	Best Corrected
No Visual impairment	≥6/18	121	134
Visual impairment			
Low vision			
1	<6/18–≥6/60	46	39
2	<6/60–≥3/60	18	15
Blindness			
3	<3/60–≥1/60	8	6
4	<1/60–PL	1	-
Total		194	194

Table 2 shows the presenting and best corrected visual acuity of participants. The overall prevalence of visual impairment, low vision, and blindness based on ‘presenting’

visual acuity was 37.6, 32.9, and 4.7%, respectively and best corrected was 30.9, 27.8 and 3.1% respectively.

Table 3. Distribution of Participants according to Ocular Morbidities Present in Them

Morbidity	Total	Right Eye	Left Eye	Bilateral
Cataract	34(17.5)	3(1.55)	2(1.03)	29(14.9)
Aphakia	-	-	-	-
Refractive error with presbyopia	23(11.8)	-	-	23(11.8)
Glaucoma	6(3.1)	1(0.52)	1(0.52)	4(2.06)
Corneal opacity	2(1.03)	1(0.52)	1(0.52)	-
Pterygium	1(0.52)	1(0.52)	-	-
Chalazion	2(1.03)	-	1(0.52)	1(0.52)
Dry eye	3(1.55)	-	-	3(1.55)
Hordeolum	4(2.06)	1(0.52)	3(1.55)	-
Infection	8(4.12)	4(2.06)	3(1.55)	1(0.52)
Fundus abnormalities	8(4.12)	1(0.52)	-	7(3.6)
Total(91)	91(46.9)	12(6.3)	11(5.7)	68(34.9)

Table 3 shows the prevalence of various ocular morbidities amongst study participants. The total overall prevalence was 46.9%. The highest prevalence was that of cataract

(17.5%) followed by refractive error with presbyopia (11.8%) and minimum prevalence was that of pterygium (0.52%).

Table 4. Distribution of Participants according to Barriers in Seeking Care

Barriers in Seeking Care	Frequency	Percentage
Lack of money	23	11.8
Absence of medical insurance	84	43.3
Lack of transport	14	7.21
Unavailability of eye specialist nearby	126	64.9
Apprehension in undergoing surgery	91	46.9
Lack of awareness about problem	47	24.2

Table 4 shows barriers in seeking care amongst participants. The main barrier was unavailability of eye specialist in the accessible/nearby hospital (64.9%) followed by apprehension in undergoing surgery (46.9%).

Discussion

Ocular morbidities are responsible for partial or total blindness. About 30% of blind people in India are said to lose their eye sight before the age of 20 years and many under the age of 5 years.¹¹ Refractive errors, trachoma, conjunctivitis and vitamin A deficiency are the important causes of blindness among children and young age group.^{12,13} Cataract, refractive errors, glaucoma and diabetes are responsible for blindness in middle age; accidents and injuries can occur in all age groups but mostly in age group 20 to 40 years.^{14,15} Therefore, it is necessary to detect these ocular morbidities at the earliest to reduce the complications and disabilities, so that these patients will lead a disability-free life.

In the present study, there were total 194 study subjects out of whom 109 (56.2%) were males and 85 (43.8%) were females . In the present study, literacy rate was found to

be 95.8%. It is higher than the national literacy rate of 74.04%.¹⁶ This may be attributed to the available facilities for education.

In the present study, amongst 194 study subjects, 91 (46.9%) were having ocular morbidities so, prevalence of ocular morbidities in this study was found to be 46.9%. Similar prevalence of ocular morbidities was observed by Gulati et al.¹⁵ They found prevalence of ocular morbidities to be 47.3% while a study done by Gattani¹⁷ (42.3%) and study done by Sharma et.al.¹⁸ (40%) found prevalence of ocular morbidities lower than the present study.

However, Agrawal et al.¹⁹ found the prevalence of ocular morbidity to be 53.0% which is higher than the present study.

Thirty-four study subjects had cataract with a prevalence of 17.5%, followed by refractive error with presbyopia with a prevalence of 11.8%, followed by infections and fundus abnormalities, both with a prevalence of 4.1%, glaucoma suspect (3.1%), hordeolum (2.06%), dry eye (1.55%), corneal opacity (1.03%), chalazion (1.03%), pterygium (0.52%). Similar prevalence of ocular morbid conditions were

observed by Gulati et al.¹⁵ and in various other studies.²⁰⁻²³

The prevalence of glaucoma in the present study (3.1%) was in accordance with various other studies. The prevalence of glaucoma has been found to range from 2.6% to 7.2%.²⁴⁻²⁶

The prevalence of corneal opacity was found to be low (1.03%) in the present study population when compared to other studies. The prevalence of 2.99% in people aged above 50 years was reported by Singh et al.²⁷

In the present study, the prevalence of cataract in those aged 40 years and above was 17.5%. High cataract prevalence rates have been reported from several other studies in India. In the Aravind Comprehensive Eye Survey, the prevalence of cataract in those aged 40 years and above was found to be 47.5%.²⁸

The prevalence of refractive error with presbyopia was reported as 11.8% in the present study. Myopia has been found to be significantly related to age by Dandona et al.²⁹ and Raju et al.³⁰ In both these studies, the prevalence increased from the age group of 20–29 years to the age group of 50–59 years, but decreased thereafter. Several studies in India and abroad have reported an increasing prevalence of hypermetropia up to the fifth decade and a decrease in its prevalence thereafter. Presbyopia is a physiological condition and invariably occurs after the age of 40 years. In the study by Khadse et al.,³¹ prevalence of refractive error was 8.38% which was lower than the present study.

In the present study, prevalence of pterygium was 0.52% which was lower than as reported by Gattani¹⁷ (4.4%). Singh et al.³² reported the prevalence of pterygium to be 5.2.

In the present study, the major factor attributable as a barrier to seek treatment was unavailability of an ophthalmologist nearby or accessible hospital (64.9%), followed by apprehension in undergoing surgery (46.9%) while in a study conducted by kovai et al.,³³ the major barrier was ability to see adequately (68.5%), while in another study by Ajibode et al.,³⁴ cost of hospital services (28.3%) was the most important barrier followed by fear of surgery (24.1%)

Conclusion

In the present study, there is a very high prevalence of cataract and refractive errors amongst the camp participants. Majority of the ocular morbidities that are present in them are preventable and treatable. The eye care services need to be rectified keeping in mind the barriers observed amongst the participants in seeking ophthalmic care. Emphasis should be laid so that preventive action is taken for diseases like glaucoma and treatment is timely provided for cataract and refractive errors. Also, educational interventions should

be planned so that etiology, prevention, treatment and severity of morbidities are better understood amongst all. Along with this, ophthalmic services should be widely available at all accessible healthcare facilities and at a cost that the community can bear.

Conflict of Interest: None

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