

Prevalence of Ocular morbidity in the rural areas of Kanpur Uttar Pradesh, India

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Abstract

Objectives: To find the extent of ocular morbidity in over the age of 20 years of the rural population and to study the factors associated with ocular morbidity and has been a considerable reduction in the infective causes of ocular morbidity.

Materials and methods: A retrospective study was conducted at the department of ophthalmology, Rama medical college hospital and research centre Kanpur Uttar Pradesh during the period of 8 months from August 2019 to March 2020

Results: Total 12186 patients were examined. In which 6472 patients were males and 5714 were females. About 4184 patients (34.33 %) were having refractive error problems, About 4709 patients were found to have cataract. About 481 patients were retina problems, 377 patients were cornea problems, 314 patients were oculoplastic problems, 606 patients were having glaucoma and 1515 patients had other ocular problems.

Conclusions: Programs for cataract surgery, detection and treatment of glaucoma, correction of refractive errors need to be targeted to further reduce the burden of ocular morbidity. Because the global burden of blindness has not significantly altered for over a decade.

Keywords: Ocular morbidity, Cataract, Glaucoma, Ophthalmology

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I. Introduction

About 285 million people worldwide live with visual impairment ¹ of these 39 million peoples are blind (best corrected visual acuity of better eye is less than 3/60) and Low vision. approximately 117 million peoples is due to uncorrected refractive errors ². 80% of global blindness is avoidable one in every three treatable blind people in the world is an Indian. The number of blind persons in india is currently over 18 million and this estimate is 50% more than the figure of 12 million from a decade ago it amounts to about one fourth of all the blind people worldwide making the Indian blind population account for 20% of blindness ³. Globally economic loss due to lost productivity caused by uncorrected refractive errors was estimated around \$ 269 billion ⁴. Eye diseases, vision loss and resulting disability remain major public health concerns ⁵. Cataract is still the major cause of avoidable blindness in india taking the existing prevalence into the account, it may be difficult to achieve total elimination of blindness in india by 2020. In India alone 3.8 million people become blind from cataract each year ⁶. The recent surveys have shown that Cataract, Diabetic Retinopathy, Glaucoma and Childhood blindness have started to cause increased number of blind people in india. Hence ophthalmology in india needs to be more holistic and medical initiatives towards all eye diseases should be taken. The high magnitude of avoidable blindness in india concentrated in the rural areas mainly due to the lack of trained ophthalmologists being present in villages and lack of adequately trained manpower. These problems can be addressed effectively by mobile comprehensive and sustainable eye care systems easily accessible to the rural people in villages.

The estimated number of visual impaired people worldwide is 161 million of whom thirty seven million are blind and 124 million have low vision. The important causes of blindness are cataract, followed by glaucoma and age-related macular degeneration (WHO, 2002). India has 6.7 million blind people. The estimated national prevalence of blindness (VA < 3/60) in general population is 0.7 %. Andhra Pradesh, Bihar, Madhya Pradesh, Uttar Pradesh, Maharashtra and Tamil Nadu contribute nearly two-third cases of blindness in India. Blindness is more common in rural areas, female gender, and the poor (WHO, 2002). The major reasons for the high prevalence of ocular morbidity in India may be increasing life expectancy, significantly more people aged

above 40 years, poor access to eye care facilities in rural areas, misconceptions about cataract surgery, compromised water quality and environmental conditions, and lack of effective eye health education program (NPCB India 1998, 2002). Data regarding the prevalence of ocular morbidity among rural inhabitants is scarce. Such studies will be beneficial in formulating programs to further reduce the burden of visual impairment. With this background, the present study was conducted in the rural areas of Allahabad district to find the extent of ocular morbidity in different subgroups in the study population and identify the factors associated with ocular morbidity.

II. Methodology

The study was conducted at department of ophthalmology, Rama medical college hospital and research centre Kanpur Uttar Pradesh during the period of 8 months from August 2019 to March 2020 to find the prevalence of blindness and other ocular morbidities among adult population of 20 years and above, and also to study determinants of ocular morbidities for example cataract, refractive errors, glaucoma, corneal, retinal, oculoplastic and other ocular problems. The study comprised of 12186 patients visiting to ophthalmology department and assessing them.

The assessment was done using following parameters including –

1. Details about the presence of any complaints related to eye diseases, past history and family history were noted.
2. Distance and near visual acuity measurement,
3. Intra ocular pressure measurement by non contact tonometer
4. Ocular motility evaluation
5. Slit lamp examination
6. Retinoscopy and Fundus examination under dilatation as well as Subjective refraction in those with uncorrected visual acuity of 6/9 in either eye or asthenopic symptoms.

Visual acuity was measured at the 6 meter distance using Snellen's illuminated vision drum. The right eye was tested first and then the left eye. Both eyes with and without glass vision was taken if there was history of use of glasses. If no any ocular diseases or abnormalities found. Then both eyes were dilated and streak Retinoscopy was performed. The subjective refraction or post mydriatic test was performed when the pupils were normal.

A detailed ocular examination of the anterior segment by slit lamp and Fundus examination by slit lamp with 90 D or indirect Ophthalmoscopy with 20 D was done.

The following definitions were used for the study:

Visual impairment: A 'presenting' visual acuity of $< 6/18$ in the better eye⁷.

Low vision: A 'presenting' visual acuity of $< 6/18$, but $\geq 6/60$ in the better eye⁷.

Blindness: A 'presenting' visual acuity of $< 6/60$ in the better eye⁷.

Cataract: Lens opacity accompanied by or capable of causing some level of visual loss⁸.

Corneal opacity: Loss of normal transparency of the cornea.

Glaucoma: An intraocular pressure of more than 21 mm Hg accompanied by a horizontal or vertical cup-disc ratio

difference ≥ 0.6 or a horizontal or vertical cup-disc ratio difference ≥ 0.2 ⁹.

Retina: Any abnormality in Fundus

Oculoplasty: Any diseases or abnormality of Lids

Myopia: Myopia was defined as a spherical equivalent less than - 0.50 diopter sphere (DS)¹⁰.

Hypermetropia: Hypermetropia was defined as a spherical equivalent greater than + 0.50 DS¹⁰.

Astigmatism: Astigmatism was defined as a cylindrical error more than 0.50 diopter cylinder (DC) in any axis¹⁰.

III. Results

From August 2019 to March 2020 we have total 12186 patients were examined. In which 6472 patients were males (53.11 %) and 5714 were females (46.89 %). The study shows slightly higher percentage presence of male patients. The percentage of male and female ratio is shown in **Table 1**.

About 4184 patients (34.33 %) were having refractive error problems, in which 1974 patients (16.20 %) were myopic, 1564 patients (12.83 %) were hypermetropic and 646 (5.30 %) patients were astigmatic. (Distribution of refractive error is shown in **Table 3**).

About 4709 patients (38.64 %) were found to have cataract. About 481 patients (3.94 %) were retina problems, 377 patients (3.10 %) were cornea problems, 314 patients (2.57 %) were oculoplastic problems, 606 (4.97 %) patients were having glaucoma and 1515 patients (12.43 %) had other ocular problems as Itching, watering and some of them. The patient's diagnosis analysis is shown in **Table 2**.

Table 1: Demographic profile of study participants

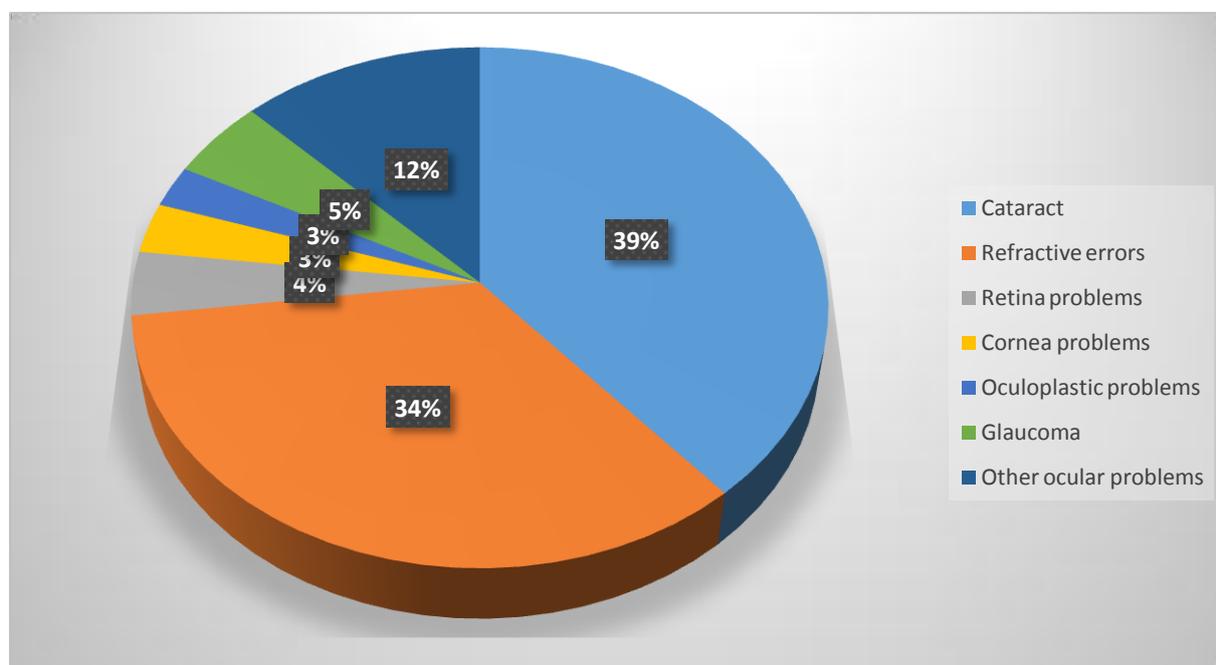
Gender	Frequency	%
Male	6472	53.11 %
Female	5714	46.89 %
Total	12186	

Table 2: Type of Ocular problems in the study population

Type of Ocular problems	Frequency	Percentage (%)
Cataract	4709	38.64 %
Refractive error	4184	34.33 %
Retina problems	481	3.94 %
Cornea problems	377	3.10 %
Oculoplastic problems	314	2.57 %
Glaucoma	606	4.97 %
other ocular problems	1515	12.43 %

Table 3: Distribution of Refractive Error

Refractive Error	Frequency	%
Myopia	1974	16.20 %
Hypermetropia	1564	12.83 %
Astigmatism	646	5.30 %



Prevalence of various ocular morbidities

IV. Discussion

In our study the prevalence of refractive errors was at 34.33 %. The overall incidence in India varies between 21 % to 25 % in patients attending eye OPD ¹¹. The most common cause of ocular morbidities in our study is refractive errors and cataract 72.97 % while slightly high in the Prevalence and causes of visual impairment amongst older adults in a rural area of North india: a cross sectional study is 87 % ¹². the difference is due to age of patients. The prevalence of cataract was found 38.64 % while in a rural area of Pondicherry, the prevalence was found to be 27.7 % in those aged 30 years and above ¹³. In the Aravind Comprehensive Eye Survey, the prevalence of cataract in those aged 40 years and above was found to be 47.5% ¹⁴. About 4.97 % patients were having glaucoma. While in the prevalence of glaucoma has been found slightly high to range from 2.6 % to 7.2 % ¹⁵⁻²⁰. and slightly low prevalence of glaucoma 0.9 % was found in Aligarh study 2009 ²¹ and 0.59 % was found in A Pilot study at Tamil Nadu ²²

V. Conclusions

People should be educated about the risk of developing ocular morbidity, causes, preventive measures, and appropriate treatment. Health education programs should target specifically older age groups who are at risk

of developing ocular morbidity. Health programs should be targeted specifically towards these groups who are at higher risk of developing ocular morbidity.

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Ethical approval: The study was approved by the Institutional Ethics Committee.

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