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## **Original Research Article**

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# Evaluation of community outreach program for detection of prevalence and causes of visual impairment in East Uttar Pradesh region

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#### **ABSTRACT**

Background: The purpose of this study was to find out the prevalence and the causes of visual impairments in rural areas of east Uttar Pradesh where peoples are still deprived of the spectacles and other corrective measures.

**Methods:** In this retrospective study eye camps were conducted in 6 districts in east Uttar Pradesh over a period of 2 years from April 2016 to March 2018, we have conducted 893 camps and total 123597 patients were examined and following parameters were used- measure distance and near vision with Snellen's vision drum, refraction, I. O. P., torchlight examination and dilated fundus examination.

Results: About 36.15% patients were having refractive error problems, about 37.10% patients were found to have cataract, 3.20% patients were retina problems, 1.67% patients were cornea problems, 1.31% patients were oculoplastic problems, 1.21% patients were having glaucoma and 19.35% patients had other ocular problems as itching, watering and some of them were referred to base hospital for confirm the diagnosis. Those patients having refractive errors included myopia, hypermetropia and presbyopia glasses were dispensed at eye camp site. The patient require ocular surgery were immediately transferred to base hospital by hospital bus.

Conclusions: The study showing outreach camps really helpful the people those suffering from visually impairment and not able to reach the hospital.

**Keywords:** Ocular, Parameter, Prevalence, Refractive errors, Visual impairment

#### INTRODUCTION

About 285 million people worldwide live with visual impairment 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.<sup>1,2</sup> 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.<sup>3</sup> Globally economic loss due to lost productivity caused by uncorrected refractive errors was

estimated around \$ 269 billion. Eye diseases, vision loss and resulting disability remain major public health concerns.<sup>5</sup> 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.<sup>6</sup> 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. Sitapur eye hospital is a tertiary eye care Centre in north India and is committed to patient care, ophthalmic research, training and comprehensive quality eye care to the rural population. Sitapur eye hospital conducts eye care (outreach) camps in villages of north India. These remote outreach camps must ensure quality especially in terms of screening vision threatening diseases, referral services and affordable rapid rehabilitation. However subsequent interventions and follow up visits require the same medical records at multiple camp locations. To facilitate this, S. E. H. has implemented recording clinical data on electronic medical records (EMR).

#### **Objective**

The purpose of this study is to find out the prevalence and the causes of visual impairments in rural areas of east Uttar Pradesh where peoples are still deprived of the spectacles and other corrective measures.

#### **METHODS**

A community based retrospective study was conducted of all patients who attended screening eye camps, conducted in 6 districts in east Uttar Pradesh over a period of 2 years from April 2016 to March 2018. The study was done at Sitapur Eye Hospital, Sitapur, Uttar Pradesh.

The study was initiated after approval from the institutional Ethics and Research Advisory Committee. Records of all the patients, who attended the outreach camps and referred to base hospital for further evaluation, were analyzed over a period of 6 months from January 2019 to June 2019 and statistical analysis was carried out using SPSS 14.0 for Windows.

Identification of villages for eye camps- The criteria for the villages considered factors such as distance from the base hospital being an important (With in 100 km to 150 km) of the base hospital in Sitapur and where eye care services not available. Prevalence of district wise blindness as published by the DBCS of India. After the districts and villages were identified the permission of the head of the DBCS was obtained.

Conduction of eye camps- The eye camps conducted at rural villages in 6 districts (Sitapur, Lakhimpur khiri, Shahjahanpur, Hardoi, Bahraich and Unnao) of east Uttar Pradesh from April 2016 to March 2018. The participating patients were from villages without access to eye care services. The rural areas are reported to have more burden of visual impairment than urban counterparts. The eye screening camps were conducted by a team of ophthalmologist, optometrists, camp organizer, counselor and social workers. This team travelled to the eye camp sites in a hospital bus with

instruments required for conducting eye screening examinations and following parameters are used-measure distance and near vision with Snellen's vision drum, refraction, IOP, torchlight examination and dilated fundus examination. The patient underwent comprehensive eye examination by the team members to determine the prevalence of any ocular conditions and ophthalmologists advised to the patients for further treatment.

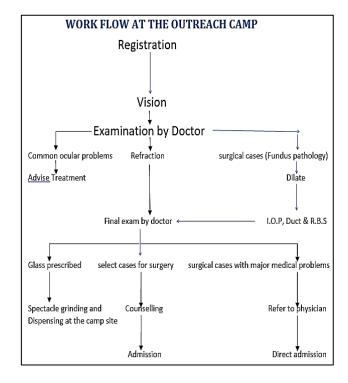


Figure 1: Work flow at the outreach camp.

#### Inclusion criteria

All the patients who attended the outreach camps and who were referred to base hospital for further evaluation.

#### **RESULTS**

From April 2016 to March 2018 we have conducted 893 camps and total 123597 patients were examined. In which 66742 patients were males (53.99%) and 56855 were females (46.01%). The study shows slightly higher percentage presence of male patients. The percentage of male and female ratio is shown in Table 1.

Table 1: Demographic profile of study participants.

Gender	Frequency	0/0
Male	66742	53.99
Female	56855	46.01
Total	123597	

About 44681 patients (36.15%) were having refractive error problems, about 45855 patients (37.10%) were found to have cataract. About 3956 patients (3.20%) were retina problems, 2064 patients (1.67%) were cornea

problems, 1620 patients (1.31%) were oculoplastic problems, 1496 (1.21%) patients were having glaucoma and 23925 patients (19.35%) had other ocular problems as itching, watering and some of them were referred to base hospital for confirm the diagnosis. The patient's diagnosis analysis is shown in Table 2.

Table 2: Type of ocular problems in the study population.

Type of ocular problems	Frequency	%
Refractive error	44681	36.15
Cataract	45855	37.10
Retina problems	3956	3.20
Cornea problems	2064	1.67
Oculoplastic problems	1620	1.31
Glaucoma	1496	1.21
Other ocular problems	23925	19.35

Those patients having refractive errors included myopia, hypermetropia and presbyopia glasses were dispensed at eye camp site.

All the patients with cataract and other disorders require surgical intervention or investigations are taken by hospital bus and free surgery was done in the base hospital.

#### **DISCUSSION**

In our study the prevalence of refractive errors was at 36.15%. The overall incidence in India varies between 21% and 25% in patients attending eye OPD.8 The most common cause for vision impairment in our study was refractive errors and cataract (73%) 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 was 87%, the difference was due to age of patients.<sup>9</sup> The prevalence of cataract was found 37.10% while the in a rural area of Puducherry, the prevalence was found to be 27.7% in those aged 30 years and above.<sup>10</sup> In the Aravind comprehensive eye survey, the prevalence of cataract in those aged 40 years and above was found to be 47.5%. 11 About (1.21%) patients were having glaucoma. While in the prevalence of glaucoma has been found slightly high to range from 2.6% to 7.2% and slightly low prevalence of glaucoma 0.9 % was found in Aligarh study 2009 and 0.59 % was found in a pilot study at Tamil Nadu. 14-19

Limitations of this study was that it was a retrospective study and data only for 2 years was analysed.

## CONCLUSION

The present study suggests that there is a high prevalence of cataract and refractive errors in the study population which are treatable or preventable. Community outreach program appears highly useful in detection of eye disorders due to lack of knowledge awareness that in the backward areas. Where peoples are still deprived of the spectacles and other corrective measures. Which could be immediately get treated at site of program and if not possible treated at camp site transferred to base hospital for further management. The availability and accessibility of eye care services, particularly cataract surgery and refraction services, should be increased. Affordable eye care services should be provided in addition to making these services available and accessible.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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