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Visual Impairment in a Suburban Population in India: A Cross - Sectional Study

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Abstract—*An eye camp was held at a sub urban town in the state of Uttar Pradesh .There were 360 people who registered for screening. The screening was carried out over the period of 3 months. The patients were examined by the doctors, ophthalmologist and assistants. The cross-sectional study of the data collected revealed that cataract and refractive errors were primarily the causes of impairment of vision. There were 35.8% cases of refractive error disease that were reported while cataract was detected in 23.33%. It was also noticed that the cataract primarily affected people in the older age group with the mean age of cataract was seen to be 59 years. The patients were also informed of surgical treatment options for cataract. It was noticed that out of 84 patients only19 availed the treatment*

INTRODUCTION

The visual impairment leading to blindness is major health care issue especially in middle and low socio-economic background. Since most of the refractive errors are treatable, the burden of disease can be lessened by early diagnosis and corrective measures. The purpose of the study is to investigate the prevalence and extent of treatable visual impairments in a suburban population and determine the percentage of people that chose to seek treatment especially of Cataract– the leading cause of preventable blindness in poor countries[1].

The people in rural and suburban areas have less accessibility to treatment options and also lack awareness. The public health camps organized by some non-government and private entities can contribute greatly in reaching out he wider population. The responsibility of general health and well-being if shared can help address the issue at a faster pace.

BACKGROUND

Visual impairment is a growing problem in India. There are more than 62 million people who are affected of which 54 million have low vision and 8 million are blind[2]. The most common form of Visual impairment in India is cataract followed by uncorrected refractive errors[3]

Cataract is a cloudiness or opacity in the normally transparent crystalline lens of the eye. This opacity can reduce the vision significantly and may lead eventually to blindness. Globally cataract is the main cause of blindness. South East Asian region contributes to 50-80% of all blindness[4]. The overall prevalence of cataract — including operated cataract — in those older than 60 years was found to be 73.6% in the study conducted in Delhi[5]. Three out of every four individuals [aged older than 60 years] in this country do have a cataract, Cataract remains the predominant cause of blindness especially in low- and middle-income countries. Incidentally four fifth of these ailments are treatable. It is also known that majority of people with vision impairment are over the age of 50.[6]

According to Directorate General of Health services of Government of India, prevalence of blindness in India is at 0.45 % in which cataract contributes to 62.6 % followed by refractive error at 19.7 %7.

Among children in low income countries, the main cause of vision impairment is congenital cataract.

[1]"Cataract." *IAPB*, The International Agency for the Prevention of Blindness, https://www.iapb.org/knowledge/what-is-avoidable-blindness/cataract/.

[2]Dwarakanathan, Vignesh, and et al. "Prevalence of Visual Impairment and Its Association with Vision-Related Quality of Life among Elderly Persons in a Resettlement Colony of Delhi." *J Family Medical Primary Care*, vol. 8, no. 4, Apr. 2019, pp. 1432–1439., doi:10.4103/jfmpc.jfmpc_188_19.

[3]Malhotra, Sumit, and et al. "Prevalence and Causes of Visual Impairment among Adults Aged 15–49 Years in a Rural Area of North India - A Population-Based Study." *Indian Journal of Ophthalmology*, vol. 66, no. 7, 25 June 2018, pp. 951–956., doi: 10.4103/ijo.IJO_1333_17.

[4]R, Aarthi, and et al. "Prevalence of Cataract among Adults above 50 Years in a Rural Community of Villupuram, Tamil Nadu." *International Journal of Advanced Medical and Health Research*, vol. 2, no. 1, 23 June 2015, pp. 50–54., doi:10.4103/2349-4220.159170.

[5]Murthy, G V S. "High Prevalence of Cataracts Continues." *Healio*, Ocular Surgery News India Edition, Sept. 2008, https://www.healio.com/ophthalmology/cataract-surgery/news/print/ocular-surgery-news-india-edition/{ca0db791-a1fd-4c3c-872f-b2394b065a74}/study-high-prevalence-of-cataracts-continues.

[6]Alswailmi, Farhan Khashim. "Global prevalence and causes of visual impairment with special reference to the general population of Saudi Arabia." *Pakistan journal of medical sciences* vol. 34,3 (2018): 751-756. doi:10.12669/pjms.343.14510

[7]Verma, Ramesh et al. "The national programme for control of blindness in India." *The Australasian medical journal* vol. 4,1 (2011): 1-3. doi:10.4066/AMJ.2011.505

The International Classification of Diseases 11 (2018)[8] classifies vision impairment into two groups- distance and near distance vision impairment:

Classification for Vision Impairment:

Mild- presenting visual acuity worse than 6/2

Moderate- presenting visual acuity worse than 6/18

Severe- presenting visual acuity worse than 6/60

Blindness- presenting visual acuity worse than 3/60

Population growth and ageing increase the risk that more people acquire vision impairment and in low income countries like India the cases of blindness pile up due to the lack of medical infrastructure especially in rural areas.

METHOD

The eye screening camps were held by a private hospital in the small town of the state of Uttar Pradesh called Pukhrayan which is located in the Kanpur Dehat area. The area is located at the distance of 68 kms from the main city of Kanpur. A cross sectional study takes into account 360 patients who registered and were screened for eye problems from the month of April to July 2019. The age, gender and ocular diagnosis was considered in the study.

The participants belonged to lower socio-economic strata, belonging to different rural towns in India which neighbored the town of Pukhrayan where the camps were set. Out of the sample, 186 subjects were female and 174 were male. The age of the subjects ranged from 1 month old to 90 years old with the mean age being 41.5 years old.

A team of 2 ophthalmologist and 4 support staff including an optometrist were involved in the examination of eye conditions.

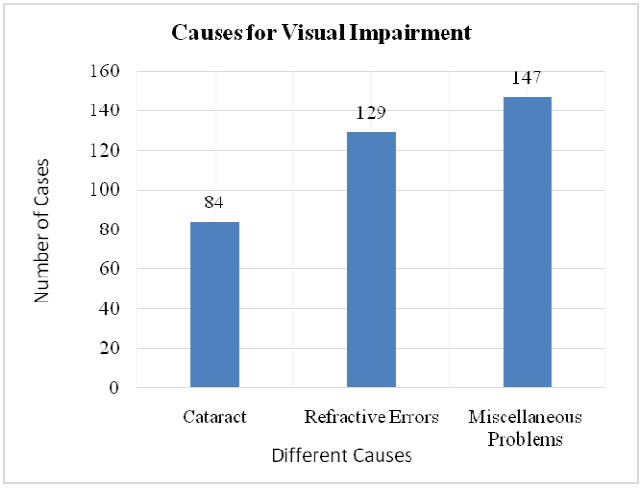
Patients were examined with slit lamps for cataract, refractive errors and miscellaneous problems. Pupils were dilated with 1% tropic amide eye drops and fund us examined using Ophthalmoscope. Paramedics examined the visual acuity of the patients using Snellen chart. Intra ocular pressure was measured using tonometers.

For the purpose of this study, the diagnosis of the patients was divided into3 main categories: cataract, refractive error (Myopia, Presbyopia, Astigmatism, Hyperopia), and miscellaneous problems (allergies, squint, dry eye).

For the cases of cataract, the camps offered corrective treatment which involves removal of the clouded lens which is replaced by an artificial lens to improve eyesight.

RESULTS

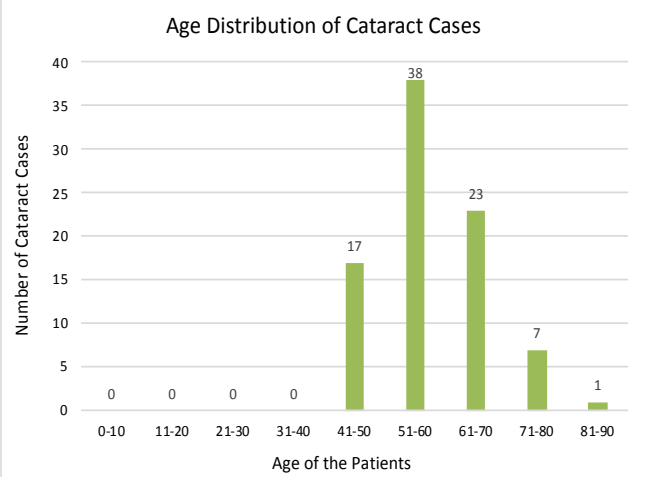
Out of the patients screened, the majority (40.83%) suffered from miscellaneous problems that were temporary and did not pose great visual impairment. The next most common cause for impairment was refractive errors which made up 35.83% of the afflicted population. The least common cause for visual impairment found was cataract which made up 23.33% of the cases. While the cases of cataract were the least when divided by category, when compared as distinct, individual problems, cataract made up the largest percentage of the cause of visual impairment.



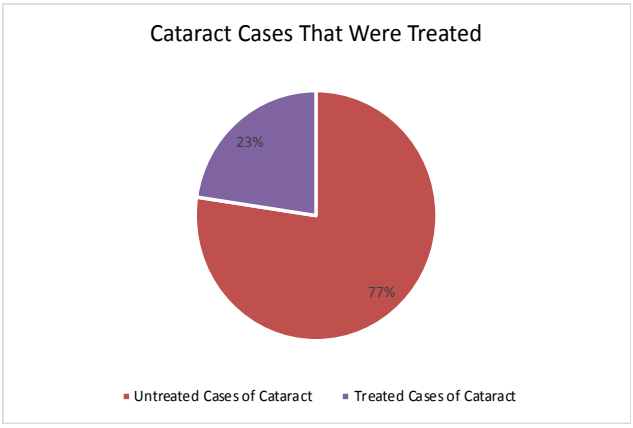
The cases of cataract were further analyzed to understand the ages at which cataract presents as a problem causing visual impairment. Thus, the data was divided in decades and the number of cataract cases were enumerated. The results showed that cataract cases started becoming a problem once the patients entered their 40s with no cases of cataract reported for ages 0-40. The results showed that the mean age for a patient of cataract was 59.15 years. This could be attributed to the

[8]"Vision Impairment and Blindness." *World Health Organization*, World Health Organization, 11 Oct. 2018, https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment.

uneven distribution of the patients that took part in the camp. However, it can be established that cataract affects middle aged to old aged individuals.



Since the camps also offered the service of treating cases of cataract through surgery, the data was interpreted to understand what percentage of individuals who had been diagnosed with cataract sought treatment. The data reveals that out of the 84 diagnosed cases of cataract, only 19 patients (23%) actually availed the offered treatment. While 65 patients (77%) chose t return untreated despite being diagnosed with the cause of their visual impairment. Therefore, the majority preferred not to seek treatment.



The data collected reveals that cataract is the singular, leading cause for visual impairment in the given sample. Upon further analysis of the sample distribution, it is revealed that the age distribution of the cataract cases is lopsided with the cases of cataract manifesting in individuals who are older than 40 years of age. Moreover, when presented with the opportunity to correct the cataract, most individuals chose not the seek treatment.

DISCUSSION

It was concluded from the study that large population in small towns is affected by some form of visual impairment. The predominant cause of visual impairment in adult population mainly over the age of 45 years is due to cataract. Cataract also happens to be the biggest cause of blindness. The awareness and availability of treatment in smaller towns have made it possible for people to undergo surgery. However, the number of people seeking remedial intervention is still small. Lot of work needs to be still done in this direction. In younger age groups, it is mainly the refractive errors that leads to visual impairments. Both major causes of visual impairments that can ultimately lead to blindness are treatable. Thus, suitable awareness and regular screenings in suburban and rural areas can go a long way in preventing debilitating effects of eye diseases on the quality of life.

The voluntary initiatives of non-government and private hospitals have also played a significant role in raising awareness and making treatment accessible to a larger population as it is indicated by data that about 22% of cataract affected patients did seek surgical intervention.

Private initiatives though small, can go a long way in improving overall health of the population and such initiatives should be encouraged.

REFERENCES

[1] "Cataract." *IAPB*, The International Agency for the Prevention of Blindness, https://www.iapb.org/knowledge/what-is-avoidable-blindness/cataract/.

[2] Dwarakanathan, Vignesh, and et al. "Prevalence of Visual Impairment and Its Association with Vision-Related Quality of Life among Elderly Persons in a Resettlement Colony of Delhi." *J Family Medical Primary Care*, vol. 8, no. 4, Apr. 2019, pp. 1432–1439., doi:10.4103/jfmpc.jfmpc_188_19.

[3] Malhotra, Sumit, and et al. "Prevalence and Causes of Visual Impairment among Adults Aged 15–49 Years in a Rural Area of North India - A Population-Based Study." *Indian Journal of Ophthalmology*, vol. 66, no. 7, 25 June 2018, pp. 951–956., doi: 10.4103/ijo.IJO_1333_17.

[4] R, Aarthi, and et al. "Prevalence of Cataract among Adults above 50 Years in a Rural Community of Villupuram, Tamil Nadu." *International Journal of Advanced Medical and Health Research*, vol. 2, no. 1, 23 June 2015, pp. 50–54., doi:10.4103/2349-4220.159170.

[5] Murthy, G V S. "High Prevalence of Cataracts Continues." *Healio*, Ocular Surgery News India Edition, Sept. 2008, https://www.healio.com/ophthalmology/cataract-surgery/news/print/ocular-surgery-news-india-edition/{ca0db791-a1fd-4c3c-872f-b2394b065a74}/study-high-prevalence-of-cataracts-continues.

[6] Alswailmi, Farhan Khashim. "Global prevalence and causes of visual impairment with special reference to the general population of Saudi Arabia." *Pakistan journal of medical sciences* vol. 34,3 (2018): 751-756. doi:10.12669/pjms.343.14510

[7] Verma, Ramesh et al. "The national programme for control of blindness in India." *The Australasian medical journal* vol. 4,1 (2011): 1-3. doi:10.4066/AMJ.2011.505

[8] "Vision Impairment and Blindness." *World Health Organization*, World Health Organization, 11 Oct. 2018, https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment.