Original Research Article

PREVALENCE OF LOW VISION AMONG ADULTS IN URBAN AREA OF MAHARASHTRA

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A B S T R A C T

Background: It is estimated that south Asia has 12 million blind people and 61 million people with moderate or severe VI. The age standardised prevalence of moderate or severe VI in South Asia is three times higher than high-income regions. Much of the load of blindness (80%) has been attributed to avoidable causes that can be either prevented or corrected easily. The maximum VI is seen in older adult population that is after 50 years of age—86% of those blind and 80% of those with moderate or severe VI are older than 50 years. The objective is to determine the prevalence of low vision among adults and ocular conditions leading to same.

Materials and Methods: This descriptive observational study was carried out in Ophthalmology OPD of N. Y. Tasgaongar Medical College, Karjat involving patients attending Ophthalmology OPD in whom low vision was suspected due to many causes including cataract, uncorrected refractive errors, amblyopia, retinitis pigmentosa, diabetic retinopathy and hypertension from January 2024 to November 2024.

Results: Majority of the patients were from above 60 years age group i.e. 34% with mean age of the study population was 47.2±12.19 years. Prevalence of blindness in our study was 41%. Prevalence of mild visual impairment was 3%, moderate impairment was 49% and severe impairment was 7%. Distribution according to etiology revealed that commonest reason for low vision in our study was glaucoma in 31% followed by ARMD in 13%, uncorrected refractive errors in 12%, corneal opacity in 12%, diabetic retinopathy with CME in 7%, retinal detachment in 6% and CRVO in 5%.

Conclusion: Prevalence of blindness in our study was 41%. Commonest reason for low vision in our study was glaucoma in 31% followed by ARMD in 13%, uncorrected refractive errors in 12%, corneal opacity in 12%.

Keywords: Prevalence, low vision, adults, ocular conditions.

INTRODUCTION

Eye diseases, vision loss and resulting disability remain major public health concerns.[1,2] It has been estimated that, globally, 253 million people are visually impaired, out of which 36 million are blind and 217 million have moderate to severe visual impairment (VI).3 Though there has been a decline noted in prevalence of blindness over recent times, blindness has actually increased in absolute terms owing to increase in numbers of older people with rise in life expectancy.[3] Much of this global burden is distributed unevenly and some regions have higher burden compared with others. The south Asia (that includes India) region contributes maximum to global blindness and moderate or severe VI burden.[3] It is estimated that south Asia has 12 million blind people and 61 million people with moderate or severe VI.2 The age standardised prevalence of moderate or severe VI in South Asia is three times higher than high-income regions. Much of the load of blindness (80%) has been attributed to avoidable causes that can be either prevented or corrected easily.[2] The maximum VI is seen in older adult population that is after 50 years of age—86% of those blind and 80%

of those with moderate or severe VI are older than 50 years.[3]

Though there has been recent increase in epidemiological research on VI, these studies are largely done in southern part of India. There is a need to generate population- level evidence on VI in northern states of India for efficient planning of eye care services, where studies in this context are lacking especially from rural parts.[4] Globally, the leading causes of vision impairment are: uncorrected refractive errors, cataract, age-related macular degeneration, glaucoma, diabetic retinopathy, corneal opacity and trachoma. There is some variation in the causes across countries. For example, the proportion of vision impairment attributable to cataract is higher in low- and middle-income countries than high-income countries.[5] In high income countries, diseases such as diabetic retinopathy, glaucoma and age-related macular degeneration are more common.[6-11]

Hence the present study was carried out with the objective to determine the prevalence of low vision among adults and ocular conditions leading to same.

Objectives: To determine the prevalence of low vision among adults and ocular conditions leading to same.

MATERIALS AND METHODS

Study setting: Ophthalmology OPD of N. Y. Tasgaongar Medical College, Karjat,

Study population: Patients attending Ophthalmology OPD of N. Y. Tasgaongar Medical College, Karjat, Maharashtra in whom low vision was suspected due to many causes including cataract, uncorrected refractive errors, amblyopia, retinitis pigmentosa, diabetic retinopathy and hypertension.

Study period: From January 2024 to November 2024

Study design: Descriptive observational study

Sampling technique: Simple random sampling

Inclusion criteria:

- All patients aged 18 years and above presenting with best corrected visual acuity of less than 6/18 but equal to or greater than 3/60 in the better eye or those with significant visual field loss (corresponding visual field loss to less than 20 degrees).
- Patients willing to participate in study after written consent

Exclusion Criteria

- Patients who had psychiatric problems.
- Patients who did not consent to participate in the study.
- Patients with morbid medical conditions.
- Patients with paediatric age group.

Methods of data collection: A Snellens illiterate E acuity chart was used to measure presenting habitual. pinhole and best corrected visual acuity. Pinhole disc was used to detect if reduced visual acuity (VA) is due to refractive error or eye disease anomaly. Where reduced VA was due to refractive error, ophthalmic lenses were used to compensate for the refractive error using subjective refraction and best corrected VA was measured and recorded. Comprehensive slit lamp examination for anterior segment and ophthalmoscopic examination done to view the fundus picture. Applanation tonometry used to measure IOP. Perimetry done to see the visual fields for required patients. A comprehensive eye examination was conducted. After obtaining the written consent, detailed case history, clinical examination of the patient recorded on a detailed proforma.

Statistical analysis and methods: Data was collected by using a structure proforma. Data entered in MS excel sheet and analysed by using SPSS 24.0 version IBM USA. Qualitative data was expressed in terms of proportions. Quantitative data was expressed in terms of Mean and Standard deviation. Association between two qualitative variables was seen by using Chi square/ Fischer's exact test.

Descriptive statistics of each variable was presented in terms of Mean, standard deviation, standard error of mean. A p value of <0.05 was considered as statistically significant whereas a p value <0.001 was considered as highly significant.

RESULTS

We included total 200 patients attending Ophthalmology OPD in whom low vision was suspected. Majority of the patients were from above 60 years age group i.e.34% followed by 22% from 51-60 years age group, 18% from 21-30 years age group, 11% from 41-50 years age group, 8% from less than 20 years and 7% from 31-40 years age group. Mean age of the study population was 47.2±12.19 years.

Table 1: Distribution according to age group

		Frequency	Percent
Age group in years	< 20	8	8.0
	21-30	18	18.0
	31-40	7	7.0
	41-50	11	11.0
	51-60	22	22.0
	> 60	34	34.0
	Total	100	100.0

Table 2: Distribution according to gender

		Frequency	Percent
Gender	Male	68	68.0
	Female	32	32.0
	Total	100	100.0

Majority of the patients were male in our study i.e. 68% and remaining were females i.e. 32%. Male to female ratio was 2.07:1

Table 3: Distribution according to socioeconomic status

		Frequency	Percent
SES	Low	88	88.0
	Middle	12	12.0
	Total	100	100.0

88% of the patients were from lower socioeconomic status

Table 4: Distribution according to grades of blindness

		Frequency	Percent
Grade of visual impairment	Mild	3	3.0
	Moderate	49	49.0
	Severe	7	7.0
	Blindness	41	41.0
	Total	100	100.0

Prevalence of blindness in our study was 41%. Prevalence of mild visual impairment was 3%, moderate impairment was 49% and severe impairment was 7%.

Table 5: Distribution according to etiology

	Frequency	Percent
CORNEA		
Corneal opacity	12	12.0
GLAUCOMA		
Glaucoma	31	31.0
RETINA		
CRVO	5	5.0
Diabetic retinopathy with CME	6	7.0
Retinal detachment	6	6.0
High myopia	1	1.0
Pathological myopia	1	1.0
MACULA		
ARMD	13	13.0
OPTIC NERVE		
Uncorrected refractive error	12	12.0

Distribution according to etiology revealed that commonest reason for low vision in our study was glaucoma in 31% followed by ARMD in 13%, uncorrected refractive errors in 12%, corneal opacity in 12%, diabetic retinopathy with CME in 7%, retinal detachment in 6% and CRVO in 5%.

DISCUSSION

We included total 200 patients attending Ophthalmology OPD in whom low vision was suspected. Majority of the patients were from above 60 years age group i.e.34% followed by 22% from 51-60 years age group, 18% from 21-30 years age group, 11% from 41-50 years age group, 8% from less than 20 years and 7% from 31-40 years age group. Mean age of the study population was 47.2±12.19 years. Majority of the patients were male in our study i.e. 68% and remaining were females i.e. 32%. Male to female ratio was 2.07:1 [Table 1,2] Malhotra S. et al,[7] conducted the study in rural population of Jhajjar district, Haryana, north India to assess the prevalence of low vision and reported that the mean age (SD) of the examined persons was 62.9 (9.7) years, and was similar for both men (63.1 (9.9) years) and women (62.9 (9.5) years).Sapkota K et al8 involved 100 patients of low vision in their study at in the low-vision clinic of Nepal Eye Hospital. They reported that mean age was 32.53 ± 22.90 years, with a range of 4–85 years which is very less as compared to our study findings. About two-thirds (71.5%, 98) of the patients were male. The mean age of the male was 34.05 ± 22.85 years while that of female was 28.69 ± 22.89 years. There was significant difference in the numbers of males and females in terms of the age group.

Prevalence of blindness in our study was 41%. Prevalence of mild visual impairment was 3%, moderate impairment was 49% and severe impairment was 7%. [Table 4]

Malhotra S. et al,[7] at in rural population of Jhajjar district, Haryana, north India and reported that the prevalence of low vision as 24.5% (95% CI 21.1 to 26.3) which was less as compared to our findingsKatibeh M et al,[9] conducted the study in in Yazd, central Iran and reported that the standardized

prevalence of low vision was 4.4% respectively which was significantly associated with older age and female sex which was less as compared to our findings. He Y. et al,[10] conducted the study in in Chinese people over the age of 50 years in Shaanxi Province and reported that the prevalence of low vision was 8.2% which was less as compared to our findings. There were no statistically significant differences between genders in the prevalence of low vision (P>.05). The prevalence of low vision was higher among older individuals (P<.05).

Distribution according to etiology revealed that commonest reason for low vision in our study was glaucoma in 31% followed by ARMD in 13%, uncorrected refractive errors in 12%, corneal opacity in 12%, diabetic retinopathy with CME in 7%, retinal detachment in 6% and CRVO in 5%. [Table 5]

Malhotra S. et al,[7] at in rural population of Jhajjar district, Haryana, north India and reported that reported that the most common causes of low vision were uncorrected refractive errors (50%) and cataract (37%). The central corneal opacities resulted in 65% of low vision. The low vision in study participants was found to be associated with age, gender, marital and educational status. Vashist P et al,[11] conducted the study in 2 areas of north and south India and reported that the prevalence of low vision was 53% in south India (P = 0.01). Sapkota K et al8 involved 100 patients of low vision in their study at in the low-vision clinic of Nepal Eye Hospital. They reported that causes of low vision are nystagmus (30.70%), high refractive error (22.62%), retinitis pigmentosa (15.30%) and age-related macular degeneration (13.10%).

CONCLUSION

Prevalence of blindness in our study was 41%. Commonest reason for low vision in our study was glaucoma in 31% followed by ARMD in 13%, uncorrected refractive errors in 12%, corneal opacity in 12%.

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