

How to Cite:

Singh, S., Singh, K., Gupta, S., & Singh, H. (2022). Awareness regarding presbyopia among the patients presenting to eye OPD at Tertiary care center. *International Journal of Health Sciences*, 6(S3), 4642–4650. <https://doi.org/10.53730/ijhs.v6nS3.6952>

Awareness regarding presbyopia among the patients presenting to eye OPD at Tertiary care center

Dr. Satendra Singh

Assistant Professor, Department of Ophthalmology, People's College of Medical Sciences and RC, BHOPAL (M.P)

Dr. Kanchan Singh

Assistant Professor, Department of Ophthalmology, People's College of Medical Sciences and RC, BHOPAL (M.P)

Dr. Shashank Gupta

Senior Resident, Department of Ophthalmology, Govt. Medical College, RATLAM (M.P)

Dr. Harpal Singh

Professor & HOD, Department of Ophthalmology, People's College of Medical Sciences and RC, BHOPAL (M.P)

Abstract--The study was conducted to assess the awareness of presbyopia among the patients presenting to Eye OPD at Tertiary Care Center. This was a facility based cross sectional study conducted for a period of 1 month on patients belonging to age greater than 35 years presenting to Department of Ophthalmology. Detailed ophthalmic examination including visual acuity, BCVA, refraction, slit lamp examination and Fundus examination was done and findings were noted. About 74.1% participants in present study never heard of near vision loss. Most common reason for not using glasses for near vision was lack of felt need and image distortion. Most common problem faced by males was reading newspaper (78.6%) whereas that among females was threading needle (69.2%). Difficulty in reading newspaper and threading needle were significantly higher in urban residents as compared to rural population. Awareness regarding presbyopia in present study was found to be above average; however awareness regarding cause of presbyopia was poor. Presbyopia affect activities of daily living and most of the participants avoid wearing glasses because of poor quality glasses and difficulty in maintaining spectacles while working.

Keywords---presbyopia, awareness, rural, urban, male, female.

Introduction

Presbyopia is one of the most common ocular problem of old age worldwide and can be defined as inability to focus on near objects which is progressive in nature and results from insufficient accommodative ability as a result of age related loss in elasticity of crystalline lens.^[1] There are multiple factors contributing to presbyopia which include changes in elasticity of lens, hardening of lens, changes in geometry of zonular attachments and ciliary muscle contraction.^[2] Presbyopia typically has onset during 40 to 45 years of age and presents with headache, eye strain, difficulty in reading books or newspaper, and inability to focus on near objects.^[3,4]

In India, the prevalence of uncorrected presbyopia has been estimated to be 33% and the prevalence is expected to rise as the life expectancy has increased.^[5] With progression of presbyopia, as the amplitude of accommodation reduces, the range of clear vision may become inadequate for the patient and have negative impact on self-esteem as well as on activities of daily living such as reading newspaper, seeing mobile and performing tasks which utilize near vision.^[6] Management of presbyopia depend upon nature of work of affected individual and include its corrections with the aid of bifocal glasses.^[7] Though the prevalence of presbyopia is much higher among aging population and it is easily treatable, it has not gained widespread recognition. To the best of our knowledge, there is no past report on awareness of presbyopia among the community of rural and urban population from India. The present study was thus conducted to assess the awareness of presbyopia among rural and urban population.

Aim & Objectives

- To assess factors responsible for not using spectacles
- To assess problems amongst male and female
- To assess problem amongst rural and urban population

Material and Method

The present study was conducted as a cross sectional study in Department of Ophthalmology, People's Hospital Bhopal for a period of 1 month i.e. from 23rd February 2020 to 22nd March 2020. All the patients belonging to age greater than 35 years presenting with best corrected visual acuity better than 6/9 and willing to participate in study were included in the study. However, participants not giving consent and with BCVA less than 6/9 were excluded from the study. After obtaining ethical clearance from Institute's ethical clearance, all the participants fulfilling inclusion criteria were recruiting in the study and written consent was obtained from all the study participants. Data regarding socio-demographic variables was obtained from all the study participants and entered in questionnaire. Further, visual acuity and BCVA were assessed for individual patients using Snellen's chart at a distance of 6 m. Refraction was done for all the patients and findings were documented in questionnaire. Also Snellen's near

vision chart was used to assess the near vision after correcting distant vision at a distance of 25 cm. Further, slit lamp examination was done to assess anterior segment, posterior segment and intra ocular pressure. Fundus examination was also done and findings were noted. Statistical analysis- Data was compiled using MsExcel and analysed using SPSS 20 software. Data was grouped and represented as frequency and percentage whereas quantitative data was expressed as mean and standard deviation. Chi square test was applied to compare the problems amongst males and females and among residents of rural and urban areas. P value<0.05 was considered significant whereas p<0.01 was considered highly significant.

Results

A total of 162 participants fulfilling the inclusion criteria were selected for the study.

Table 1
Distribution according to sociodemographic variables

Sociodemographic variables		Frequency (n=162)	Percent
Age	35-44	66	40.7
	45-54	84	51.9
	≥55	12	7.4
Gender	Male	84	51.9
	Female	78	48.1
Residence	Urban	144	88.9
	Rural	18	11.1
Literacy	Illiterate	12	7.4
	Primary school	66	40.7
	Secondary school	18	11.1
	Higher secondary	24	14.8
	Graduate	36	22.2
	Post graduate	6	3.7
Occupation	Professional	72	44.4
	Labourer	42	25.9
	Housewife	48	29.6

Majority of patients with presbyopia in present study belonged to 45 to 54 years of age (51.9%) followed by 40.7% belonging to 35 to 44 years of age. About 51.9% patients were male and maximum i.e. 88.9% participants were resident of urban area. Majority of study population were educated up to primary school (40.7%) and about 7.4% patients were illiterate. Maximum i.e. 44.4% participants were professionals whereas 29.6% and 25.9% were housewives and labourers respectively. Mean BCVA in Right eye was 0.78 ± 0.18 and that of left eye was 0.77 ± 0.18 . Mean correction required was addition $+1.84 \pm 0.47D$.

Table 2
Distribution according to Problem faced

		Frequency (n=162)	\Percent
Problems	None	12	7.4
	Reading news paper	90	55.6
	Cleaning grain	72	44.4
	Headache	72	44.4
	Recognizing denominator of coins	12	7.4
	Seeing small objects in food	72	44.4
	Threading needle	102	63.0
	Other household work	36	22.2
Distressed/embarrassed with the problem	Yes	30	18.5
	No	132	81.5
Duration between onset and first consultation	0 to 6 months	66	40.7
	6 to 12 months	24	14.8
	1-4 years	42	25.9
	4-8 years	18	11.1
	>8 years	6	3.7
	Don't know	6	3.7
Frequency of visiting an ophthalmologist for correction of near vision	When required	132	81.5
	Yearly	6	3.7
	Monthly	18	11.1
	Not necessary	6	3.7

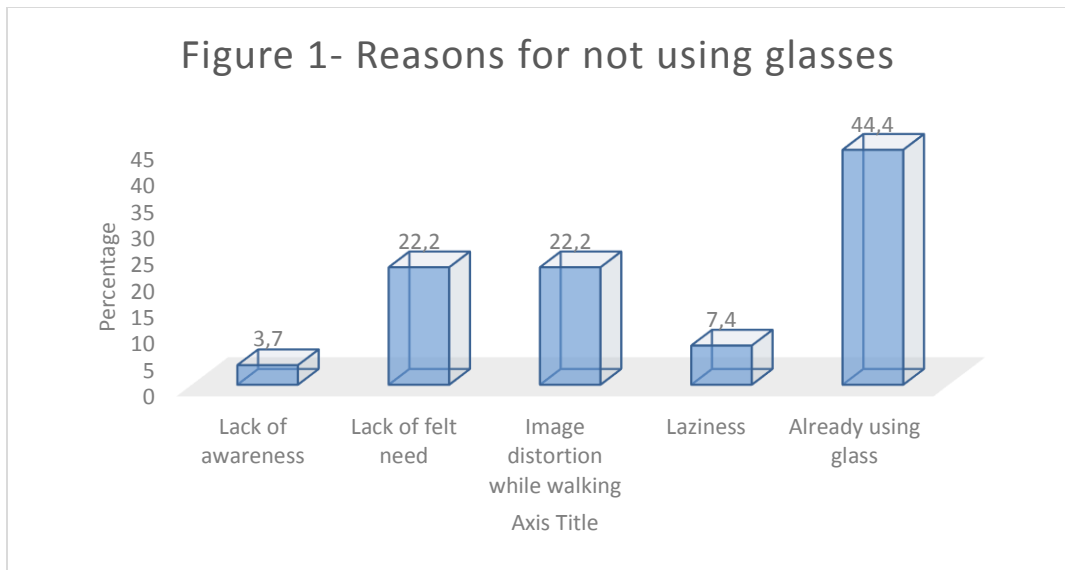
Most common problem revealed by study participants as a result of their presbyopia was difficulty in threading needle (63%) and difficulty in reading newspaper (55.6%) followed by difficulty while cleaning grain, seeing small objects in food and headache in 44.4% cases each. Only 18.5% participants were distressed or embarrassed by their problems. First consultation was sought within 6 months of onset of symptoms in 40.7% cases. Majority of patients visit ophthalmologist for correction of near vision on as and when required basis whereas 3.7% participants felt it is not necessary to visit ophthalmologist for correction of near vision.

Table 3
Awareness regarding presbyopia

		Frequency (n=162)	Percent
Ever heard of near vision loss	Yes	120	74.1
	No	42	25.9
Reasons of people losing their vision after 35 years	Cataract	18	11.1
	Glaucoma	12	7.4
	Age related cause	42	25.9
	Don't know	90	55.6
Treatment for correcting near	Glasses	132	81.5
	Surgery	6	3.7

vision loss	Tablet/ eyedrop	12	7.4
	Cannot be corrected	12	7.4

About 74.1% participants in present study ever heard of near vision loss. Most common reason for losing vision after 35 years as perceived by participants was age related in 25.9% cases followed by cataract and glaucoma in 11.1% and 7.4% cases. However, 55.6% participants didn't know reason for near vision loss. Majority of patients answered glasses are used for correction of presbyopia (81.5%).



Only 44.4% participants were using glasses for near vision correction. Most common reason for not using glasses for near vision was lack of felt need and image distortion while walking (22.2% each). Lack of awareness was documented in 3.7% cases.

Table 4
Association between gender and problems faced

Problems	Gender		P value
	Male	Female	
None	0 (0)	12 (15.4)	0.001
Reading news paper	66 (78.6)	24 (30.8)	0.001
Cleaning grain	24 (28.6)	48 (61.5)	0.001
Headache	30 (35.7)	42 (53.8)	0.02
Recognizing denominator of coins	12 (14.3)	0 (0)	0.001
Seeing small objects in food	36 (42.9)	36 (46.2)	0.67
Threading needle	48 (57.1)	54 (69.2)	0.11
Other household work	6 (7.1)	30 (38.5)	0.001

Most common problem faced by males was reading newspaper (78.6%) followed by threading needle, seeing small objects in food and headache in 57.1%, 42.9% and 35.7% cases respectively. Whereas most common problem among females was threading needle (69.2%) followed by cleaning grain (61.5%) and headache (53.8%). Test of significance (chi square test) observed statistically significant association of gender with reading newspaper, cleaning grain, headache, recognizing denominator of coins and other household work ($p < 0.05$).

Table 5
Association between place of residence and problem faced

Problems	Residence		P value
	Urban	Rural	
None	6 (4.2)	6 (33.3)	0.001
Reading news paper	84 (58.3)	6 (33.3)	0.04
Cleaning grain	66 (45.8)	6 (33.3)	0.31
Headache	66 (45.8)	6 (33.3)	0.31
Recognizing denominator of coins	12 (8.3)	0 (0)	0.20
Seeing small objects in food	66 (45.8)	6 (33.3)	0.31
Threading needle	96 (66.7)	6 (33.3)	0.006
Other household work	30 (20.8)	6 (33.3)	0.23

Difficulty in reading newspaper and threading needle were significantly higher in urban residents as compared to rural population ($p < 0.05$). No statistically significant difference was noted for other problems between rural and urban population ($p > 0.05$).

Discussions

Presbyopia is one of the most common chronic condition involving changes in accommodation of eye. It causes difficulty in near vision and affect especially older individual. The changes of accommodation are usually age related but may be related to changes in ciliary muscle of lens, or capsule of lens or changes in vitreous.^[8,9,10] The present study aimed to assess the awareness among patients presenting with presbyopia and problems faced by them. In present study, presbyopia was commonly affected patients belonging to 45 to 54 years of age (51.9%) whereas 40.7% patients with presbyopia belonged to 35 to 44 years of age. Gajapati et al also documented similar findings in their study on rural female in which more than one third of subjects were in the age group of 40-44 years (37.3%) and 45-49 years (36%).^[11] These findings were comparable to other studies.^[3,6] Literature suggest that prevalence as well as severity of presbyopia is more in females as compared to males.^[12,13] However, present study documented equal occurrence of presbyopia in both gender. Barnawal et al also reported almost equal incidences of presbyopia among males and females.^[14] As the present study was conducted in tertiary care centre maximum i.e. 88.9% participants were resident of urban area.

Only 74.1% participants in present study were aware of near vision loss. Only 25.9% participants were aware regarding the correct reason of presbyopia

whereas majority of patients answered glasses are used for correction of presbyopia (81.5%). In a study by Gajapati et al, 66.7% subjects were not aware regarding near vision loss, however, contrasting to the finding of present study maximum i.e. 86.5% of individuals thought loss of vision was age related. About 92.9% patients in reference study knew glasses are used for the treatment, still about 60.2% patients did not prefer to use spectacles because they felt spectacles were difficult to maintain while doing work.^[11] However in present study, most common reason for not using glasses for near vision was lack of felt need and image distortion while walking (22.2% each). Lack of awareness was observed in 3.7% participants. Kumah et al^[15] and Lavierset al^[16] documented the reason of not using spectacles was poor quality of glasses cost of spectacles and perception of the patients that their Pision was normal. Ramke et al in their study documented lack of awareness regarding treatment of presbyopia as the major barrier for not using spectacles.^[12]

In present study, difficulty in threading needle and reading newspaper were the most common problems encountered by patients. Maximum patients were not embarrassed with their problems associated with presbyopia, only 18.5% participants were distressed or embarrassed by their problems. Our study also assessed association of problems faced by patients with gender and place of residence. The study revealed that difficulty in reading newspaper (78.6%) followed by threading needle (57.1%) were the common problems faced by males whereas difficulty in threading needle (69.2%) followed by cleaning grain (61.5%) and headache (53.8%) were the most common problems faced by females. Our study observed statistically significant association of gender with reading newspaper, cleaning grain, headache, recognizing denominator of coins and other household work ($p < 0.05$). Similarly difficulty in reading newspaper and threading needle were significantly higher in urban residents as compared to rural population ($p < 0.05$). The difference in problems faced by both gender could be explained as in Low Middle income countries, males are concerned with earning the livelihood and females are concerned with household chores. Similarly, rural population is mainly concerned with agricultural or daily wage works and urban population is usually educated and engaged in professional work, the difference in problems encountered between rural urban populations could be explained.

In our study, first consultation was sought within 6 months of onset of symptoms in 40.7% cases and maximum patients visit ophthalmologist for correction of near vision on as and when required basis. However, Gajapati et al in their study observed 7 to 24 months as average time to consult an ophthalmologist.^[11] The delay in seeking consultation in reference study could be due to poor literacy levels especially of females and this problems was not perceived as major to seek treatment by majority of them.^[11]

Conclusion

Awareness regarding presbyopia in present study was found be above average, however awareness regarding cause of presbyopia was poor. Presbyopia affect activities of daily living and most of the participants avoid wearing glasses because of poor quality glasses and difficulty in maintaining spectacles while working. It is necessary to create awareness in general population residing in

both rural as well as in urban areas regarding presbyopia, its symptoms and treatment. Also the patients must be encouraged to seek timely consultation to reduce the burden of disability arising from lack of presbyopia correction.

References

1. Glasser A, Campbell MC. Biometric, optical and physical changes in the isolated human crystalline lens with age in relation to presbyopia. *Vision research*. 1999 Jun 1;39(11):1991-2015.
2. Renna A, Alió JL, Vejarano LF. Pharmacological treatments of presbyopia: a review of modern perspectives. *Eye and Vision*. 2017 Dec;4(1):1-4.
3. Patel IP, Burke A, Munoz B, Kayongoya A. Population based study of presbyopia in rural Tanzania. *Ophthalmology*. 2006;113(5):723-27.
4. Ilesh P, Sheile KW. Presbyopia: Prevalence, impact and intervention. *Community Eye Health J* 2007;20:40-1.
5. Sheeladevi S, Seelam B, Nukella PB, Borah RR, Ali R, Keay L. Prevalence of refractive errors, uncorrected refractive error, and presbyopia in adults in India: A systematic review. *Indian J Ophthalmol* 2019;67:583-92
6. Nirmalan P, Sannapaneni K, Gullapalli NR, Ravi T. A population based assessment of presbyopia in the state of Andhra Pradesh, South India: The Andhra Pradesh eye disease study. *Invest Ophthalmol Visual Sci J*. 2006;47:2324-28
7. Owsley C, McGiwin G Jr, Scilley K. Effect of refractive error correction on health related quality of life and depression in older nursing home residents. *Arch Ophthalmol*. 2007;125(11):1471-77.
8. Duane A. Are the current theories of accommodation correct? *Am J Ophthalmol*. 1925;8:196-202.
9. Eskridge JB. Review of ciliary muscle effort in presbyopia. *American journal of optometry and physiological optics*. 1984 Feb;61(2):133-8.
10. Weale RA. Epidemiology of refractive errors and presbyopia. *Survey of ophthalmology*. 2003 Sep 1;48(5):515-43.
11. Gajapati CV, Pradeep AV, Kakhandaki A, Praveenchandra RK, Rao S. Awareness of Presbyopia among Rural Female Population in North Karnataka. *Journal of Clinical and Diagnostic Research: Jcdr*. 2017 Sep;11(9):NC01.
12. Ramke J, Du Toit R, Palagyi A, Brian G, Naduvilath T. Correction of refractive error and presbyopia in Timor-Leste. *British Journal of Ophthalmology*. 2007 Jul 1;91(7):860-6.
13. Hickenbotham A, Roorda A, Steinmaus C, Glasser A. Meta-Analysis of sex differences in presbyopia. *Investigative ophthalmology & visual science*. 2012;53(6):3215-20.
14. Baranwal VK, Mishra A, Sharma V, Gupta S, Sunder S, Verma S. The Prevalence of Various Eye Diseases Among Patients of Different Nationalities attending the Ophthalmology Clinic at a Tertiary Care United Nations Hospital: A 5 Year Retrospective Analysis. *Journal of Contemporary Medical Research*. 2019;6(9):I7-10.
15. Kumah DB, Lartey SY, Amoah-Duah K. Presbyopia among public senior high school teachers in the Kumasi metropolis. *Ghana medical journal*. 2011;45(1).27-30.

16. Lavers HR, Omar F, Jecha H, Kassim G, Gilbert C. Presbyopic spectacle coverage, willingness to pay for near correction, and the impact of correcting uncorrected presbyopia in adults in Zanzibar, East Africa. *Investigative ophthalmology & visual science*. 2010 Feb 1;51(2):1234-41.