International Journal of Community Medicine and Public Health
Rajput RR et al. Int J Community Med Public Health. 2018 Apr;5(4):1481-1486
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20181221

Original Research Article

Epidemiological profile of ocular morbidities in age group of 20 year and above at field practice area of rural health training center: a cross sectional study

Rupali R. Rajput[1]*, Shashikant R. Pawar[2]

Department of Community Medicine, [1]Lokmanya Tilak Municipal Medical College and General Hospital, Sion, Mumbai, [2]Dr. V. M. Government Medical College, Solapur, Maharashtra, India

Received: 05 January 2018
Revised: 10 February 2018
Accepted: 19 February 2018

***Correspondence:**
Dr. Rupali R. Rajput,
E-mail: rupsrajput1111@gmail.com

ABSTRACT

Background: Ocular morbid conditions are responsible for partial or total blindness. Blindness due to ocular morbidities with its economic and social consequences represents a serious public health problem in different region of the world. According to the World Health Organization; 285 million people are estimated to be visually impaired worldwide: 39 million are blind and 246 million have low vision. The study has to be done to determine the prevalence of blindness and common ocular morbidities in age groups of 20 years and above and to study the distribution patterns of ocular morbidities among different socio-demographic conditions.
Methods: The present cross-sectional study was conducted 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.
Results: Prevalence of blindness was found to be (2.33%) and prevalence for ocular morbidities was found to be (36.84%) in the population with a marginal higher prevalence in females (38.72%) as compared to the males (34.98%).In present study, out of 600 study subject, 221 (36.84%) suffered ocular morbidities. The major cause of morbidities was refractive errors (53.39%), followed by cataract (35.74%), conjunctivitis (1.80%). The prevalence of ocular morbidities in the age group 20-29 year was 11.12%, then it increases significantly ($p<0.01$) with advancing age to 74.21% in the age group of ≥60 years.
Conclusions: Increasing age showed increasing prevalence of ocular morbidity. Widows/widower, Hindu religion, Individuals from nuclear family, skilled worker showed higher prevalence of ocular morbidity.

Keywords: Ocular morbidities, Visual impairment, Socio-demographic

INTRODUCTION

Ocular morbid conditions are responsible for partial or total blindness. Blindness due to ocular morbidities with its economic and social consequences represents a serious public health problem in different region of the world.[1] According to the World Health Organization; 285 million people are estimated to be visually impaired worldwide: 39 million are blind and 246 million have low vision. Approximately 90% of visually impaired people live in developing countries. About 65% of all people who are visually impaired are aged 50 and older, also 82% of people living with blindness are aged 50 and above. This age group comprises about 20% of the world's population. With an increasing elderly population in many countries, more people will be at risk of visual impairment due to chronic eye diseases and ageing processes.[2] As per National Programme for Control of Blindness Survey done in India 2001-02; prevalence of

blindness is estimated to be 1.1%. Main causes of blindness are as follows: cataract (62.6%), refractive error (19.70%), corneal blindness (0.90%), glaucoma (5.80%), surgical complication (1.20%), posterior capsular opacification (0.90%), posterior segment disorders (4.70%) and others (4.19%). Visual impairment can limit people's ability to perform everyday tasks and can affect their quality of life and ability to interact with the surrounding world.[3] So, the present study has been done in rural population to know there eye morbidity status and to spread awareness about the eye problems.

Aims and objective

1) To determine the prevalence of blindness and common ocular morbidities in age groups of 20 years and above.
2) To study the distribution patterns of ocular morbidities among different socio-demographic conditions.

METHODS

The present cross-sectional study was conducted 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 opacities and conjunctivitis.

Study population and sampling techniques

Sample size

As per Survey in 2001-02, prevalence of blindness was estimated to be 1.1%. Rapid survey on avoidable blindness conducted under NPCB during 2006-07 showed reduction in the prevalence of blindness from 1.1% (2001-02) to 1% (2006-07).[4] With allowable error of 1% and at 99% confidence interval. The required sample size is ($N=Z2\ 1-\alpha\ (p.q)/\ (L)^2$) 659. Out of total 4289 households in study area 220 households were selected in sample (5.12% of sample by SRS). However 59 study subjects after interview refused for examination even after counselling, therefore examination of these individuals was not carried out; hence these 59 study subjects were excluded from the study, and we were left with the sample size of 600

The sampling frame

Consisted of total inhabited households 4289 in the village under Rural Health Training Centre of the Department of Community Medicine Government Medical College.

Sampling unit

Was the Households having adult with an age ≥20 of years. To cover the study population, taking average family members of five and considering three adults above the age 20 years, the number of families to be studied turned out to be 220. Out of total 4289 inhabited households, 220 households were selected in sample by systematic random sampling method i.e. every twentieth household was selected in the study sample. After identifying the household, individuals of and above 20 years of age was selected in study sample by systematic random sampling.

Period of study

The period of study was from January 2015 to June 2016.

Data collection

A house to house survey was done selected by systematic random sampling technique. Study subjects were explained about the purpose and methodology of examination. A rapport was established and co-operation was obtained. The timing of the survey was adjusted to suit the convenience of the subjects and to ensure their availability in home. Each individual of the family of and above 20 years was interviewed by using pre- tested questionnaire. Middle most part of area was selected as landmark, the right hand direction for selection of house was decided, and houses existing in that row were given house numbers. After identifying each lane, first of all the households was enlisted serially with chalk piece on each day of visit, then the first household i.e. (No. 2) was selected randomly from the first twentieth households. Then subsequently by adding 20 to the previously selected household number i.e. (22+20=42, 42+20=62) similarly the further households were selected. Then at the end of every day's interview the last home was marked as 'completed home'. On the next day enlisting was started further from previous day's last home which was marked as 'completed home'. The due care was taken to avoid missing of the homes. The individuals were informed about the examination and investigation procedures and assured that they were free to refuse to get examined. After informing the individuals they were motivated to participate in the study. The household head was enquired about the household number, household member and about relevant, socioeconomic and medical history as per the study proforma. Every individual of and above 20 years of age, living in the household for previous six months in the selected household was interviewed and a separate proforma for each individual were filled. The unusual residents i.e. those living in household for less than six months and permanently locked houses were excluded from the study. It was decided to pay three informed visits to include all the selected family members however after three informed consecutive visits at convenient time if some of the family member could not be contacted for examination then they were excluded from the study. However none of the study subject was excluded as all family members were present, so interview of all 659 individuals was taken. However 59 study subjects after interview refused for examination even after counselling, therefore

examination of these individuals was not carried out; hence these 59 study subjects were excluded from the study, and we were left with the sample size of 600 from the total population.

The age of individuals was entered on study proforma in completed years. The household head was enquired for history of ocular morbidities in the family members, if individuals did not know ocular morbidities he/she was further enquired about it in local language as was there any difficulty in watching television or reading newspaper or cleaning grains or any discomfort in their eyes. The Individuals were labelled ocular morbid only when they showed the signs and symptoms, reports and evidence of medication or previous medical examination reports.

Statistical methods

Chi-square test has been used to show statistical association and significance.

RESULTS

The prevalence of ocular morbidities according to marital status was significantly more in widow/widower group (64.44%) and minimum (16.90%) in unmarried. The prevalence of ocular morbidities was maximum (43.38%) in class III socio-economic group as compared to other groups and the result was statistically not significant. In the present study there was highly significance ($p<0.001$) difference in the prevalence of ocular morbidities in relation to the educational status. Similarly, there was no significant ($p>0.05$) relation between the ocular morbidities and the occupation of the individuals as revealed in. Ocular morbidities were more (40.78%) in nuclear families as compared to joint families (32.84%). This difference in the prevalence of ocular morbidities in relation to family type was found to be statistically not significant ($p>0.05$). The prevalence of ocular morbidities was found significantly higher among Hindus (41.20%) in comparison to Muslims (21.05%) (Table 1).

Table 1: Prevalence of ocular morbidities according to socio-demographic factors.

Socio-demographic factor	Ocular morbidities (%)	Population	Test
Age groups in years			x^2=185.405, df=5,
20-29	19 (11.12)	171	p<0.001; highly significant
30-39	19 (13.86)	137	
40-49	46 (45.10)	102	
50-59	42 (67.74)	62	
≥60	95 (74.21)	128	
Gender			
Male	106 (34.98)	303	x^2=0.900, df= 1, p>0.05; not Significant
Female	115 (38.72)	297	
Marital status			
Unmarried	12 (16.90)	71	x^2=16.2, df=2, p<0.01; highly significant
Married	179 (37.06)	483	
Divorced*	1 (100)	1	
Widow/widower	29 (64.44)	45	
Socioeconomic Status			
Class I	20 (37.04)	54	x^2=2.12, df=4, p>0.05; not significant
Class II	26 (32.92)	79	
Class III	36 (43.38)	83	
Class IV	98 (36.30)	270	
Class V	41 (35.96)	114	
Education			
Illiterate	74 (50)	148	x^2=30.1, df=4, p<0.001; highly significant
Primary	34 (54.84)	62	
Secondary	68 (28.58)	238	
High secondary	22 (29.34)	75	
Graduate/PG	23 (29.88)	77	
Occupation			
Unemployed	98 (37.12)	264	x^2=4.06, df=5, p>0.05; not significant
Un skilled worker	30 (32.96)	91	
Semi-skilled worker	2 (16.66)	12	
Skilled worker	46 (41.44)	111	
Clerk/shop owner	36 (38.30)	94	
Professional	9 (32.14)	28	

Continued.

Socio-demographic factor	Ocular morbidities (%)	Population	Test
Family type			
Joint	44 (32.84)	134	x^2=3.08, df=2, p>0.05; not significant
Nuclear	104 (40.78)	255	
Three generation	73 (34.60)	211	
Religion			
Hindu	185 (41.20)	449	x^2=16.2, df=2, p<0.01; highly significant
Muslim	24 (21.05)	114	
Buddhist	10 (29.42)	34	
Others[#]	2 (66.66)	3	

*The number of Divorced was 1 and hence it was not considered for this table. [#]The number of Others religion was 3 and hence it was not considered for this table. #The number of children below the age group of 14 years was 397 and hence they were not considered for this table. Out of them, 52 had ocular morbidities.

Table 2: Distribution of respondents with eye diseases by age.

Ocular morbidities	Age in years					Total No.%
	20-29 No (%)	30-39 No (%)	40-49 No (%)	50-59 No (%)	≥60 No (%)	
Cataract	2 (2.53)	4 (5.06)	5 (6.32)	10 (12.65)	58 (73.41)	79 (35.74)
Refractive errors	14 (11.86)	13 (11.01)	36 (30.50)	27 (22.88)	28 (23.72)	118 (53.39)
Glaucoma	0 (0.0)	0 (0.0)	0 (0.0)	1 (50)	1 (50)	2 (0.90)
Conjunctivitis	1 (25)	1 (25)	1 (25)	1 (25)	0 (0)	4 (1.80)
Corneal opacity	0 (0.0)	0 (0.0)	1 (25)	1 (25)	2 (50)	4 (1.80)
Others	2 (14.28)	1 (7.14)	3 (21.42)	2 (14.28)	6 (42.85)	14 (6.33)
Total	19 (8.59)	19 (8.59)	46 (20.81)	42 (19.00)	95 (42.98)	221 (100)

Table 3: Age and sex wise distribution ocular morbidities.

Age groups	Males		Females		Total		
	With morbidity (%)	Population	With morbidity (%)	Population	With morbidity	Population	Percentage (%)
20-29	12 (13.48)	89	7 (8.53)	82	19	171	11.11
30-39	10 (15.62)	64	9 (12.32)	73	19	137	13.86
40-49	19 (33.92)	56	27 (58.69)	46	46	102	45.09
50-59	17 (58.62)	29	25 (75.75)	33	42	62	67.74
≥60	48 (73.84)	65	47 (74.60)	63	95	128	74.21
Total	106 (34.98)	303	115 (38.72)	297	221	600	36.84

Table 4: Association of ocular morbidities with gender.

Ocular morbidities	Gender		Total No (%)
	Male No (%)	**Female No (%)**	
Cataract	36 (45.56)	43 (54.44)	79 (35.74)
Refractive errors	61 (51.70)	57 (48.30)	118 (53.39)
Glaucoma	1 (50)	1 (50)	2 (0.90)
Conjunctivitis	2 (50)	2 (50)	4 (1.80)
Corneal opacity	1 (25)	3 (75)	4 (1.80)
Others	5 (35.72)	9 (64.28)	14 (6.33)
Total	106 (47.96)	115 (52.04)	221 (100)

X^2=2.56, df=5, p>0.05.

In present study, out of 600 study subject, 221 (36.84%) suffered ocular morbidities. The major cause of morbidities was refractive errors (53.39%), followed by cataract (35.74%), conjunctivitis (1.80%), corneal opacity (1.80%), glaucoma (0.90%) and other ocular morbidities like pterygium and squint which comprised (6.33%) (Figure 1).

As seen in the prevalence of ocular morbidities in the age group 20-29 year was 11.12%, then it increases

significantly (p<0.01) with advancing age to 74.21% in the age group of ≥60 years (Table 2 and 3).

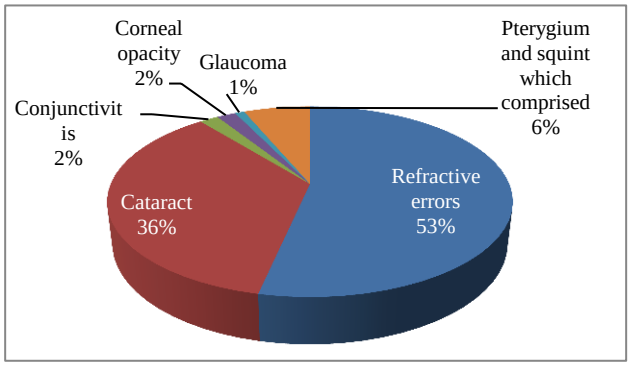

Figure 1: Prevalence of various ocular morbidities.

Prevalence of ocular morbidities was high in female (52.04%) as compare to male (47.96%).

Morbidities like cataract 54.44% followed by other (64.28) like pterygium and squint. There is no significant association found between the gender and ocular morbidities of children. (X^2=2.56, df=5, p>0.05) (Table 4).

DISCUSSION

In this study, the prevalence of ocular morbidities was found to be 36.84%, which is comparable to 32.11% reported by Shrote et al.[5] In the present study, the prevalence of ocular morbidities was found to be significantly associated with age being minimum (11.12%) in 20-29 years' age group and maximum (74.21%) in ≥60 years old. Similar patterns of results were observed by Singh et al, Haq et al.[6,7]

Ocular morbidities were found to be higher in females (52.04%) than in males (47.96%), but the relation was not statistically significant in both genders. Similar marginal difference was observed by Singh et al in Allahabad, Chadha et al also reported (52.4%) among females and (47.8%) in males, however Khurana et al reported significantly higher prevalence of ocular morbidities in females (73.5%) as compared to males (49.4%) in Haryana.[6,8,9] Refractive errors were the major causes of morbidities in all the ages i.e. (19.66%). Similar results were obtained by Singh et al (21.59%) and also by Haq et al (23.1%).[6,7]

In this study widows/widower had the maximum prevalence of ocular morbidities (64.44%) while unmarried people had the least prevalence (16.90%) and this association was highly significant (p<0.01). Similarly Agrawal et al reported higher prevalence of (96%) among widow/widower and minimum (29.7%) among unmarried study subjects.[10]

There was no significant association of ocular morbidities with socio-economic status being highest (43.38%) in the class III socio-economic group and lowest (32.92%) in the class II socio- economic status. Similarly Shrote et al Yavatmal, reported higher prevalence of (55%) among individuals from lower middle socio-economic status and minimum (30.07%) among higher socio- economic status.[11]

In this study there was highly statistically significant association in the prevalence of ocular morbidities with literacy status (p<0.01) similarly Singh et al and Chadha et al observed maximum prevalence of ocular morbidity among illiterate individuals than literate ones.[6,8] Maximum prevalence of (41.44%) among skilled workers and minimum (16.66%) among semi-skilled workers and the difference was not found to be statistically significant (p>0.05), however Agrawal et al reported maximum prevalence of (69.0%) among clerk/shop owners and minimum (48.1%) among semiprofessionals.[10] Result showed that maximum prevalence of Ocular morbidities was among nuclear families (40.78%) and minimum (32.84%) among individuals from joint family, the difference was not found to be statistically significant, however Chadha et al reported maximum prevalence of (56.3%) among individuals from joint family as compared to (40.7%) among individuals from nuclear family.[8] Maximum (66.66%) prevalence of ocular morbidity was observed in Jain religion but there were only three individuals from Jain religion apart from that maximum (41.20%) prevalence of ocular morbidity was observed in Hindus and minimum (21.05%) in Muslims which was found to be highly significant (p<0.01). Similarly to the findings Khadse et al reported higher prevalence of (50.28%) among Hindus and minimum (12.95%) among Muslims.[11]

CONCLUSION

In the present study the out of total 600 study subjects (50.5%) were male and (49.5%) were female. Prevalence of blindness was found to be (2.33%) and prevalence for ocular morbidities was found to be (36.84%) in the population with a marginal higher prevalence in females (38.72%) as compared to the males (34.98%). The most common cause of ocular morbidity was refractive errors (53.39%) followed by cataract (35.74%), conjunctivitis (1.80%), corneal opacity (1.80%) and glaucoma (0.90%). Increasing age showed increasing prevalence of ocular morbidity. Widows/ widower, Hindu religion, Individuals from nuclear family, skilled worker showed higher prevalence of ocular morbidity.

Recommendations

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. Prevalence of ocular morbidities was observed with greater predominance among old age, females, widows and individuals from

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

ACKNOWLEDGEMENTS

Authors would like to thank all the study subjects and college authorities for co-operating toward health appraisal. We would like to acknowledge all the interns and post-graduates in the Department of Community Medicine for conducting in study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Segre L, Bagi S. Eye Anatomy: Parts of the Eye, All about vision. California, America, AAV Media, LLC, 1010 Turquoise Street, Suite 275, San Diego, California, 2016, [About 1 screen]. Available at: http://www.allaboutvision.com/resources/anatomy.htm. Accessed on 10 September 2016.
2. Thylefors B. Avoidable blindness.World Health Organization, Geneva, Switzerland: World Health Organization. Director Disability, Injury Prevention and Rehabilitation, World Health Organization; 1999;77(6):453.
3. Causes of blindness and visual impairment. Prevention of Blindness and Visual Impairment/part; Bull World Health Organ, Geneva Switzerland: World Health Organization; 2016. Available at: http://www.who.int/topics/blindness/en/. Accessed on 15 June 2015.
4. Kishore J. National Programme for Control of Blindness. 4th ed. Century Publications; National Health Programmes of India, New Delhi; 2002: 168-175.
5. Shrote VK, Thakre SS, Thakre SB, Brahmapurkar KP, Giri VC. Study of Some Epidemiological Determinants of Ocular Morbid Conditions in The Rural Area Of Central India. IOSR J Dental Med Sci. 2012;2(1):34-8.
6. Singh A, Dwivedi S, Dabral SB, Bihari V, Rastogi AK, Kumar D. Ocular morbidity in rural areas of Allahabad, India. Nepal J Ophthalmol. 2012;4(7):49-53.
7. Haq I, Khan Z, Khalique N, Amir A, Jilani FA, Zaidi M. Prevalence of Common Ocular Morbidities in Adult Population of Aligarh. Indian J Community Med. 2009;34(3):195-201.
8. Chadha S, Kumar S, Singh JV, Sehgal S, Baijal V, Raghav SK. Prevalence of Ocular Morbidities and its Socio-demographic correlates in an urban slum of western Uttar Pradesh, India. Indian J Community Health. 2016;28(2):174-8.
9. Khurana AK, Sikka KL, Parmar IP, Aggarwal SK. Ocular morbidity among school children in Rohtak City. Indian J Public Health. 1984;28(4):217-20.
10. Agrawal D, Singh JV, Garg SK, Chopra H, Roy R, Chaturvedi M. Current trends in eye diseases and its correlates in an urban population. Indian J Community Health. 2015;27(1):41-5.
11. Khadse A, Narlawar U, Humne A, Ughade S, Dhanorkar A, Wankhede K. Prevalence of ocular morbidities and its correlates in an urban slum of central India. Health sciences: An Int J. 2014;4(1):6-12.

Cite this article as: Rajput RR, Pawar SR. Epidemiological profile of ocular morbidities in age group of 20 year and above at field practice area of rural health training center: a cross sectional study. Int J Community Med Public Health 2018;5:1481-6.