



“A SURVEY OF OCULAR MORBIDITY IN SCHOOL GOING CHILDREN”

Ophthalmology

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ABSTRACT

Introduction Mostly ocular morbidity originates in childhood and if gone undetected, may result in severe ocular disabilities. Children in the school-going age group (6-16 years) represent 25% of the population in the developing countries and schools are best platform to assess their various health concern **Objective** To determine the causes and prevalence pattern of ocular morbidity among primary school children aged between 7 to 14 years.

Material and method A cross-sectional study, carried out in the government schools in the rural area of Gwalior division after seeking permission from principal and parents for ocular examination of children which included visual acuity, torch light, fundus examination

Results The prevalence of ocular morbidity is 11.2% of which refractive error constitute about 5.61% followed by vitamin A deficiency 1.8%. There is significant correlation between parent's education status and ocular morbidity.

KEYWORDS

Ocular morbidity, school children, refractive error, prevalence

INTRODUCTION :

Mostly ocular morbidity originates in childhood and if gone undetected, may result in severe ocular disabilities.¹ If children are diagnosed and treated early, there is a great prospect for higher education, better understanding and prosperous life. Early years of life are most important in determining physical, intellectual and behavioural development.²

About 1.4 million children diagnosed with blindness in the world. It is seen that blindness is more prevalent in developing countries (1.5/1000) when compared to developed countries (0.3/1000).³ In India 3.2 million children are blind under the age of 16 years.

School going children (6-16 years) represent 25% of the population in the developing countries and schools provide the best platform to assess the health concern among this target group.^{2,4}

National program for control of blindness was launched in 1976 as a 100% centrally sponsored scheme with the goal to reduce blindness from 1.4% to 0.3%.^{2,5} School health program incorporating School Eye Screening (SES) was initiated under National Program for Control of Blindness (NPCB) in 1994.⁶

School eye screening is a cost-effective method that plays a vital role in early detection, prevention and treatment of childhood blindness/visual impairment. We aim to study the prevalence and causes of ocular morbidity among children, with a view to amassing data, that can be used as aid to plan interventional measures under Vision 2020: the right to sight, which can stem the tide of avoidable blindness.¹

OBJECTIVE:

To determine the causes and prevalence pattern of ocular morbidity among primary school children aged between 7 to 14 years.

MATERIAL AND METHODS:

- A cross-sectional study, carried out in the government schools in the rural area of Gwalior division during the period between February 2016 and January 2017 to know the prevalence of ocular morbidity in school children and their correlation with socio-demographic profile. Ethical clearance was obtained from institution before conducting the study. Government Schools were randomly selected in rural areas of Gwalior. Permission was sought from the principal of the selected schools for the visit. They

informed and seek permission from the parents of the student regarding the study.

- All schools going children of age between 7-14 years were included.

METHOD OF EYE EXAMINATION IN SCHOOLS

Examinations were performed in the school compound with proper light availability.

- The first part of the questionnaire dealt with information regarding child's age, Sex, Residential address, Number of family members, Parent's occupation and education, Income, Socio economic and nutritional status as per BMI
- The second part of the questionnaire included ocular complaints (if any), vision testing (visual acuity, visual acuity with pin hole near and color vision), ocular examination (torch light exam, cover-uncover test and fundus exam).

Referral card to the tertiary care Centre was given to the school teachers for the children with visual acuity less than 6/9 in either eye, strabismus, cataract, ptosis, trauma, corneal disorders, vitamin A deficiency, developmental anomalies, or any other ocular disorder. Then a full detailed routine examination and management was done at tertiary care Centre.

ANALYSIS METHOD

Analysis was done using SPSS version 20, descriptive interpretation of data was done in the form of percentages. The Chi-square test was used to test differences in proportions. Differences were considered to be statistically significant at the 5% level.

RESULT AND DISCUSSION:

Total 500 students were enrolled in study of which 278(55.6%) were males and 222(44.4%) were females. The mean age of students is 10.39± 2.32 years. Maximum number of the students belong to the Upper Middle (UM) class, 13.4% students were underweight, 3.4% overweight and 4.2% obese. Table 1 showing demographic profile of study population

Table 1

STUDY POPULATION	NUMBER(n)	PERCENTAGE
AGE GROUP (AGE IN YEARS)		
7-8	137	27.4

9-10	122	24.4
11-12	114	22.8
13-14	127	25.4
SEX		
MALES	278	55.6
FEMALES	222	44.4
SOCIOECONOMIC STATUS		
I(UC)	79	15.8
II (UM)	227	45.4
III (MC)	98	19.6
IV (LM)	57	11.4
V (LC)	39	7.8
FATHERS EDUCATION		
ILLITERATE	48	9.6
PRIMARY	161	32.2
SECONDARY	100	20
HIGHER SECONDARY	127	25.4
GRADUATE	64	12.8
MOTHER EDUCATION		
ILLITERATE	47	9.4
PRIMARY	133	26.6
SECONDARY	102	20.4
HIGHER SECONDARY	149	29.8
GRADUATE	69	13.8
W/H RATIO		
UNDERWEIGHT	67	13.4
NORMAL	395	79
OVERWEIGHT	17	3.4
OBESE	21	4.2
FATHER OCCUPATION		
FARMER/UNSKILLED/ LABOURER	187	37.4
SKILLED/ SERVICE	274	54.8
GOVT. JOB / BUSNISSMAN	39	7.8

In this study, out of 500 students 56 (11.2%) students had some ocular morbidity while 88.8% were did not had any ocular problem. The prevalence of ocular morbidity in students was 11.2%.

Similar finding was observed by a study by Singh H ⁷Prajapati P⁸JNMC B⁹Kumar P¹⁰Bansal A¹¹Naik R¹²

A higher prevalence of ocular morbidity was also reported in studies done by Gupta M¹³Panwar N¹⁴Tripura K¹⁵Deshpande Jayant D.¹⁶ These differences in prevalence can be explained partly by different characteristics of the study population, such as race, lifestyle, geographic location, socioeconomic status, nutritional variations and living conditions. International differences¹⁶ in prevalence may also be explained by racial and ethnic variations, different lifestyles and living conditions in addition to the different methodologies used. Lower prevalence of ocular morbidity in current study compared to other studies carried out in past may be due to improved living conditions, with better availability of health services. Table 2 showing the distribution of prevalence of overall ocular morbidity

Table 2

SR. NO.	OCULAR MORBIDITY	NUMBER (N=56)	PERCENTAGE	PREVALENCE (%)
1	Refractive error	28	50	5.61
2	Vitamin A deficiency	9	17.85	1.8
3	Conjunctivitis	7	12.5	1.4
4	Chalazion	1	1.78	0.2
5	Colour vision defect	1	1.78	0.2
6	Amblyopia	1	1.78	0.2
7	Stye	2	3.57	0.4
8	Squint	2	3.57	0.4
9	Corneal opacity	1	1.78	0.2
10	Ptosis	1	1.78	0.2
11	Blepharitis	3	5.36	0.6

Refractive error though preventable cause of ocular morbidity attains

highest prevalence (5.61%) among school age children .This high prevalence of refractive error is consistant with other studies^{4,7,8,15}

This is followed by vit A deficiency and conjunctivitis. In our present study, 1(0.2%) of the children had corneal opacities which was in accordance with the previous Indian studies that have documented the prevalence of corneal opacities as 1.4% (Gupta M et al. ⁴) and 0.4% (Naik R et al. ¹⁵). Ocular trauma was the contributing factor in children with corneal opacities.

In our study, cumulatively lid diseases like Blephritis, Chalazion, Stye and Ptosis forms 12.5% of ocular morbidity with 1.4% prevalence. Similar prevalence of lid abnormalities were noted by Madhavi MR et al. ¹⁷ . The possible causes of lid abnormalities in study population could be more outdoor activity as age increases, low nutrition diet and low literacy level of parents regarding hygiene and health education.

Ptosis was found in 1 (0.2%) case which was congenital in origin and was ignored by parents due to lack of knowledge about the disease.

In our study 1 case of color vision defect (0.2%) was found, this was comparable to Bedi R et.al.¹ and Kruthika K et al. ⁹ having a prevalence of 0.29% and 0.3% as Children are less likely to attend eye care service for color blindness.

Table 3 showing the association of ocular morbidity with various parameters.

OCULAR MORBIDITY(56)	PRESENT (PERCENTAGE)	ABSENT (PERCENTAGE)	TOTAL	P-VALUE
AGE GROUP (AGE IN YEARS)				
7-8	11(8.02%)	126(91.98%)	137	0.3572
9-10	13(10.65%)	109(89.35%)	122	
11-12	13(11.40%)	101(88.6%)	114	
13-14	19(17.50%)	108(82.5%)	127	
SEX				
MALES	31(11.15%)	247(88.85%)	278	0.969
FEMALES	25(11.26%)	197(88.74%)	222	
SOCIO ECONOMIC STATUS				
I(UC)	2(2.5%)	77(97.5%)	79	0.835
II (UM)	26(11.26%)	201(88.74%)	227	
III (MC)	14(14.29%)	84(85.2%)	98	
IV (LM)	9(15.8%)	48(84.2%)	57	
V (LC)	5(12.82%)	34(87.2%)	39	
FATHERS EDUCATION				
ILLITERATE	12(25%)	36(75%)	48	0.0078
PRIMARY	21(13%)	140(87%)	161	
SECONDARY	8(8%)	92(92%)	100	
HIGHER SECONDARY	8(8.3%)	119(93.7%)	127	
GRADUATE	7(10.9%)	57(89.1%)	64	
MOTHER EDUCATION				
ILLITERATE	16(36.04%)	31(63.96%)	47	0.0001
PRIMARY	22(16.5%)	111(83.5%)	133	
SECONDARY	7(6%)	95(94%)	102	
HIGHER SECONDARY	6(3.3%)	143(96.7%)	149	
GRADUATE	5(7.24%)	64(92.76%)	69	
W/H RATIO				
UNDER WEIGHT	20(29.80%)	47(70.20%)	67	<0.0001
NORMAL	33(8.35%)	362(91.65%)	395	
OVER WEIGHT	1(5.80%)	16(94%)	17	
OBESE	2(9.50%)	19(90.5%)	21	
FATHER OCCUPATION				
FARMER/UNSKILLED/LABOURER	26(13.9%)	161(86.1%)	187	0.138
SKILLED/ SERVICE	28(10.2%)	246(89.8%)	274	
GOVT. JOB / BUSNISSMAN	2(4.25%)	45(95.75%)	47	

In our study, no association of age with ocular morbidity was found. Maximum ocular morbidity was found in the age group 13-14 yrs. and minimum in the age group 7-8 yrs. Similar results were obtained by studies^{13,16} while studies^{7,18} found different results. The difference may be due to different study areas. Increase in prevalence of ocular morbidity with increase in age in this study could be attributed to the cumulative effect of diseases such as uncorrected refractive errors and possibly greater exposure in older children leading to higher incidence of conjunctivitis and lid diseases like sty and blepharitis.

In our study, association of father's occupation and socio economic status was not statistically significant with ocular morbidity. Similar to Kumar P et al.¹⁰ and Sharma A et al.¹⁸ However parents education was found statistically significant with ocular morbidity with $p < 0.005$. Students with less educated parents were having a more proportion of ocular morbidity similar to results of other studies.^{8,10,15,16}

Mother's literacy status was more important with respect to ocular morbidity as mother is usually with the child and taking care in illness as compared to fathers.

CONCLUSION

In present study, the prevalence of ocular morbidity is 11.2% of which refractive error constitute about 5.61% followed by vitamin A deficiency 1.8%. There is significant correlation between parent's education status and ocular morbidity. Significant correlation was also found between nutritional status and ocular morbidity status with p value of < 0.0001 .

It is recommended that the Refractive errors, Vitamin A deficiency, squint, and conjunctivitis and lid disorders should be the primary concerns while planning for a screening event among school children.

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