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Research Paper

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Epidemiological Study of Refractive Errors In School Going Children

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ABSTRACT

PURPOSE: To study prevalence & distribution of refractive errors in school going children from 8 years to 16 years .
METHODS:A cross sectional study was done.1957 children of 8 years to 16 years from 3 schools of Nirnaynagar area, Ahmedabad were examined. 1957 children were divided in 3 groups according to age .Group 1 -8 to 10 years of age, Group 2 -11 to 13 years of age, Group 3- 14 to 16 years of age.
RESULT:In our study prevalence of refractive error was 31.07%. 18.28% in group 1, 35.30% in group 2 and 38.43% in group 3. Prevalence of refractive error amongfemales(33.54%) and in males(29.38%).Prevalence ofsimple myopia(21.62%) was higher among all refractive error Second was astigmatism(8.79%) and third was hypermetropia (0.65%).
CONCLUSION:Prevalence of refractive error increases withage, higher in female ..Prevalence ofsimple myopia(21.62%) was higher probably due to intense near work like reading,watching television,working on computer.

Introduction:

- Refractive errors are the main cause for preventable blindness in age group of 5 to 15 years.
- It has a considerable impact on learning and academic achievement
- Myopia-prevalence increase due to intense near work. Now a days use of mobile , i- pad ,video games increases this risk.
- Hyperopia-decrease with age among children
- Children born with physiological hyperopia-decrease with age due to optical development.

Aims and Objectives:

To study prevalence & distribution of refractive errors in school going children from 8 years to 16 year.

Methodology:

- A cross sectional study was done.
- 1957 children of 8 years to 16 years from 3 schools of Nirnaynagar area,Ahmedabad were examined. Out of 1957 children 1164 were male and 793 were female.
- Participation was voluntary and informed consent was obtained from the school principals and parents of all schoolchildren.
- The examination included retinoscopy under cycloplegia on each child who failed reading test.
- Hyperopia was defined as spherical power of ≥+2.00 diopters sphere (DS), myopia as ≥ -0.50 D and astigmatism as a cylindrical power of ≥ -0.50 D
- 1957 children were divided in 3 groups according to age.
  Group 1 includes 8 to 10 years of age
  Group 2 includes 11 to 13 years of age
  Group 3 includes 14 to 16 years of age

Results:

Table 1 Refractive Errors According To Age

Age Group	Total No. of students screened	Total No. of students having refractive error	% of refractive error
8-10years	618	113	18.28%
11-13 years	626	221	35.30%
14-16years	713	274	38.43%
Total	1957	608	31.07%

Table 2: According To Sex

	Total no of students examined	Total no of students having refractive error	Percentage
Male	1164	342	29.38%
Female	793	266	33.54%

Table 3A:Prevalence Of Myopic And Hypermetropic Refractive Error

	Myopic refractive error			Hypermetropic refractive error		
Age Group	Male	Female	Total	Male	Female	Total
8-10 years	35 (1.79%)	34 (1.74%)	69 (3.52%)	1 (0.05%)	2 (0.10%)	3 (0.15%)
11-13 years	103 (5.26%)	60 (3.06%)	163 (8.32%)	2 (0.10%)	2 (0.10%)	4 (0.20%)
14-16 years	101 (5.16%)	90 (4.60%)	191 (9.76%)	2 (0.10%)	4 (0.20%)	6 (0.30%)
Total	239 (12.21%)	184 (9.40%)	423 (21.61%	5 (0.25%)	8 (0.40%)	13 (0.65%)

Table 3B:Prevalence Of Astigmatic Refractive Error

	Astigmatic refractive error		
Age Group	Male	Female	Total
8-10 years	27 (1.38%)	14 (0.72%)	41 (2.10%)
11-13 years	29 (1.48%)	25 (1.28%)	54 (2.76%)

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14-16years	42 (2.15%)	35 (1.78%)	77 (3.93%)
Total	98 (5.01%)	74 (3.78%)	172 (8.79%)

Table 4:Distribution Of Different Refractive Errors

	Total refractive error			
Age Group	Simple Myopia	Simple Hyperopia	Astigmatism	Total
8-10 years	69 (3.53%)	3 (0.15%)	41 (2.10%)	113 (5.78%)
11-13 years	163 (8.33%)	4 (0.20%)	54 (2.76%)	221 (11.29%)
14-16 years	191 (9.76%)	6 (0.30%)	77 (3.93%)	274 (14.00%)
Total	423 (21.62%)	13 (0.65%)	172 (8.79%)	608 (31.07%)

Discussion

- In our study overall prevalence of refractive error was 31.07%.
- Prevalence of refractive error increases with age.It was 18.28% in group 1,35.30% in group 2 and 38.43% in group 3.
- Prevalence of refractive error was higher among females(33.54%) suggestive of early growth among female than males(29.38%).
- Prevalence of simple myopia(21.62%) was higher among all refractive error.
- Second most common was astigmatism(8.79%) and third one was hypermetropia (0.65%).

Conclusion;

Prevalence of refractive error increases withage, higher in female in school going children in urban population .Prevalence ofsimple myopia(21.62%) was higher probably due to intense near work like reading,watching television,working on computer.

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