

PATTERN OF REFRACTIVE ERRORS AMONG SCHOOL CHILDREN IN KURNOOL DISTRICT, ANDHRA PRADESHG. Narendranath Reddy¹, K. Anjaneyulu²**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: The school children screened in the Kurnool district. The defective children were identified by the teacher, later examined by the ophthalmic team. Total 79,837 were screened, 42,047 were girls and 37,790 were boys. The refractive errors in 1487 children were detected. Myopia is the commonest refractive error and followed by hypermetropia, compound astigmatism.

KEYWORDS: refractive error, retinoscopy, myopia, hypermetropia, astigmatism, visual acuity.

INTRODUCTION: Visual impairment resulting from uncorrected refractive errors remain a significant public health problem worldwide.¹ The significance of refractive error² as a cause of visual impairment only recently assumed ascendancy following the re-conceptualization of visual impairment (blindness and low vision) using presenting visual acuity rather than best corrected visual acuity.³ Using presenting visual acuity (VA) allows for the estimation of the magnitude of visual impairment due to refractive errors. Blindness⁴ is defined in terms of visual acuity (VA) as, 3/60 in the better Seeing Eye and low vision as VA between 6/18 to 3/60 in the better Seeing Eye. An estimated 2.3 billion people worldwide have a refractive error and of these, only 1.8 billion have access to an eye examination and affordable refractive correction.⁵

The majority of the 500 million who do not have access to refractive error services live in developing countries and are mainly children. Undetected and uncorrected refractive errors are a particularly significant problem in school children.⁶ Poor vision and an inability to read material on the chalkboard due to refractive error can profoundly affect a child's participation and learning in the classroom.⁶ It also has serious social implications for the child in school. Teachers who do not realize the plight of the child with respect to his/her visual status may unwittingly scold the child for being lazy and stupid and humiliate him/ her persistently. Unsympathetic schoolmates also taunt the child in the classroom as well as in the playground.⁷

These factors may combine to make the child drop out of school and be a victim of the attendant social problems associated with school drop-outs.⁸ Not infrequently, parents and siblings may undermine and discourage these unfortunate children. One report has documented the severe impact of poor vision on primary school children in Brazil. Specifically, the authors found that children with reduced vision had a 10% higher probability of dropping out of school, an 18% higher probability of repeating a grade and scored about 0.2 to 0.3 standard deviations lower on achievement test.⁹ This study did not, however, indicate whether the poor vision was due to refractive error or not. It does provide a peek into the impact of poor vision on academic achievement.⁷

To further understand the epidemiology of refractive errors among school children a uniform protocol has been developed.¹⁰ Several studies have been conducted in different parts of the world using this protocol.⁸⁻¹²

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The latest global estimates of visual impairment suggests that among children aged 5–15 years, 12.8 million were visually impaired due to refractive errors representing a prevalence of 0.97% with higher prevalence reported in China and urban areas of south east Asia.¹³

PURPOSE: To assess the prevalence of refractive errors and visual impairment in school age children from 10 years to 17 years of age group in Kurnool district, Andhra Pradesh.

METHODS: The study was conducted in school children by using the snellen's chart, subjective correction, cycloplegic refraction and ophthalmoscopic examination. The defective children identified by the teachers using the E chart keeping at a distance of 6 meters. The defective children examined by the ophthalmic team and prescribed the spectacles.

TOTAL No. of CHILDREN SCREENED		
BOYS	GIRLS	TOTAL
37,790	42,047	79,837

Table 1: Total number of children screened

No. of children with refractive error	Age wise	No. of children with refractive error	Percentage
1487	10yrs	02	0.13%
	11yrs	188	12.6%
	12yrs	273	18.3%
	13yrs	354	23.8%
	14yrs	475	31.9%
	15yrs	174	11.7%
	16yrs	10	0.6%
	17yrs	11	0.7%
Total		1487	

Table 2: Number of children with refractive error

No. of children with refractive errors				
BOYS	PERCENTAGE	GIRLS	PERCENTAGE	TOTAL
557	37.5%	930	62.5%	1487

Table 3: Number of children with refractive error among different age group

	BOYS	PERCENTAGE	GIRLS	PERCENTAGE
10YRS	-	0%	2	100%
11YRS	87	47%	101	53%
12YRS	102	37%	171	63%
13YRS	127	36%	227	64%
14YRS	201	42%	274	58%

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15YRS	67	39%	107	61%
16YRS	6	60%	4	40%
17YRS	4	36%	7	64%

Table 4: Gender wise distribution of refractive error

Refractive errors by Power wise		Percentage
-1.00DSph to -2.00DSph	1057	71%
-2.25DSph to -3.00DSph	95	06%
-3.25DSph to -4.00DSph	54	3.6%
-4.25DSph & Above	226	15.1%
Simple Astigmatism	33	2.2%
Complicated Astigmatism	5	0.33%
Convex Powers +power	5	0.33%
Amblyopia	12	0.8%
Total	1487	

Table 5: Distribution of refractive errors by power wise

RESULTS: Total numbers of school children screened in rural area of Kurnool district, A. P. were 79,837. The refractive error children were 1487 (1.8%), females were 930 (62.5%) and Males 557 (37%). The highest incidence of Myopia in age group of 14 years 475 (31.9%), hyperopia 5 (0.33%) and refractive concave (-) power from 1-00Dsph to 2-00 Dsph were the highest incidence 1057 (71%), amblyopia were 12 (0.8%).

CONCLUSION: Refractive error associated primarily with Myopia is a major cause of reduced vision with particularly high prevalence among school age children. Eye Health education and screening may help to address the unmet need for refractive correction. To educate the parent is about the eye screening in school going children.

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