

Prospective study to know the incidence of refractive error in school going children

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Abstract

Background: The purpose of this study is to assess the refractive error and related impairment in school going children in Madikeri town of Karnataka. **Method:** All the school students between 3rd standard (8 years) to 10th standard (16 Years) were examined in their school using Snellens chart. Any child wearing glasses, who had difficulty in reading are having any other symptoms like headache watering were referred to our centre for dilated retinoscopy, funduscopy and post mydriatic test and to prescribe the glasses. **Results:** A total of 1986 children were examined of which 194 students had refractive error of which 123 were myopic and 48 were hypermetropic and 23 were having astigmatism (>0.50) Myopia was higher in the female gender of the 194 students 178 students had Bilateral refractive error and 16 students had unilateral refractive error. **Conclusion:** Refractive errors are usually asymptomatic which can be detected by simple vision testing using Snellens chart can prevent the onset of amblyopia and squint, correction of refractive errors can enhance the school performance of the child.

Key word: Amblyopia, Refractive error, Squint

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INTRODUCTION

Refractive errors are one of the common causes of visual impairment especially among the school going children. The detection of which is very easy cost effective and do not need a huge expertise and expenses. The data regarding incidence varies from study to study. The data is available both for general population ^{1, 2} and those attending the schools. Refractive error study in children were conducted in china, Nepal, and chile and is published ^{3,4,5} The results were compared with the earlier studies and the results are

varying. Uncorrected refractive error is one of the most common cause of visual impairment in children the number of years that the refractive error affects is much more than that affected by the cataract and glaucoma refractive error in itself or its correction has a significant implications on the quality of life despite the frequency and magnitude of burden of refractive error qualitative literature exploring the impact of refractive error on quality of life from patients perspective is sparse qualitative studies often compliment quantitative studies thus despite high prevalence of refractive error the subsequent implications on quality of life from patients perspectives are overlooked and underappreciated ^{6,7,8}

Methods: All the school students in the Madikeri city were chosen in the year 2017-18, our hospital staff with the help of school teacher for the better compliance of children, examined the visual acuity using snellen chart.

All students between 3rd standard (8 years) to 10th standards (16 Years) were included in the study.

Exclusion criteria

1. Students < 8 years were excluded

2. Students with other co morbities like corneal opacity were excluded.

Any child who had reduced vision on testing in the school, who had already worn glasses and who complained of watering eyestrain were referred to our centre for detailed examination. A cycloplegic refraction was done (1% cyclopentolate eye drops) funduscopy was done and a post mydriatic test was done and corrective glasses were prescribed.

The visual acuity was measured at 6 meters in a dark room with an illuminated Snellens chart, both eyes were tested separately in all the students. In those students who were wearing glasses both unaided and aided vision was recorded. In all the student’s anterior segment was examined with the help of slit lamp. In all the students who were not getting 6/6 were re-examined for better comfort and compliance.

RESULT

A total of 1986 children were examined, (1107 boys and 879 girls). 194 students had refractive error of which 103 were boys and 91 girls. 88 students were already wearing glasses. Among the 194 students, 178 students had bilateral refractive error and 16 students had unilateral refractive error. Among the 123 students with myopia 54 were boys and 69 were girls. Among the 48 students with hypermetropia 26 were boys and 22 were girls. Among the children with astigmatism 13 were boys and 12 were girls.

Table 1: Visual acuity

Total	Myopia	Hyper metropia	Astigmatism
Boys	54	48	13
Girls	69	26	12

Table 2: Glass power prescribed

	Uncorrected (more than 6/60)	Less than 6/60	Corrected (6/6)
Boys	73	30	103
Girls	74	17	91

Table 3: Astigmatism

	< 1 D	1-1.5D	>2.5 D
Boys	61	36	6
Girls	50	33	8

	More than 0.75	Less than 0.75
Boys	2	11
Girls	1	11

Refractive error

Total	9.76%
Myopia	6.19%
Hypermetropia	2.41%
Astigmatism	1.15%
Boys	53.1%
Girls	46.9%

Bilateral	89.6%	
Unilateral	10.4%	
	Myopia	Hypermetropia
Boys	43.9%	54.1%
qA	56.1%	45.9%

DISCUSSION

Our study was a school based study in children between 8 and 16 years in the Madikeri town of Karnataka. We excluded students less than 8 years because it is very difficult to test the visual acuity in mass scale. The overall prevalence of refractive error was 9.76% (6% it was less when compared with the value from school going children (10.8%) (Sethu Sheela devi 2018- Jul, Pubmed- vision 2020 right to sight New Delhi India^{9,10,11} The overall prevalence of myopia was 61.9% it is less than that reported from china (16.2%) Chile (68%) New Delhi (7.4%) myopia was slightly higher in girls than in boys. The prevalence of Hypermetropia was slightly more in boys.^{12,13,14} Hypermetropia was 2.4% where it was 1.4%, 3.5%, 16.3% and 7.7% as reported from Nepal china chile and New Delhi^{6,7,8} The Astigmatism was equal among both boys and girls. It was lower 1.15% much less than that reported by Nepal (2 .2%) New Delhi 5.4%¹⁵

CONCLUSION

Refractive error is a major cause of reduced vision in school age children in Madikeri town students were benefited from the provision of free spectacles. All the students were happy with the improvement of vision by spectacles the long-term impact in academic capabilities is awaited. The overall prevalence of refractive error in this study was 9.76% it was 6.19 % for myopia 2.41%for hypermetropia 1.15% for astigmatism.

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