

Refractive Errors Among School Going Children in Srikakulam District, North Coastal Andhrapradesh

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Abstract

Purpose : Avoidable blindness mainly due to uncorrected refractive errors is a major challenge to health care policy makers. School screening for refractive errors has been an useful programme to overcome this problem. The aim of the present study was to report the prevalence of refractive error among school children in srikakulam distict. **Methods:** A cross sectional study was carried out among 1682 school children between age group of 10-15 years under school screening programme. **Results:** the prevalence of refractive errors was found out to be 3.62%. the prevalence of refractive errors was more in female children (57.3%) when compared to male children(42.6%). The most common refractive error was found to be myopia(60.65%) followed by astigmatism(36%) followed by hypermetropia(3.27%). There is increased incidence of refractive errors in older age group 39.34% were present in 14-15 years of age. **Conclusions:** this study imparts screening of not only school going children but also all school aged children to treat refractive errors and prevent further complications by uncorrected refractive errors.

Keywords: laparoscopy, appendicitis, abdominal pain, adhesions, laparotomy.

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Introduction

Vision plays an important role in a child's development for learning and communication[1]. Vision impairment and blindness in children resulting in decreased productivity in the long term remains a challenge to health care policy makers. Studies report 16.3% to 37% of blindness in Indian children are avoidable[2,3]. Refractive error is one of the most common cause of visual impairment around the world and the second leading cause of treatable blindness[4]. Uncorrected refractive errors still cause majority of the vision impairment seen in indian children[5]. While many screening programmes in schools are being carried out, there is lack of accurate data in the prevalence of visual impairment[6]. Active screening and timely intervention at the right time will not only help in vision restoration but will also influence a child's growth and development[7].

The present study was conducted based on school screening survey conducted by Government of andhrapradesh to know the prevalence of blindness among school going children. considering various facts regarding high prevalence of refractive errors in school going children and taking into consideration of the importance of early diagnosis and correction this study was conducted to know the prevalence of refractive error among school children of selected age group (10-15 years) in srikakulam district.

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Materials and Methods

A cross sectional study was conducted among school children of various schools of srikakulam district between August 2019 to January 2020. This study was conducted under the school health programme of national programme for control of blindness for identification and treatment of refractive errors.

Total 1682 students in between the age group of 10-15 years were included in the present study. A team consists of an optometrist and a junior resident in ophthalmology visited the school. All the students were examined for visual acuity examination with snellens chart. Those children who did not improve underwent subjective correction by placing appropriate lens in the trial frame. Those who did not improve even with subjective correction underwent cycloplegic refraction and subjective verification. fundus examination was done with direct ophthalmoscope. Those who still did not improve were referred to base hospital for complete ophthalmological examination. Refractive errors were diagnosed when visual acuity at presentation was < 6/9 and improved with correction. myopia was defined as measured objective refraction of ≥ 0.5 D sphere in one or both eyes. Hyperopia was considered when measured objective refraction ≥ 2.0 D sphere equivalent in one or both eyes. Astigmatism was considered when objective refraction of ≥ 0.75 D cylinder was there in one or both eyes. These refractive errors were categorised according to refractive error study in children (RESC) survey group[8].

Results

Total 1682 children of both sexes between the age group of 10-15 years age who were screened from different schools of srikakulam

district were included in the present study. The mean age of the study population is 12.4±2.54. out of 1682 children 958 children were males and 724 were females. The male to female ratio was 1.3:1. Out of 1682 students screened 95 students were found to have visual acuity < 6/9. i.e 5.64 % of students have defective vision. Out of 95 students who have defective vision 61 students showed improvement

in vision with refractive error correction. This shows the prevalence of refractive errors was found out to be 3.62%. out of 61 children with refractive errors only 30 students were using spectacles. This gives us an inference that 50% children were not aware that they had refractive error. The remaining 34 children who did not improve with correction were referred to base hospital for further evaluation.

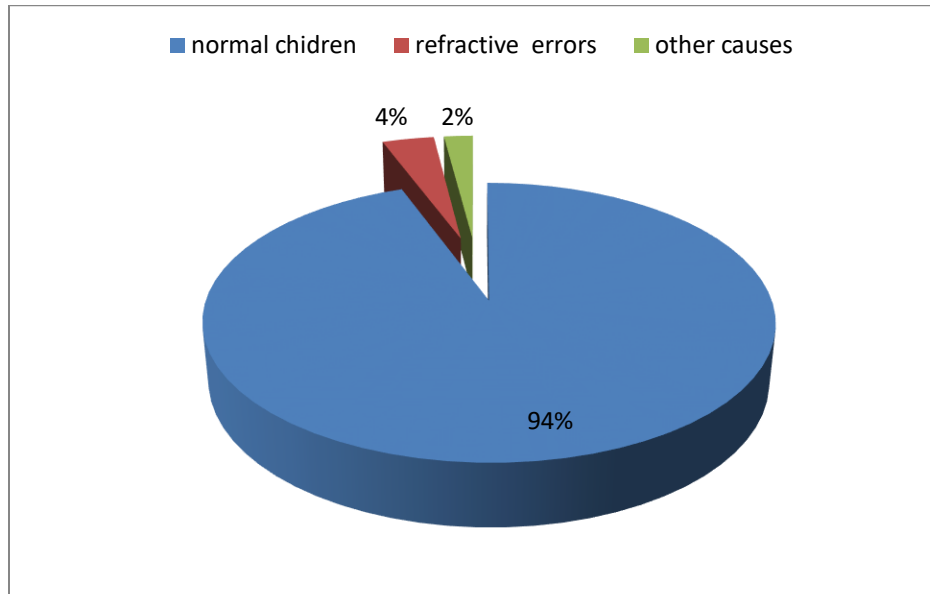


Fig.1: Distribution of total children

The present study shows that prevalence of refractive errors were more in girls when compared to boys. among 958 children screened 35(4.8%) were girls and 26 (2.7%) were boys. Out of 61 children

with refractive errors 26(42.6%) were boys and 35(57.3%) were girls.

Table 1: Sex Distributon of Children With Refractive Errors

	Refractive Error	
Boys	26	42.6%
Girls	35	57.3%
Total	61 (100%)	

In the present study the most common refractive error was found out to be myopia which was present in 37(60.65%) children followed by astigmatism which was present in 22(35%) children and hyperopia

present in 2(3.27%) patients. Myopia was found to be more common in female children when compared to male children.

Table 2: Distribution of Refractive Errors

Gender	Refractive error			Total	p. value
	Myopia	Astigmatism	Hypermetropia		
Females	20	14	1	35	<0.001
Males	17	8	1	26	
Total	37(60.65%)	22(36%)	2(3.27%)	61(100%)	

The present study shows that there is an increased prevalence of refractive errors with age. It shows that more number of children were present in the age group of 14-15 years of age group. 39.34%

children were present in 4-15 years of age group which was stastically significant.

Table 3: Age Wise Distribution of Refractive Errors

Age in Years	Refractive Errors			p.value
	Myopia	Astigmatism	Hypermetropia	
10-11 years	4	3	0	<0.004
11-12 years	6	1	0	
12-13 years	4	2	0	
13-14 years	9	7	1	
14-15 years	14	9	1	

Discussion

In the present study the prevalence of refractive error was found to be 3.62%. this result was found to be in coincidence with the studies conducted by suryachandra et al[9] which was found to be 3.32%. this result was also in coincidence with study conducted by sethi et

al[10]. The prevalence was found to be low when compared to study conducted by warad c et al[11],karnataka which was found to be 6.4%.and bhutia et al[12] which was found to be 6.7%. This difference was found to be due to geographical difference in the study population and number of children in the age groups. In the

present study the prevalence of refractive error was found to be more in female students when compared to male students. This difference was found to be similar to the studies conducted by suryachandra et al[9], preman et al[13] and bhutia et al[12]. The most common refractive error found in this present study was myopia, astigmatism and lastly hypermetropia. These results were found to be similar with the studies conducted by sethi et al[10] warad c et al[11]. These results were similar to the studies conducted by bhutia et al[12] in which myopia was found to be 31%, astigmatism was found to be 29.4% and hypermetropia which was found to be 2%. These results were also found to be similar to studies conducted by pavitra et al[14] in which myopia was found to be 62.9%, astigmatism was found to be 14.4%, and hypermetropia was found to be 24.4%. The present study shows increase in prevalence of refractive error with increase in age group. 39.34% of children with refractive errors were present in the age group of 14-15 years. This result was similar to the studies conducted by pavitra et al[14] and vidusha et al[15].

Conclusions

The present study shows the prevalence of refractive errors in school going children which was noted to be high. This study imparts the importance of screening of not only school attending children but also school aged children who were not attending schools. This helps us to not only treat the refractive errors but also prevent further compromise in visual acuity because of uncorrected refractive errors. This screening of children also imparts the importance of vision screening by primary health care workers at an early age group and screening by school teachers at school to treat preventable blindness to achieve the goals imparted by national programme for control of blindness.

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