



ANALYTICAL STUDY OF PREVALENCE OF REFRACTIVE ERRORS IN SCHOOL CHILDREN IN TAMILNADU

Dr. T. Kumaravel*	MS. DO., Assistant Professor, Department of Ophthalmology Government Dharmapuri Medical College, Dharmapuri. *Corresponding Author
Dr. M. Sivaraman	MS, Assistant Professor, Department of Ophthalmology Government Dharmapuri Medical College, Dharmapuri.
Dr. V. Srinivasan	D.O., Senior Resident Department of Ophthalmology Government Dharmapuri Medical College, Dharmapuri.

ABSTRACT **Background:** Refractive error is very common nowadays in the modern world and particularly seems to be more common in children. The purpose of the study is to find out the prevalence of refractive errors in school children in the age group 11-17 years-fifth to twelfth standard. The study was done in Dharmapuri district, Tamilnadu, India, by analyzing the data of 10,170 school children screened for refractive errors from grade five to twelve.

Methodology: School children from fifth to twelfth standard are screened ophthalmic assistants/refractionist underwent anterior segment examination to identify any gross anomalies like squint, congenital malformations like coloboma, cataract. Visual acuity examined by Snellens chart and those children with less than 6/9 underwent retinoscopy, fundus examination and subjective verification. Students not improving to 6/6 with refractive correction were referred to government Dharmapuri medical college eye department for further ophthalmic evaluation by ophthalmologist.

Results: The prevalence of refractive error in our study is 6.15% among school children between 11-17 years. In our study, most common refractive error found to be simple myopia (88%) followed by astigmatism. (10%) hypermetropia (0.32%)

KEYWORDS : Refractive error, rural, urban, simple myopia, astigmatism, school screening

AIM

The aim of the study is to find out the prevalence of refractive errors in school children in the age group 11-17 years-fifth to twelfth standard and to study the type of refractive errors common among school children

INTRODUCTION

Refractive error is very common nowadays in the modern world and particularly seems to be more common in children. The study was done in Dharmapuri district, Tamilnadu, India, by analyzing the data of 10,170 school from fifth to twelfth standard children screened for refractive errors by ophthalmic assistants/refractionist.

METHODOLOGY:

All students underwent anterior segment examination to identify any gross anomalies like squint, congenital malformations like coloboma, cataract and extraocular movements assessed. Visual acuity examined by Snellens chart and those children with less than 6/9 underwent retinoscopy, fundus examination and subjective verification.

Type and amount of refractive error were documented and analysed. All the students were provided glasses free of cost by government of Tamilnadu. Students not improving to 6/6 are referred to Government Dharmapuri medical college eye department for further ophthalmic evaluation by ophthalmologist.

STUDY SAMPLE : 10,170

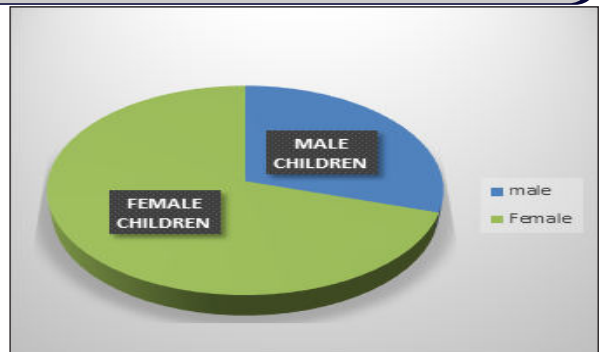
Study Place: Government Schools, Dharmapuri District

RESULTS**Table1: Prevalence Of Refractive Error**

Total Children Screened	Refractive Error Identified	Percentage
10170	625	6.15%

Table2: Sex Distribution

	SCREENED	REFRACTIVE ERROR IDENTIFIED	PERCENTAGE
MALE CHILDREN	3800	126	3.32%
FEMALE CHILDREN	6370	499	7.83%
TOTAL	10170	625	6.15%

**Chart 1:** Percentage Of Refractive Errors Between Male And Female Children**Table 3: Prevalence Of Refractive Error In Rural School Children**

	SCREENED	REFRACTIVE ERROR	PERCENTAGE
MALE	3800	126	3.32
FEMALE	3200	122	3.81
TOTAL	7000	248	3.56

Table 4: Prevalence Of Refractive Error In Urban School Children

	SCREENED	REFRACTIVE ERROR	PERCENTAGE
MALE	-	-	-
FEMALE	3170	377	11.89
TOTAL	3170	377	11.89

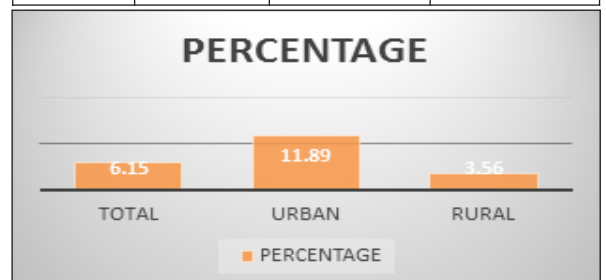
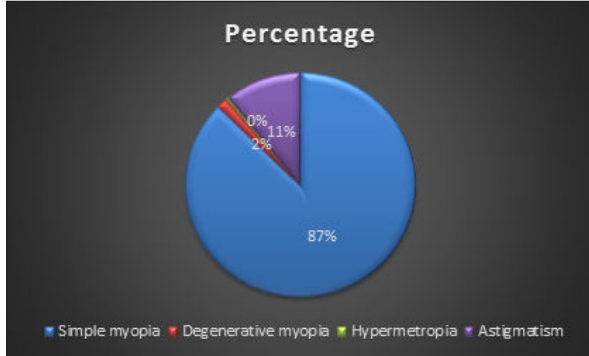
**Chart 2:** Percentage Of Refractive Errors In Urban And Rural School Children

Table 5: Refractive error Distribution in Children

REFRACTIVE ERROR	MALES	FEMALES	TOTAL	% among refractive errors	% among children screened
SIMPLE MYOPIA	115	435	550	88.0%	5.41
DEGENERATIVE MYOPIA	4	6	10	1.6	0.10
ASTIGMATISM	6	57	63	10.08	0.62
HYPERMETROPIA	1	1	2	0.32	0.02
TOTAL	126	499	625	100%	6.15

**Chart 3: Refractive Error Distribution In Children**

DISCUSSION

The prevalence of refractive error in our study is 6.15% among school children between 11-17 years (table1). In other studies, the overall prevalence of refractive error per 100 children ranges from 8.0% to 10%. In our study Refractive errors are found to be common in female children (7.83%) when compared to male children (3.32%) (Table 2/Chart 1). Here the data should not be misinterpreted as the study included only female children in urban region. In rural schools the prevalence of refractive error is only slightly larger in females (3.81) when compared to male children (3.32). (Table 3) This is very well correlated with other studies (10) which also states that refractive errors are more common in female children.

Prevalence of refractive error is more in urban school children (11.89%) when compared to rural school children (3.54%) In studies done by Sanjoy Chatterjee, prevalence of refractive error in urban areas is 10.2% (7). In study done by Sethu Sheeladevi, combined refractive error and myopia alone were higher in urban areas compared to rural areas (10) and also the prevalence of combined refractive errors and myopia alone in schools was higher among girls than boys (10)

In our study, most common refractive error found to be simple myopia (88%) followed by astigmatism. (10%) hypermetropia (0.32%) is very rare. (Table 5/Chart 3) In study done by srisaividhusha (7) the prevalence of myopia, hypermetropia and astigmatism in study subjects was 58.5%, 17.1%, 24.4% respectively. In study done by Nitesh Pradhan (8) the prevalence of refractive errors was 7.0% in which Myopia is the most common refractive error 44 (61.9%) followed by the astigmatism 16 (24.1%) and Hypermetropia (14%) among the children with Refractive Errors.

CONCLUSION

The prevalence of refractive error in our study is 6.15% among school children. Most common refractive error found to be simple myopia (88%) followed by astigmatism. (10%) hypermetropia (0.32%) Prevalence of refractive error is more in urban school children (11.89%) when compared to rural school children (3.54%). Also, Refractive errors were more common in female children when compared to male children. School health screening by ophthalmic assistant/refractionist found to be very productive in identifying refractive errors among school children.

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