

## Prevalence of Refractive Errors in School Going Children in Ghaziabad Area

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### ABSTRACT

**Aims and Objectives:** This study aims to evaluate the prevalence of refractive errors and related visual impairment pattern in school going children of Rural as well as urban area.

**Materials and Methods:** A school-based cross-sectional study was done to examine children aged 6-16 years in randomly selected urban and rural schools of Ghaziabad Area from March 2014 to March 2015. An optometrist did the vision and refraction and a detailed ophthalmic examination were done by an ophthalmologist. Visual error of as minor as 6/9 was included in the study.

**Results and Conclusions:** The overall prevalence of refractive error in school going children was found to be 38.004 %. The commonest form of refractive error in this age group was found to be myopia being 31.05 %, followed by 6.9 % of Hypermetropia. The children of age group of 12-16 yrs had a higher prevalence of Myopia as compared to children of lesser age group (6-12 yrs). If considering total refractive errors (640 children), 117 were Hypermetropes (18.28%) and 523 of myopes (81.72%).

**KEYWORDS:** Refractive Errors, School Going Children, Myopia, Hypermetropia.

### INTRODUCTION

Refractive error is one of the most common causes of visual impairment around the world and the second leading cause of treatable blindness.<sup>1</sup> Refractive error which is uncorrected in school going children, is the main cause of childhood blindness & visual impairment in children. Few population-based data on refractive error are available from India, but some are available for children attending school.<sup>2</sup>

Reduced vision because of uncorrected refractive error is a major public health problem in urban school-aged children in India.<sup>3</sup>

Schoolchildren are considered a high risk group because uncorrected refractive errors can seriously affect their learning abilities<sup>4</sup> and their physical and mental development.<sup>5</sup> Studies on the prevalence of refractive errors among children in different parts of the world show significant differences, and population.

With increasing use of modern technology being used in schools as smart boards, using social media groups for distributing assignments to children, as well as increased use of mobile phones at home with poor eating habits

have all contributed to further increase the refractive error in school going children.

Moreover the parents being more aware about the possible causes of errors in their children, there is an increase in early detection and timely treatment of refractive errors in younger age group which is a positive impact on decrease of childhood blindness in children.

This study was done towards school health programme, to detect early refractive errors in children, making their parents aware about the possible use of glasses, thus preventing amblyopia in their children.<sup>6</sup>

Data on the prevalence, magnitude and causes of blindness and severe visual impairment in children are needed for planning and evaluating preventive and curative services for children, and for planning special education and low vision services.<sup>7</sup>

### OBJECTIVE

To assess the prevalence of refractive error & related visual impairment in school going children in area of district Ghaziabad, Uttar Pradesh.

## SUBJECTS & METHODS

A cross-sectional study was done to screen school children from randomly selected schools in urban & rural areas of Ghaziabad from March 2014 to March 2015. All the students aged 6-16 present that day were included in the study. Prior consent by principal of the school was taken & all students present that day was included in the study. Visual Acuity was measured using Snellen's chart by an optometrist. Children with visual Acuity of 6/9 and less were taken as refractive Error. Myopia was defined as spherical equivalent refractive error of at least -0.50 D & Hypermetropia as +2.0 D or more.

Then the children were examined for ocular motility, lids, lac apparatus & fundus examination under cycloplegia was done, to find out if diminution of vision was due to some other pathology. Any children having any other pathology were excluded from the study.

Total of 1684 school children of Ghaziabad district area, within the age group of 6-16 yrs were seen for the presence of any refractive error, using multistage randomization technique. Out of these children 1016 were males and 668 were females.

## RESULTS

The overall prevalence of refractive error in school going children was found to be 38.004 %. The commonest form of refractive error in this age group was found to be myopia being 31.05 %, followed by 6.9 % of Hypermetropia out of all school going children who were included in the study. Total of 5 children showed presence of manifest squint. The children of age group of 12-16 yrs had a higher prevalence of Myopia as compared to children of lesser age group (6-12 yrs). If considering total refractive errors (640 children), 117 were Hypermetropes (18.28 %) and 523 of myopes (81.72 %).

## DISCUSSION

Incidence of myopia has been on an increase since past few years. According to a study done in 1995 by Lewallen S et al, Myopia was found to be uncommon in non-industrialized societies and that it was associated with increased literacy but they had not identified specific risk factors within that group to predict the occurrence of significant myopia.<sup>8</sup>

A study done on magnitude of visual impairment done by Pascolini D et al in 2010 also found that, the major causes of visual impairment were uncorrected refractive errors (43%) followed by cataract (33%); the first cause of blindness being cataract (51%).<sup>9</sup> This was a study done from data collected from 39 countries

Only one study in Iran done by Akbar Fotouhi et al, showed high number of Hyperopes 76.2 % rather than myopes.<sup>10</sup>

## CONCLUSION

The prevalence of refractive error in school going children is 38.004%, where myopia is the main type of refractive error in children as compared to Hypermetropia. Myopia being 31.05 % out of all school going children & 6.9% Hypermetropia out of all school going children.

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