

## Prevalence and Incidence of Refractive Error in School Going Age Group in Tertiary Centre

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**Abstract:** To have an overview of prevalence and incidence of refractive error in children of school going age group

**Method-** A cross sectional study was carried out in children aged 4-12 years attending eye O.P.D. in N.S.C.B. Medical College during time period of October 2014 to September 2015. After detail history and eye checkup 600 children of both gender were selected. Children with congenital disorder were excluded. All children were subjected to retinoscopy under cyclopegia and duely called for PMT for final acceptance and corrective glasses prescribed to them.

**Result-** A total of 600 children were included in this study. The prevalence of myopia was greater (49.17%) among children with slightly more prevalence in girls (56.44%) and having significant family history of wearing glasses, watching T.V. at close distance and indulgence in computer or video game.

### I. Introduction

Refractive error is a major public health problem worldwide and most common cause of visual impairment (43% of all cause: WHO 2010) but among school children it has considerable effect on mental ability and academic achievement. It also has serious social implication for child in school as it make the child drop out of school. An estimated 2.3 billion people worldwide have a refractive error in which about 500 million people do not have access to refractive error services who live in developing countries and are mainly children. The latest global estimates of visual impairment suggest that among children aged 5-15 years, 12.8 million are visually impaired due to refractive error representing prevalence of 0.97% with higher prevalence reported in china and urban areas of South East Asia.

Diagnosis and treatment of refractive errors is of prime importance to reduce impaired vision and enhance mental ability. That's why childhood blindness is one foremost priorities in global initiative for elimination of avoidable blindness.

### II. Material And Method

A cross sectional study was carried out in 600 school children aged 4-12 years attending eye O.P.D. in Upgraded Department of Ophthalmology, N.S.C.B. Medical College during time period from October 2014-September 2015.

In this study 600 school children of both gender were selected after thorough history, general and systemic examination and following eye examination were conducted-

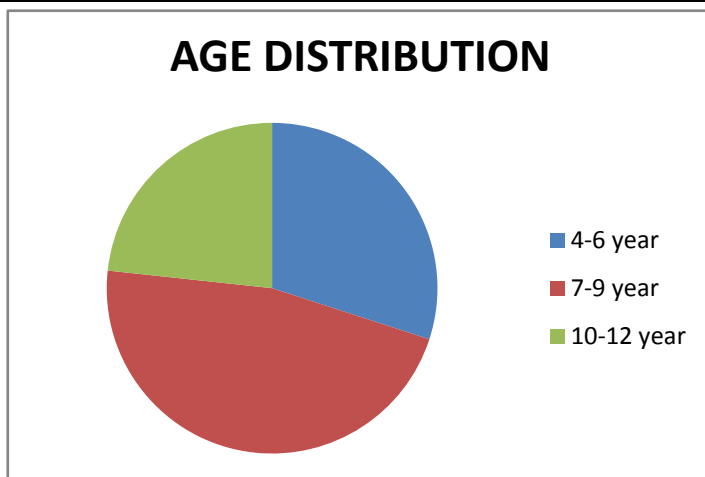
1. Visual acuity with snellens test chart and E-chart with and without pin hole test.
2. Anterior segment examination was carried out with torch light and slit lamp biomicroscopy to rule out anterior segment pathology like convergence insufficiency, conjunctivitis, glaucoma, cataract etc.
3. Fundus examination with indirect ophthalmoscope to rule out posterior segment pathology.
4. OCT was carried out whenever required & desired.

All children who were selected were subjected to detailed retinoscopy under cyclopegia and duely called for PMT for final acceptance and corrective glasses were prescribed to them.

### III. Results

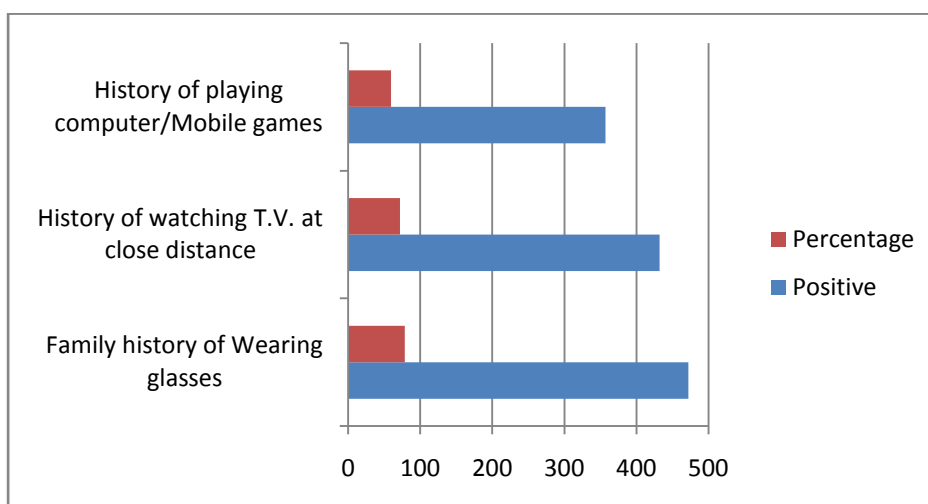
#### Age Distribution

| S. No. | Age in year | Total no. of students | Percentage |
|--------|-------------|-----------------------|------------|
| 1.     | 4-6 year    | 180                   | 30         |
| 2.     | 7-9 year    | 280                   | 46.7       |
| 3.     | 10-12 year  | 140                   | 23.3       |



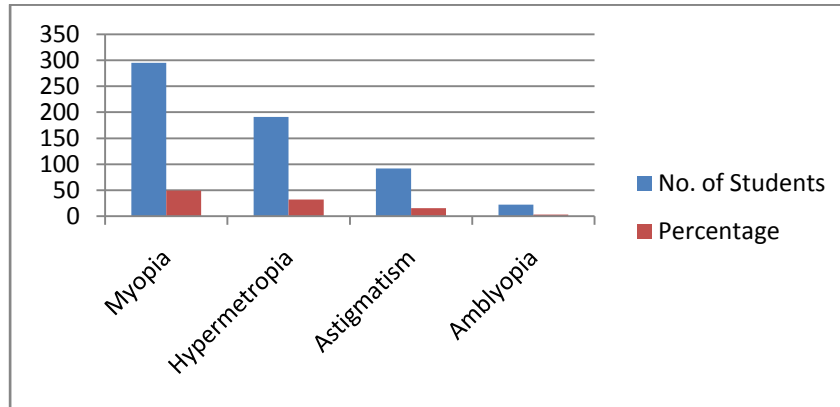
**Relationship of refractive error with significant history**

| S. No. | History                                    | Positive | Percentage |
|--------|--|----------|------------|
| 1.     | Family history of Wearing glasses          | 472      | 78.67      |
| 2.     | History of watching T.V. at close distance | 432      | 72         |
| 3.     | History of playing computer/Mobile games   | 357      | 59.5       |



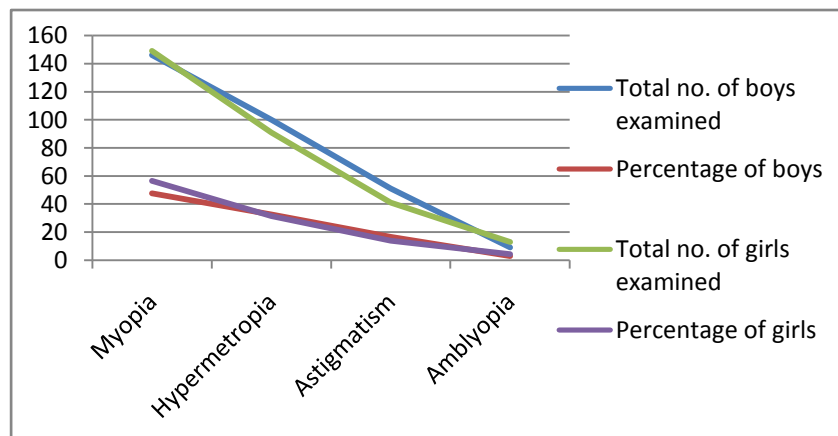
**Pattern of refractive error in school children**

| S.No. | Type of refractive error | No. of Students | Percentage |
|-------|--------------------------|-----------------|------------|
| 1.    | Myopia                   | 295             | 49.17      |
| 2.    | Hypermetropia            | 191             | 31.83      |
| 3.    | Astigmatism              | 92              | 15.33      |
| 4.    | Amblyopia                | 22              | 3.66       |



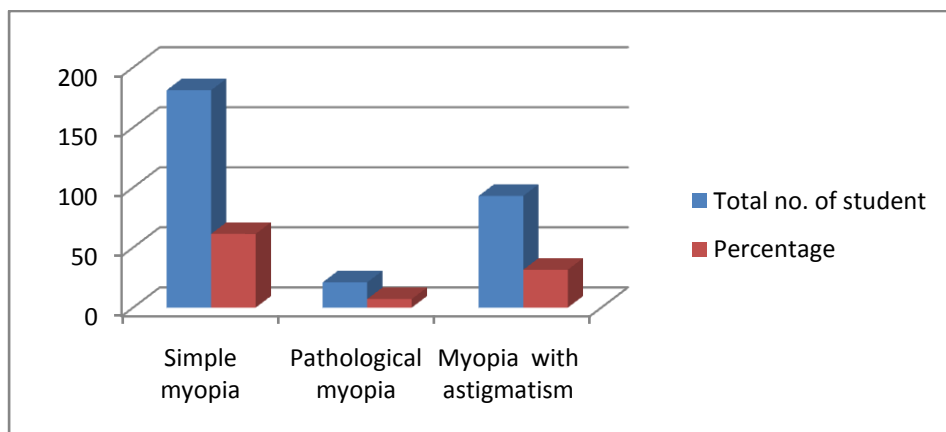
**Gender wise distribution of refractive error**

| S. No. | Type of refractive error | Total no. of boys Examined (n-306) |            | Total no. of girls Examined (n-294) |            |
|--------|--------------------------|------------------------------------|------------|-------------------------------------|------------|
|        |                          | Total                              | Percentage | Total                               | Percentage |
| 1.     | Myopia                   | 146                                | 47.71      | 149                                 | 56.44      |
| 2.     | Hypermetropia            | 100                                | 32.70      | 91                                  | 31.48      |
| 3.     | Astigmatism              | 51                                 | 16.67      | 41                                  | 13.95      |
| 4.     | Amblyopia                | 9                                  | 2.94       | 13                                  | 4.42       |



**Pattern of myopia in school going children**

| S.No. | Type of myopia          | Total no. of student with refractive error (n-295) |            |
|-------|-------------------------|--|------------|
|       |                         | No.  | Percentage |
| 1.    | Simple myopia           | 181  | 61.36      |
| 2.    | Pathological myopia     | 21   | 7.11       |
| 3.    | Myopia with astigmatism | 93   | 31.52      |



#### **IV. Discussion**

The present study was conducted to discuss prevalence and incidence of refractive error. So that an effective approach can be planned to tackle the burden of readily correctable refractive problem in school children. In our study most common refractive error seen among children was myopia (49.17%) which was more prevalent in females as compared to males (56.44%) The same result was seen in a study done by G.O.Ovenseri-Ogbomo et al in 2010 which showed myopia was most common refractive error in 66% and with female preponderance of 44%. In another study by Gauri Shankar Shrestha et al in 2011 showed myopia as most common refractive error among children (44.79%) and K.Rajendran et al 2014 (51.47%). Myopia occurs due to current lifestyle changes seen in them like less outdoor activity and more indoor activity like watching T.V. from close distance, playing computer/mobile games and also there is role of family history of wearing glasses. The same result was also found in a study by Davey et al 2013 which showed prolonged duration of TV watching and use of computer for more than one year were significantly associated with uncorrected refractive error where a high proportion of children wearing glasses were among students watching internet/T.V. Apart from it 22(3.66%) children were found to have amblyopia and were treated by patching and atropine eye drop.

#### **V. Conclusion**

Thus it could be safely said that serial documentation & early eye checkup of all the children ought to be done to rule out refractive error and thereby help them for their proper mental development.

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