



SCREENING FOR REFRACTIVE ERROR AMONG HIGH SCHOOL CHILDREN

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ABSTRACT

There's an alarming increase in the number of children suffering from eye problems these days. Diagnosing and treating them early are critical to maintaining a child's eye health. Refractive errors constitute a sizeable proportion of any large eye out patient department in our country. The overall incidence has been reported to vary between 21% and 25% of the patients attending eye out patient department in India. The aim of the study was to screen the refractive error among school children. The research design adopted for this study was non-experimental cross sectional. The study was conducted at selected schools in Kancheepuram District with 1169 samples by using a quota sampling technique. The sample of the study was the school children who are studying VI, VII, VIII & XI standard with the age group between 11 to 14 years of both male and female children. Visual acuity was assessed for each eye by using Snellen chart, ophthalmoscopic and fundoscopic examination. There were around 1169 students were screened from selected schools. Out of 1169 students 279 students have refractive error. Out of 279 students 163 students were male and 116 students were female. The number of refractive errors was higher among IX standard students. The incidence of refractive error among school children was high. Many of the children are undiagnosed due to ignorance by the parents and lack of awareness about the refractive error. Vision screening should be done periodically in school as a part of school health programme.

KEY WORDS: *Refractive error, school children, visual acuity,*



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INTRODUCTION

Eyesight is one of the most precious gifts that nature has given to mankind. It's only because of the eyes; one can enjoy the beauty of this world. It's impossible to imagine life without sight. Though a very small part of body, eye is one of the most complex human organs. It has various parts, all of which are responsible for normal vision. Smallest structural or functional alteration in the functioning of an eye can cause tremendous visual disturbances. Eye problems are common among all the age group but Good eye health and clear vision are very important for the overall development of children. Children are wealth of tomorrow. Children are the major consumers of health care. In India about 35% of total populations are children below 15 years of age. School age years are a time of continued maturation of Childs physical, social, psychological characteristics. The School age child values school attendance and school activities. Children spend a lot of time in recreational activities that require good vision. Good vision is a key to success. There's an alarming increase in the number of children suffering from eye problems these days. Diagnosing and treating them early are critical to maintaining a child's eye health. The most common problem ophthalmologists encounter in their practice are uncorrected refractive errors which fall under three categories – myopia (short-sightedness), hypermetropia (long-sightedness) and astigmatism (cylindrical error). All these refractive errors can be corrected by wearing glasses or lenses, although only children above 11-12 should wear lenses. Refractive error is the one of the most common cause for visual impairment around the world and second leading causes of treatable blindness.¹ The prevalence of childhood blindness in India is 0.17%. Treatable refractive error is the major cause (33.3%) of the blindness in children, followed by preventable causes (16.6%) like vitamin A deficiency.² According to World Health Organization report (2014), 85 million people are estimated to be visually impaired worldwide: 39 million are blind and 246 have low vision. About 90% of the world's visually impaired live in low-income settings and 19 million children are visually impaired. Of these, 12 million children are visually impaired due to refractive errors, a condition that could be easily diagnosed and corrected. 1.4 million are irreversibly blind for the rest of their lives and need visual rehabilitation interventions for a full psychological and personal development.³ Childhood blindness is one of the priorities in Vision 2020: the right to sight. It is estimated that there are 1.4 million blind children in the world, two thirds of whom live in the developing countries, and of all the blind children it is estimated that 2,70,000 live in India. Blindness is one of the significant social problems in India.⁴ About 80% of it is avoidable blindness, but a large number of those affected remain blind due to lack of access to eye care. Uncorrected refractive errors are responsible for about 19.7% of blindness. About 13% of Indian population is in the age group of 7-15yrs. And about 20% of children develop refractive error by the age of 16 year.⁵ In Assam, 8.8% of

the study population had refractive error, boys (51%) more than girls (49%). Myopia (7.17%) was the most common refractive error followed by astigmatism (2.17%) and hypermetropia (1.50%).⁶ Uncorrected refractive error can cause adverse impact on learning process and educational capacity.⁷ Uncorrected refractive error is a major public health problem in urban school-aged children in India and VISION 2020 initiated to eliminate avoidable blindness.⁸ It has given high priority to the correction of refractive errors and has placed it within the category of "childhood blindness." Most of the children with uncorrected refractive error are asymptomatic and hence screening helps in early detection and timely interventions.⁹ The investigator felt there is a need to assess refractive error to achieve the aim of World health organization's VISION 2020 among school children and to save the vision of school children. our objective is to screen the refractive error among high school children.

MATERIALS AND METHODS

The research design adopted for this study was non-experimental cross sectional. The study was conducted after approval from ethical clearance reference no. 007/02/2016 at selected schools in Kancheepuram District with 1169 samples by using a Quota sampling technique. The sample of the study was the school children who are studying VI, VII, VIII & XI standard with the age group between 11 to 14 years of both male and female children. The Refractive Error screening was done by the Optometrist and Ophthalmologist along with the faculty & students of College of Nursing. Visual acuity was assessed for each eye by the nurse and optometrist outside the class room by using Snellen chart at 20 feet distance. Pen torch was used to examine the pupillary reaction and anterior aspect of the eye. The refractive error was confirmed by ophthalmologist after the fundoscopic and ophthalmoscopic examination.

DATA COLLECTION PROCEDURE

Formal permission was obtained from the school authority. The participants were informed about the purpose of the study and their informed consent was obtained from the students and their parents. They were assured about their confidentiality and anonymity. Demographic variables was collected followed by visual acuity test was done. The data were collected and analyzed by using descriptive and inferential statistics.

RESULTS

There were around 1169 students were screened from selected schools. Out of 1169 students 279 students have refractive error. Out of 279 students 163 students were male and 116 students were female. The number of refractive errors was higher among IX standard students.

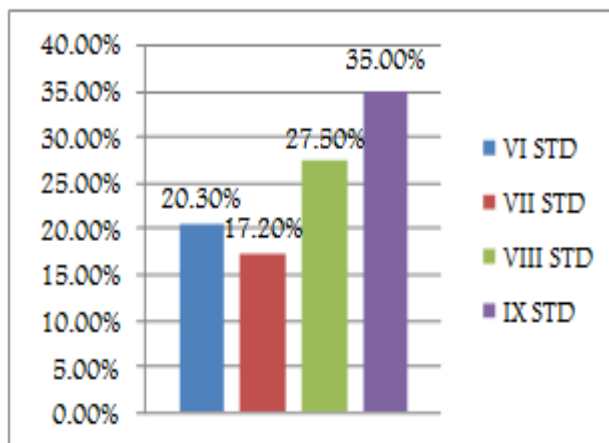


Figure 1
Percentage distribution of refractive error in class wise

DISCUSSION

Refractive error is one of the ophthalmic problem and nowadays common among the children wearing spectacles. The objectives of the present study was to screen the children for refractive error and the findings of the study revealed that out of 1169 students 279 students have refractive error. Out of 279 students 163 students were male and 116 students were female. The number of refractive errors was higher among IX standard students. The present study findings consistent with the research study was done by Pavithra MB, et.al. 2013 with 687 children of urban and 691 children of rural area were examined and the report says that 53.6% of the study population were boys and 46.4% were girls. The mean age of the study group was 12.4 years. The prevalence of uncorrected refractive error in urban and rural children was 7.03%. The prevalence of Myopia, Hypermetropia and Astigmatism in children was 4.4%, 1.03%, 1.6% respectively.¹⁰ In the present study around 60% of the children had refractive error. The common causes are congenital abnormalities due to consanguineous marriage, vitamin A deficiency, watching television, spending more time with computer, video games in the mobile, lack of outdoor game

activities, Regarding educational status of the parent many of them were illiterate and were ignorance about the refractive error as well many children were undiagnosed. Children are future of our nation and everyone's especially nurses responsibility to look after the health of the children to prevent the blindness.

CONCLUSIONS

The incidence of refractive error among school children was high. Many of the children were undiagnosed due to ignorance by the parents and lack of awareness about the refractive error. Vision screening should be done periodically in school as a part of school health programme. Teachers also educated to increase the awareness on common eye problem of school children and the measures to prevent and treat them. Early detection and correction of the refractive error helps to prevent the blindness.

CONFLICT OF INTEREST

Conflict of interest declared none.

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