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Prevalence of refractive error in school children

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Abstract

This paper focuses on the young school children aged about 12 years (Class VII), who were affected by refractive errors. From the data collected and the analyses made, various revealing facts have been unearthed. Convenient random sampling was adopted to select the schools in Kanchipuram District in India. From the selected four schools, out of 642 students only 628 were present and were screened. Vision screening was done with the help of experienced Optometrist in the respective class rooms under the supervision of investigator and class teachers. Result of this study shows that, 30.57% of students were identified as vision defective. From which 43.75% are Boys and 56.25% of them are Girls. Significant differences were found with respect of their residential area, that is 27.08% were in rural, 34.37% of them were from urban area and 38.55% were residing in semi urban. But there was no awareness among the students and parents regarding the consequences of uncorrected vision problems. This statement has been proved, when we observe the number of students wore glasses. Yes, only 7.26% of vision defective students are wearing glasses. The remaining 92.74% of students are unaware about their problems.

Introduction

Child's vision is essential for successful learning in school. When the vision suffers, pupil's routine schoolwork and day to day activities also get affected. Vision problems prevail in common among school-age kids. The reasons are many *viz*. Unhygienic living conditions, malnourishment and the alluring media influence like television, computer games and diminishing parental care etc. The students are not mature enough to point out the deficiency at the early stage or the parents have no idea on the gradually developing vision problem. This results in tiredness, distraction, headache and a few other disorders. Children who have been affected could not concentrate on studies or on any other curricular or extra curricular or recreational activities.

Emmetropia is the refractive state of the eye in which, with accommodation at rest, parallel rays from a distant object are brought to a focus on the retina. The function of the eye is to see clearly the objects around us. Ametropia is the inability of the eye to accurately focus the rays of light on the retina from a distance. It is called refractive error. This condition may be either because the eye is too short or long in length, or because the cornea or lens does not have the required refractive power. In 1992, the World Health Organization (WHO) published a working definition of low vision: "A person with low vision is one who has impairment of visual functioning even after treatment and/or standard refractive correction, and has a visual acuity of less than 6/18 to light perception, or a visual field of less than 10 degrees from the point of fixation, but who uses, or is potentially able to use, vision for the planning and/or execution of a task for which vision is essential."

Objectives

a) To measure the magnitude of Refractive Error among VII standard students, b) To explore the percentage of Refractive Error in Boys and Girls, c) to find out the percentage of Refractive Error in students from Rural and Urban area and d) To know the percentage of students who wore glasses.

Hypotheses

a) There is no prevalence of Refractive Error among VII standard students, b) The frequency distribution of Refractive Error among Boys and Girls is equal in nature, c) The frequency distribution of Refractive Error among Rural, Urban and Semi urban students is equal in nature and e) The percentage of students wore glasses is equal to the magnitude of RE.

Material and Methods

Only VII standard students from four selected schools in Kancheepuram District in Tamil Nadu, India were taken as samples for this study by convenient random sampling method to measure the prevalence of Refractive Error. With the help of an experienced Optometrist, screening was done at the respective class rooms under the supervision of the investigator and class teachers. Out of 642 students only 628 were present and were screened. The number of students who were found to be having vision problems was carefully noted by the investigator. The details regarding residential area and other information were also collected from students with the help of class teachers.

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Analysis of data

Percentage analysis is one of the statistical measures used to describe the characteristics of the sample.

Results and discussions

After careful analysis, the observations were presented in the following Tables 1-4. 30.57% of the students were found to be having refractive errors. Of these, 43.75% were Boys and 56.25% were Girls. 27.08% of them were residing in Rural area, 34.37% of them were residing in Urban area and 38.55% of them belongs to Semi urban area. Only 7% of Students with poor vision who wore eyeglasses but 93% of students with poor vision did not have glasses.

Table1. Prevalence of Refractive Error

Refractive Error	Frequency	Percentage
No	436	69.43
Yes	192	30.57
Total	628	100.00

Table 2. Frequency distribution of Refractive Error on gender

Gender	Frequency	Percentage
Boys	84	43.75
Girls	108	56.25
Total	192	100.00

Table 3. Frequency distribution of Refractive Error on residential area

Residential area	Frequency	Percentage
Rural	52	27.08
Urban	66	34.37
Semi urban	74	38.55
Total	192	100.00

Table 4. Frequency of students wore glasses

Students wore Glasses	Frequency	Percentage
Yes	13	7.26
No	179	92.74
Total	192	100.00

The results of this study are similar to the study carried out by Sonam Sethi and Kartha (2010). They conducted a study on Prevalence of Refractive Errors in School Children (12-17 Years) in Ahmedabad City. This study shows that 25.32% of the students were found to be having refractive errors. Seema *et al.* (2009) conducted a research on the Magnitude of Refractive Errors among school children in a rural block of Haryana. Out of 1265 students tested 172 children (13.6 %) were found to have defective vision.

Refractive errors were found to be more common in girls than in boys. In these studies the differences were related to the possible differences in the rate of growth between girls and boys. Girls attain puberty earlier on an average and reach their final body weight 1-2 years earlier than boys. The possible reasons for students for not wearing glasses may be lack of awareness about refractive errors. But some of them quote it as shame or shy to wear eye glasses, especially Girls.

Recommendations

The present study shows that most of the children or the parents are unaware of the refractive errors. Therefore, screening in school and pre-school should be carried out periodically. In addition, school going children and their parents should be educated about signs and symptoms of refractive errors, ocular hygiene and the risk factors involved in the development of these errors and other ocular pathological problems. During screening for refractive errors, adequate arrangements, illumination and clarity of the chart must be considered and ocular fatigue should be avoided. The data support the assumption that vision screening of school children in developing countries could be useful in detecting curable causes of vision problems provided detected at the early stage especially refractive errors by which long term visual disability could be avoided.

Reference

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