

STUDY OF DISTANT VISION IN SCHOOL CHILDREN

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Background and objectives: A normal distant vision is necessary for every student to learn efficiently in school. Refractive errors which are usually present in the childhood can continue in the adult life. **Methods:** To undertake this study, 78 school children of 11 to 17 years of age, from 7th and 8th standard of Behrampura municipal school No. 3, Ahmedabad, were examined for their distant vision and visual acuity by using Snellen's chart. This data was analyzed statistically. **Results:** Among 78 students, 21 students (26.92 percent) had distant visual acuity less than 6/6. Only two students had visual acuity for distant vision 6/18. No student had visual acuity less than 6/18. . Among 78 students, 32 were vegetarian and 46 were non vegetarian. **Interpretation and conclusion:** In this study, we have found 26.92 percent students having visual acuity for distant vision less than 6/6. But no significant association was found between visual acuity for distant vision and gender or dietary habits like vegetarian or non vegetarian. **Key words:** distant vision, visual acuity, refractive errors, dietary factors, gender, Ahmedabad, school children.

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Introduction:

A normal vision is necessary for every student to learn efficiently in school. Childhood visual impairment due to refractive errors is one of the most common problems in school children and second leading cause of treatable blindness¹. In many parts of the world refractive error would become the second largest cause of treatable blindness after cataract if blindness were defined on the basis of presenting distance visual acuity⁽²⁻¹⁰⁾. Refractive error is also one of the most common causes of visual impairment^(3-5, 9-13). Because of the increasing realization of the enormous need for correction of refractive error worldwide, this condition has been considered one of the priorities of the recently launched global initiative for the elimination of avoidable blindness: VISION 2020 — The Right to Sight^{14, 15}. Since the treatment of refractive errors is simple and effective, blindness due to uncorrected refractive errors can easily be prevented. Children in school going age group (6-16 years) represent 25% of population in developing countries. They fall in preventable age group for correction of refractive errors.¹⁶ An estimated 19 million children are visually impaired of these, 12 million are visually impaired due to refractive errors.¹⁷ The presence of refractive errors in school going children affects

their physical, mental and behavioral development as well.¹⁸

There are various studies in India showing prevalence of refractive errors in school children^{1,2}, but association of dietary factors like type of diet and gender with visual acuity for distant vision is not well established. This study is done to find visual acuity for distant vision in school children and whether association between distant vision with gender and dietary factors exists or not.

AIMS AND OBJECTIVES

- 1. To test visual acuity for distant vision in school children.
- 2. To find out association between gender and distant vision.
- 3. To find out association between dietary habits and distant vision.

Materials and methods:

To perform the present study a municipal corporation school of Ahmedabad was selected randomly. The students of this school were from lower socio economic class. Before the examination, the purpose of the study was explained to all the subjects and consent was obtained from the proper authority and students both. 78 school children of 11 to 17 years of age, from 7th and 8th standard of Behrampura municipal school no.3 were examined for their distant vision.

The visual acuity for distant vision was tested by Snellen’s chart keeping it at six meter distance from the subjects. A thorough history including dietary history and history of number of hours of reading were obtained. History of other ophthalmological problems was also taken. This data was analyzed statistically.

Observations and results:

Gender	Students with visual acuity for distant vision less than 6/6	Students with visual acuity equal or better than 6/6	Total students
Male	13	33	46
female	8	24	32
Total	21	57	78

[Table:1 Gender of the students and visual acuity] Among 78 students, 21 students(26.92 percent) had visual acuity for distant vision less than 6/6. Only two students had visual acuity for distant vision 6/18. No student had visual acuity less than 6/18. Out of 32 girls, 8 girls had visual acuity for distant vision less than 6/6. Out of 46 boys, 13 boys had distant visual acuity less than 6/6. Applying chi square test to this data, $X^2 = 0.1$, $p = 0.74$, $p > 0.05$. Therefore, by this study, we can say that there is no statistically significant association between gender and distant vision.

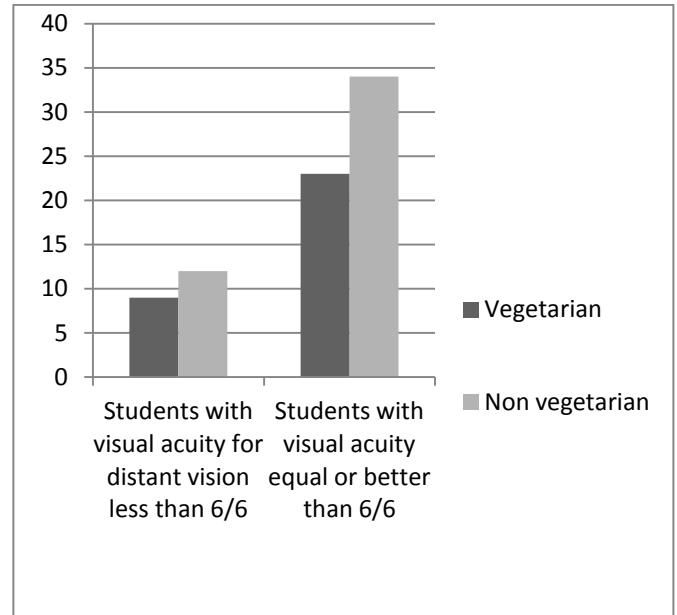
Among 78 students, 32 were vegetarian and 46 were non vegetarian. Among 32 vegetarian students, 9 students had visual acuity for distant vision less than 6/6 and among 46 non vegetarian students, 12 students had visual acuity less than 6/6. Applying chi square test to this data, $X^2 = 0.04$, $p = 0.84$, $p > 0.05$. Therefore, we can say that there is no statistically significant association between dietary habits and distant vision.

Thus we can say by our observation that gender or dietary habits do not affect individual’s visual acuity for distant vision.

Diet	Students with visual acuity for distant vision less	Students with visual acuity equal or better	Total students
Vegetarian	9	23	32
Non vegetarian	12	34	46
Total	21	57	78

	less than 6/6	equal or better than 6/6	Total
Vegetarian	9	23	32
Non vegetarian	12	34	46
Total	21	57	78

[Table:2 Diet of the students and visual acuity]



[Graph:1 diet of the students and visual acuity]

Discussion:

During the growing period of children(10-19 years age), they are subjected to various stresses and strains on eyes: near vision for reading and writing, watching television and computer for more hours etc. Such strains are likely to be the cause of developing Myopia¹⁹. The relationship between near work and myopia had been observed by Saw et al ²⁰ in Singapore, Mutti et al ²¹ in Orinda & Colorado and Wong et al ²² in Hong Kong. One study found the gender differences in visual perception in men and women, that aging affects visual perception more in women than in men.²³ In a study in South Africa, statistical analysis showed a clear association between the scores of protein and vegetable intake with visual acuity. Diet poor in protein, vegetables and fruits led to poor visual acuity in the subjects.²⁴ In the present study, we found that 28.1% of vegetarian and 26% of non-vegetarian school children had visual acuity for

distant vision less than 6/6. Nutritional factor may be one of the important factors in causing reduced visual acuity in the children.

Conclusion:

In this study, we have found 26.92 percent students having visual acuity for distant vision less than 6/6. No significant associations were found between visual acuity for distant vision and gender or dietary habits like vegetarian or non vegetarian. The children are the future of a Nation. It is necessary to take corrective measures to prevent blindness due to unattended refractive errors and to improve performances of students academically. The screening of vision of school children in developing countries can be very useful in detecting correctable causes of decreased vision especially refractive errors and the corrective measures can be easily taken.

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