



PREVALENCE OF MYOPIA IN THE CHILDREN OF MYOPIC PARENTS

Parijatham S.¹, Renuka Devi M. R.*², Siddharthani A.³, Devaki P. R.⁴ and Sai Kumar P.⁵

¹Assistant Professor, ²Professor, ³IIIrd Year – MBBS Student, ⁴Professor, ⁵Professor & HOD
Department of Physiology, Sree Balaji Medical College & Hospital, BIHER, India.

***Corresponding Author: Renuka Devi M. R.**

Professor, Department of Physiology, Sree Balaji Medical College & Hospital, BIHER, India.

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ABSTRACT

Background: Myopia is one of the most prevalent disorders of the eye. Higher myopia is associated with co morbidities that increase risks of severe and irreversible loss of vision, such as retinal detachment, sub retinal neovascularization, dense cataract and glaucoma. **Aim:** To assess the prevalence of myopia among the children of myopic parents. **Materials and Method:** A questionnaire based study was conducted in the school going children to assess the prevalence of myopia among children and their parents. The severity of myopia was also noted. **Conclusion:** Lifestyle and reading habits and their impact on the development of myopia during early childhood is also a major contributing factor. Also heredity plays major attributing factor in the development of myopia in children.

KEYWORDS: Myopia, lifestyle, heredity.

INTRODUCTION

Refractory errors are common in children. Myopia is one of the most common eye disorders seen worldwide. The prevalence of myopia has been reported as high as 70-90% in some Asian countries.^[1] The incidence of myopia often rises with age, country, sex, race, ethnicity. Occupation, environment also plays an important role in the development of myopia in early childhood. There is an increased incidence of myopia among school going students. Alteration in visual power is common in age group between 10-12 years.^[2] Risk of myopia is increased particularly in those children who have a reading habit, increased indoor activities and family history. In United states, prevalence of myopia increased from 1972-2004 to 17%.^[3] In United states, the prevalence of myopia in the age group of 5-17 years is 9% and in the age group of 20-39 years is 50%.^[4,5] In Ireland, the prevalence of myopia in the age group of 11-17 years is 14%.^[6] Compared to Australia, in East Asia, the prevalence of myopia is at higher rates.^[7] In China it is about 49%.^[8] In India, prevalence of myopia in school children of Chandigarh was 4.79%. This study which was conducted in 1970, was the earliest study regarding myopia.^[9] A study conducted in 2013 by AIIMS showed that 13% of the school going children are becoming myopic. In our study we try to assess the prevalence of myopia in the children of myopic and non myopic parents.

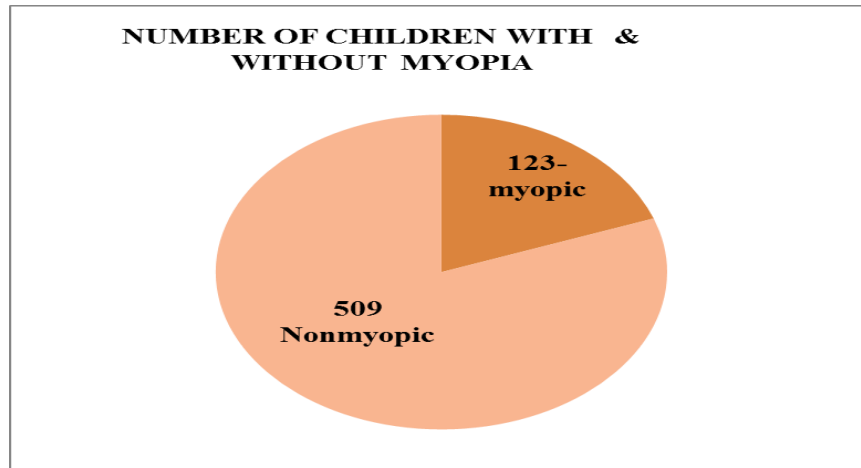
METHODS AND MATERIALS

Study was conducted among students of 3 different schools in Chennai, India after obtaining Ethical clearance from the Institution and informed consent was obtained from the parents. People of various socio-economic status participated in this study. A total of 632 students of age group 7- 17 years were included in this study. Study group included children affected with myopia. Myopic children of the non myopic parents were included as control group. Details regarding their family history, food habits, participation in outdoor activities and games, usage of gadgets such as computer, laptops were noted. Also the power of the glass, duration of refractory error of the children and parents were noted. Associated risk factors and the prevalence of myopia were analyzed. Statistical analysis was done.

RESULTS

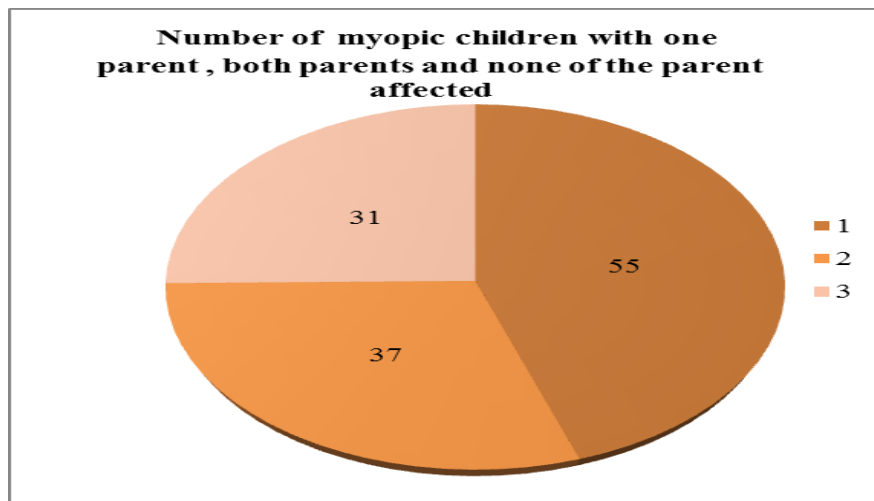
After analyzing the questionnaire, we found that if the parents were affected, then the child was more prone to get myopia. If the parents are unaffected, then the child had less chances of having refractive error. A total of 123 students were myopic in this study. If either of the parents were affected, then the myopic children were 55. If both the parents were affected, then the affected children are 37. About 75% of the myopic children had a positive parental history of myopia. If the parents did have any refractory problem the prevalence of myopia among their children was 25%. About 73 children with parental history of myopia had higher risk of developing myopia.

CHART-1



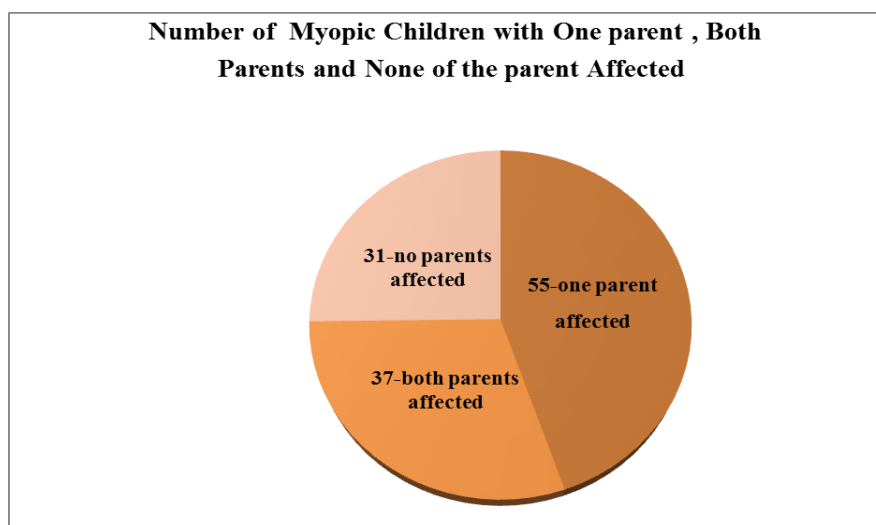
Total no. of children included in the study -632 and no. of children affected with myopia-123
Non myopic children-509

CHART-2



Of the total children affected, when both the parents were myopic, then the children were more prone for myopic changes. Also when single parent was affected significant number of children were affected.

CHART-3



DISCUSSION

From our study, prevalence rate of myopia among the school children with parental history of myopia was 75%. It was found that the prevalence rate of myopia among the school children without parental history of myopia was 25%. According to a study conducted in Russia, 209 children showed that the manifestation of myopia in the age group of above 15 years was more in 90% of families. About 68-86% of myopic children had a history of parental myopia.^[10] A study conducted in Hong Kong Chinese children showed that 31% of parental myopia was found. At the age of 12 years there were 53% of myopic children. The probability 12 years child having early onset with parental history of myopia was 0.55.^[11]

In a study conducted in Delhi, it was stated that a total number of 9884 children were screened for myopia. Many factors such as the type of school studying, socioeconomic status, positive family history, association with reading, playing were also considered and evaluation was made based on these criteria.^[12] According to study conducted in eastern Chinese, showed the association of various risk factor with myopia such as age, two myopic parents, outdoor activity, continuous work without 5 min rest and showed the development of adolescent myopia.^[13]

In a study conducted in Kollam, Kerala prevalence of myopia in the children of 10-12 years based on environmental factors, indoor and outdoor activities and genetic factor found to be 51.47% and hidden group of myopic students to be 43.1%.^[14] A pilot study conducted among Canadian children, rate of prevalence seen in age group 6-8 years is 6% which is increased at age group 11-13 years to 29% (2) Researchers from Europe, Asia, Australia, and the United States analyzed genetic and refractive error data of over 45,000 people from 32 different studies, and found 24 new genes for this trait.^[15]

Familial predisposition to myopia that results from shared genes, shared environment or both were noted.^[16] A study conducted in China among three generations, parental myopia was the main cause in the 1st generation while in the 2nd generation and 3rd generation it is seen more in non myopic parents, mainly due to environmental influence.^[17] The presence of premyopic elongated eye in the children with history of parental myopia was evaluated in school children of California.^[18]

CONCLUSION

In our study, there is increase in the incidence of myopia in school going children which is 20%. It has shown relevance with parental history of myopia which is 75%. Genetic predisposition is seen among the children of myopia who had a positive parental history. When at least one parent was myopic, the child was more likely to develop myopia compared to a child with both myopic parents.

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