

A COMPARATIVE STUDY OF IQ LEVELS IN MYOPIC CHILDREN WITH NON-MYOPIC CHILDREN BETWEEN THE AGE GROUP OF 8-15 YEARS

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ABSTRACT

Introduction: In Andhrapradesh state the prevalence of myopia is elevated with increasing age and it is more in the urban area. Myopia is increased in highly intelligent population as compared to the general population. **Materials & Methods:** This is a comparative study of Intelligent Quotient levels in myopic students in the age group of 08-15 years. The study was conducted in (n=300) aged between 08-15 years. Case group involves 50 students, those were already diagnosed as myopic were selected and 50 students of same age group were considered as control. **Results:** Intelligent Quotient levels of myopic students were statistically significantly higher than the non-myopic students.

Key words: IQ levels, Myopia, School children, 8-15 years.

INTRODUCTION

In Andhrapradesh state the prevalence of myopia is elevated with increasing age and it is more in the urban area [1]. The prevalence of myopia is increased in highly intelligent population as compared to the general population [2]. A pleiotropic relationship between intelligence and myopia has been shown to exist. People having large eyes are more prone to myopia and large brains (neocortical size) have been shown to be more intelligent. Thus myopia or intelligence relationship could arise because a single genetically controlled mechanism affects both brain and eye size [3]. A previous study done by Mutti et.al (2002) in 366 eighth grade children in the Orinda longitudinal study showed that myopic children were more likely to have higher Iowa Tests of Basic Skills (ITBS) [4]. Seang-Mei Saw study on school grades and myopia also concluded that school grades a possible indicator of either cumulative engagement in near work activity or intelligence, were positively associated with myopia in Singapore children. [5] CzepitaD review of the literature suggested that the relationship between IQ and myopia is most probably determined by genetic and environmental factors. [6] Therefore we consider this study to examine the IQ levels of myopic students between the age group of 08-15 years and compare it with age matched students who are not suffering from myopia.

MATERIAL AND METHODS

This is a comparative study of IQ levels in myopic students in the age group of 08-15 years who are studying in MB Grammar high school in Suraram village, Hyderabad. The study was conducted in myopic students of both the sex group (n=300) aged between 08-15 years. The criteria for selection of myopia were diagnosed as myopics 2-3 years prior to the study and 150 non myopic students those were

randomly selected in the same school with same age group. comparison between myopic and non-myopic students were to investigate IQ levels in 50 myopic students between the age group of 08-10 years, 50 myopic students between age group of 11-12 years, 50 myopic students between the age group of 12-15 years were compared with the same age group non myopics as control group. Prior to the study, permission has been taken from the school Principal to carry the research work and each subject has been informed in detail of the objectives and aim of the research protocol and methods to be used. Verbal consentis obtained by the students. Ethical Clearance is obtained from the Institutional Ethical Clearance Committee. IQ level in all the participants was assessed by Raven's Progressive Matrices version is colored Progressive Matrices which is based on multiple choice questionnaires.

Statistical analysis: Is done by using SPSS 17 version software and z test done by in.silico.net/tools/statistics.

RESULTS

Table 1: Comparison of Intelligent quotient of myopic and non-myopic among case and control group

Age (years)	IQ values		P-Value
	Myopic	Non-myopic	
08 - 10	42.3 ± 4.016	27.9 ± 4.51	> 0.0001
11-12	42.98 ± 3.74	28.9 ± 4.45	> 0.0001
13-15	43.8 ± 4.02	29.8 ± 4.58	> 0.0001

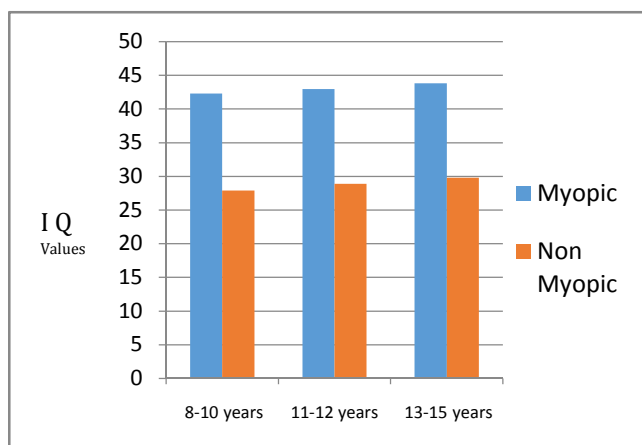


Fig 1: IQ values comparison with myopics and non-myopics showing highly significance

DISCUSSION

Myopia is commonest worldwide eye refractive errors (Albert and Jakobiec 1994). Neocortical expansion has made possible the large, gradual increase in IQ that has occurred across the developed world, and been responsible for the dramatic upsurge in the prevalence and severity of near-sightedness (myopia)[7]. Children with myopia were more likely to have parents with myopia; they spend significantly more time in studying, reading, and less time in playing sports; and to score higher on the ITBS (Iowa Tests of Basic Skills) Reading and Total Language subtests than non-myopic children[8]. Intelligence is the ability to deal appropriately with problems and to select priorities in different situations. It is somehow related both to genetic background in addition to acquired and cultural factors[9-10]. The correlation between IQ and refractive errors has been extensively studied and myopic children have been reported to be more intelligent than their classmates [11-19]. This was also observed in myopic students in our study. This study is taken up to analyze if any difference exist in IQ levels in myopic and non-myopic children and thereby assess the verbal grasping power of the myopic children. This may help in assessing the intelligence of the myopic group and based on this we intend to suggest some reformative measures in the pattern of their examination assessment.

CONCLUSION

Our study demonstrated that intelligent quotient levels are greater comparative non myopic controls and Intelligent quotient levels are positively correlated with the myopia.

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Conflict of Interest: Nil

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