



## STUDY ON VISION-RELATED PARAMETERS AMONGST MEDICAL STUDENTS

## Radiodiagnosis

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## ABSTRACT

This complete enumeration, cross-sectional, descriptive study was conducted in March-April 2018 in the Physiology Department of a municipal medical college in Kalwa, Thane, Maharashtra, India after obtaining approval from the Institutional Ethics Committee. After explaining the purpose and procedure of the study, written informed consent was obtained from the participants (medical students of either gender). Primary data related to visual examination (distant vision, near vision and colour vision) were recorded in a proforma. The mean age of male participants (n=34) was 19.06 +/- 1.01 years (95% CI: 18.72-19.40 years), while that for females (n=28) was 18.50 +/- 0.58 years (95% CI: 18.29-18.71 years). The frequency of myopia was higher among males but the gender difference was not statistically significant. Astigmatism was found in 4 eyes each of female and male participants, while red colour blindness was observed in one male participant (2 eyes).

## KEYWORDS

Medical students, Myopia, Vision

## INTRODUCTION

Globally, myopia is the most frequent cause for impaired distance vision but its aetiology is still unclear. [1,2] Factors that are potentially associated with risk of developing myopia include near-work activities (writing, reading, computer or smart phone usage, and playing video games), [3] occupation, education, income, lens opacity, ocular dimensions, parental myopia, [4] gender and ethnicity. [5-8] Some studies revealed increased prevalence of myopia among those with higher education levels, better housing, higher income and occupations associated with near work. [9] It is reported that spending more time outdoors might be associated with lower prevalence of myopia. [10] The prevalence of myopia has been reported to be 6.3% in children whose parents have normal vision, 18.2% in children with one myopic parent, and 32.9% in children whose both parents are myopic. [11]

Myopia is believed to be due to interaction between genetic predisposition and environmental factors. [11,12] Measurement of these factors in different population settings is very important for better prevention and control strategies.

The economic burden of uncorrected refractive errors provides an economic justification for correcting myopia and other refractive errors. [13] High myopia increases the risk of pathological ocular changes, such as, cataract, glaucoma, retinal detachment, and myopic macular degeneration that can result in irreversible vision loss. [14] Studies suggest wide variation in the prevalence of myopia between different regions and ethnic groups. [15]

The objective of the present study was to determine distant vision, near vision and colour vision among medical students so that corrective measures can be taken.

## MATERIALS AND METHODS

This complete enumeration, cross-sectional, descriptive study was conducted in March-April 2018 in the Physiology Department of Rajiv Gandhi Medical College located in Kalwa, Thane, Maharashtra, India after obtaining approval from the Institutional Ethics Committee. After explaining the purpose and procedure of the study, written informed consent was obtained from the participants (medical students of either gender). Primary data related to visual examination were recorded in a proforma. Distant vision and near vision were measured using Snellen's Chart and Jaeger's Chart, respectively. Ishihara's Chart was used to detect defective colour vision.

The data were statistically analyzed using EpiInfo Version 7.0 (public domain software package from the Centers for Disease Control and

Prevention, Atlanta, GA, USA). Continuous data were presented as Mean and Standard Deviation (SD). 95% Confidence interval (CI) was stated as: [Mean-(1.96)\*Standard Error] - [Mean+(1.96)\*Standard Error]. Karl Pearson's Chi-square test with Mantel-Haenszel correction (where required) was used. The standard error of difference between two means (Z) was calculated. Statistical significance was determined at p<0.05.

## RESULTS AND DISCUSSION

The mean age of male participants (n=34) was 19.06 +/- 1.01 years (95% CI: 18.72-19.40 years), while that for female participants (n=28) was 18.50 +/- 0.58 years (95% CI: 18.29-18.71 years). The maximum and minimum age for males was 21.5 years and 18 years, respectively; while that for females was 19.5 years and 18 years, respectively. (Fig. 1)

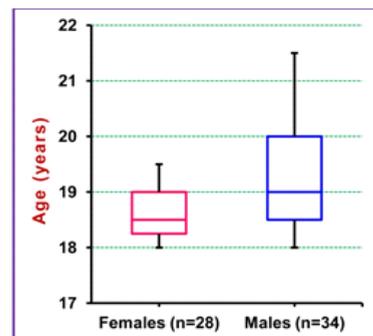


Fig.1: Boxplot of age distribution of participants

Table-1: Gender-wise distribution of visual acuity

Visual acuity		Females (56 eyes)	Males (68 eyes)	Chi square value	p value
Distant vision	≤6/9 (near Normal)	16 (28.57%)	16 (23.53%)	0.407	0.5234
	>6/12	40 (71.43%)	52 (76.47%)		
Near vision	N-6 (Normal)	55 (98.21%)	65 (95.58%)	0.678	0.4102
	< N-6	01 (01.79%)	03 (04.42%)		

Karl Pearson's Chi-square test with Mantel-Haenszel correction (where required)

In a majority of medical students, the distant vision was 6/12 or worse, which has substantial ophthalmic implications. Astigmatism was found in 4 eyes each of female and male participants, while red colour blindness was observed in one male participant (2 eyes). Though the gender difference in myopia was not statistically significant, (Table-1) more males were myopic in the present study. In contrast, higher prevalence of myopia among females has been reported in Singaporean Chinese [8] and North Americans. [16] Estimates of the global prevalence of myopia are not available. [17] The myopia prevalence reported in the Singaporean Malays [18] and Indians [19] are lower than those from North America. [19,20] Studies on ocular biometric parameters have been conducted on adolescents, [21] medical students [22] and microscopists. [23]

This cross-sectional study was limited to 62 medical students (124 eyes). Ocular biometric parameters were not studied. A larger study would be required to generalize the results.

## CONCLUSION

This cross-sectional study revealed that a majority of medical students had myopia, a condition which has considerable ophthalmic implications. The gender difference in myopia was not statistically significant. Astigmatism was found in 4 eyes each of female and male participants, while red colour blindness was observed in one male participant (2 eyes).

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