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Relation Between Activities Performed and Refractive Status of Optometry Students

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ABSTRACT

The purpose of the study is to assess the relation of sports and leisure activities with refractive status amongst students of optometry. This institute-based prospective pilot study was conducted during 1st to 7th March 2017 in the Department of Optometry, UPUMS, Saifai,(Etawah), U.P. in which all the available (=96) bachelor optometry students from all professional years were enrolled. All students were subjected to the vision screening which included a detailed questionnaire (Gender, Income group, Sports and Leisure activities related information) as well as clinical examination in which visual acuity (Snellen's chart), cover test and colour vision (Ishihara chart) were assessed. Percentage prevalence of refractive error was determined. Refractive status of the students was compared with the sports and leisure activities which they preferably perform. The mean age of the students was 21.64 years and prevalence of refractive error was found to be 35.41% (34 out of 96). Prevalence of myopic in total population is highest 23.95% (23 out of 96) than hyperopic 3.12% (3 out of 96) and astigmatism 8.3% (8 out of 96). Myopic were observed to be least actively involved in outdoor activities (H>A>M>N) in comparison to indoor activities (M>N>A>H). Hypermetropic were found to be least active in leisure activities (vision dependent) while more active in vision independent leisure activities. The study has shown a strong relation between the type of sport as well as vision-dependent leisure activity and the type of refractive error. Myopics were having more affinity towards indoor activities/ sports while hypermetropics were towards outdoors.

Keywords: Indoor/Outdoor activities, 0ptomery, Leisure activities, Questionnaire, Refractive Error

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INTRODUCTION

Uncorrected refractive error is the leading cause of eye problems worldwide and the second cause of blindness. According to WHO (ICD-10), A total of 153 million people globally (range of uncertainty: 123 million to 184 million) are estimated to be visually impaired and 2.8 million people are blind in India due to uncorrected refractive errors[1]. Jin et al. (2015) observed in both younger and older cohorts, a significant trend towards greater incidence of refractive errors who spent less time outdoors[2].

Optometry students are particularly such a select group which spends prolonged periods of time on excessive near work and related fine visual tasks required by their intensive study regimen that spans many years. As there are no studies reported among the optometry students in India, so we made an attempt to find out the status of refractive errors and relation between activities performed among the Optometry students.

This study was designed to determine the exact visual status, correlation of person's outdoor activities, and effect of leisure vision dependent activities on vision in Optometry students of Medical University. This was planned to assess the prevalence of refractive errors, increase in awareness and better planning of eye-care services, because refractive error such as myopia & hypermetropia are responsible for a significant proportion of moderate visual impairment in medical student's population.

MATERIALS AND METHOD

An institution based prospective pilot study was conducted from 1st to 7th March 2017 in the Department of Optometry, UPUMS, Saifai, (Etawah) U.P. The exhaustive sampling technique was used in which all the available Optometry students (n=96 of which 32 of 1st year, 35 of 2nd year and 29 students of 3rd year) during a particular time period of 1week after clearly explaining the purpose and procedure of the study were enrolled in the study. The study tools used were a structured questionnaire, Snellen chart, PD ruler, Eye occluder, torch and pinhole.

Those having a visual acuity less than 6/6 in one or both eyes were tested for the presence or otherwise of a refractive error by pinhole test. The refractive values were collected based on the information furnished by the students themselves or collected from their current spectacle prescription, wherever available.

Prevalence of refractive error was determined. Refractive status of the students was compared with the sports activities like outdoor, indoor and none of these. In the similar way, leisure activities included vision dependent activities (writing, reading, crafting, watching movies) and vision independent activities (singing, dancing, and music).

RESULTS AND DISCUSSION

Total numbers of respondents were 96. Mean age of the respondents was 21.63 years with a range of 18 to 30 years. Prevalence of refractive error was 35.41% (34 out of 96) [Figure 1, 2]. Myopia was the most common type of refractive error constituting 23. 95% (23 out of 34) of the participants whereas hyperopic 3.12% (3 out of 34), astigmatic 8.3% (8 out of 34) and Emmetropic 64.58% (62 out of 96) [Figure 3]. The study concluded that Refractive error (myopia) is marginally more prevalent in females 73.91% (17 out of 23) than in males 26.09% (6 out of 23) Optometry students [Figure 4].

Furthermore, the study revealed that myopic students were observed to be least actively involved in outdoor activities (H >A >M) in comparison to indoor activities (M > A > H) [Figure 6]. Hypermetropic were found to be least active in vision dependent activities while more active in vision independent activities [Figure 7]

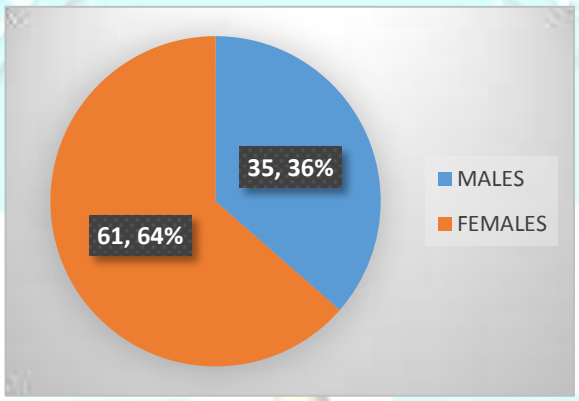

Figure 1: Distribution of students (Gender-wise)

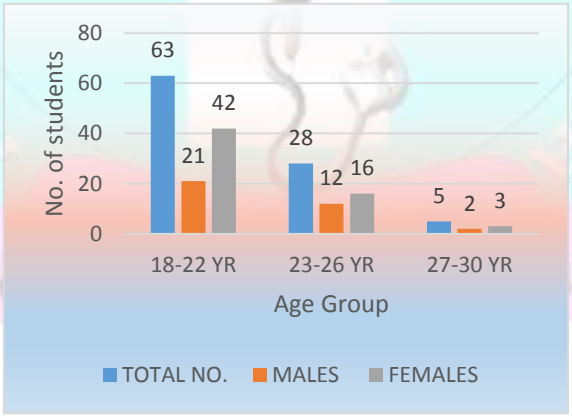

Figure 2: Distribution of students (Age-wise)

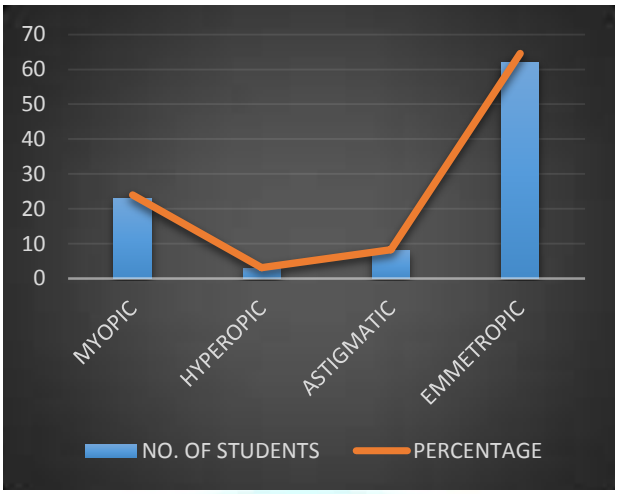

Figure 3: Prevalence of refractive errors

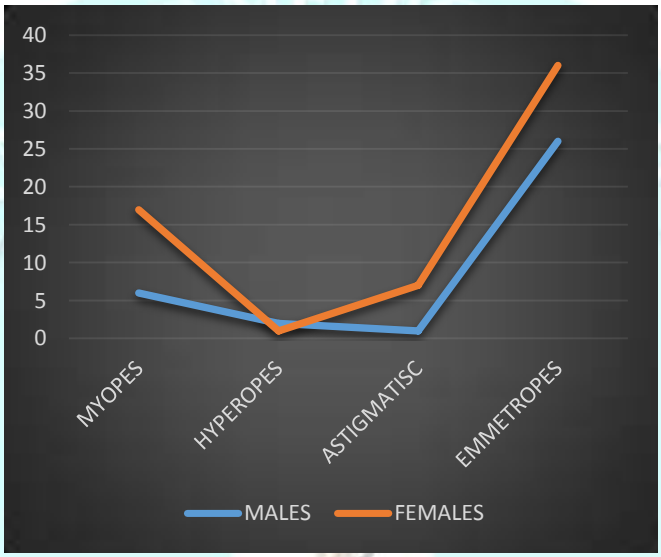

Figure 4: Distribution of Refractive error (Gender-wise)

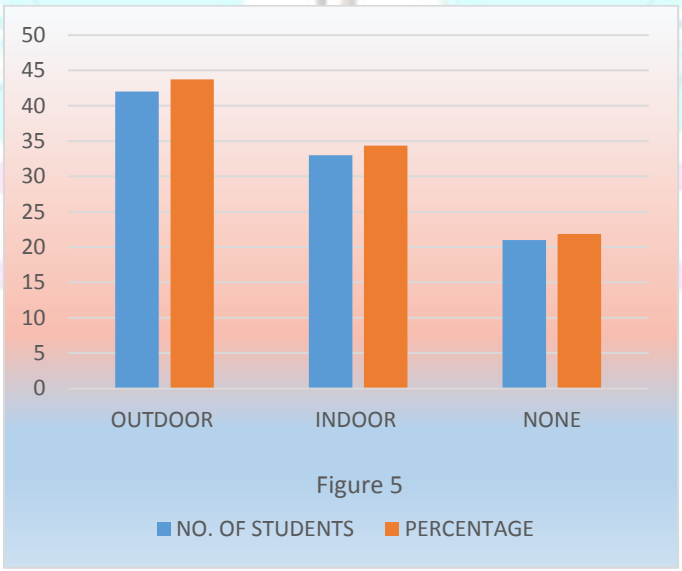

Figure 5: Involvement of students in sports activities

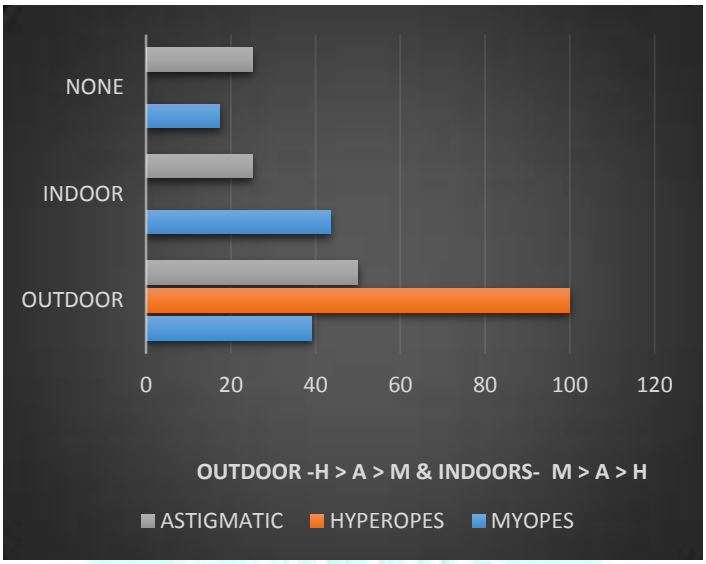

Figure 6: Correlation of refractive errors with sports activities

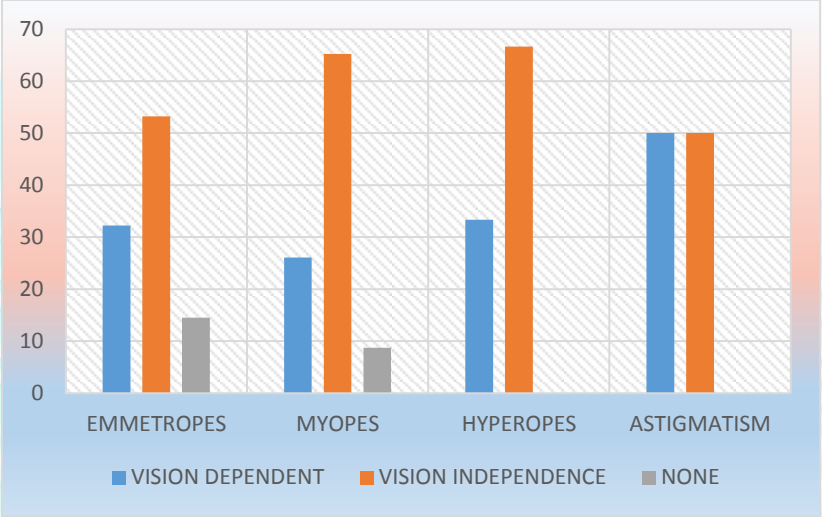

Figure 7: Correlation of refractive errors with leisure activities

This study is unique in itself because it revealed the relation between activities performed and refractive errors in Optometry students for the very first time.

A number of studies[3,4] on populations that grew up in different environments involving medical students have less prevalence of myopia in comparison of optometry students (67.65%). While that vision dependent activities such as increased near vision, excessive computer/television watching and long duration of medical curriculum were responsible for the increase in the occurrence of myopia development in medical students[5,6].

In study of optometry students, a similar finding was reported where refractive error like myopia was significantly more prevalent in vision dependent leisure and near activities 33.33% than hypermetropia. It also supported myopic were highly active in indoor sports activities 43.47% than any other refractive errors like hyperopic and astigmatic.

CONCLUSION

The study has shown a strong relation between the type of sport as well as vision-dependent

leisure activity and the type of refractive error. Myopics were having more affinity towards indoor activities/ sports while hypermetropics were towards outdoors.

ACKNOWLEDGMENT

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