

The prevalence of refractive errors and the factors associated with them among students in Tikrit University college of Medicine

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Abstract

Objectives: When an eye does not focus light properly on the retina, it has a refractive error. People have different types of this condition, myopia, hypermetropia and astigmatism being the most common. Out of these three, myopia is most common. This study aimed at investigating the prevalence of refractive errors among medical students in Tikrit University College of Medicine and identify possible factors for their occurrence.

Methods: A cross sectional study was done at college of medicine from October 2023 till January 2024. The data was collected using a questionnaire.

Results: in this study, 39% of students have refractive errors, with myopia being the most prevalent type (57%) and hypermetropia was the least common type (11%). Among myopic patients (66%) of them have near work activity of more than four hours daily.

Conclusions: Myopia is the most common refractive error among medical students.

Refractive errors are common visual impairments that impact individuals from many ethnic backgrounds. Nevertheless, unique demographics, consisting of college students, can be in particular vulnerable because of the inherent demanding situations they face of their educational and personal lives. The objective of this research is to investigate the prevalence of refractive errors among students at Tikrit University College of Medicine. This research will provide insights into variable factors which can make contributions to these errors and their impact on instructional success and basic fitness.

Myopia is the main cause of preventable loss of vision in children and teenagers (1). There is mounting information indicating a huge rise in the incidence of myopia in many areas worldwide, projections advise that myopia will affect approximately 5 billion individuals by 2050, posing a sizable public health issue (2). The rising incidence of myopia has sizable implications for society in terms of social, instructional, and economic elements (1). Severe and irreversible vision loss can end result from complications connected with high myopia, such as retinal detachment, macular lesions, peripapillary deformation, and myopia choroidal neovascularization. related complications of high myopia will become one of the major contributors to visual impairment worldwide. (3,4)

The worldwide incidence of myopia has been on the upward thrust, prompting researchers to undertake investigations aimed toward documenting the possible causes linked to this circumstance. The particular mechanisms of myopia are still now not fully understood. However, it's been set up that each hereditary and environmental variables play a rule inside the improvement of myopia.

There has been a notable rise in the prevalence of myopia within the population, possible factors contributing to this phenomenon include the rise of near work on smart devices, the decline in outdoor activities, and the escalation of academic demands. given that medical students constitute the affluent segment of the future society, it is imperative to priorities their visual well-being. therefore, the purpose of this study was to examine the prevalence of refractive error and assess the behavioral elements that could potentially contribute to the onset of myopia among university students in Tikrit, a northern city in Iraq undergoing growth.

Objectives

the objectives of this study are

- a.to ascertain the prevalence of refractive errors among medical students.
- b.to ascertain the prevalence of distinct refractive errors, including myopia, hyperopia, and astigmatism among medical students.
- c.to ascertain the potential risk factors that may be linked to the occurrence of refractive errors.
- d.to offer suggestions for preventive measures and enhance awareness of eye care among medical students.

Methodology

This cross-sectional descriptive study was conducted at Tikrit University College of Medicine from October 2023 to January 2024. The study involved a sample of 370 students, consisting of 188 males and 182 females, aged between 18 and 25 years.

The data collection process involved the use of a self-administered questionnaire. the questionnaire was written in English and included medical terminology, which was clearly explained and translated for all participants.

The self-administered questionnaire yielded the following data: age, gender, stage, family history of refractive errors, and daily near work activity.

Statistical Analysis: The data was analyzed using SPSS version 24 to understand and elucidate the study's findings.

Results

The results of our study indicate that a proportion of 39% of medical students have refractive problems. In the male population, the prevalence of myopia is 22%, astigmatism is 11%, and

hypermetropia is 4%. When comparing the data, it is observed that the prevalence of myopia among females is 20%, astigmatism is 14%, and hypermetropia is 6%.

Discussion

The primary objective of our research was to examine the prevalence of refractive errors among medical students at Tikrit University College of Medicine, while also investigating potential factors that may contribute to this phenomenon. we found that 39% of medical students have refractive error, the study conducted at Al-Mustansiriya University in Baghdad in 2017 (5) revealed a prevalence rate of 33% for refractive errors among medical students, which aligns with our findings. Nevertheless, our findings diverge from previous research that indicates elevated rates of refractive errors among medical students, such as 89% in Singapore and 92% in Taiwan (6,7). The observed differences can be ascribed to genetic polymorphisms and lifestyle differences, however additional investigation is necessary to clarify these disparities.

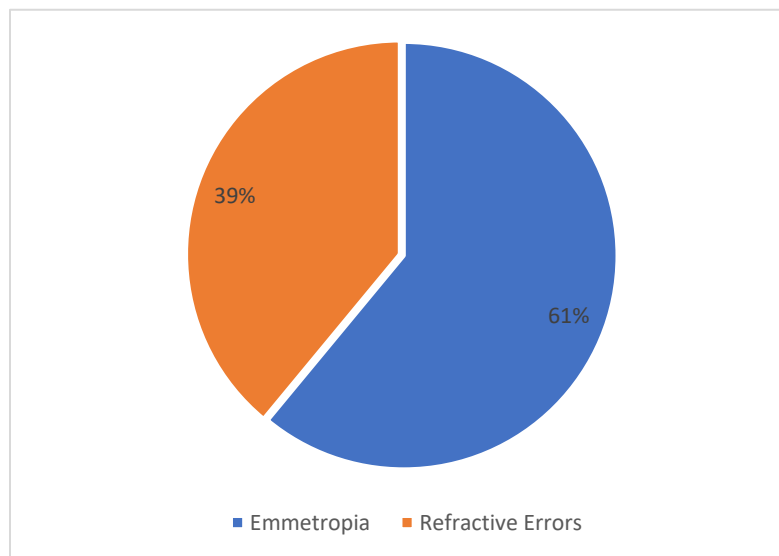


Figure (1) Refractive error rate among medical students.

Myopia was found to be the prevailing refractive error among medical students, with a prevalence rate of 57% among the participants with refractive errors. the prevalence of myopia among male students was found to be 59%, whilst among female students, it was seen to be 50%. The results of this study align with previous researches undertaken at Al-Mustansiriya University in Baghdad and in India (5,8), which similarly identified myopia as the predominant refractive error affecting 56% and 60% respectively.

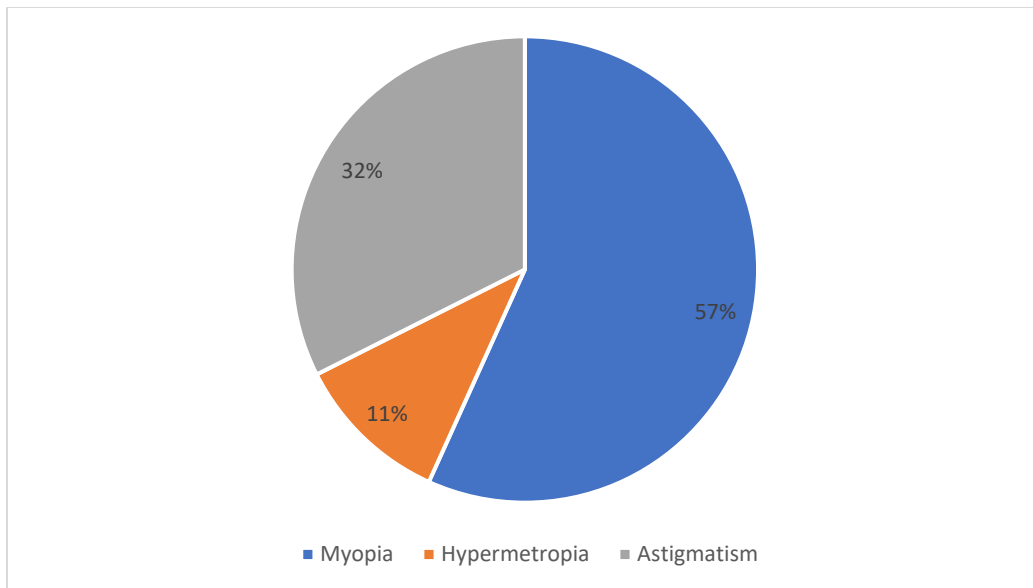


Figure (2) Percentage of refractive errors among medical students

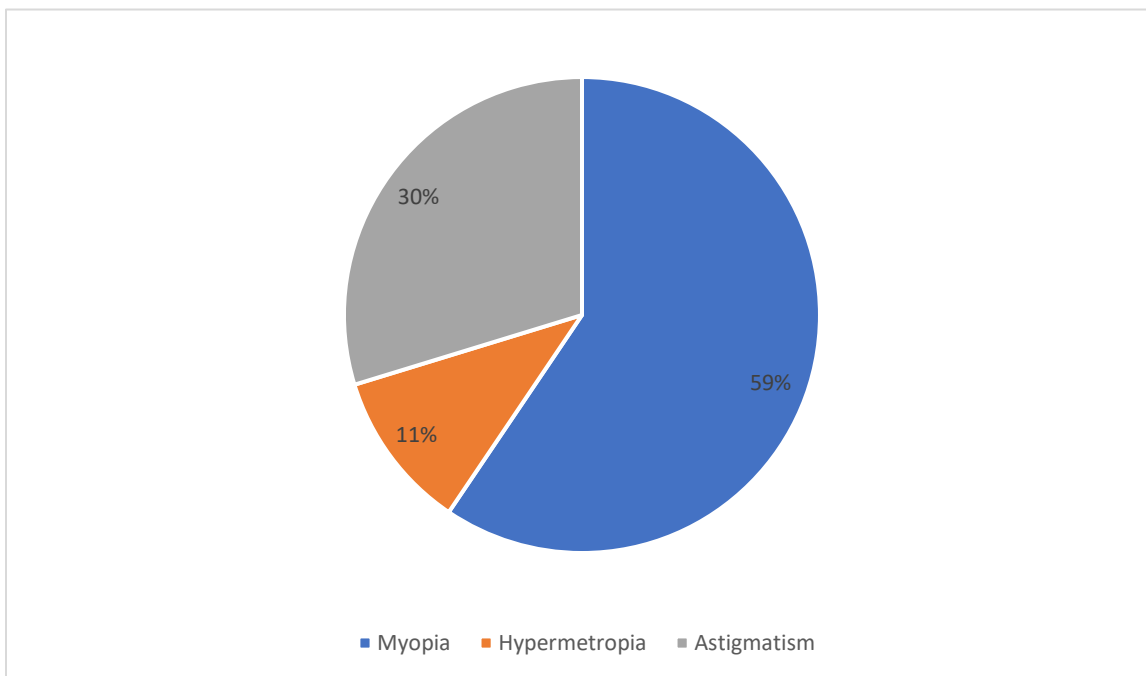


Figure (3) Percentage of refractive errors among male students

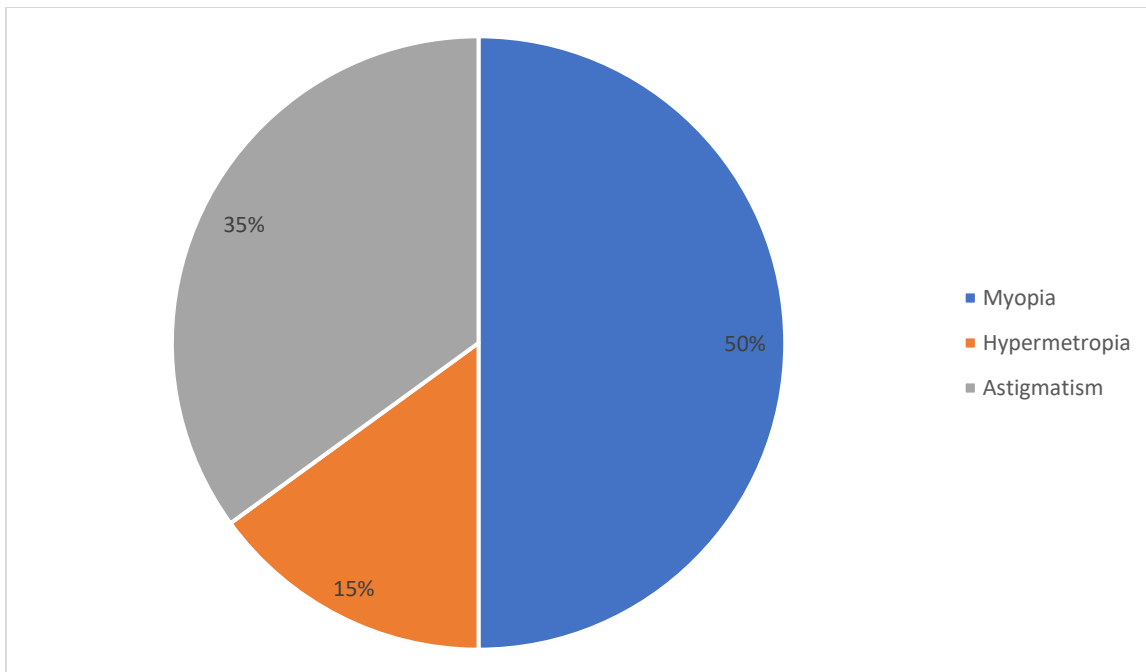


Figure (4) Percentage of refractive errors among female students.

Our study found that stage three had the highest prevalence of myopia compared to other stages, whereas the first and second stages had the lowest prevalence. This pattern necessitates additional research to clarify the fundamental variables that influence this distribution.

Table (1) The distribution of refractive errors according to stages.

	Emmetropia	Myopia	Hypermetropia	Cylinder	Total
Stage 1	50 (69%)	11 (15%)	2 (2%)	9 (12%)	72
Stage 2	36 (67%)	8 (15%)	5 (9%)	4 (7%)	53
Stage 3	27 (47%)	19 (33%)	0 (0%)	11 (19%)	57
Stage 4	42 (59%)	17 (23%)	4 (5%)	8 (11%)	71
Stage 5	42 (70%)	10 (16%)	3 (5%)	5 (8%)	60
Stage 6	29 (50%)	15 (26%)	4 (7%)	9 (15%)	57
Total	226 (61%)	80 (21%)	18 (4%)	46 (12%)	370

In terms of family history of refractive error, our study found that 64% of male students and 71% of female students with refractive errors had a positive family history.

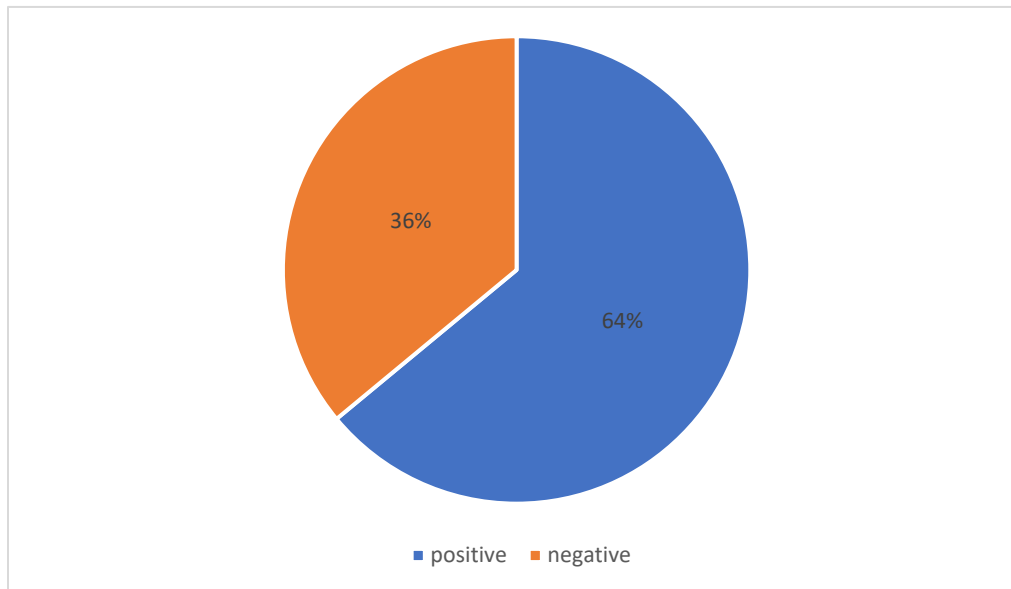


Figure (5) Percentage of family history among male students with refractive errors.

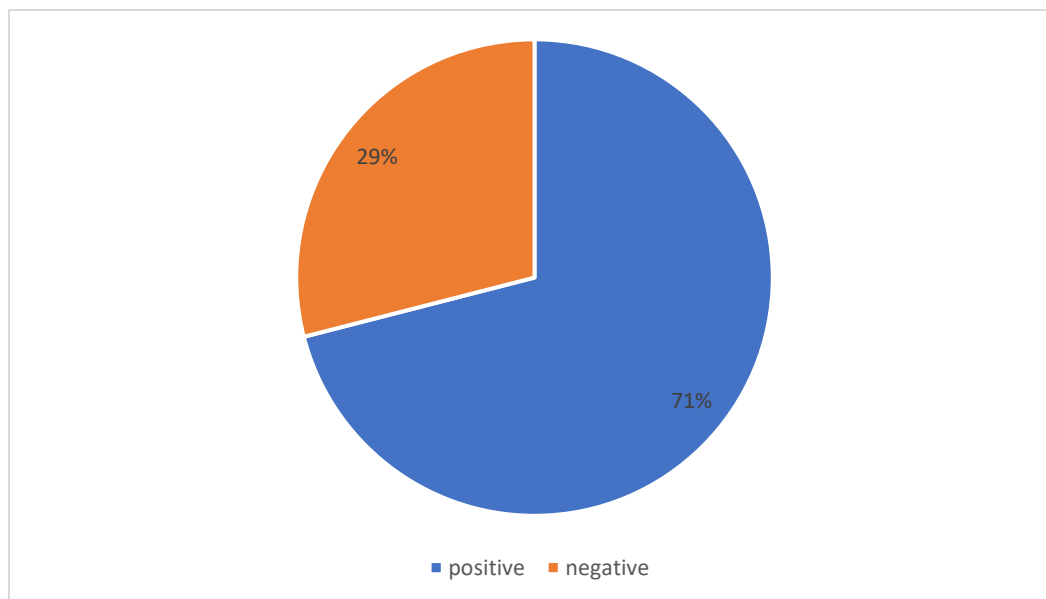


Figure (6) Percentage of family history among female students with refractive error

A majority of myopic students, namely 66%, partake in near work activities for a duration exceeding 4 hours per day, which encompasses the use of electronic gadgets. This finding is consistent with a study conducted at Al-Mustansiriya University (5), which found that 56% of students with myopia dedicate more than 3 hours per day to activities related to their profession.

Furthermore, a research conducted at Kerala Medical College revealed that 44% of students dedicate 2-3 hours each day to reading (9).

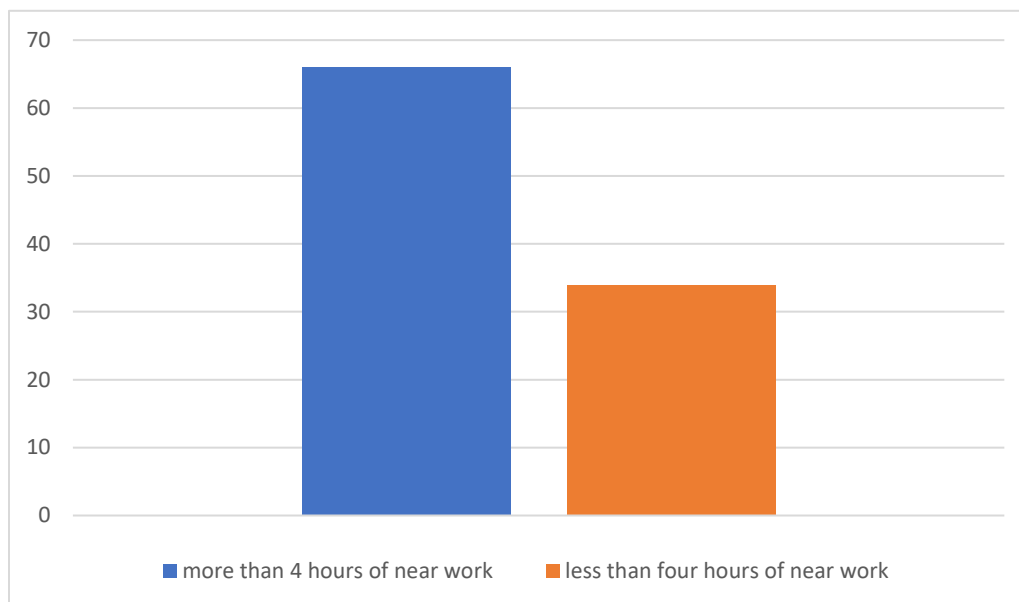


Figure (7) The distribution of near work activity among myopic students.

Conclusions

Among medical students, myopia is the most prevalent refractive error. there is a somewhat higher prevalence of refractive errors observed in males compared to females. the third stage demonstrates the largest occurrence of refractive errors among the various stages.

Recommendations

- Engaging in additional investigation about the dispersion of refractive errors within the population
- Introducing a system of yearly visual acuity assessments for medical students.
- Advocating for decreased dependence on smartphones and tablets for academic pursuits.

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