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PREVALENCE OF SELF-REPORTED MYOPIA AND ASSOCIATED RISK FACTORS AMONG UNDERGRADUATE STUDENTS IN AL-HIKMAH UNIVERSITY, ILORIN

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Abstract
Myopia is one of the most common refractive errors affecting young adults and has become a growing public health concern worldwide. This study assessed the prevalence of self-reported myopia and associated risk factors among undergraduate students in Al-Hikmah University, Ilorin. Specifically, the study determined the prevalence of self-reported myopia, identified lifestyle and academic-related risk factors, and examined the association between selected socio-demographic characteristics and the occurrence of self-reported myopia. A descriptive cross-sectional study design was adopted. Data were collected from 420 undergraduate students using a structured, self-administered questionnaire selected through a multistage sampling technique. Data were analyzed using descriptive statistics comprising frequencies and percentages, while Chi-square test was used to test the hypothesis at a 0.05 level of significance. Findings revealed that the prevalence of self-reported myopia among respondents was 28.1%, while 13.8% were uncertain of their visual status. More than half (53.8%) of the respondents had never undergone an eye examination, and only 21.6% used glasses or contact lenses for vision correction. Prolonged screen exposure, limited outdoor activities, heavy academic workload, and frequent academic stress were common among the respondents. The Chi-square analysis showed a statistically significant association between total screen time (near-work activity) and self-reported myopia ($\chi^2 = 14.67$, $df = 3$, $p = 0.002$), leading to the rejection of the null hypothesis. This indicates that increased screen exposure was significantly associated with self-reported myopia among undergraduate students. The study concluded that self-reported myopia is relatively common among undergraduate students in Al-Hikmah University and is significantly associated with prolonged near-work activities. The study recommends routine vision screening programmes, promotion of healthy visual habits, and increased awareness of preventive eye care among students.

Keywords: Self-reported myopia, Screen time, Near-work activities, Undergraduate students, Eye health.

Introduction

Myopia, also known as short-sightedness, is a refractive error in which parallel rays of light focus in front of the retina rather than directly on it, resulting in blurred distance vision while near vision remains relatively clear. This condition usually occurs because of excessive elongation of the eyeball (axial myopia) or increased refractive power of the cornea or lens, leading to a mismatch between the eye's optical power and its axial length (Flitcroft, 2019; Morgan *et al*., 2021). Although myopia can be effectively corrected using spectacles, contact lenses, or refractive surgery, it has become a major public health concern because of its increasing prevalence and its association with potentially irreversible ocular complications.

Over the past few decades, myopia has emerged as one of the fastest-growing causes of visual impairment worldwide. According to the World Health Organization (2019; 2023), at least 2.2 billion people globally live with some form of vision impairment, with uncorrected refractive errors, including myopia, accounting for a substantial proportion of these cases. The World Health Organization (2024) further reported that many cases remain uncorrected because of inadequate access to eye care services, particularly in low- and middle-

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income countries. Beyond impaired vision, high myopia is associated with serious ocular complications such as retinal detachment, glaucoma, cataract, and myopic macular degeneration, all of which may lead to permanent visual impairment if left undetected or poorly managed (Ohno-Matsui *et al*., 2021; Jonas *et al*., 2021).

Globally, the prevalence of myopia has increased markedly among children, adolescents, and young adults. This increase has largely been attributed to changes in lifestyle and environmental exposures, including prolonged near-work activities, increased use of digital devices, reduced outdoor activities, and increasing academic demands (Wu *et al*., 2020; Pan *et al*., 2021; Dolgin, 2021). Exposure to natural outdoor light has been shown to have a protective effect against myopia development through retinal dopamine-mediated mechanisms that regulate axial eye growth (Rose *et al*., 2020).

University students constitute one of the populations at greatest risk of developing myopia because they spend long hours engaged in visually demanding activities such as reading, computer-based learning, use of smartphones, laboratory work, and other academic tasks requiring sustained near vision. These activities, coupled with reduced outdoor exposure and increased academic workload, predispose students to the onset and progression of myopia (Bhandari *et al*., 2020; Makhdoum *et al*., 2023). Recent studies among university students support this observation. Makhdoum *et al*. (2023) reported a myopia prevalence of 57.3% among college students in Madinah, Saudi Arabia, with prolonged screen exposure and near-work duration identified as major risk factors. Similarly, Berhane *et al*. (2022) found a prevalence of 16.7% among Ethiopian medical students, where reduced outdoor activity and prolonged near work were significantly associated with myopia.

Despite the growing global evidence, many epidemiological studies have concentrated on school-aged children because of the rapid progression of myopia during childhood, while relatively fewer studies have focused on university students. This has created an important knowledge gap, particularly among young adults who continue to experience prolonged exposure to behavioural and academic risk factors capable of initiating or worsening myopia.

In Nigeria, available evidence on myopia among undergraduate students remains limited. Existing studies have primarily focused on hospital-based populations, schoolchildren, or general community samples rather than university students. For example, Onabolu *et al*. (2011) reported a myopia prevalence of 16.2% among Nigerian adults aged 40 years and above, while Aguwa *et al*. (2020) found that myopia accounted for approximately 54% of refractive errors among Nigerian undergraduates. Similarly, Ibrahim, Kingsley and Yusuf (2022) reported that myopia constituted 70.6% of refractive errors among medical students in Gombe State, although nearly one-fifth of affected students were not using corrective lenses. These studies highlight the burden of myopia in Nigeria but provide limited information on the prevalence and associated risk factors among undergraduate students in many universities, including Al-Hikmah University, Ilorin.

Students of Al-Hikmah University, particularly those enrolled in health-related programmes, are continually exposed to activities that require prolonged visual concentration, including extensive reading, practical laboratory sessions, computer-assisted learning, and preparation for clinical training. These academic demands, together with prolonged digital device use and reduced outdoor activities, may increase their susceptibility to myopia. If left uncorrected, myopia may adversely affect students' academic performance, practical skill acquisition, productivity, and overall quality of life.

Although myopia is increasingly recognized as a significant public health challenge, there is limited evidence regarding its prevalence and associated risk factors among undergraduate students of Al-Hikmah University, Ilorin. The absence of institution-specific data limits the ability of university health authorities and policymakers to develop targeted eye health interventions, implement routine vision screening programmes, and promote behavioral strategies aimed at preventing visual impairment among students. The findings will provide baseline evidence for institutional eye health planning, facilitate early detection and management of refractive errors, support the implementation of routine vision screening programmes, and contribute to the growing body of literature on myopia among university students in Nigeria.

Aim: To determine the prevalence of self-reported myopia and associated factors among undergraduate students in Al-Hikmah University, Ilorin.

Objectives: To determine the prevalence of self-reported myopia among undergraduate students in Al-Hikmah University, Ilorin; To identify lifestyle and academic-related risk factors associated with self-reported myopia among undergraduate students in Al-

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Hikmah University, Ilorin; To examine the association between selected socio-demographic characteristics (such as age, sex, and level of study) and the occurrence of self-reported myopia among undergraduate students in Al-Hikmah University, Ilorin.

Methodology

This study employed a descriptive cross-sectional design to determine the prevalence of self-reported myopia and its associated risk factors among undergraduate students of Al-Hikmah University, Ilorin, Kwara State, Nigeria. The study was conducted among registered undergraduate students during the 2025/2026 academic session. A sample size of 420 respondents was determined using Cochran's formula for descriptive studies. A multistage sampling technique was adopted, in which seven departments (Public Health, Nursing Science, Medical Laboratory Science, Anatomy, Physiology, Biochemistry, and Microbiology) were first selected and stratified. The sample was proportionally allocated to each department based on student population, after which eligible respondents were selected using systematic random sampling.

Data were collected using a structured, self-administered questionnaire developed from relevant literature and distributed electronically through Google Forms. The questionnaire comprised sections on socio-demographic characteristics, family and personal eye health history, self-reported myopia status and corrective measures, lifestyle and academic-related factors, study habits, and eye care-seeking behaviour. Only registered undergraduate students who provided informed consent were included in the study, while postgraduate students, those who declined participation, and respondents unable to complete the questionnaire were excluded.

The instrument underwent content validation by three public health experts and an optometrist to ensure relevance, clarity, and comprehensiveness. Reliability was assessed through a pilot study involving approximately 10% of the sample (42 students) from a comparable tertiary institution, yielding a Cronbach's alpha coefficient of 0.76, which indicated acceptable internal consistency. Data were coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including frequencies and percentages, were used to summarize the data, while the Chi-square (χ^2) test was employed to examine associations between self-reported myopia and selected risk factors at a 5% level of significance. Ethical approval was obtained from the Institutional Review Board of Al-Hikmah University before data collection commenced. Participation was voluntary, written informed consent was obtained from all respondents, and confidentiality and anonymity were maintained throughout the study.

Result

Table 4.1: Socio-demographic Characteristics of Respondents

Variables	Categories	Frequency	Percentage
Age (years)	20–24	302	71.9
	25–29	101	24.0
	30 years and above	17	4.1
Sex	Male	183	43.6
	Female	237	56.4
Level of Study	100 Level	84	20.0
	200 Level	96	22.9
	300 Level	87	20.7
	400 Level	103	24.5
	500 Level	50	11.9

Table 4.1 presents the socio-demographic characteristics of the respondents. The findings revealed that the majority of the respondents (71.9%) were aged 20–24 years, indicating that most participants were within the typical undergraduate age group. Female respondents constituted 56.4%, while males accounted for 43.6%. Regarding level of study, 400-level students (24.5%) formed the largest proportion, followed by 200-level students (22.9%). These findings indicate that the study population predominantly consisted of young undergraduate students, with a slightly higher representation of females.

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Table 4.2: Self-Reported Myopia Status among Respondents

Variables	Categories	Frequency	Percentage
Family members use glasses/contact lenses	Yes	157	37.4
	No	221	52.6
	I don't know	42	10.0
Ever visited an eye care professional	Yes	194	46.2
	No	226	53.8
Diagnosed with refractive error	Yes	131	31.2
	No	63	15.0
	Never examined	226	53.8
Current vision correction used	Glasses	82	19.5
	Contact lenses	9	2.1
	No correction	317	75.5
	Others	12	2.9
Self-reported myopia status	Yes	118	28.1
	No	244	58.1
	Not sure	58	13.8

Table 4.2 shows the self-reported myopia status and eye health characteristics of the respondents. More than half of the respondents (53.8%) had never undergone an eye examination, while only 46.2% had ever visited an eye care professional. About 31.2% reported having been diagnosed with a refractive error, whereas 19.5% currently used spectacles for vision correction. Overall, 28.1% of the respondents reported having myopia, while 58.1% reported that they did not have myopia. These findings suggest that although a considerable proportion of students reported myopia, eye care utilization among the respondents was relatively low.

Table 4.3: Lifestyle and Academic Risk Factors Associated with Self-Reported Myopia

Variables	Categories	Frequency	Percentage
Hours spent reading daily	<2 hours	62	14.8
	2–4 hours	168	40.0
	5–7 hours	131	31.2
	>7 hours	59	14.0
Total screen time	<2 hours	9	2.1
	2–4 hours	66	15.7
	5–7 hours	173	41.2
	>7 hours	172	41.0
Outdoor exposure daily	Less than 1 hour	119	28.3
	1–2 hours	164	39.0
	2–3 hours	88	21.0
	More than 3 hours	49	11.7
Break during near work	Always	46	11.0
	Often	87	20.7
	Sometimes	139	33.1
	Rarely	98	23.3
	Never	50	11.9
Hours spent studying daily	Less than 3 hours	75	17.9
	3–5 hours	166	39.5
	6–8 hours	127	30.2
	More than 8 hours	52	12.4
Academic workload	Very heavy	84	20.0
	Heavy	158	37.6
	Moderate	136	32.4
	Light	42	10.0

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Table 4.3 presents the lifestyle and academic factors associated with self-reported myopia. The findings showed that 82.2% of the respondents spent five hours or more daily on screen-based activities, indicating high exposure to prolonged near work. In addition, 67.3% spent less than two hours outdoors daily, while only 31.7% reported taking regular breaks during prolonged near-work activities. Furthermore, 69.7% of the respondents spent three or more hours studying daily, and 57.6% described their academic workload as heavy or very heavy. These findings suggest that prolonged near work, limited outdoor activities, and intensive academic engagement were common among the respondents and may contribute to the occurrence of self-reported myopia.

Table 4.4: Eye Care-Seeking Behavior among Respondents

Variables	Categories	Frequency	Percentage
Usual first action when experiencing vision problems	Visit eye clinic/hospital	139	33.1
	Visit pharmacy	87	20.7
	Purchase OTC eye drugs	48	11.4
	Ignore it	56	13.3
	Ask friends/family	43	10.2
	Search online	47	11.2
Factors preventing eye care seeking	Cost of services	124	29.5
	Lack of time	92	21.9
	No perceived need	77	18.3
	Distance to facility	36	8.6
	Fear of diagnosis	41	9.8
	Do not know where to go	32	7.6
	Others	18	4.3
Awareness of eye care services within/near the university	Yes	281	66.9
	No	139	33.1
Willingness to participate in free vision screening	Yes	338	80.5
	No	37	8.8
	Not sure	45	10.7

Table 4.4 illustrates the eye care-seeking behaviour of the respondents. About 33.1% reported that they would first visit an eye clinic or hospital when experiencing vision problems, while 20.7% preferred visiting a pharmacy. The most commonly reported barrier to seeking professional eye care was the cost of services (29.5%), followed by lack of time (21.9%). Furthermore, 66.9% of the respondents were aware of available eye care services within or around the university, and a large majority (80.5%) expressed willingness to participate in a free vision screening programme if provided. These findings indicate a generally positive attitude toward eye care despite existing barriers to service utilization.

Table 4.5: Chi-Square Test of Association Between Self-Reported Myopia and Selected Variables

Hypothesis	df	Test Statistic (χ^2)	p-value	Decision
Total Screen Time (Near-Work Activity) vs Self-Reported Myopia	3	14.67	.002	Reject H_0

The Chi-square test yielded a test statistic of 14.67 with 3 degrees of freedom and a p-value of 0.002. Since the p-value (0.002) is less than the significance level of 0.05, the null hypothesis was rejected.

There is a statistically significant association between near-work activities, as measured by total daily screen time, and self-reported myopia among undergraduate students in Al-Hikmah University, Ilorin. This finding suggests that students with higher levels of screen exposure were significantly more likely to report having myopia compared with those with lower levels of screen exposure.

This finding may be attributed to the high level of screen exposure and prolonged near-work activities observed among the respondents. The results showed that a substantial proportion of the students reported spending five hours or more daily on digital devices, particularly smartphones and computers. In addition, many respondents engaged in prolonged reading and academic activities, with a considerable number reporting heavy academic workload and frequent academic stress.

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Discussion

The present study assessed the prevalence of self-reported myopia and associated risk factors among undergraduate students in Al-Hikmah University, Ilorin. The findings revealed that the prevalence of self-reported myopia among respondents was 28.1%. This suggests that approximately one out of every four students perceived themselves as having myopia. This finding is comparable to the report of Akinbinu and Mashalla (2021), who documented a prevalence of 32% among university students in Lagos, Nigeria. Similarly, Munyua *et al*. (2021) reported a prevalence of 28.1% among Kenyan undergraduates. However, the prevalence observed in the present study was lower than those reported among university students in Saudi Arabia by Makhdoum *et al*. (2023), who found a prevalence of 57.3%, and among Chinese university students where prevalence rates exceeding 70% have been documented (Pan *et al*., 2021). The lower prevalence observed in the present study may be attributed to differences in study population, environmental exposures, lifestyle practices, and the use of self-reported rather than clinically diagnosed myopia.

Findings from this study showed that more than half of the respondents had never undergone an eye examination, and a substantial proportion of respondents who reported symptoms suggestive of myopia were not using any form of vision correction. This finding agrees with the report of Ibrahim *et al*. (2022), who observed that a considerable proportion of Nigerian university students with refractive errors were not using corrective lenses despite experiencing visual difficulties. The low uptake of eye examination services observed in the present study may contribute to delayed diagnosis and underestimation of the actual burden of myopia among undergraduate students.

The study also revealed that prolonged screen exposure was common among respondents, with the majority reporting daily screen time of at least five hours. This finding is consistent with the reports of Lanca and Saw (2020) and Wong *et al*. (2021), who established that increased screen time and prolonged digital device use were associated with increased risk of myopia, particularly among young adults exposed to prolonged online learning and smartphone usage. Similarly, Huang *et al*. (2021) demonstrated a positive association between prolonged near work and myopia development, emphasizing that excessive reading and continuous accommodation may contribute to axial elongation of the eyeball.

Furthermore, the findings indicated that most respondents spent relatively little time outdoors. This observation is in agreement with the findings of Wu *et al*. (2020) and Xiong *et al*. (2019), who reported that increased outdoor exposure plays a protective role against myopia development. Reduced exposure to natural daylight and prolonged indoor activities have been identified as important environmental factors contributing to the increasing prevalence of myopia globally. Therefore, the relatively limited outdoor exposure observed among respondents may partly explain the occurrence of self-reported myopia in this study.

The present study also found that a considerable proportion of respondents experienced heavy academic workload and academic stress. Many students reported studying for several hours daily and engaging in prolonged near work with inadequate breaks. These findings corroborate those of Ocansey *et al*. (2022) in Ghana and Olawoye *et al*. (2020) in Southwestern Nigeria, who reported that intensive academic activities, prolonged reading, and inadequate visual rest were important predictors of myopia among university students. Similarly, Berhane *et al*. (2022) found that prolonged near work and reduced outdoor activities were significantly associated with myopia among medical students in Ethiopia.

In addition, the study showed that many respondents frequently experienced headaches, eye strain, and difficulty seeing distant objects. These symptoms are characteristic manifestations of uncorrected refractive errors and are consistent with the observations of Rosenfield *et al*. (2023), who noted that prolonged visual demands often result in ocular fatigue and asthenopia among young adults. The presence of these symptoms among respondents further supports the likelihood of undiagnosed visual problems within the study population.

Regarding eye care-seeking behavior, the findings revealed that although many respondents indicated that they would seek care from an eye clinic when experiencing visual problems, cost of services and lack of time were major barriers to accessing professional eye care. This finding agrees with the World Health Organization (2019), which identified financial constraints and poor accessibility as major barriers to the utilization of eye care services in low-

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and middle-income countries. Nevertheless, the majority of respondents expressed willingness to participate in a free vision screening programme if provided by the university. This finding suggests that institutional-based vision screening and health education programmes would likely receive substantial acceptance among undergraduate students.

The findings of the present study are largely consistent with previous studies conducted within and outside Africa, which have identified prolonged screen exposure, intensive academic activities, limited outdoor exposure, and poor utilization of eye care services as important factors associated with myopia among university students. The study further highlights the need for routine eye screening programmes, health education interventions, and increased awareness regarding preventive eye care among undergraduates in Al-Hikmah University, Ilorin.

Conclusion

This study assessed the prevalence of self-reported myopia and its associated risk factors among undergraduate students of Al-Hikmah University, Ilorin. The findings revealed that self-reported myopia was relatively common, while many students had never undergone an eye examination or used corrective lenses. Prolonged screen time, intensive academic activities, limited outdoor exposure, and inadequate visual breaks were identified as common risk factors. The study also found that although cost and lack of time hindered eye care utilization, most respondents were willing to participate in free vision screening programmes. The study therefore concludes that there is a need to strengthen eye health awareness, promote healthy visual habits, and improve access to eye care services among undergraduate students.

Recommendations

The university management should organize regular eye screening programmes and incorporate eye health education into student health promotion activities. The university health centre should collaborate with eye care professionals to provide affordable eye care services and encourage routine eye examinations. Students should adopt healthy visual practices, including reducing prolonged screen time, taking regular breaks during near-work activities, and seeking prompt professional care when experiencing vision problems. Government and relevant stakeholders should support school-based vision screening programmes and subsidize eye care services to improve accessibility. Finally, future researchers should conduct studies using clinical eye examinations and longitudinal designs to provide more accurate estimates of myopia prevalence and its associated risk factors.

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Conflict of Interest
The authors declare that there is no conflict of interest regarding the publication of this manuscript.

Authors' Contributions
The author conceived and designed the study, collected and analysed the data, interpreted the findings, drafted the manuscript, and approved the final version for publication.

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