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Prevalence of Myopia among Patients Attending Federal Teaching Hospital, Birnin Kebbi

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Abstract: ***Background: Myopia is one of the most common refractive errors worldwide and a major cause of visual impairment. Early identification and management are essential in preventing visual disability and improving quality of life. Objective: This study aimed to determine the prevalence and pattern of myopia among patients attending the Federal Teaching Hospital, Birnin Kebbi. Methods: A hospital-based retrospective descriptive cross-sectional study conducted among patients diagnosed with refractive errors from January to December 2023. Data were obtained from patient clinical records and analyzed descriptively with SPSS 22. Variables analyzed included sex, age, and degree of myopia categorized as low, moderate, and high myopia. Results: Out of the 1,153 patients that presented with refractive errors during the study period, 262 patients were diagnosed with myopia, giving a prevalence of 22.7%. Among the myopic patients, 110 (42.0%) were males while 152 (58.0%) were females, indicating a higher prevalence among females. Age distribution revealed 14 (5.3%) patients were below 12 years, 71 (27.1%) were aged 12–21 years, 55 (21.0%) were within 22–31 years, and 122 (46.6%) were above 31 years of age. Based on severity, 71 (27.1%) patients had low myopia, 38 (14.5%) had moderate myopia, and 153 (58.4%) had high myopia. High myopia was therefore the most predominant subtype among the study population. Conclusion: Myopia constitutes a significant proportion of refractive errors among our patients particularly among females and adults above 31 years of age. High myopia was the most common. Early detection, routine eye screening, and appropriate corrective interventions are recommended. to reduce the burden of visual impairment.***

Keywords: myopia, prevalence, severity, degree, visual impairment

1. Introduction

Myopia is one of the most common refractive errors worldwide and a major cause of visual impairment when uncorrected.[1-4] Early identification and management are essential in preventing visual disability and improving quality of life. Its prevalence varies across populations and healthcare settings, making local epidemiological data important for planning eye care services. Myopia, commonly referred to as short-sightedness, is a refractive error in which distant objects appear blurred while near objects are seen clearly. It occurs when light rays entering the eye focus in front of the retina rather than directly on it, usually due to excessive axial length of the eyeball or increased refractive power of the cornea and lens. Myopia can affect all ages - children, adolescents, and young adults.[4, 5]

Globally, the prevalence of myopia has increased significantly over the past few decades, making it an important public health concern. In Nigeria[6-9], refractive errors constitute a major proportion of ophthalmic consultations. Despite advances in eye care services, many individuals still present late for diagnosis and correction, particularly in developing regions where awareness and access to eye care may be limited. Understanding the prevalence and distribution of myopia within hospital settings is therefore essential for planning effective preventive and management strategies. Increased risk factors for myopia have been identified as more time spent on near-sighted work (computer, cell phone, video game), time spent indoors, higher educational standards and a family history of myopia. The incidence is even higher in urban areas and East-Asian populations such as Taiwan and Singapore, with 25% of Americans and 50% of Europeans affected.[7-10]

Myopia can be treated with glasses, contact lenses, laser surgery, and pharmaceutical agents. According to the literature, the vast majority of myopia treatments using drugs provide only minor visual benefits that last only for a short time and have significant side effects. While these treatments correct myopia, they do not slow the accompanying eye growth or physiological changes caused by excessive axial elongation.[10-11] This study aimed to determine the prevalence and pattern of myopia among patients attending the Federal Teaching Hospital, Birnin Kebbi as well as to assess the distribution of myopia according to age, sex, and severity.

2. Materials and Methods

This is a descriptive retrospective study conducted at the Ophthalmology Department Federal Teaching Hospital. The study included all patients treated for myopia in the facility (a diagnosis of myopia seen at the eye clinic from January 2023 to December 2023). Those with incomplete records were excluded from the study. Demographic information, ophthalmic and medical histories, as well as details regarding the degree of myopia were extracted from patients' clinical records. Objective and subjective refractions results were noted from the documentation. Ethical approval and clearance were obtained from the Ethics Review Committee of the institution. The study abided by the tenets of declaration of Helsinki for studies involving human subjects, human material and data. Data were entered into SPSS 22 for analysis using descriptive statistics and presented in tables, frequencies and percentages.

3. Results

Out of the 1,153 patients with refractive errors seen during the study period, 262 patients were diagnosed with myopia, giving a prevalence of 22.7%. Among the myopic patients, 110 (42.0%) were males while 152 (58.0%) were females, indicating a higher prevalence among females. Age distribution revealed that 14 (5.3%) patients were below 12 years, 71 (27.1%) were aged 12–21 years, and 122 (46.6%) were above 31 years of age as shown in table 1. Based on severity table 2 showed dioptric power accepted by the patients, 71 (27.1%) patients had low myopia, 38 (14.5%) had moderate myopia, and 153 (58.4%) had high myopia. High myopia was therefore the most predominant subtype among the study population.

4. Discussion

In the present study, 58.0% of myopic patients were females suggesting a female predominance this is similar to several Nigerian [6-9] and many international studies[12-15]. Possible explanations may include increased near-work/ activities and differences in healthcare-seeking behaviors. However, some studies have found no significant sex difference, indicating that gender alone may not be an independent risk factor for myopia. Most patients with myopia in this study, 46.6% were older than 31 years, followed by those aged 12–21 years (27.1%). This differs from many international studies, [13,14,16-20] particularly those conducted in East Asia, where myopia is most prevalent among school-aged children and adolescents because of intensive educational activities and prolonged near work. The higher proportion of adults in the present study may reflect delayed presentation to hospital, cumulative progression of refractive error over time, or the hospital-based nature of the study, where adults are more likely than children to seek specialist eye care. This prevalence is higher than the 16.2% prevalence of myopia reported among Nigerian adults aged 40 years and above in the Nigeria National Blindness and Visual Impairment Survey.[20] The difference may be because the national survey was community-based and included only adults aged ≥40 years, whereas the present study is hospital-based and included patients of all ages seeking eye care. Hospital-based studies generally report higher prevalence. Similarly, among secondary school students in Birnin Kebbi, Balarabe et al [26]. reported a prevalence of only 2.9 which is much lower than the present finding. This difference is expected because their study involved apparently healthy school children, while the current study reviewed patients already diagnosed with refractive errors in a tertiary hospital. Another Nigerian study among school children in Aba reported a prevalence of 2.7%, which also agrees with the generally low prevalence of childhood myopia in Nigeria. Globally, the prevalence of myopia varies widely. Many African countries report relatively low prevalence (1–5%) among school children, whereas East Asian countries prevalences exceeding 50–70% among adolescents and young adults. Therefore, the 22.7% prevalence found in this study is higher than most community-based African studies[25-30] but still lower than figures reported from East Asia. A notable finding of the present study is that high myopia constituted 58.4% of all myopic cases, making it the predominant subtype. Low myopia accounted for 27.1%, while moderate myopia represented 14.5%. This finding contrasts with most Nigerian[20-26] and international studies, [31-37] where low myopia is generally the commonest subtype, while high myopia is relatively uncommon. For example, the Nigeria National Blindness Survey [20] reported that high myopia accounted for only 2.1% of adults, compared with an overall myopia prevalence of 16.2%. The unusually high proportion of high myopia in the present study may be explained by the fact that the study was conducted in a tertiary referral hospital, where patients with severe or complicated refractive errors are more likely to present, patients with mild myopia may obtain spectacles from private optical clinics without attending a tertiary hospital and delayed presentation for eye care which may allow progression from low to high myopia before diagnosis.

5. Conclusion

The study revealed that myopia constitutes a significant proportion of refractive errors among our patients particularly among females and adults above 31 years of age. High myopia was the most common subtype identified. Early detection, routine eye screening, and appropriate corrective interventions are recommended to reduce the burden of visual impairment associated with myopia and improve visual health.

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Table 1: Showing Age distribution of the patients

Age Group	Number	Percentage
<12 years	14	5.3%
12- 21 years	71	27.1%
22- 31 years	55	21.0%
>31 years	122	46.6%

Table 2: Showing Dioptric power correction

Severity	Number	Percentage
Low (0.50- 3D)	71	27.10%
Moderate (-3.- -6D)	38	14.50%
High (-6.00D)	153	58.40%