

**FACTORS INFLUENCING THE UTILIZATION OF OPTOMETRY CLINIC SERVICES
AMONG UNDERGRADUATE STUDENTS IN THE UNIVERSITY OF BENIN**

BY

ONYEKIBE PRINCE HENRY

(LSC1907064)

FACULTY OF OPTOMETRY,

UNIVERSITY OF BENIN,

BENIN CITY.

NOVEMBER, 2025.

**FACTORS INFLUENCING THE UTILIZATION OF OPTOMETRY CLINIC SERVICES
AMONG UNDERGRADUATE STUDENTS IN THE UNIVERSITY OF BENIN**

BY

ONYEKIBE PRINCE HENRY

(LSC1907064)

**A PROJECT SUBMITTED TO THE FACULTY OF OPTOMETRY, UNIVERSITY OF
BENIN, BENIN CITY, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR
THE AWARD OF DOCTOR OF OPTOMETRY (OD) DEGREE.**

CERTIFICATION

This is to certify that this research project titled **FACTORS INFLUENCING THE UTILIZATION OF OPTOMETRY CLINIC SERVICES AMONG UNDERGRADUATE STUDENTS IN THE UNIVERSITY OF BENIN** was carried out by **ONYEKIBE PRINCE HENRY** in the Faculty of Optometry, University of Benin in partial fulfilment of the requirement for the Doctor of Optometry degree in the 2024/2025 Academic Session.

.....
PROFESSOR (MRS.) EKI OGHRE
(PROJECT SUPERVISOR)

.....
DATE

.....
DR. JUNO. O. OKUKPON
(PROJECT COORDINATOR)

.....
DATE

.....
PROFESSOR (MRS.) EKI OGHRE
(DEAN, FACULTY OF OPTOMETRY)

.....
DATE

.....
EXTERNAL EXAMINER

.....
DATE

DEDICATION

This project is dedicated to God Almighty, the source of my wisdom, strength, and inspiration throughout my academic journey. I also dedicate this work to my mother, Mrs. Patricia Nkechi Ugorji, and siblings whose love, sacrifice, and faith in me have been my greatest motivation. Finally, to every student who strives for excellence despite challenges; may this work inspire perseverance and belief in your purpose.

ACKNOWLEDGEMENT

As I conclude this project and reflect on my journey, I am overwhelmed with gratitude for everyone who supported me along the way.

Above all, I thank God Almighty for His grace, wisdom, and provision throughout my time at the University of Benin. Without His guidance and the inspiration of the Holy Spirit, this work would not have been possible.

My deepest appreciation goes to my project supervisor, Prof. (Mrs.) Eki Oghre, for her exceptional mentorship and dedication. Her patience, insightful guidance, and genuine concern for my progress made this project a reality.

I also extend heartfelt thanks to my lecturers – Dr. Musa Mutali, Dr. Chimela Okoro, Dr. Ngozi Uwagboe, Dr. K. Bazuaye, Prof. A. B. Osaiyuwu and Prof. R. Akpalaba — whose teaching, discipline, and encouragement shaped my academic journey.

To my wonderful *Mumii* - Mrs. Patricia Ugorji – for her unwavering faith in me, her solid support and unquantifiable love to me through my studies in the university. To the best siblings anyone can ask of – Nehemiah, Favour, Chioma (Tikwa) thanks for your contribution in my life generally. To my special elder sister; Chinecherem Faith Onyekibe – a mother figure – words will fail me to appreciate your unlimited sacrifice and selfless contribution to what I am today, God bless you real good. To my extended family, your love, support and help are recognized and well appreciated.

I am grateful to my spiritual leaders — Pastor Jude Ubaka and Pastor Richard Okoh – who bent to see my dreams become reality. Thank you so much. Also, to Pastor N. Ogoanah, Mummy

Ogoanah, Pastor K. Olori, Pastor P. Nwokeji, Bro. Adebola Aturuka and my DLCF Zion (EBENEZER) Pioneer Executive family, who have been my anchor and support system in faith.

My special thanks go to my CIRCLE; God'swisdom, Omona, Uchenna, God'sgift and Emmanuel. Thank you for giving me a home far away from home. For being there through the roughest and toughest of times. For giving me reasons to dream bigger and being a spiritual backbone for growth and excellence. To Olohigie – a unique friend, Osavbie, Ehiomone, Precious Osamweide, Akpu Godwin, you made my stay in the University of Benin worth it.

To my friends and classmates (JUST-US) – Progress, Isiawe, Pearl, Chinelo, Itohan, and Ebere; your encouragement and support were truly priceless. If I ever had to wish for better friends again, I would choose you all over and over. Emmanuel and Stephanie, your sacrifice as course reps is well appreciated. I'm also thankful to Frank, Elijah, Michael, Nosakhare, Emmanuel, and all my amazing friends.

To my humble self who ran through a troop and leaped over the mountains by the hand of God upon my life – You be *Odogwu abeg*.

Thank you all for being there in junction or the other across my journey in the University of Benin.

TABLE OF CONTENT

TITLE PAGE	i
CERTIFICATION	iii
DEDICATION	iv
ACKNOWLEDGMENT	v
TABLE OF CONTENT	vii
ABSTRACT	x

CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 BACKGROUND INFORMATION	2
1.2 STATEMENT OF PROBLEM	8
1.3 RESEARCH QUESTIONS	10
1.4 AIM AND OBJECTIVES	10
1.4.1 AIM	10
1.4.2 OBJECTIVES	10

1.5 SIGNIFICANCE OF STUDY	11
1.6 DEFINITION OF TERMS	12
CHAPTER TWO	12
2.0 LITERATURE REVIEW	12
CHAPTER THREE	13
3.0 MATERIALS AND METHOD	21
3.1 RESEARCH DESIGN	21
3.2 RESEARCH LOCATION	21
3.3 STUDY POPULATION	21
3.4 SAMPLING TECHNIQUE/SAMPLE SIZE DETERMINATION	22
3.4.1 SAMPLING TECHNIQUE	22
3.4.2 SAMPLE SIZE DETERMINATION	23
3.5 MATERIALS	23
3.6 INCLUSION/EXCLUSION CRITERIA	24
3.7 DESCRIPTION OF PROCEDURE	24
3.8 DATA ANALYSIS	24
3.9 LIMITATION OF STUDY	25
3.10 ETHICAL APPROVAL	25

CHAPTER FOUR

4.0 RESULTS AND DATA ANALYSIS	27
-------------------------------------	----

CHAPTER FIVE	47
--------------------	----

5.0 DISCUSSION	47
----------------------	----

CHAPTER SIX	52
-------------------	----

6.0 CONCLUSION AND RECOMMENDATIONS	52
--	----

6.1 CONCLUSION	52
----------------------	----

6.2 RECOMMENDATIONS	53
---------------------------	----

REFERENCES

APPENDIX I

APPENDIX II

ABSTRACT

Access to quality eye care services among university students is critical for maintaining visual efficiency, academic performance, and general well-being. Despite the availability of a well-equipped Optometry Clinic within the University of Benin, anecdotal evidence suggested that many students underutilize its services. Understanding the factors influencing utilization is vital for improving access and strengthening preventive eye care strategies in tertiary institutions. To assess the factors influencing utilization of optometry clinic services among undergraduate students of the University of Benin. A descriptive cross-sectional study design was adopted. Data were collected using a structured questionnaire assessing demographic information, awareness, eye health-seeking behaviour, and barriers to utilization. 382 undergraduate students were selected through stratified random sampling across faculties and levels of study. This study shows that 60% of proportion of undergraduate students in the University of Benin have utilized the available eye-care services at least once. Chi-square tests assessed factors associated with clinic utilization with a significance level set at $p < 0.05$. The study showed that proximity ($p = 0.021$) to clinic was the only factor with a statistically significant association with clinic utilization. Short waiting time ($p = 0.366$), friendly staff ($p = 0.318$), availability of drugs and spectacles ($p = 0.631$) showed no significant association. The findings support the need for enhanced awareness programs, affordable service models, and policy integration of routine eye examinations into student health programs to improve vision care accessibility and utilization.

Keywords: Eye care utilization, Optometry clinic, Undergraduate students, Awareness, Barriers, Vision health.

CHAPTER ONE

1.0 INTRODUCTION

Sight is the most critical of the human senses, vital for learning, mobility, communication, and participation in education and work. Although often overlooked, vision is indispensable, and its loss can severely limit daily functioning and opportunities. Visual impairment arises when ocular conditions interrupt the normal visual processes of the eye, and almost every individual, over the course of their lifetime, is expected to encounter at least one eye condition or the other requiring professional attention (Khadka *et al.*, 2021).

Vision is a foundational human ability, important not only to daily life but especially to education. Globally, at least 2.2 billion people have some form of vision impairment, and around 1 billion of those cases could have been prevented or remain unaddressed with proper eye care interventions (WHO, 2023). Such numbers show the enormous, partially avoidable burden on individuals, healthcare systems, and economic productivity. In many settings, unmet refractive error, cataracts, and other treatable ocular conditions are prevalent, reflecting gaps in eye care coverage and utilization (Aparna, 2024).

In the world of health services, utilization which is the actual use of care by people who need it, serves as a critical measure of system effectiveness. For eye health, utilization of optometry and ophthalmic services is a vital link between vision needs and outcomes, yet there are evidence which suggests that even where services exist, utilization is sometimes low. For example, in South Africa, national survey data (SANHANES-1) showed that many adults with vision problems do not access eye care services, with utilization strongly associated with age, wealth, self-reported vision complaints, and geographic factors (Akuffo *et al.*, 2020). Similarly, in

underserved communities of Nigeria, recent cross-sectional research reported a utilization rate of just 18% over the past two years, with key barriers including cost, distance, and poor infrastructure (Ezinne *et al.*, 2023).

In student populations, visual demands are heightened by academics, prolonged screen use, and research activities, placing them at increased risk for ocular strain, refractive changes, and undetected eye disease. Yet, the use of optometry services in university settings remains underexplored in many low- and middle-income countries. A study among hearing-impaired students in Oyo State, Nigeria, found that only 43.9% had ever used eye care services, despite detectable vision complaints (Majekodunmi, Olusanya & Oluleye, 2019). This suggests that even among relatively young, educated populations, barriers to eye care can persist.

Given the University of Benin's status as a pioneer of optometry education in Nigeria and its student diversity, understanding the factors that influence whether students access the on-campus optometry clinic is of great importance. This study thus aims to investigate those determinants in this institutional context, bridging the gap between global evidence and local practice.

1.1 BACKGROUND OF STUDY

Vision impairment continues to present one of the biggest global public health challenges, significantly impacting quality of life, educational outcomes, and socioeconomic development. Research from the World Health Organization (2023) shows that around 2.2 billion people globally have some form of vision impairment (distance or near), of which at least 1 billion cases could have been prevented or remain unaddressed. Refractive errors and cataracts are major among the causes of avoidable loss of vision, but many regions still fall short in implementing sufficient corrective measures (W.H.O 2023).

Among adolescents, the problem of uncorrected refractive errors is especially pronounced. A study tracking global disease burden from 1990 to 2019 found that while population-adjusted (age-standardized) rates of URE among adolescents have slightly declined, absolute Disability-Adjusted Life Years (DALYs) have increased, in part due to population growth and increasing prevalence of risk factors such as near work and less outdoor exposure (Yang *et al.*, 2021). Moreover, a 2025 study of refraction disorders (Global Burden of Disease 2021 data) estimated about 159.8 million prevalent cases worldwide and 6.6 million DALYs attributable to refractive disorders in 2021, with the highest burdens in low-middle Socio-Demographic Index (SDI) countries (Dai and Ouyang, 2025).

Another part of the global burden is the rising prevalence of vision problems in educational settings, including among school-age children and adolescents, many of whom later become university students. For instance, in some parts of the Eastern Mediterranean Region, pooled systematic review estimates indicate myopia prevalence among school-age children ranging from 3.9% to 7.5%, with notably higher rates in older age groups (11–17 years) and among females (Alrasheed and Alghamdi, 2024). In Sinaloa, Mexico, students aged 15–18 showed a myopia prevalence of 36.11%, but more than two-thirds of those needing glasses did not have proper correction. (Teran *et al.*, 2024). These findings suggest that many young people carry undiagnosed or uncorrected refractive errors, putting them at risk of academic strain and reduced quality of life.

Compounding this burden is the modern escalation in risk factors, particularly those relevant to students: increased screen time, digital device exposure, and shifts in lifestyle associated with indoor living and remote learning. Prevalence of digital eye strain (DES) among university student populations has escalated: for example, in Oman a recent study found 73.7% of

undergraduates reported symptoms consistent with computer vision syndrome, with factors such as posture, screen distance, and ergonomic setup strongly associated with risk (Almuqrashi *et al.*, 2025). Such trends imply not just a static burden of refractive error, but a growing, compounded risk for students that may worsen utilization gaps if service access remains constrained.

Patterns of eye-care utilization reveal stark disparities worldwide, not just between rich and poor countries, but within populations in each country based on age, income, education, and urban or rural residence. For instance, a multi-country survey of older adults across low-, lower-middle-, upper-middle-, and high-income countries found that in the past year only about 18% of older adults had an eye exam, with just 10% in low-income, 24% in lower-middle, 22% in upper-middle, and 37% in high-income countries achieving this (Vela *et al.*, 2012). Though this is older data, it still emphasizes how income level strongly correlates with service uptake. More recent LMIC literature continues the pattern: in a rural district in southern Ethiopia (Meskan), Merga *et al.* (2023) found eye care utilization among adults was about 29% (95% CI: 25–33%), with uptake increasing with age, history of eye symptoms, and proximity to facilities.

In Nigeria specifically and similarly in other LMIC settings, studies show comparably low utilization rates and consistent barriers. A community-based study in Enugu State (2023) reported that only 18% of adults in an underserved community had used eye care services in the previous two years. Cost, distance, and poor infrastructure were the leading obstacles (Ezinne *et al.*, 2023). Among hearing-impaired students in Oyo State, Nigeria, only 43.9% had ever utilized eye care services, despite many reporting vision symptoms (Majekodunmi, Olusanya & Oluleye, 2019). Hence, even when services are physically present, utilization remains suboptimal due to socioeconomic, awareness, and geographic barriers.

In recent years, digital eye strain (DES) has emerged as one of the most commonly reported eye-health issues among university students globally. A cross-sectional study at Imam Abdulrahman bin Faisal University found that 68.5% of medical students reported symptoms of DES during periods of virtual learning and leisure screen use; the most frequent complaints were headache, dryness, and burning. Females, use of smartphones, and not using artificial tears were significantly associated with more severe symptoms (AlQarni et al., 2023). Similarly, another study in Kerala, India, among medical undergraduates during the COVID-19 pandemic showed that 61% experienced DES, with use of screens above 5 hours/day being a key determinant (Eldo *et al.* 2024). These findings suggest that despite being relatively young and (often) healthy, students are at high risk of symptoms that, if unaddressed, can degrade not only comfort but potentially academic performance and attention.

Beyond symptom prevalence, many students are living with uncorrected or under corrected refractive errors, a factor that contributes to both vision strain and low utilization of optical correction services. In North-Central Nigeria, a study of students attending a federal university clinic reported that among 322 students seen over a one-year period, 25.2% had refractive error, with myopia being the most common type; yet only a subset of these students had been examined via refraction or had corrective lenses (Umar and Alfin, 2023). A broader study among Nigerian youths at Madonna University found even higher prevalence of refractive error in some geopolitical zones, with myopia, astigmatism, and hyperopia all represented; however, usage of corrective glasses was inconsistent (Aguwa *et al.*, 2020). Thus, refractive error is not only common among student populations but often goes untreated or is under-corrected.

Combining the high prevalence of DES and refractive errors is evidence of under-utilization of eye care services among student populations. Even when university clinics or local services exist,

many students delay or avoid seeking professional evaluation until symptoms interfere significantly with daily activities or functioning. Despite the high DES rates noted above, very few studies report high follow-throughs for eye examinations among those affected. Many studies cite reasons such as lack of awareness, cost of optical correction, perceived insignificance of mild symptoms, or inconvenience of accessing clinics, especially when academic schedules clash with clinic hours. These patterns reveal that student populations in LMICs face a dual burden: high visual risk and structural or behavioral barriers that limit service uptake. Understanding these patterns is critical at the University of Benin, where similar dynamics likely exist but have not been well documented.

Nigeria's eye care workforce exhibits acute shortages and inequities in distribution, which pose serious challenges to universal service utilization. Recent data show that optometrist to population ratio in Nigeria is far below desired benchmarks: one study reports a ratio of about 1:71,000 people, compared to WHO's recommendation of approximately 1:50,000 for primary eye care services (Atuanya *et al.*, 2024). Moreover, only about 20% of optometrists work in the public sector, with the remaining majority concentrated in private practice (often in urban centres) leaving rural and underserved areas with very limited access to trained eye care providers (NOA, 2023). These disparities in workforce density result in uneven access to optical and optometry clinic services across states and Local Government Areas, reinforcing utilization gaps.

On the policy front, Nigeria has recently taken deliberate steps to strengthen eye health provisions. The National Eye Health Strategic Development Plan 2024-2028 aims to operationalize inclusive, integrated, patient-centred eye care services under universal health coverage, emphasizing promotive, preventive, curative, and rehabilitative interventions (NOA, 2024). Another significant policy move is the 2025 fully subsidised eye care initiative under

Health Connect, which promises free refractive error screenings, eyeglass distribution, and cataract surgeries in hard-to-reach parts of the country (FG, 2025). These policy commitments signal recognition at the federal level of both the urgency of visual impairment and the need to reduce cost and access barriers. However, implementation remains in early stages, particularly in rural and semi-urban settings, where infrastructure, workforce deployment, and public awareness remain weak.

Rural-urban gaps amplify both workforce and utilization disparities in Nigeria. A review of the National Blindness and Visual Impairment Survey found higher prevalence of visual impairment and blindness in rural compared to urban areas, partly due to lesser availability of eye care services, lower literacy and awareness, and more traditional beliefs affecting health seeking in rural communities (Akano *et al.*, 2024). In a community-based survey in South-South Nigeria, only 24.1% of rural respondents had ever visited an eye care clinic in the local comprehensive health centre, with the largest barriers being ignorance of the facility's existence, cost, and lack of felt need (Ezeh *et al.*, 2022). Additionally, among Nigerian optometry students showed that though many displayed willingness to serve rural communities, most preferred practicing in urban areas due to better infrastructure, income potential, and professional growth opportunities (Atuanya, Bale & Elebesunu, 2024). These rural-urban disparities are crucial, as many students come from rural backgrounds and may face unique obstacles accessing on-campus optometry services.

The University of Benin holds a distinguished position in Nigerian optometry and eye care education, being one of the early institutions to establish formal optometry training programs. While there is published work on the knowledge, attitudes, and perception of eye-health among certain university subgroups, direct, comprehensive data on student utilization of the optometry

clinic at the University of Benin appears scarce. Study conducted among staff of the University of Benin explored eye care-seeking behavior, awareness of services, and barriers to utilization; though its focus was on staff rather than students, the findings illuminate potential structural and awareness issues that might also apply to the student population as lack of awareness about available eye care services was a major barrier. (Atuanya *et al.*, 2025).

Within the university setting, some program-specific studies exist. One such study among optometry students at the University of Benin assessed knowledge and attitude toward tele-eye care, revealing strong interest and awareness but not necessarily actual utilization of clinic services by students (Odigie *et al.*, 2024).

There is also a study on post-basic nursing students in the University of Benin Teaching Hospital that examined knowledge and practice of ocular health, but again, it does not quantify how many students actually made use of the optometry clinic or optometrist services. (Ekuobase *et al.*, 2025).

Thus, while the university offers relevant training and has clinical infrastructure in the faculty of Optometry, published data mapping student utilization of the on-campus optometry clinic (how many, how often, what factors) appear limited or non-existent.

1.2 STATEMENT OF PROBLEM

Despite the growing body of literature on eye care utilization patterns in various populations and settings, significant gaps remain in our understanding of the specific factors that influence optometry service utilization among university students in West African contexts. While studies have examined eye care utilization in general populations, rural communities, and specific age

groups, the unique characteristics and circumstances of university students have received limited attention in the research literature.

The existing literature predominantly focuses on older adult populations, reflecting the higher prevalence of age-related eye diseases in these groups. However, university students represent a critical population for preventive eye care interventions, as early detection and correction of refractive errors and other vision problems can significantly impact academic performance and long-term eye health outcomes. Understanding the factors that facilitate or impede eye care utilization in this population is essential for developing effective interventions and policies to improve vision health among young adults.

Furthermore, most existing research on eye care utilization in African contexts has been conducted in rural or general population settings, with limited attention to urban, educated populations such as university students. University students may face different barriers and facilitators to eye care utilization compared to general populations, necessitating targeted research to understand their specific needs and circumstances.

The lack of institution-specific research on eye care utilization also represents a significant gap in the literature. While national and regional surveys provide valuable insights into broad patterns of healthcare utilization, institution-specific studies are necessary to understand the local factors that influence service utilization and to develop targeted interventions that address specific institutional contexts and student populations.

This research addresses these gaps by focusing specifically on the factors influencing optometry clinic service utilization among students at the University of Benin, providing insights that will contribute to both the academic literature and practical efforts to improve eye care access and

utilization in Nigerian university settings. By examining the interplay of individual, institutional, and environmental factors that influence student decisions to seek eye care services, this study will provide valuable information for healthcare providers, university administrators, and policymakers seeking to improve vision health outcomes among young adults in educational settings.

1.3 RESEARCH QUESTIONS

1. What are the primary factors that influence students' decisions to utilize or not utilize optometry clinic services at the University of Benin?
2. How do socioeconomic factors, demographic characteristics, and individual attitudes affect optometry service utilization among students?
3. What barriers exist within the university system that prevent students from accessing optometry services?
4. What role do knowledge, awareness, and perception of eye health importance play in service utilization decisions?
5. How do cultural and social factors influence students' eye care-seeking behavior?

1.4 AIM AND OBJECTIVES

1.4.1 Aim

To investigate the factors influencing the utilization of optometry clinic services among students at the University of Benin.

1.4.1 Objectives

1. To determine the proportion of University of Benin students utilizing optometry clinic services.
2. To identify factors associated with the utilization of optometry clinic services.
3. To identify eye health seeking behaviours among the university students.
4. To determine barriers that hinder students from using on-campus optometry services.

1.5 SIGNIFICANCE OF THE STUDY

The University of Benin holds a significant place in Nigeria's optometric history as the first institution to establish an academic program in optometry and to operate a dedicated clinic for eye care services. However, despite this longstanding infrastructure, there is a conspicuous lack of empirical research investigating how and to what extent students utilize these services. Understanding utilization patterns within such a pioneering context is critical, especially considering the university's role in shaping national eye care standards and training future practitioners.

University students are a visually demanding population, often exposed to long hours of screen time, reading, and academic stress. These activities increase their susceptibility to vision-related problems such as digital eye strain, uncorrected refractive errors, and headaches. Vision issues that go undetected or unmanaged can directly impact learning, concentration, and performance (Sheppard & Wolffsohn, 2018). A study at the local level can inform specific interventions to reduce these risks and improve student well-being and academic outcomes.

Numerous studies globally and in Nigeria have shown that young people, including university students, often underutilize available health services, particularly preventive services like eye

examinations (Majekodunmi *et al.*, 2019). Factors such as cost, lack of awareness, perceived low risk, and institutional barriers contribute to this underutilization. Investigating these dynamics within the University of Benin context will generate data-driven insights for action.

Even where clinics are available, institutional constraints such as inconvenient clinic hours, poor publicity, lack of referrals from general health units, and procedural bottlenecks can limit student access. Understanding these barriers at UNIBEN will provide the administration and faculty with a practical roadmap for improving service uptake and integrating eye care more effectively into student health services.

The study's findings will aid university health administrators and policymakers in designing tailored interventions that improve access to eye care. This may include targeted awareness campaigns, revised scheduling, subsidy systems, or improved referral linkages between campus health units. Such reforms can promote health-seeking behavior and reduce avoidable vision impairment among students.

This study will serve as a reference point for future work in other Nigerian tertiary institutions and stimulate a broader dialogue around eye health in academic environments. It can also provide baseline data for potential longitudinal studies, intervention research, or comparative assessments across regions or institutions.

1.6 DEFINITION OF TERMS

- 1. Visual acuity:** Visual acuity is the medical term for the sharpness or clarity of vision, which measures how well you can see fine details and shapes at a distance. The Snellen eye test chart is the most common way vision is tested during an eye exam.

2. **Visual impairment:** A reduction in vision that cannot be corrected fully with standard glasses, contact lenses, medication, or surgery, and that interferes with a person's daily activities or functioning. According to the World Health Organization, visual impairment includes both low vision and blindness, typically defined as a presenting visual acuity worse than 20/70 in the better-seeing eye.
3. **Digital Eye Strain (DES):** Also known as Computer Vision Syndrome, DES describes a range of eye and vision problems caused by prolonged screen exposure from computers, smartphones, or tablets. It manifests as eye strain, dryness, blurred vision, and headaches symptoms common among students engaged in extensive digital or online academic activities.
4. **Health-Seeking Behavior:** This refers to the process by which students recognize, interpret, and respond to symptoms or visual difficulties by seeking professional eye care. It is influenced by awareness, beliefs, perceived severity of symptoms, and accessibility of optometric services.
5. **Low- and Middle-Income Countries (LMICs):** These are countries classified by the World Bank based on their Gross National Income (GNI) per capita. World Bank classified *low-income countries* have a GNI per capita of \$1,135 or less, while *middle-income countries* fall between \$1,136 and \$13,845 per capita. This group includes both lower-middle-income and upper-middle-income economies.

CHAPTER TWO

LITERATURE REVIEW

Visual impairment is not only a health concern but also an educational and socioeconomic challenge, the inability to see clearly restricts learning efficiency, academic engagement, and future employment prospects. Inadequate utilization of available eye care services exacerbates this burden, particularly in populations where preventive and corrective services exist but remain underused.

Recent global trends indicate a worrying rise in conditions that disproportionately affect younger populations, including university students. The World Health Organization (2022) highlights that the prevalence of myopia has reached epidemic levels in several regions, particularly East and Southeast Asia, where up to 80–90% of adolescents are affected by varying degrees of short-sightedness (Holden *et al.*, 2016). A systematic review was conducted in the Eastern Mediterranean Region which confirmed a rising prevalence of myopia among school-age children, reflecting increasing global exposure to near-work activities and digital device use (Alrasheed & Alghamdi, 2024). These findings signal a growing public health concern that

extends into tertiary educational environments, where sustained visual tasks such as reading, computer use, and digital research are unavoidable.

Research among university students in Hyderabad revealed a high prevalence of digital eye strain, with headache (75%) as the most reported symptom. Increased screen exposure and universal smartphone use were key contributing factors (Bhammarkar, 2025). The COVID-19 pandemic accelerated this trend as remote learning increased screen exposure and reduced access to in-person eye care. Research across Asia, Africa, and Europe consistently indicates that the frequency and duration of screen use correlate strongly with ocular discomfort and reduced visual performance, emphasizing the importance of accessible optometric services within educational settings (Reddy *et al.*, 2022).

The impact of visual impairment on students transcends physical symptoms; it influences academic productivity, mental health, and learning outcomes. Students with bilateral astigmatism ($\geq 1.00\text{D}$) show significantly reduced oral reading fluency (ORF) when uncorrected, but this deficit disappears with proper optical correction compared to their non-astigmatic peers. Notably, improvement in ORF is more pronounced among those with high astigmatism than in moderate cases, underscoring the importance of full-time spectacle use for optimal reading performance in astigmatic students. (Harvey *et al.*, 2016). Vision problems can hinder children's learning and social development and early screening and referral of students with visual impairment improve academic performance and highlighting the need for preventive eye-health campaigns. (James Stewart., 2014). Consequently, eye health among students has become a crucial determinant of educational success and personal well-being, reinforcing the need for institutional eye-care programs and increased utilization of optometry services.

Globally, patterns of eye-care utilization reveal striking socioeconomic and geographic disproportions. In high-income countries (HICs), regular eye examinations and preventive eye-health checks are comparatively common due to better health insurance coverage, established referral systems, and high public awareness. On the contrary, low- and middle-income countries (LMICs) experience persistently low utilization of eye-care services despite carrying the greatest burden of avoidable visual impairment. The World Health Organization estimates that nearly 90% of all visually impaired individuals reside in LMICs, where access to affordable and quality eye care is constrained by inadequate infrastructure, workforce shortages, and limited integration of vision care into primary health systems (WHO, 2023). Asia shows that barriers to eye care access are multifactorial and are rooted in cultural, systemic and socioeconomic inequities.

Socioeconomic differences remain key determinants of global eye-care utilization. Evidence from a large multi-country analysis of older adults across 28 nations revealed that individuals living in wealthier countries and in higher household income groups were significantly more likely to have undergone a recent eye examination (Vela *et al.*, 2012). Conversely, utilization rates were lowest among populations in low-income settings, emphasizing a strong income-related gradient in access to vision care. This gradient persisted even after adjusting for age, education, and other demographic factors, underscoring the influence of economic disparities on the accessibility and uptake of eye-care services worldwide. Similarly, Bourne *et al.* (2017), analyzing data from the Global Vision Database, observed that the prevalence of vision impairment and unmet need for eye care were disproportionately higher among people in LMICs, women, and those with limited education; further highlighting the contribution of socioeconomic disadvantage in shaping service utilization.

In sub-Saharan Africa, utilization levels remain low despite increasing awareness of eye-health services. A recent systematic review discovered that minority of those with vision problems seek professional eye-care services, often choosing instead for self-medication or traditional remedies. In Nigeria, studies among diverse populations (such as schoolchildren, adults with diabetes, and special-needs students) have consistently shown that financial constraints, long travel distances, and the absence of organized screening programs contribute to poor service uptake (Kyari *et al.*, 2020). For instance, a study conducted among students attending schools for the hearing-impaired in Oyo State, Nigeria, reported that only **43.9%** had ever utilized formal eye-care services, with financial constraints and a low perceived need for eye examinations identified as major barriers to utilization (Ajayi *et al.*, 2019). These findings suggest that while awareness is gradually improving, structural and behavioral barriers continue to limit access to optometric care across the region.

Recent studies affirm extremely high myopia prevalence in university populations in China and show worsening trends during and after the COVID-19 period. Large serial cross-sectional and time-trend studies report very high myopia prevalence among young adults (often >80% in many university cohorts) and increases in myopia rates during pandemic years. For example, a 6-year time-trend analysis of Chinese university students documented rising myopia and high-myopia rates across recent screening rounds. These studies are predominantly cross-sectional or repeated cross-sectional screenings that use objective refractive measures, and thus provide robust evidence of a high refractive-error burden in East Asian student cohorts (Zhang *et al.*, 2023).

A high burden of digital eye strain (DES) or computer vision syndrome (CVS) symptoms has been documented among university and higher-education students in the Middle East and North Africa (MENA) region, particularly during periods of intensified e-learning. Recent multi-site

analyses and country-level studies have shown that a large proportion of students report CVS/DES symptoms, with prolonged screen-time, poor ergonomic posture, and reduced blink rates strongly associated with higher symptom scores (Al Tawil *et al.*, 2020). In Saudi Arabia, a cross-sectional study among higher-education students documented substantial DES symptom prevalence; similarly, systematic reviews that include MENA studies show high pooled prevalences of CVS during the COVID-19 period (Gushgari *et al.*; 2024). These findings, however, are mainly from questionnaire-based cross-sectional designs and therefore reflect symptom burden rather than clinical diagnosis.

The evidence base from sub-Saharan Africa is smaller and more heterogeneous, but recent studies document meaningful refractive-error prevalence and suboptimal utilization of eye-care services among student and community samples. In Ghana, recent clinical cohort data have shown myopia progression among young adults over time (2015-2019) (Kyei *et al.*, 2024). In Nigeria, a significant burden of uncorrected refractive error and visual impairment persists among students. Maduka-Okafor *et al.* (2021) found that nearly one in ten school children had refractive errors, identifying uncorrected ametropia as a major cause of visual impairment. However, Majekodunmi and his team reported that less than half of hearing-impaired students in Oyo State had ever undergone an eye examination, mainly due to cost and low awareness (Majekodunmi *et al.*, 2019). These findings highlight the gap between the high prevalence of refractive errors and the low utilization of eye-care services among Nigerian students.

Outreach, point-of-service delivery, and technology-enabled referral systems have clear, replicated effects on short-term uptake of eye care and completion of recommended treatment. Large trials show that bringing services to people whether through outreach camps that dispense spectacles on-site (or arrange booking+delivery) or through school-based provision of free

spectacles, substantially increases the proportion who obtain and wear spectacles compared with prescriptions alone (Ma *et al.*, 2014). Technology-enabled approaches that combine community screening with reliable referral and follow-up (for example, the Peek Community Eye Health system) have also been shown in a cluster RCT to greatly increase attendance at triage and hospital services among people identified with eye problems (Rono *et al.*, 2021). Taken together, these studies indicate that interventions addressing both identification (screening) and immediate or low-friction access to treatment (on-site dispensing, free/subsidised spectacles, or reliable referral with reminders) are most effective at converting need into service use.

These models are largely transferable to university settings, but with caveats especially in sessional outreaches held by the students in the faculty of Optometry, University of Benin. Universities concentrate target populations and simplify logistics for on-site screening and dispensing (making campus screening and on-the-spot spectacle provision/drug prescription an especially promising option), and the Peek-style referral workflow could be adapted to campus health services to boost follow-up for more complex cases (Rono *et al.*, 2021). However, rigorous trials specifically in tertiary institutions are rare; much of the student-focused data (and evidence of low utilization) comes from descriptive campus or special-group studies. For example, Majekodunmi *et al.* (2019) documented substantial unmet need and barriers (cost, escort/transport) among hearing-impaired students in Nigeria, underscoring that affordability and logistics matter even where screening is possible. In practice, campus pilots that combine rapid on-site refraction/dispensing (or voucher schemes), targeted health promotion, and an integrated referral pathway are the logical adaptation of proven school and community models; but they should be evaluated prospectively in university populations to confirm effectiveness and sustainability.

Most studies exploring eye-care service utilization in low- and middle-income countries (LMICs) rely heavily on cross-sectional designs, often using convenience or clustered sampling. For instance, Ezinne *et al.* (2020) and the Mozambique RARE survey (Thompson *et al.*, 2015) both employed descriptive cross-sectional approaches to identify barriers such as cost, distance, and lack of awareness, but these designs limit causal inference and temporal understanding of utilization patterns. Moreover, definitions of “utilization” vary widely from spectacle wear compliance (Ezinne *et al.*, 2020) to attendance at outreach programs (Ramasamy *et al.*, 2013) making cross-study comparisons difficult and weakening the conceptual consistency of utilization as an outcome variable.

While randomized controlled trials like Ramasamy *et al.* (2013) demonstrate stronger internal validity and causal inference, such intervention studies remain rare and typically focus on short-term outcomes, such as spectacle uptake, rather than sustained service use or behavioral change. Longitudinal and mixed-method designs are especially scarce, creating a gap in understanding how knowledge, attitude, and accessibility barriers evolve over time. Moreover, most existing utilization studies have been conducted in community or general adult populations rather than among university students, leaving a contextual gap in evidence for younger, digitally active, and academically distinct groups. The present study therefore seeks to specifically assess eye-care utilization within the university setting, focusing on how sociodemographic, attitudinal, and digital-behavioral factors influence service uptake among students. To address these methodological gaps, the study will employ a clearly defined operationalization of “utilization,” use a representative sample of students, and apply validated questionnaire items to minimize subjectivity and enhance comparability across determinants.

CHAPTER THREE

3.0 MATERIALS AND METHODS

3.1 RESEARCH DESIGN

This study employed a descriptive cross-sectional survey design to assess factors influencing the utilization of optometry clinic services among University of Benin students. This design is appropriate for capturing a snapshot of utilization patterns and associated factors at a single point in time, aligning with the study's objectives and resource constraints (Mafwiri *et al.*, 2020). The approach is cost-effective and feasible for a student-led project, allowing for the collection of quantitative data on prevalence and correlates of clinic use.

3.2 RESEARCH LOCATION

The study was conducted at the University of Benin, located in Benin City, Edo State, Nigeria. The university hosts a diverse student population across multiple Faculties and has an established Optometry program, with on-campus optometry clinics in its two campuses. The clinic, is situated within the Faculty of Optometry, provides eye care services such as vision screenings, consultations optical services, contact services among others, making it an accessible resource for students. The university's main campus, Ugbowo, was the primary site for data collection, targeting students from various academic disciplines to ensure a representative sample.

3.3 STUDY POPULATION

The study population consisted of all undergraduate students at the University of Benin's Ugbowo campus during the 2025 academic session. This population is estimated above 43,000 undergraduate students across faculties such as Medicine, Engineering, Arts, and Social Sciences, based on the University of Benin pocket statistics 2020. The study targets students aged 16–30 years, reflecting the typical undergraduate age range, and includes both male and female students to explore demographic variations in utilization.

3.4 SAMPLING TECHNIQUE AND SAMPLE SIZE DETERMINATION

3.4.1 Sampling technique

A stratified random sampling technique was used to ensure representation across faculties and years of study. The faculties were stratified into four major divisions and year of study (100–600 level).

Major Divisions:

1. **Applied and Environmental Sciences:** Agriculture, Engineering and Environmental Sciences.
2. **Health and Clinical Sciences:** Basic Medical Sciences, Medicine, Dentistry, Nursing, Optometry, Pharmacy and Veterinary Medicine.
3. **Humanities and Education:** Arts, Law, Vocational and Vocational Training Education
4. **Science and Management Disciplines:** Life sciences, Management Sciences, Physical Sciences, Science Laboratory Technology.

3.4.2 Sample size Determination

Sample size reveals the number of individuals or elements comprised in a sample, which is a subset of a larger population. This is an important consideration in research analysis as it plays a critical role in determining the reliability and generalisability of research results.

A representative sample has been drawn using the Taro Yamane's Formula:

$$n = \frac{N}{1 + N (e)^2}$$

where n= sample size

N= population size (77000)

e= margin of error (0.05)

$$n = \frac{43,000}{1 + 43,000 (0.05)^2}$$

$$n = \frac{43,000}{108.5} = 396.3$$

Adjusting for a 99% response rate: $n = 396/0.99 = 400$

Thus, a Sample size for this study is 400 (Amenaghawon, 2025).

Materials:

Various materials were used for the collation.

1. Paper-based questionnaire
2. Electronic questionnaire (Google forms)
3. Pen

3.6 INCLUSION AND EXCLUSION CRITERIA

Inclusion Criteria

- Registered undergraduate students at the University of Benin, Ugbowo campus.
- Aged 16–30 years.
- Willing to provide informed consent to participate in the study.

Exclusion Criteria

- Students unwilling to participate.

3.7 DESCRIPTION OF PROCEDURE

Data was collected using paper-based and electronic questionnaires (via Google Forms), administered in classroom settings and common areas with participant consent. Responses were entered into Microsoft Excel for initial storage and for analysis. Only the principal investigator and supervisor had access to the data, to ensure confidentiality. No additional staff training is required, as the investigator alone managed data collection and entry.

3.8 DATA ANALYSIS

Data analysis involved both descriptive and inferential statistics. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized utilization rates, demographic characteristics, and reported barriers. Logistic regression was used to identify factors associated with utilization (dependent variable: clinic use, yes/no), with independent variables including awareness, cost, accessibility, perceived need, and demographics (age, gender, faculty). Odds ratios with 95% confidence intervals was reported, with a p-value <0.05 indicating statistical significance. Results have been presented in tables and figures. SPSS was used for all analyses, ensuring robust statistical modeling.

3.9 LIMITATIONS OF THE STUDY

The study may face limitations, including:

- Although the intended sample size was 400, only 382 participants were successfully surveyed due to time constraints and participant availability. This slight reduction may limit the generalizability of the findings but is not expected to significantly affect the overall representativeness of the sample.
- The cross-sectional design limits causal inferences about factors influencing utilization.

- Non-response bias occurred as some students declined participation.
- The study is limited to undergraduate students at the Ugbowo campus, excluding postgraduate students or other campuses, which may affect generalizability.

3.10 ETHICAL APPROVAL

The study adhered to ethical principles for research involving human subjects. Approval was given by the University of Benin's Ethics Committee prior to data collection. Participants were provided written informed consent, with a form explaining:

- The study's purpose.
- Voluntary participation and the right to withdraw at any time without consequences.
- No risks or discomforts, as the study involves only a questionnaire.
- Potential benefits, including improved university eye care services.
- Confidentiality measures, with no personal identifiers collected.

No remuneration was be offered. Data was anonymized, with responses stored securely and accessible only to the research team. The study includes both male and female students to ensure gender balance and does not exclude any ethnic or racial groups, promoting inclusivity. No drugs, vaccines, or invasive procedures are involved.

CHAPTER FOUR

4.0 RESULTS AND DATA ANALYSIS

4.1 Respondents Demographic Data

. A total of 382 students Aged between 16 and 30years were involved in this study, with the 16–20 age group accounting for the largest share (46.3%), followed by the 21–25 age group (38.7%). Regarding gender distribution, slightly more than half of the respondents were female (52.6%). The Science and Management disciplines had the highest representation, (34.3%) Closely followed by the Health and Clinical Sciences with 33.3%. The highest proportion of students were in 100 level (23.0%), while students in the 500 and 600 levels constituted the smallest groups. Finally, students were almost equally split between living off-campus (52.1%) and on-campus (47.9%). These are shown in table 4.1 below.

Table 4.1: Demographic Characteristics of respondents

Variable	Frequency	Percent
Age		
16 - 20	177	46.3
21 - 25	148	38.7
26 - 30	57	14.9
Gender		
Female	224	52.6
Male	158	35.1
Faculty		
Applied and environmental sciences	55	14.4
Health and clinical sciences	127	33.3
Humanities and education	69	18.1
Science and management disciplines	131	34.3
Level of Study		
100	88	23.0
200	71	18.6
300	57	14.9
400	75	19.6
500	45	11.8
600	46	12.0

Residence			
Off campus		199	52.1
On-campus		183	47.9

4.2 Eye Health Seeking Behaviour

The study found high awareness of the Optometry Clinic, with 69.6% of students having heard of it, though only 40.1% had visited. When last facing an eye problem, the most common action taken was visiting another eye clinic (17.0%), followed by visiting the University clinic (13.6%). The top barrier to the use of the clinic was “Cannot afford services” and the most cited factor to encourage patronage was affordability (25.9%). See Table 4.2 below.

Table 4.2: Eye Health Seeking Behaviour

Variable	Frequency	Percent
Have you ever heard of the Optometry Clinic at the University of Benin?		
No	116	30.4
Yes	266	69.6
Have you ever visited the Optometry Clinic at the University of Benin?		
No	153	40.1
Yes	229	59.9
How many times have you visited the Optometry Clinic, since your stay in the University?		
2-3 times	76	33.19
More than 3 times	72	31.44
Once	81	35.37
The last time you had an eye problem, what did you do?		
Did nothing	43	18.78
Visited UNIBEN Optometry Clinic	52	22.71
Visited another eye clinic	65	28.38
Got eye drops from a pharmacy store	39	17.03
Used traditional/herbal remedies	13	5.68
other	17	7.42

If you did not visit the Optometry Clinic, why?		
Did not know the clinic existed	45	19.65
Cannot afford services	55	24.02
Long waiting time	26	11.35
Preferred other facility	19	8.30
Did not have time	0	0
Others	84	36.68
What attributes of an eye clinic would facilitate your patronage of the clinic?		
If clinic is open till late	15	6.55
If the clinic is affordable	99	43.23
If the clinic is not far	19	8.30
If the staff are friendly	40	17.47
Others	56	24.45

4.3 Knowledge and Awareness

More than half of the students (55.0%) reported having had an eye problem, and 38.7% were dissatisfied with their current vision. Awareness of eye conditions was high, especially for Cataract (69.4%), Refractive errors (60.2%), and Glaucoma (58.9%). Most students identified a serious eye problem as one that occurs “When vision is affected” (78.17%). Satisfaction with the last service received at the clinic was reported by 44.2% of visitors. See table 4.3 below.

Table 4.3: Knowledge and Awareness

Variable	Frequency	Percent
Have you ever had an eye problem?		
No	172	45.0
Yes	210	55.0
Are you satisfied with your vision currently?		
No	148	38.7
Yes	234	61.3
Do you sometimes have vision problems that limit your daily activities?		
No	243	63.6
Yes	139	36.4
Which of the following eye conditions do you know about? (tick all that apply)		
Cataract	265	69.4
Conjunctivitis	177	46.3
Refractive errors (Myopia, Hyperopia, Astigmatism)	230	60.2
Glaucoma	225	58.9
Diabetic eye problem	123	32.2
Computer vision syndrome	151	39.5
others	23	6.0
Which of the following services provided are at the Optometry Clinic?		

General eye examination	277	72.5
Refraction/Spectacle prescription	175	45.8
Contact lens fitting	181	47.4
Ocular disease diagnosis/management	144	37.7
Counselling on eye health	204	53.4
Other	30	7.9
When would you say your eye problem is serious and needs attention?		
When in pain	99	25.92
When eyes are red	44	11.52
When vision is affected	179	46.86
other	60	15.70

4.4 Determinants and Barriers

When considering factors that would encourage their use of the Optometry Clinic, students overwhelmingly cited Affordable services as the most critical determinant, selected by 69.6% of respondents. Other significant factors included the availability of drugs/spectacles (54.7%), friendly staff (53.1%), and a short waiting time (52.4%). When students first experienced an eye problem, they were most likely to discuss it with their parents (41.36%). A small but notable proportion (3.66%) reported discussing the problem with classmates. See table 4.4 below.

Table 4.4: Determinants and Barriers

Variable	Frequency	Percent
What factors would encourage you to use the Optometry Clinic?		
Clinic?		
Affordable services	266	69.6
Proximity	149	39.0
Short waiting time	200	52.4
Friendly staff	203	53.1
Availability of drugs/spectacles	209	54.7
Referral from another doctor	117	30.6
Other	133	34.8
When you have an eye problem, who do you first discuss it with?		
Classmates	14	3.67
Friends	30	7.85
Nurse/Doctor	29	7.59
Parents	158	41.36
Pharmacist	17	4.45
Siblings	27	7.07
Others	107	28.01
Were you satisfied with the last service you received at the Optometry Clinic?		
No	213	55.8

Yes	169	44.2
-----	-----	------

4.5. Belief and Perception

Students generally demonstrated positive attitudes toward eye health. A large majority of 76.9% (Strongly Agree/Agree) felt that eye diseases are just as important to treat as other health conditions. Furthermore, 61.6% (Strongly Disagree/Disagree) rejected the notion that wearing spectacles means your eyes are “damaged.” The belief that visiting the clinic is only necessary for a serious problem was disagreed with by 50.8% of respondents. In terms of recommended check-up frequency, the largest group suggested an eye check-up every 6 months (39.8%), followed by once a year (24.6%), showing a high perceived need for routine checks. See table 4.5 below.

Table 4.5: Belief and Perception

variable	Strongly Disagree	disagree	Neutral	Agree	Strongly Agree
Eye diseases are just as important to treat as other health conditions.	39(10.2)	0(0)	49(12.8)	70(18.3)	224(58.6)
Visiting the Optometry Clinic is only necessary when you have a serious problem	58(15.2)	136(35.6)	83(21.7)	60(15.7)	45(11.8)
Wearing spectacles means your eyes are damaged.	77(20.2)	158(41.4)	69(18.1)	39(10.2)	39(10.2)
How often do you think a student should have an eye check-up?	I don't know	Only when there is a problem	Every 2 years	Once a year	Every 6 months
	64(16.8)	39(10.2)	33(8.6)	94(24.6)	152(39.8)
How often do you think a student should have an eye check-up?					

4.6: The proportion of university students that utilise the clinic.

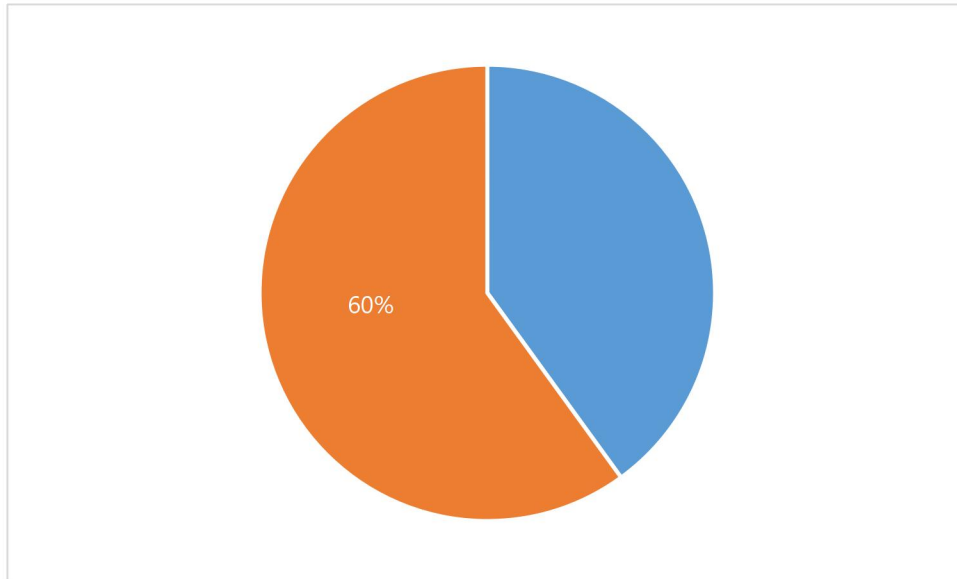


Fig 1: The proportion of university students that utilise the clinic is approximately 60%

4.7 Factors Associated with Utilization of Optometry Clinic Service

Chi-square analysis was performed to determine factors associated with utilizing the clinic, noting that the proportion of students who utilize the clinic is 40%. The results showed that proximity to the clinic (Sig. = 0.85, $\chi^2 = 0.021$) was the only factor with a statistically significant association (at $P < 0.05$) with clinic utilization. Factors like Short Waiting Time (Sig. = 0.55), Friendly Staff (Sig. = 0.57), and Availability of Drugs/Spectacles (Sig. = 0.31) showed no significant association.

Table 4.7 Factors Associated with Utilization of Optometry Clinic Service

variable	Never used clinic	Have used clinic	Sig.	Chi- square
Affordable services	164	102		
Proximity	90	59	0.85	0.021
Short waiting time	117	83	0.55	0.366
Friendly staff	119	84	0.57	0.318
Referral from another doctor	157	108	0.18	0.67
Availability of drugs/spectacles	123	86	0.31	0.631
Others	145	104	0.349	0.876

4.8 Health Seeking Behaviour Among Students

The ranking of health-seeking behaviours students engaged in when experiencing an eye problem placed visiting another eye clinic as the most common action (24.52%), followed by other unspecified actions (20.76%). Visiting the UNIBEN Optometry Clinic was the third most frequent action (19.62%). The least common behaviour reported was using traditional/herbal remedies (4.91%).

Health Seeking Behaviour Among Students

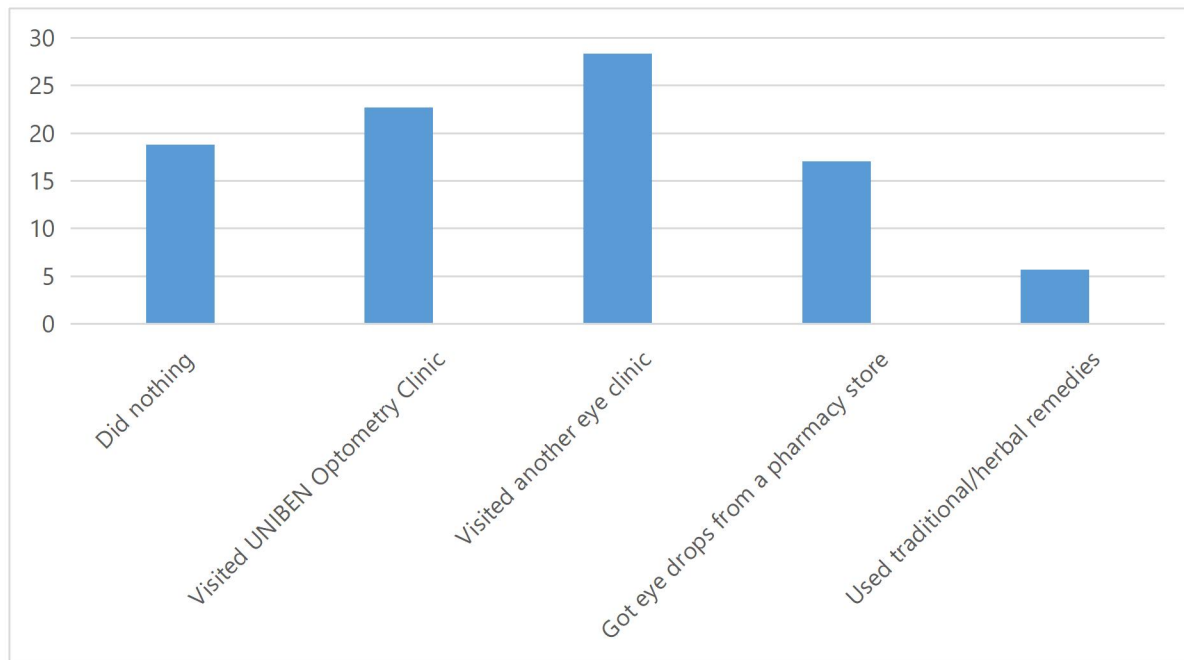


Fig 2. Shows the eye health seeking behaviour among the undergraduate students in the University of Benin

4.9 Barriers to Health Seeking Behaviours

When students encountered barriers to seeking eye health, inability to afford services ranked as the highest barrier at 24.02%. This was followed by (16.37%) and short waiting time (15.66%). The least significant barrier reported was referral from another doctor (9.17%).

Barriers to Eye Health Seeking Behaviours

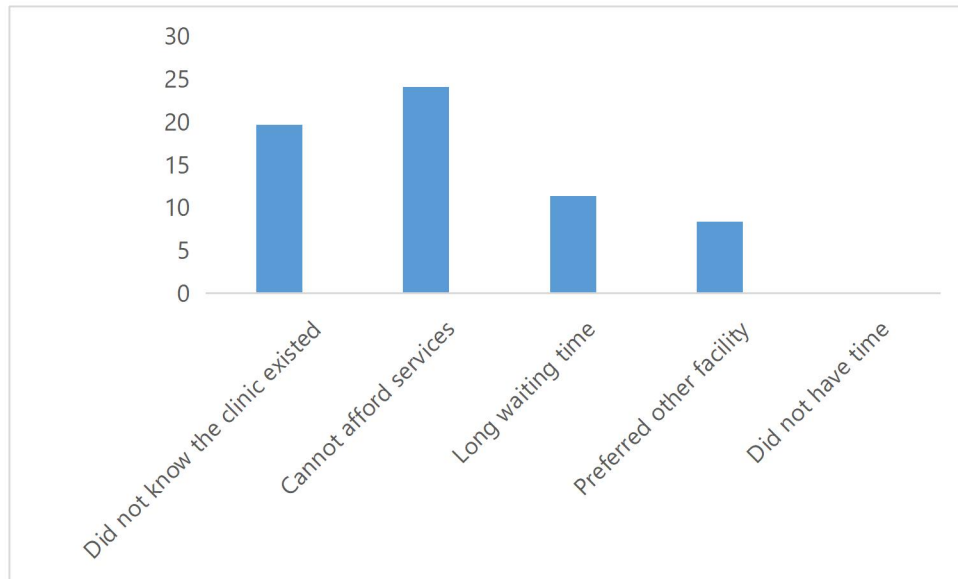


Fig 3. Shows the rankings of barriers to the eye health seeking behaviours of undergraduate students in the University of Benin.

CHAPTER FIVE

5.0 DISCUSSION

An assessment of the utilization of eye care services is very essential for the planning of effective eye care services in a university setting like the University of Benin.

This study shows that 60% of proportion of undergraduate students in the University of Benin have utilized the available eye-care services at least once, while 40% still have not. Several factors may underlie this trend. The clinic's on-campus location, coupled with its visibility as part of a university training centre, likely encourages attendance. In addition, the relatively high awareness level reported also in the survey may have contributed to this finding. Although the utilization of eye services in this study by the undergraduate students in the University of Benin was 60%, this implies that the burden of visual impairment in the remaining 40% could increase if appropriate measures are not taken to improve utilization.

The utilization of eye care services in this study is higher than that observed in community-based studies of underserved populations in Enugu state. (Ezinne et al., 2023). The utilization rate within the last two years according to their study was 18% and the major barrier to the utilization of eye care services being cost (30%), distance (22.6%), and bad road infrastructure (15.2%). Such contrasts suggest that university setting and proximity play decisive roles in promoting eye service uptake compared to rural or off-campus environments.

From this study, proximity appeared as the only factor significantly associated with clinic utilization ($p < 0.05$). Variables such as affordability, waiting time, staff attitude, and drug or spectacle availability were not statistically significant. This finding highlights the fundamental role of physical accessibility. Proximity reduces both travel costs, bad road infrastructure and

time as mentioned in the study conducted in Enugu State by Ezinne *et al*, making it easier for students to fit appointments around academic schedules.

This outcome is consistent with regional studies showing that distance and ease of access are powerful determinants of healthcare use (Merga et al., 2023; Ezech et al., 2022). Similar patterns have been documented in broader low-middle income countries (LMIC) contexts where physical accessibility frequently outweighs other service-related attributes in influencing health-seeking decisions (Akuffo et al., 2020).

The most frequently mentioned motivators for clinic attendance in this study were affordable services (69.6%), availability of drugs and spectacles (54.7%), and friendly staff (53.1%). Proximity exerts a dominant influence having significance value of 0.85; affordability likely affects utilization indirectly through perceptions of accessibility and fairness although affordability did not reach statistical significance in the chi-square analysis.

The findings are contrasting with Nigerian and other low-middle income countries (LMIC) studies, where affordability, having previous eye problems, the presence of systemic illness, having awareness about regular checkups were found to be the top predictors of eye care service utilization (Ezinne *et al.*, 2023, Merga et al., 2023).

This study also provides insights into students' actions when they last experienced an eye problem. The most common responses were visiting another eye clinic (28.4%) and visiting the university clinic (22.7%). Other notable actions included purchasing eye drops from a pharmacy (17.0%) or taking no action at all (18.8%), while a smaller group (5.7%) relied on traditional remedies.

These findings imply that although the university clinic is utilized, a substantial number of students seek alternatives. Possible reasons may include perceived higher quality, faster service, or more comprehensive care at private or external clinics. Others may view pharmacy visits as quicker or more convenient. Similar tendencies have been documented in other student and community studies (Umar & Alfin, 2023; Majekodunmi et al., 2019), while broader research highlights that perceptions of service quality, convenience, and accessibility strongly influence health-seeking behaviour (Ankit & Debanjali, 2025).

The findings from this study reinforces these observations, ranking visits to external eye clinics as the most common action and visits to the university's clinic as third. Also emphasizing the non-negligible proportions of students who resort to self-treatment or inaction. Although awareness of the university clinic was relatively high (69.6%), awareness alone appears insufficient to guarantee utilization. Other influences such as perceived service reliability, availability of spectacles or medications, and waiting times, likely mediate this relationship.

This mismatch between awareness and actual attendance has been echoed in other university-based studies, where knowledge of institutional health services did not necessarily translate into consistent use unless service quality and perceived value were simultaneously improved (AlQarni et al., 2023; Almuqrashi et al., 2025).

Among students who had not used the clinic, the leading barriers were inability to afford services (24.0%) and lack of awareness of the clinic's existence (19.7%), followed by long waiting times (11.4%) and preference for external facilities (8.3%). These findings reveal the combined effects of financial and informational barriers. Limited publicity, inadequate orientation of new students, and absence of subsidized service packages may have contributed to these challenges.

Operational factors such as clinic hours or queue management may further dissuade potential users.

These patterns align closely with other Nigerian and LMIC findings where cost, poor awareness, and convenience factors remain the dominant deterrents to utilization (Ezinne et al., 2023).

From this study, there is generally favorable attitudes towards eye health. 76.9% of respondents agreed that eye diseases are as important as other medical conditions, and most rejected misconceptions such as the belief that spectacles weaken the eyes. However, despite this encouraging outlook, actual utilization remains suboptimal. This disparity suggests that structural issues particularly cost, convenience, and awareness are more influential barriers than negative beliefs. Similar findings have been reported among student populations elsewhere (Almuqrashi et al., 2025), supporting the idea that knowledge and positive attitudes must be matched by accessible, well-publicized services to produce behavioral change.

Although most respondents were aware of at least one common eye condition, this knowledge did not appear to influence their use of eye care services. The commonly identified eye problems—such as uncorrected refractive errors, cataract, glaucoma, diabetic eye problem, conjunctivitis, and computer vision syndrome—are recognized by the World Health Organization (WHO, 2010) as leading causes of avoidable blindness globally. This observation contrasts with findings from the United States, where limited knowledge of eye diseases has been linked to low utilization of eye care services (Alexander et al., 2008). However, it aligns with evidence from India, where individuals remained indifferent to seeking eye care even after receiving education about glaucoma (Baker & Murdoch, 2008).

In the wider context of optometric practice and public health, these results reaffirm the importance of embedding vision care into everyday health systems. Positive attitudes among students where most acknowledged the importance of eye diseases and rejected common myths about spectacle use, reflect an encouraging base for sustainable interventions. Yet, behavioral translation remains limited. Strengthening service quality, publicity, and convenience could convert awareness into consistent utilization. For the optometric community, these findings highlight the opportunity to position university clinics as centers of preventive eye care excellence and training. If leveraged effectively, they can foster early detection of ocular conditions, promote responsible digital device habits, and reduce the burden of uncorrected refractive errors within and beyond academic institutions.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

This study set out to assess the factors influencing the utilization of optometry clinic services among undergraduate students of the University of Benin. The findings reveal that 60% respondents reported visiting the clinic at least once, suggesting that proximity and visibility of the service (both being located within the campus) play a major role in encouraging use.

Proximity stood out as the only statistically significant factor associated with utilization, indicating that students living on or near campus were more likely to access care. Other variables such as affordability, staff friendliness, waiting time, and availability of services, though not statistically significant, were highly regarded by respondents as important enablers of clinic use.

The findings further showed that a considerable number of students seek eye care from off-campus clinics, purchase medications over the counter, or, in some cases, do nothing when they experience eye problems. Such behaviors highlight lingering misconceptions, low awareness of available campus services, and perhaps perceived limitations of the on-site clinic. Notably, several students who reported having previous eye complaints did not pursue professional attention, suggesting a tendency towards self-management and delayed help-seeking; a common challenge in student populations globally.

Cost and lack of awareness emerged as the leading barriers to clinic use. However, the overall attitude toward eye health was positive; most respondents recognized the importance of eye diseases and rejected common myths surrounding spectacle use. These positive beliefs did not automatically translate into utilization.

6.2 RECOMMENDATIONS

Drawing from these findings, the following recommendations are proposed to enhance the utilization of optometry clinic services and strengthen eye health outcomes among university students and the wider community.

1. Strengthen Awareness Campaigns:

The University of Benin and the Faculty of Optometry should develop regular awareness initiatives—such as health fairs, orientation sessions, peer-led talks, and digital outreach—to publicize available clinic services. Sustained and targeted communication will help close the information gap identified among students.

2. Integrate Eye Health into Student Health Registration:

Routine vision screening and optometric assessment should become part of the mandatory medical registration for all students. Early detection during enrolment can encourage preventive care and establish eye health as a core component of student wellness.

3. Enhance Service Delivery:

Extending clinic operating hours to evenings or weekends could better accommodate students' academic schedules and reduce waiting times. Ensuring consistent availability of optical

materials such as frames, lenses, and essential drugs, would further increase satisfaction and repeat visits.

4. Introduce Student-Friendly Pricing:

The university management should consider subsidized service packages or integrate optometric care into student medical fees. Partnerships with NGOs and corporate sponsors could help support free or discounted vision programs for students from low-income backgrounds

5. Support Workforce and Infrastructure Development:

Increased funding for optometry education and clinic infrastructure within public universities is crucial. Strengthening human resources and equipment capacity will ensure comprehensive and high-quality care delivery within learning environments.

6. Avoid Self-Medication:

The use of over-the-counter eye drops or traditional remedies without professional guidance should be strongly discouraged. These practices can mask underlying conditions and worsen outcomes.

7. Promote Healthy Digital Practices:

Applying the 20-20-20 rule—taking a 20-second break to look 20 feet away every 20 minutes—can significantly reduce digital eye strain, a growing concern among students with high screen exposure.

REFERENCES

- Aguwa U. S. (2020) “Refractive Errors Among Nigerian Youths”. *Innovare Journal of Medical Sciences*, 8(3), 1- 4.
- Akano, O., Adeigbe, E., Ezelum, C., & Dryden, A. (2017). Vision health disparities in blindness and visual impairment in Nigeria: A review of the Nigerian National Blindness and Visual Impairment Survey. *African Vision and Eye Health*.
- Akuffo, K. O., Sewpaul, R., Dukhi, N.(2020). Eye care utilization pattern in South Africa: Results from SANHANES-1. *BMC Health Services Research*, 20, 756.
- Al Tawil, L., Aldokhayel, S., Zeitouni, L., Qadoumi, T., Hussein, S., & Ahamed, S. S. (2020). Digital eye strain among university students in Saudi Arabia: Prevalence and associated factors. *Cureus*, 12(2), 7060.
- Almuqrashi, A., Al-Noumani, H., Al-Abri, F. (2025). The prevalence of computer vision syndrome and associated factors among university students in Oman: A cross-sectional study. *BMC Public Health*, 25, 2668.

- AlQarni, A. M., AlAbdulKader, A. M., Alghamdi, A. N., Altayeb, J., Jabaan, R., Assaf, L., & Alanazi, R. A. (2023). Prevalence of digital eye strain among university students and its association with virtual learning during the COVID-19 pandemic. *Clinical Ophthalmology*, 17, 1755–1768.
- Alrasheed, S. H., & Alghamdi, W. (2024). Systematic review and meta-analysis of the prevalence of myopia among school-age children in the Eastern Mediterranean Region. *Eastern Mediterranean Health Journal*, 30(4), 312–322.
- Amenaghamwon Q. E., (2025). The University Of Benin Undergraduate Students Perception Of The Influence Of User-Generated Content On Advertising. 56-59.
- Ankit S. V and Debanjali B., (2025). “Barriers to Eye Care Access in Low- and Middle-Income Countries: Focus on Asia”. *Acta Scientific Ophthalmology* 8(10), 1-4.
- Aparna, D. (2024). Prevalence and unmet needs of refractive error and presbyopia in Bangladesh. *Scholars Journal of Applied Medical Sciences*, 1898–1901.
- Atuanya, G. N., Bale, B. I., & Elebesunu, E. B. (2024). Factors influencing the decision of Nigerian optometry students to work in rural areas upon graduation: A cross-sectional survey. *BMC Medical Education*, 24, 1339.
- Atuanya, G. N., Oke, O. M., Bale, B. I., & Mutali, M. (2025). Eye care-seeking behavior among staff of the University of Benin, Benin City, Nigeria. *Cureus*, 17(5).
- Bahkir, F. A., & Grandee, S. S. (2020). Impact of the COVID-19 lockdown on digital eye strain symptoms among university students in Saudi Arabia. *Frontiers in Public Health*, 8, 589352.

- Bhammarkar, U. D. (2025). Digital eye strain among university students: a cross-sectional study from Hyderabad, India. *International Journal of Research in Medical Sciences*, 13(7), 2813–2816.
- Bastawrous, A., & Kuper, H. (2017). The challenges of eye care in low- and middle-income countries. *Community Eye Health Journal*, 30(100), 74–76.
- Bourne, R. R. A., Steinmetz, J. D., Flaxman, S. R., Briant, P. S., Taylor, H. R., Resnikoff, S., & Vision Loss Expert Group. (2017). Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: A systematic review and meta-analysis. *The Lancet Global Health*, 5(9), e888–e897.
- Eldo, B. M., Mathews, E. N., Johnson, B., & Roy, A. S. (2024). Impact of increased screen-time on ocular health of medical undergraduate students during COVID-19: A cross-sectional study. *International Journal of Community Medicine and Public Health*, 11(11), 4393–4398.
- Ekuobase, B. U., Nlumanze, F. F., Edeogho, A. M., & Olowolafe, A. S. (2025). Knowledge and practice of ocular health among post-basic nursing students of University of Benin Teaching Hospital, Benin City, Edo State. *LAUTECH Journal of Nursing*, 16th Edition.
- Ezinne, N. E., Ekemiri, K. K., Ojukwu, C. S., Mashige, K. P., Ilechie, A. A., & Moyo, G. (2023). Utilization of eye care services in an underserved community in Enugu State, Nigeria. *Nigerian Journal of Clinical Practice*, 26(1).
- Ezeh, E. I., Nkanga, E. D., Ezeh, R. N., Ajewole, J., & Nkanga, D. (2022). Barriers to utilization of an eye care facility in a rural community in South-South Nigeria. *Calabar Journal of Health Sciences*, 6(1), 39–43.

- Federal Government of Nigeria. (2025). Federal initiative for subsidised eye care under Health Connect. *TheCable / Official Statement*, May 15, 2025.
- Harvey E. M, Miller J. M, Twelker J. D, Davis A. L. Reading Fluency in School-Aged Children with Bilateral Astigmatism. *Optom Vis Sci.*;93(2):118-25.
- Holden, B. A. (2016). Global prevalence of myopia and high myopia and temporal trends from 2000 through 2050. *Ophthalmology*, 123(5), 1036–1042.
- Stewart. J. (2014) Visual Impairment and Educational Attainment. *Research and Information Service Briefing Paper*. 77(14).
- Khadka, J., Ratcliffe, J., Caughey, G. E., Wesselingh, S. L., & Inacio, M. C. (2021). Prevalence of eye conditions, utilization of eye health care services, and ophthalmic medications after entering residential aged care in Australia. *Translational Vision Science & Technology*, 10(14).
- Kumah, D. B., Abdul-Kabir, M., & Aidoo, F. (2017). Prevalence of ocular conditions among hairdressers in the Kumasi Metropolis, Ghana. *BAOJ Ophthalmology*, 1(011).
- Kyari, F., Gilbert, C., Blanchet, K., & Wormald, R. (2020). Improving eye-care services in sub-Saharan Africa through evidence-based advocacy and partnerships. *Ophthalmic Epidemiology*, 27(4), 275–284.
- Kyei, S., Avornyo, G., Asiamah, R., Boadi-Kusi, S. B., & Kwarteng, M. A. (2024). Dynamics of myopia progression in Ghana: Evidence from clinical practice. *Health Science Reports*, 7(12), 70273.

- Ma, X., Zhou, Z., Yi, H., Pang, X., Shi, Y., Chen, Q., Meltzer, M. E., le Cessie, S., He, M., & Rozelle, S. (2014). Effect of providing free glasses on children's educational outcomes in China: A cluster-randomized controlled trial. *BMJ*, 349, 5740.
- Maduka-Okafor, F. C., Okoye, O., Ezegwui, I., Oguego, N. C., Okoye, O. I., Udeh, N., Aghaji, A. E., *et al.* (2021). Refractive error and visual impairment among school children: Result of a South-Eastern Nigerian regional survey. *Clinical Ophthalmology*, 15, 2345–2353.
- Majekodunmi, O. I., Olusanya, B. A., & Oluleye, T. S. (2019). Utilization of eye care services among students attending schools for the hearing impaired in Oyo State, South-West Nigeria. *Annals of Ibadan Postgraduate Medicine*, 17(2), 181–186.
- Merga, H., Amanuel, D., Fekadu, L., & Dube, L. (2023). A community-based cross-sectional study of eye care service utilization among the adult population in southern Ethiopia. *SAGE Open Medicine*, 11, 20503121231197865.
- Mohan, A.(2023). Digital eye strain among university students: A global systematic review and meta-analysis. *PLOS ONE*, 18(3).
- Oseleonomhen, M. O., Akpotiri, J., Zeppieri, M., & Mutali, M. (2024). Knowledge and attitude towards tele-eye care among optometry students in University of Benin. *Journal of the Nigerian Optometric Association*, 26(2), 34–42.
- Ramasamy, D. (2013). Community-based eye camp model for cataract detection and management in rural India. *Community Eye Health Journal*, 26(84), 73–77.

- Reddy, P. S. (2022). Screen time, ocular symptoms, and the need for optometric services among university students: A cross-regional survey. *International Journal of Ophthalmic Practice*, 15(2), 87–96.
- Rono, H. K., Bastawrous, A., Macleod, D., Wanjala, E., Gichuhi, S., Burton, M. J., & Weiss, H. A. (2021). Effectiveness of smartphone-based screening and referral for eye diseases in Kenya: A cluster-randomised controlled trial (Peek CEH). *The Lancet Digital Health*, 3(8), 489–499.
- Sheppard, A. L., & Wolffsohn, J. S. (2018). *Digital eye strain*: Prevalence, measurement and amelioration. *BMJ Open Ophthalmology*, 3(1). 77-81
- Steinmetz, J. D., Bourne, R. R. A., Briant, P. S., Flaxman, S. R., Taylor, H. R., Jonas, J. B. (2021). Causes of blindness and vision impairment in 2020 and trends over 30 years: An analysis from the Global Burden of Disease Study. *The Lancet Global Health*, 9(2), 144–160.
- Teran, E., Ramírez-Jaime, R., Martínez-Gaytán, C., Romo-García, E., & Costela, F. (2021). Refractive error of students (15–18 years old) in Northwest Mexico. *Optometry and Vision Science*, 98(10), 1127–1131.
- Umar, F. H., & Alfin, R. J. (2023). Prevalence and types of refractive error among students presenting to a federal university school clinic in North-Central Nigeria. *Highland Medical Research Journal*, 23(2), 51–54.
- Vela, C., Samson, E., Zunzunegui, M. V., Haddad, S., Aubin, M.-J., & Freeman, E. E. (2012). Eye care utilization by older adults in low-, middle-, and high-income countries. *BMC Ophthalmology*, 12(5), 1–10.

World Health Organization. (2019). *World report on vision*. Geneva: WHO.

World Health Organization. (2023). *World report on vision: Progress report and outlook 2023*. Geneva: WHO.

Yang, Z., Jin, G., Li, Z., Liao, Y., Gao, X., Zhang, Y., & Lan, Y. (2021). Global disease burden of uncorrected refractive error among adolescents from 1990 to 2019. *BMC Public Health*, 21(1), 1975.

Zhang, H. M., Li, B. Q., Zhu, Y., Liu, S. X., & Wei, R. H. (2023). Time trends in myopia and high myopia prevalence in young university adults in China. *International Journal of Ophthalmology*, 16(10), 1676–1681.

APPENDIX II

CONSENT FORM

Project Title: FACTORS INFLUENCING THE UTILIZATION OF OPTOMETRY CLINIC SERVICES AMONG UNDERGRADUATE STUDENTS IN THE UNIVERSITY OF BENIN

Researcher: ONYEKIBE PRINCE HENRY, Department of Optometry, University of Benin.

PURPOSE:

This study aims to investigate the factors influencing the utilization of optometry clinic services among students at the University of Benin.

PARTICIPATION:

You are invited to complete a short questionnaire (approx. 10–15 minutes). There are no right or wrong answers, and your honest responses are appreciated.

VOLUNTARY:

Participation is entirely voluntary. You may skip any question or withdraw at any time without penalty.

CONFIDENTIALITY:

Your responses will be kept confidential and used solely for academic research. No identifying information will be published.

RISKS AND BENEFITS:

There are no risks involved. While you may not benefit directly, your input may help promote better eye care practices in universities.

CONSENT:

By signing below, I confirm that I understand the purpose of this study and voluntarily agree to participate.

Name (optional): _____

Signature: _____

Date: _____

Questionnaire

Study Title: Factors Influencing the Utilization of Optometry Clinic Services Among Students in the **University** of Benin

Section A: Demographic Characteristics

1. Sex: Male [] 1 Female [] 2

2. Age group: 16–20 ☐ 1 21–25 ☐ 2 26–30 ☐ 3 Above 30 ☐ 4

3. Faculty/Department: ☐ Applied and Environmental Sciences ☐ Health and Clinical sciences
☐ Humanities and Education ☐ Science and Management Disciplines

4. Level of Study: 100 ☐ 1 200 ☐ 2 300 ☐ 3 400 ☐ 4 500 ☐ 5 600 ☐ 6

5. Residence : ☐ Off campus ☐ On campus

Section B: Eye Health–Seeking Behavior

6. Have you ever heard of the Optometry Clinic at the University of Benin?

Yes ☐ 1 No ☐ 2

7. Have you ever visited the Optometry Clinic at the University of Benin? Yes ☐ 1

No ☐ 2

(If No, skip to Session C)

8. How many times have you visited the Optometry Clinic, since your stay in the University?

Once ☐ 1 2–3 times ☐ 2 More than 3 times ☐ 3

9. The last time you had an eye problem, what did you do? Did nothing ☐ 1 Visited UNIBEN

Optometry Clinic ☐ 2 Visited another eye clinic ☐ 3 Self-medicated ☐ 4 Used

traditional/herbal remedies ☐ 5 Other (specify) _____ 6

10. If you did not visit the Optometry Clinic, why? (tick all that apply): No reason ☐ 1 Cannot

afford ☐ 2 Long waiting time ☐ 3 Did not know the clinic existed ☐ 4 Preferred other

facility ☐ 5 Did not have time ☐ 6 Other (specify) _____

11. What attributes of an eye clinic would facilitate your patronage of the clinic?

If the staff are friendly ☐ 1 If the clinic is affordable ☐ 2

If the clinic is not far ☐ 3 If clinic is open till late ☐ 4

Other (specify).....

Section C: Knowledge and Awareness

12. Have you ever had an eye problem? Yes ☐ 1 No ☐ 2

13. If yes, what was the problem? (specify) _____

14. Are you satisfied with your vision currently? Yes ☐ 1 No ☐ 2

15. Do you sometimes have vision problems that limit your daily activities? Yes ☐ 1

No ☐ 2

16. Which of the following eye conditions do you know about? (tick all that apply): Refractive errors (myopia, hyperopia, astigmatism ☐ 1 Cataract ☐ 2 Glaucoma ☐ 3 Diabetic eye disease ☐ 4 Computer vision syndrome ☐ 5 Conjunctivitis ☐ Others (specify) _____

17. Which of the following services provided are at the Optometry Clinic? (tick all that apply):

General eye examination ☐ 1 Refraction/spectacle prescription ☐ 2 Contact lens fitting ☐ 3

Ocular disease diagnosis/management ☐ 4 Counseling on eye health ☐ 5 Other (specify)

18. When would you say your eye problem is serious and needs attention?

When in pain ☐ 1 When eyes are red shot ☐ 2

When vision is affected ☐ 3 Other (pls specify).....

Section D: Determinants and Barriers

19. What factors would encourage you to use the Optometry Clinic? (tick all that apply):

Affordable services ☐ 1 Proximity ☐ 2 Short waiting time ☐ 3 Friendly/approachable staff
☐ 4 Availability of drugs/spectacles ☐ 5 Referral from another doctor ☐ 6 Other (specify)

20. When you have an eye problem, who do you first discuss it with? Friends ☐ 1 Parents ☐ 2

Siblings ☐ 3 Classmates ☐ 4 Nurse/Doctor ☐ 5 Pharmacist ☐ 6 Nobody ☐ 7 Other

(specify) _____

21. Were you satisfied with the last service you received at the Optometry Clinic? Yes ☐ 1 No

☐ 2 If No, why? _____

Section E: Beliefs and Perceptions

22. Eye diseases are as important as other diseases. Agree ☐ 1 Disagree ☐ 2 Don't know ☐ 3

23. Visiting the Optometry Clinic is only necessary when you have a serious problem. Agree ☐ 1

Disagree ☐ 2 Don't know ☐ 3

24. Wearing spectacles means your eyes are "damaged." Agree ☐ 1 Disagree ☐ 2 Don't know

☐ 3

25. How often do you think a student should have an eye check-up? Every 6 months ☐ 1 Once

a year ☐ 2 Every 2 years ☐ 3 Only when there is a problem ☐ 4 Don't know ☐ 5