

**KNOWLEDGE, ATTITUDE AND PERCEPTION OF GLAUCOMA AMONG UNIVERSITY
OF BENIN STUDENTS**

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**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.**

CERIFICATION

This is to certify that this research project titled **KNOWLEDGE, ATTITUDE AND PERCEPTION OF GLAUCOMA AMONG UNIVERSITY OF BENIN STUDENTS** was carried out by **ANAELECHI AKACHUKWU FRANK** 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.

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DEDICATION

I dedicate this project to God Almighty, my creator for his love, and unwavering moral and protection throughout my stay in the University of Benin.

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My deepest gratitude goes to God Almighty for being present through all my stay in optometry school and my life at large.

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To my Spiritual Family EFAC STUDENTS' MINISTRY AND ALL SAINTS CHAPEL UNIBEN, thank you for the person you have made me become today.

I also want to dedicate this project research to my younger self who has always want to become a doctor. Thank you Lord for your mercies.

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ABSTRACT

Glaucoma is a leading cause of irreversible blindness worldwide, and early detection is vital in preventing vision loss. Knowledge, attitude, and perception toward glaucoma influence early diagnosis and management. This study assessed the knowledge, attitude, and perception of glaucoma among students of the University of Benin. A descriptive cross-sectional survey was conducted among 800 undergraduate students selected through stratified random sampling across 16 faculties. Participants comprised 432 males (54%) and 368 females (46%), aged 16–31 years (mean age 22.3 ± 2.7 years). Data were collected using a structured questionnaire and analyzed with SPSS version 25 using descriptive and Chi-square statistics at $p < 0.05$. Results showed that 97.8% of respondents were aware of glaucoma, mainly through the internet (48.8%). However, only 26.8% demonstrated good knowledge, while 37.9% and 35.4% had fair and poor knowledge, respectively. Faculty of study significantly influenced knowledge, perception, and screening attitude ($p < 0.001$), while gender and age did not. Although 80.2% of respondents showed positive treatment attitudes, 48.4% had never undergone an eye examination. Most students (81.8%) recognized glaucoma's hereditary risk, and 69.0% prioritized blindness prevention as an urgent health concern. the study found high awareness but limited depth of knowledge and low engagement in preventive eye care. Faculty of study played a key role in shaping awareness and behaviour. Targeted university-based interventions are recommended to enhance glaucoma literacy, promote regular eye screening, and reduce the risk of glaucoma-related blindness among young adults.

CHAPTER ONE

1.0 INTRODUCTION

Vision is arguably the most dominant of all human senses, enabling individuals to navigate their environment, perform everyday tasks, and experience the world with depth and clarity. The loss of vision, especially when it is irreversible, has far-reaching consequences not only for individuals but also for families and communities. Among the various causes of irreversible blindness, glaucoma stands out as one of the most prevalent and insidious conditions (Tham *et al.*, 2014). Glaucoma is not a single disease, but a group of optic neuropathies that damage the optic nerve, often associated with raised intraocular pressure (IOP). It is notorious for its “silent” progression symptoms often remain unnoticed until significant, and sometimes irreversible, visual-field loss has occurred (Quigley & Broman, 2006). This characteristic makes public awareness and timely diagnosis particularly crucial.

Globally, glaucoma is a leading cause of irreversible blindness and its burden is expected to rise substantially in coming decades (Tham *et al.*, 2014; Vision Loss Expert Group, 2021). The World Health Organization has emphasized the disease’s global impact and the need to strengthen eye-care systems, particularly in low and middle-income countries where access to eye-care services is limited and awareness is generally low (World Health Organization, 2019). Sub-Saharan Africa bears a disproportionate share of glaucoma-related vision loss (Kyari *et al.*, 2018). In Nigeria, glaucoma is a major cause of irreversible blindness and late presentation is common because of limited screening and low public knowledge (Oluwatayo & Ashaye, 2020). The asymptomatic nature of early-stage glaucoma makes public education important. Increased awareness, better knowledge, and favourable attitudes play a critical role in influencing when

and how people seek eye care (Boadi-Kusi *et al.*, 2015). In developed countries, widespread public-health campaigns and routine eye checks have improved early diagnosis rates; unfortunately, in Nigeria and other under-developed nations, poor public awareness contributes significantly to late presentation and worse prognosis (Boadi-Kusi *et al.*, 2015; Alemu *et al.*, 2017).

Among various population segments, university students are often presumed to have high health literacy due to their access to formal education and information technologies. However, studies in different settings show that this assumption does not always hold, particularly for eye health (Onakoya *et al.*, 2014; Alemu *et al.*, 2017). The university population is a critical demographic: students are at a formative stage where behaviours, beliefs, and knowledge patterns become established, and they can act as change agents within families and social networks. Understanding what university students know and do not know about diseases like glaucoma is therefore vital for designing health-promotion strategies that resonate with younger populations.

In the Nigerian context, the transition to university life is often accompanied by increased autonomy in health decision making. Without adequate knowledge, students may be unaware of the need for routine eye checkups or the implications of glaucoma as a potentially blinding condition. The University of Benin hosts a diverse student body whose future decisions can influence community health outcomes. Despite the university's academic strengths, anecdotal evidence suggests many students especially those outside health-related courses may lack adequate knowledge of common eye diseases like glaucoma, which can impede both personal eye health practices and their capacity to influence others.

This research aims to explore the knowledge, attitudes, and perceptions of glaucoma among undergraduate students at the University of Benin. It seeks to examine whether students understand the causes, risk factors, symptoms, and prevention strategies associated with glaucoma, and to investigate attitudes whether they believe glaucoma is preventable, treatable, or a priority health concern and perceptions of personal risk. The study will include a representative sample across faculties to assess how academic background influences health literacy.

While some studies have focused on glaucoma awareness in the general population or among clinic patients, limited research has targeted university students in Nigeria specifically. Related work in sub-Saharan Africa and other low- and middle-income settings has repeatedly found gaps in knowledge and misconceptions about glaucoma, including misunderstandings about heredity, age distribution, and the need for early screening (Onakoya *et al.*, 2014; Alemu *et al.*, 2017). These erroneous beliefs may influence whether students seek eye care, support affected relatives, or participate in screening programs.

The rationale for conducting this study at the University of Benin is to assess baseline knowledge and to explore differences in awareness across faculties, age groups, and academic levels. By identifying gaps and misperceptions, the study seeks to recommend targeted educational interventions (campus screening drives, integrating eye health into orientation, optometry-led seminars) that can improve glaucoma awareness among university students.

Furthermore, this research aligns with national and global initiatives to reduce preventable blindness through early detection and public education (World Health Organization, 2019; Vision Loss Expert Group, 2021). In addition to public-health relevance, the study holds academic significance for optometry: as a final-year optometry student, undertaking this research

will bridge clinical knowledge with community eye care and inform future advocacy and preventive practice.

Glaucoma remains a major cause of irreversible blindness globally and in Nigeria. The university student population represents a strategic group for targeted health interventions. By examining knowledge, attitudes, and perceptions among students at the University of Benin, this study aims to uncover key gaps and propose solutions to enhance glaucoma literacy contributing to blindness prevention through informed education, timely diagnosis, and appropriate health-seeking behaviour among young adults.

1.1 BACKGROUND INFORMATION

1.1.1 Understanding Glaucoma

Glaucoma is a progressive optic neuropathy characterized by the degeneration of retinal ganglion cells and their axons, often associated with elevated intraocular pressure (IOP). It affects the optic nerve head and leads to irreversible vision loss if not detected and managed early. The disease often progresses silently, without any symptoms in the early stages, earning it the nickname “the silent thief of sight.”

There are two primary forms of glaucoma: open-angle glaucoma (which is more common and chronic) and angle-closure glaucoma (which is less common but more acute and symptomatic). Open-angle glaucoma may go unnoticed for years, while angle-closure glaucoma may present with severe pain, nausea, and sudden vision loss.

1.1.2 Global Burden of Glaucoma

According to the World Health Organization (WHO), glaucoma is the second leading cause of blindness globally, after cataract. It is estimated that more than 76 million people were living with glaucoma as of 2020, and this number is projected to reach over 111 million by 2040. Unlike other causes of blindness, the damage from glaucoma is permanent, making it a significant contributor to disability-adjusted life years (DALYs) worldwide.

Most people affected by glaucoma live in low- and middle-income countries, where access to routine eye care is limited and awareness is low. The silent nature of the disease, combined with limited diagnostic services, contributes to the high rates of undiagnosed and untreated glaucoma, especially in Africa and Asia.

1.1.3 The African Context

Glaucoma poses an even greater threat in sub-Saharan Africa. The disease appears to have an earlier onset and a more aggressive course in individuals of African descent. Research has shown that Africans have a four to five times higher risk of developing glaucoma compared to Caucasians.

In many African countries, including Nigeria, the majority of glaucoma patients present at advanced stages of the disease when vision loss is already significant. The low level of public awareness, coupled with inadequate health infrastructure and cultural beliefs, contributes to late presentation and poor treatment compliance.

1.1.4 Glaucoma in Nigeria

In Nigeria, glaucoma is the second most common cause of blindness, accounting for approximately 16.7% of cases, as reported in the Nigerian National Blindness and Visual

Impairment Survey (2005–2007). More recent data suggests that only 5–10% of individuals with glaucoma are aware they have the disease.

Despite advances in medical training and eye care services, many Nigerians lack access to routine eye examinations. Factors such as poverty, limited public health education, and the prioritization of other systemic illnesses over eye health continue to hinder early detection and treatment.

1.1.5 Significance of Knowledge, Attitude, and Perception

Knowledge, attitude, and perception are key elements that influence how people respond to health issues. In the case of glaucoma, adequate knowledge is vital for understanding the importance of regular eye screening, particularly among at-risk populations. A positive attitude toward eye health can influence decisions to seek preventive care, while accurate perception of glaucoma's seriousness can motivate early and continuous intervention.

Knowledge, attitude, and perception studies are widely used in public health to evaluate the effectiveness of education and awareness programs. They also help identify behavioral and informational gaps that can be targeted to improve health outcomes.

1.1.6 University Students as a Strategic Population

University students represent a dynamic and influential segment of the population. As young adults on the threshold of independence, their health behaviors and beliefs are being formed. Educating this group about chronic, asymptomatic diseases such as glaucoma has long-term benefits for both individual and community health.

Moreover, university students often influence health-seeking behavior within their families and peer networks. This makes them ideal candidates for public health awareness initiatives, especially those designed to promote early detection and prevention of diseases.

1.1.7 About the University of Benin

The University of Benin is one of Nigeria's foremost higher education institutions, offering a wide array of undergraduate and postgraduate programs. With thousands of students across disciplines including health sciences, social sciences, arts, and engineering, University of Benin provides a suitable environment for studying student health awareness.

Given its mix of students from diverse backgrounds, the university is an ideal setting for exploring variations in knowledge, attitude, and perception toward glaucoma across different faculties and academic levels.

1.1.8 The Gap in Awareness and Research

Despite the critical nature of glaucoma and its public health implications, there remains a lack of research on the level of awareness and perception of glaucoma among university students in Nigeria. Most studies have focused on the general population, patients in eye clinics, or elderly individuals.

Very few studies have examined how well-informed young adults in tertiary institutions are about glaucoma. Understanding their knowledge levels is essential because this demographic is at the frontier of change. They are tomorrow's health professionals, policymakers, educators, and advocates.

1.1.9 Public Health Implications

From a public health standpoint, reducing the burden of glaucoma requires a multi-pronged approach. These include:

- i. public education to improve awareness
- ii. Routine screening and early detection
- iii. Training of healthcare workers
- iv. Accessible and affordable treatment
- v. Community outreach, especially to high-risk populations

University students can play a critical role in this framework as volunteers, peer educators, and future health professionals. But they can only fulfill this role effectively if they possess accurate knowledge and attitudes about the disease.

1.1.10 Conclusion

Glaucoma continues to be a major cause of irreversible blindness in Nigeria and across the world. While it is largely preventable through early detection and proper management, many individuals remain unaware of its presence until vision loss has occurred. University students, especially those in institutions like University of Benin, represent a powerful group in the fight against this silent blinder.

By evaluating their knowledge, attitudes, and perceptions toward glaucoma, this study will contribute valuable insights to the design of effective public health interventions, with the ultimate goal of reducing the burden of glaucoma in Nigeria.

1.2 STATEMENT OF PROBLEM

Despite being a leading cause of irreversible blindness, glaucoma remains grossly underdiagnosed and undertreated in Nigeria. The asymptomatic nature of the disease in its early stages contributes significantly to the late presentation of affected individuals, often when substantial vision loss has already occurred. Several studies have documented poor knowledge, negative attitudes, and misconceptions about glaucoma among different population groups in Nigeria. However, there is limited research focused specifically on university students, who are often perceived as more informed and health-conscious.

The lack of adequate knowledge and awareness among university students about glaucoma could hinder early detection and prevention strategies. Furthermore, misconceptions and poor attitudes towards eye health may lead to neglect of routine eye check-ups, thereby increasing the risk of late diagnosis. The absence of structured educational interventions addressing eye health and glaucoma awareness within university settings may further exacerbate this problem.

Understanding the level of knowledge, prevailing attitudes, and perceptions towards glaucoma among students at the University of Benin is essential to guide public health interventions, promote eye health awareness, and ultimately reduce the burden of glaucoma-related blindness. Identifying these gaps will also inform the design and implementation of comprehensive eye health education programs within higher institutions in Nigeria.

1.3 AIMS AND OBJECTIVES

1.3.1 AIM

To assess the knowledge, attitude, and perception towards glaucoma among undergraduate students of the University of Benin.

1.3.2 OBJECTIVES

1. To assess the level of knowledge, attitude and perception of glaucoma among undergraduate students of University of Benin.
2. To evaluate the attitudes of students towards glaucoma prevention, screening, and treatment.
3. To determine the perceptions of students regarding the severity, susceptibility, and preventability of glaucoma.
4. To identify socio-demographic factors associated with variations in knowledge, attitudes, and perceptions towards glaucoma.

1.4 HYPOTHESES/RESEARCH QUESTIONS

Hypotheses

Null Hypothesis: There is a significant relationship between the perception of glaucoma and the level of awareness among University of Benin students.

Research Questions

1. What is the level of awareness and knowledge of glaucoma among University of Benin students?
2. What are the prevailing attitudes of students towards glaucoma screening and treatment?
3. How do students perceive the seriousness and personal risk of developing glaucoma?
4. Are there significant differences in Knowledge, awareness and perception based on gender, faculty, year of study, or other demographic factors?

1.5 SIGNIFICANCE OF THE STUDY

This study is of immense significance for several reasons. It provides empirical data on the current levels of knowledge, attitudes, and perceptions regarding glaucoma among university students, an important segment of the Nigerian population. The findings will serve as a valuable resource for designing effective educational campaigns targeting youths and young adults, who are at a formative stage where health behaviour and attitudes are established.

By identifying knowledge gaps and misconceptions, the study can inform curriculum development in health education and public health programs, as well as guide the inclusion of eye health topics in university courses and orientation activities. Increased awareness among students can promote early detection of glaucoma, timely treatment, and improved visual outcomes. Informed students can also act as agents of change by disseminating accurate information within their families and communities.

Additionally, the results of this study could inform national and institutional policies aimed at integrating routine vision screening into student healthcare services. The findings can also serve as a model for similar studies across other universities in Nigeria and Sub-Saharan Africa, thereby contributing to a broader strategy for preventing avoidable blindness. In the long term, such initiatives will help reduce the incidence of late glaucoma presentations, enhance preventive eye care practices, and promote overall eye health awareness among young adults.

1.6 DEFINITION OF TERMS

Glaucoma: A group of eye disorders characterized by progressive damage to the optic nerve, often associated with increased intraocular pressure, leading to irreversible vision loss.

Knowledge: Awareness or understanding of glaucoma, including its causes, symptoms, risk factors, and treatment options.

Attitude: A settled way of thinking or feeling about glaucoma, including beliefs, feelings, and predispositions to act in certain ways regarding its prevention and treatment.

Perception: The process of recognizing, interpreting, and assigning meaning to information related to glaucoma, including perceived susceptibility and severity.

Intraocular Pressure (IOP): The fluid pressure inside the eye, which, when elevated, is a major risk factor for glaucoma.

Optic Nerve: The nerve that transmits visual information from the retina to the brain and is damaged in glaucoma.

CHAPTER TWO

2.0 LITERATURE REVIEW

Glaucoma, a group of optic neuropathies characterized by progressive degeneration of the optic nerve, is a leading cause of irreversible blindness worldwide. Despite its global burden, awareness and understanding of the disease remain low, particularly in sub-Saharan Africa. The World Health Organization (2023) reports that glaucoma is the second leading cause of blindness globally and the foremost cause of irreversible visual loss. In Nigeria, it contributes to a significant proportion of blindness cases, with studies showing that up to 20% of blind individuals suffer from this condition. The insidious nature of glaucoma, which often presents without symptoms until advanced stages, necessitates a high index of suspicion and public health strategies focused on prevention, awareness, and early diagnosis.

Different studies have estimated the level of glaucoma knowledge among diverse populations such as university students. Knowledge is a significant determinant that may influence the attitude of individuals towards eye health and health-seeking behavior. In the study of Onakoya *et al.*'s (2009) among outpatients attending clinics in Nigeria, only 8.3% knew about glaucoma. Such a low level of awareness among the general population reveals a critical knowledge gap. Among students in universities, where a higher level of knowledge of health ailments would be

expected, things are only slightly better. According to Adegbehingbe *et al.* (2008), only 18.6% of university undergraduates in Nigeria were aware of glaucoma, and very few knew of its asymptomatic progression or of permanent loss of vision. Similarly, Boadi-Kusi *et al.* (2015) in Ghana found that although 67% of health-science students had heard of glaucoma, less than half understood its risk factors or the importance of regular screening. Alemu *et al.* (2017) in Ethiopia also observed that awareness levels were higher among urban dwellers and those with prior eye examinations, underscoring the influence of access and education.

Comparable findings were observed in other countries. A study by Ayed *et al.* (2019) among Tunisian medical students revealed that only 42% possessed adequate knowledge of glaucoma, despite their academic background in health sciences. The implication is clear: being in an academic environment does not necessarily equate to sufficient knowledge of eye health. Furthermore, knowledge is often fragmented; some students may have heard of glaucoma but lack deeper understanding of its pathophysiology, risk factors, or need for early intervention. Djeagbo *et al.* (2018) in Côte d'Ivoire also highlighted similar trends, where participants demonstrated basic awareness but poor comprehension of disease management and progression. Attitudes towards glaucoma and preventive eye care are shaped not only by knowledge but also by beliefs and cultural factors. Even individuals who are aware of glaucoma may not take proactive steps toward prevention. This disconnect between knowledge and action is well-documented in public health literature. Murthy *et al.* (2014), in a study of Indian health science students, found that many regarded eye screenings as unnecessary unless there were overt symptoms. Similar attitudes have been reported in Nigeria. According to Adepoju *et al.* (2020), many Nigerian university students view glaucoma as a disease associated with old age and therefore irrelevant to young people. This perception contributes to a lack of urgency or

perceived susceptibility, thereby reducing the likelihood of undergoing regular eye checks. Heisel *et al.* (2020) in Ethiopia also noted that despite moderate awareness, most participants did not consider themselves at risk of glaucoma, reinforcing the importance of perceived susceptibility in driving preventive action.

Perception plays a critical role in shaping health behavior. While knowledge refers to awareness of facts, perception involves interpretation and belief, which can either facilitate or hinder appropriate health-seeking behavior. In some communities, glaucoma is mistakenly perceived as a disease of spiritual origin, or one that can be cured through traditional remedies. Kizor-Akaraiwe *et al.* (2016) reported that some students in southeastern Nigeria believed that glaucoma could be washed out with herbs or that it would resolve spontaneously. Misconceptions such as these delay timely diagnosis and increase the likelihood of permanent vision loss. Al Rashed *et al.* (2020) reported similar findings in Saudi Arabia, where awareness was moderate but misconceptions about curability and treatment options persisted among adults attending ophthalmic clinics.

Several factors influence the knowledge, attitudes, and perceptions of individuals regarding glaucoma. These include age, level of education, field of study, exposure to eye health education, and personal or family history of eye disease. Health science students generally display higher awareness levels due to curriculum exposure, but this does not always translate into better attitudes or accurate perceptions. Cultural and societal beliefs also play a significant role. For example, in some settings, individuals associate blindness with fate or supernatural causes, reducing their likelihood of seeking medical intervention. A study by Olawoye *et al.* (2013) further revealed that proximity to eye care centers and prior screening experiences significantly

influenced willingness to seek preventive care, suggesting that both knowledge and structural accessibility determine health-seeking behavior.

Efforts have been made to improve awareness and early detection through public health campaigns and educational programs. Initiatives like Vision 2020 aim to reduce avoidable blindness by promoting access to eye care and raising public awareness. In the university environment, some studies have recommended peer education and the use of digital platforms like social media as tools to reach young adults with accurate information. Adenuga *et al.* (2018) emphasized the role of campus-based health programs in increasing glaucoma awareness. Their findings suggested that integrating eye health education into student orientation programs could be a cost-effective strategy to improve knowledge and promote positive health behaviors. Similarly, Vučinović *et al.* (2022) reported that integrating glaucoma awareness sessions into student wellness programs significantly improved knowledge retention and attitudes among European university students.

Despite these interventions, a significant gap remains in the understanding of glaucoma among university students, especially those not studying health-related courses. The few available studies have often been small in scale or limited to specific regions, indicating a need for more comprehensive research. The University of Benin, as a major academic institution, represents an important setting to evaluate the current state of knowledge, attitudes, and perceptions toward glaucoma among students from diverse academic backgrounds. Olawoye *et al.* (2019) also stressed the importance of institutional-based interventions, recommending periodic on-campus eye screenings to reinforce awareness and early diagnosis.

The application of behavioral models such as the Health Belief Model (HBM) helps to explain these dynamics. According to the HBM, individuals are more likely to engage in preventive

health behaviors if they perceive themselves to be at risk, believe the condition has serious consequences, and view the benefits of action as outweighing the barriers. Applying this model to glaucoma awareness among students helps to identify the psychological and contextual factors that may hinder early detection and treatment. If students do not perceive themselves as susceptible to glaucoma or believe that early screening is beneficial, they are unlikely to engage in preventive practices, even if they have some basic knowledge of the disease.

The literature thus far demonstrates that although some progress has been made in raising awareness of glaucoma, significant challenges persist, especially among youth and university population. There is a pressing need for tailored interventions that address specific misconceptions, foster positive attitudes, and translate awareness into action. Glaucoma education should be mainstreamed into general health promotion strategies on university campuses, with emphasis on routine eye screening and early detection. The current study aims to address this gap by assessing the knowledge, attitude, and perception of glaucoma among students of the University of Benin, thereby contributing to evidence-based strategies for improving eye health education among Nigerian youths.

In addition to general awareness, another critical aspect in glaucoma prevention is the understanding of risk factors associated with the disease. Age, family history of glaucoma, elevated intraocular pressure, African ancestry, and myopia are well-established risk factors. Among young adults such as university students, especially those with a positive family history, routine screening is particularly vital. However, multiple studies have shown that many students are unaware of these risk factors.

Furthermore, the stigma surrounding eye diseases in some Nigerian communities contributes to poor health-seeking behavior. Some individuals fear being labeled as weak or disabled if seen

attending eye clinics. Others believe that wearing glasses, a common outcome of eye screening, is a sign of weakness or even spiritual affliction. These deep-seated cultural attitudes can deter students from seeking necessary eye care even when they are aware of its importance. According to Eze *et al.* (2017), socio-cultural factors play a significant role in shaping individuals' health-seeking behavior and perceptions towards eye diseases such as glaucoma. These factors include traditional beliefs, community norms, family influence, religious orientation, and levels of health literacy. In many African societies, for instance, cultural misconceptions often lead individuals to seek alternative remedies or delay hospital visits until the condition becomes severe. This delay in diagnosis and treatment can contribute to poor visual outcomes and increased prevalence of avoidable blindness due to glaucoma.

A further dimension to consider is the role of gender in health-seeking behavior. Several studies indicate that female students tend to be more proactive about their health and more likely to participate in screenings than their male counterparts. This difference may be influenced by sociocultural expectations, self-care behaviors, or differing levels of health education. Gender-disaggregated data in glaucoma awareness studies often reveal this trend and should be considered when designing targeted Education.

Technological advancements also present opportunities for enhancing glaucoma awareness. Mobile health (mHealth) technologies, including eye health apps and SMS-based reminders, have proven effective in increasing compliance with screening and follow-up appointments. For a population like university students, who are highly engaged with digital platforms, the integration of mHealth tools into awareness campaigns can significantly bridge the knowledge gap. "Social media platforms such as Instagram, Twitter, Facebook, and WhatsApp have become powerful tools for health communication, especially among youths and university students.

These platforms are increasingly being used to disseminate information, raise awareness, and shape perceptions about various health conditions, including glaucoma. Through targeted campaigns, infographics, videos, and influencer-driven content, social media can enhance knowledge levels and positively influence attitudes and preventive behaviors. However, the accuracy of information shared on these platforms varies, and misinformation can sometimes contribute to misconceptions about glaucoma and its management.

It is also essential to explore the curriculum and health promotion strategies used within universities. Institutions that offer regular health seminars, wellness weeks, or health science programs tend to produce more health-conscious students. The inclusion of vision screening during student admission or through university health centers could serve as a first step in integrating eye care into student life. The University of Benin has a health center and optometry clinic that can play a pivotal role in this process by offering regular eye screenings, health education programs, and counseling services aimed at promoting early detection and management of glaucoma. By integrating glaucoma awareness campaigns into student orientation programs and campus-wide health initiatives, the health center can significantly enhance students' knowledge, encourage positive health-seeking behavior, and reduce the risk of late presentation, which is common among young adults.

To further strengthen efforts in combating glaucoma-related blindness, collaborations between university management, student organizations, and public health authorities are crucial. Organizing glaucoma awareness days, free screening programs, and educational workshops can create a culture of eye health consciousness on campus. These programs can be led by optometry students and supervised by professionals, creating a dual benefit of peer education and practical exposure.

An important consideration in the fight against glaucoma is the economic burden it places on individuals and healthcare systems. In many low- and middle-income countries, including Nigeria, access to diagnostic tools such as tonometry, visual field testing, and optical coherence tomography (OCT) is limited due to high costs. Consequently, early-stage glaucoma often goes undetected. Among students, the financial burden of routine eye checkups may be seen as non-essential, especially when there are no apparent symptoms. This perception often stems from a limited understanding of the asymptomatic nature of glaucoma in its early stages. Consequently, many students may deprioritize preventive eye care in favor of more immediate academic or personal expenses. This delay in seeking eye examinations can contribute to late diagnosis, by which time significant and irreversible vision loss may have already occurred.

Moreover, the quality and accessibility of eye care services within university campuses vary significantly. Some institutions have well-equipped optometry clinics, while others depend on external health facilities. A study by Olawoye *et al.* (2013) emphasized that proximity to eye care centers positively influences students' willingness to undergo eye screening. Therefore, infrastructural development within campus health centers is a key factor in promoting glaucoma awareness and screening practices.

It is also necessary to consider the psychological implications of being diagnosed with glaucoma. For young individuals, the idea of having a chronic, potentially blinding disease can be emotionally overwhelming. Fear of the unknown, potential loss of independence, and concerns about academic performance and career prospects may all contribute to denial or neglect of the diagnosis. Psychological counseling and peer support systems could help students cope with these challenges and adhere to prescribed treatment protocols.

Research also suggests that interdisciplinary collaboration can strengthen glaucoma awareness efforts. For example, combining public health, social sciences, and clinical optometry in research and outreach allows for a more holistic approach. Social science students can analyze behavioral patterns, while optometry students can provide technical insight. Together, these collaborative efforts can help build sustainable health promotion models tailored to student populations. In addition, longitudinal studies on knowledge, attitude, and perception could provide valuable insights into how awareness evolves over time and in response to interventions. Most current studies, including those conducted in Nigeria, are cross-sectional and provide only a snapshot of student awareness. A longitudinal approach would better evaluate the effectiveness of awareness campaigns, policy changes, and campus-wide health initiatives over several academic years. Lastly, the role of religious and spiritual beliefs in shaping perceptions of disease must not be underestimated. In many Nigerian communities, including student populations, health decisions are often influenced by faith-based ideologies. Some students may prefer prayers or spiritual interventions over medical treatment. Collaborating with faith-based student organizations and campus chaplaincies can thus be an effective way to disseminate health information and bridge the gap between faith and science in health-seeking behavior.

These additional perspectives further demonstrate the complexity of glaucoma awareness among university students. The interplay of economic, cultural, psychological, institutional, and religious factors requires a comprehensive, multifaceted response. Only by addressing these layers can glaucoma awareness, early detection, and management be effectively promoted in the university setting.

CHAPTER THREE

3.0 MATERIALS AND METHODS

3.1 RESEARCH DESIGN

This study adopted a descriptive cross-sectional survey design using a questionnaire to assess the knowledge, attitude, and perception of glaucoma among undergraduate students of the University of Benin. This design enabled data collection from a large group at a single point in time to determine the current level of awareness and behavior regarding glaucoma.

3.2 RESEARCH LOCATION

The research was conducted at the University of Benin, located in Benin City, Edo State, Nigeria. University of Benin is a large federal university with many faculties, including health-related disciplines such as Medicine, Optometry, Pharmacy, and Life Sciences, as well as non-health faculties like Arts, Engineering, and Social Sciences. The university offers a diverse and

representative student population suitable for evaluating variations in Knowledge, Attitude and Perception regarding glaucoma.

3.3 STUDY POPULATION

The targeted population comprises of undergraduate students enrolled in various faculties at The University of Benin. These students represent a youthful, literate demographic with potential influence on public health behaviors. Both male and female students across different will be included in this study.

3.4 SAMPLING TECHNIQUE/ SAMPLE SIZE DETERMINATION

3.4.1 SAMPLING TECHNIQUE

A **stratified random sampling technique** was used to ensure adequate Representation across 16 faculties. The university population was stratified by faculty, and proportionate random samples of 50 students per faculty was drawn from each stratum.

3.4.2 SAMPLE SIZE DETERMINATION

A Study by Kizor-Akaraiwe *et al.* (2017) estimated that 36.8% of the population in Enugu Metropolis had good knowledge about glaucoma. The sample size is determined by adopting the standard formula which is Kish's formula.

$$n = Z^2pq/d^2 \text{ (Kish, 1965).}$$

Where:

n = Desired sample size

Z = The alpha level of confidence interval at 95% = 1.96

p = The proportion in the target population estimated to have good knowledge about glaucoma.

This was estimated to be 36.8% based on a similar study carried out in urban settlement Enugu metropolis, Nigeria. $p = 0.37$ (Kizor-Akaraiwe, Monye, & Okeke, 2017),

q = Probability of the event not occurring i.e. $(1 - p) = 0.63$

d = Precision required (5%) = 0.05

Substituting in the above formula

$$n = \frac{1.96 \times 0.37 \times 0.63}{0.05}$$

$$0.05$$

$$n = 358.19 = 358$$

To account for a 10 percent non-response rate, the sample size increase to 394, this was rounded up to 400.

However, a total of 800 participants was used for this study to ensure adequate representation of the university of benin students.

3.5 MATERIALS

Data was collected using a structured, self-administered questionnaire. The questionnaire was developed based on previous Knowledge, attitude and perception studies on glaucoma. It consists of five sections:

1. Demographics – age, gender, faculty, level of study, etc.
2. Knowledge – causes, symptoms, risk factors, and treatment options for glaucoma

3. Attitude – beliefs and behaviors regarding glaucoma prevention and treatment
4. Perception – perceived susceptibility, severity, and preventability of glaucoma
5. Information Sources – media exposure, family history, and previous eye examinations

3.6 INCLUSION AND EXCLUSION CRITERIA

3.6.1 Inclusion Criteria:

- Full-time undergraduate students of University of Benin
- Aged 16 years and above
- Willingness to participate and able to provide informed consent

3.6.2 Exclusion Criteria:

- Postgraduate students
- Students previously diagnosed with glaucoma
- Students unwilling to participate

3.7 DESCRIPTION OF PROCEDURE

Data for this study was collected primarily through online social media platforms. A structured electronic questionnaire, designed using Google Forms (or Microsoft Forms), was created based on the research objectives. The questionnaire link was sent to students of the University of Benin via popular social media channels, including WhatsApp groups, Telegram groups, Facebook

pages, and Twitter/X communities associated with various faculties, departments, and student organizations within the university.

Prior to dissemination, an introductory message explaining the purpose of the study, assuring confidentiality, and seeking informed consent was attached to the questionnaire link. Participation was completely voluntary, and respondents had the option to decline without any consequence.

To enhance reach and response rates, I collaborated with student leaders and class representatives to share the link within their academic and social groups. Reminder messages was sent periodically to encourage more responses.

All responses was automatically recorded and securely stored in the form's database, accessible only to me for analysis.

3.8 DATA ANALYSIS

Data collected was coded and entered into Statistical Package for the Social Sciences (SPSS) version 25 for analysis. Descriptive statistics such as frequencies, percentages, means, and standard deviations was computed to summarize demographic variables and responses to Knowledge, Attitude and Perception items. Inferential statistics, including Chi-square tests and logistic regression, was used to explore associations between socio-demographic variables and Knowledge, Attitude and Perception scores.

3.9 ETHICAL APPROVAL

Ethical clearance was obtained from the Department of Research and Ethics Committee of the Faculty of Optometry, University of Benin, Benin City, under the tenets of the Declaration of Helsinki. This ensured that all procedures performed on each subject was not against public interest or inflict unnecessary harm to them. All participants was informed about the voluntary

nature of participation and was assured of confidentiality and anonymity. Informed consent was obtained before participation, and no identifying information was recorded.

3.10 LIMITATION OF THE STUDY

- The study was limited to a single institution, which may affect generalizability of findings to other universities
- Self-reported data may be subject to response bias, as participants may overstate or understate their knowledge or behaviour.
- Cross-sectional design prevents casual inference; it only provides a snapshot of the current state.

CHAPTER FOUR

4.0 RESULTS AND DATA ANALYSIS

Data Presentation

The data was analyzed and presented in tables for clarity. A total of 800 sample size share across 16 faculties, in which 50 questionnaires was fill by each faculty, and all data was collected.

Socio-Demographic Characteristics of Respondents.

Table 4.1: Socio-Demographic Distribution of Respondents

Age	Frequency	Valid Percent (%)
16-20	288	36
21-25	438	54.8
26-30	71	8.9

31 and above	3	0.4
Gender		
Female	368	46
Male	432	54
Faculty		
Agriculture	50	6.3
Arts	50	6.3
Basic Medical Sciences	50	6.3
Dentistry	50	6.3
Education	50	6.3
Engineering	50	6.3
Environmental Sciences	50	6.3
Law	50	6.3
Life Sciences	50	6.3
Management Sciences	50	6.3
Medicine	50	6.3
Pharmacy	50	6.3
Physical Sciences	50	6.3
Social Sciences	50	6.3
Technical and Vocational Education	50	6.3
Veterinary Medicine	50	6.3

Table 4.1 shows that the majority of participants (54.8%) were aged 21–25 years, followed by 36.0% aged 16–20 years. Only a small proportion (0.4%) were aged 31 years and above. Males (54.0%) slightly outnumbered females (46.0%). Distribution across faculties was uniform, with each of the 16 faculties contributing 6.3% of the total respondents.

Awareness of Glaucoma

Table 4.2: Awareness of Glaucoma among Students

Awareness of Glaucoma	Frequency	Valid Percent (%)
No	18	2.2
Yes	782	97.8
If yes, what is your source of information?		
Health shows	125	8.7
Print media	139	9.7
Internet	699	48.8
Relative/Friend with glaucoma	162	11.3
Ophthalmologist/Optometrist	163	11.3
Medical training	145	10.1

Table 4.2 shows the awareness level of glaucoma among respondents. A vast majority (97.8%) reported awareness of glaucoma, while only 2.3% indicated no awareness. Among those aware, the most common source of information was the internet (48.8%), followed by ophthalmologists/optometrists (11.3%) and relatives/friends with glaucoma (11.3%). Other notable sources included medical training (10.1%), print media (9.7%), and health shows (8.7%).

Knowledge Of Glaucoma

Table 4.3: Understanding of Glaucoma among Students

	Frequency	Percentage (%)
Understanding of glaucoma		
Colored haloes and pain in the eye	8	1
Damage to the nerve of the eye due to high pressure	320	40
Damage to the retina	99	12.4
High pressure in the eye	373	46.6
Do you think damage due to glaucoma is reversible?		
Yes	389	48.6
No	411	51.4

Table 4.3 shows respondents' understanding of glaucoma. Most participants (46.6%) associated glaucoma with high pressure in the eye, while 40.0% identified it as damage to the optic nerve due to high pressure. A smaller proportion (12.4%) described it as damage to the retina, whereas only 1.0% associated it with colored haloes and eye pain. On reversibility, 51.4% of respondents stated that glaucoma damage is not reversible, while 48.6% believed it could be reversed.

Knowledge Levels of Glaucoma among Students

Table 4.4: Knowledge Levels of Glaucoma among Students

	Frequency	Percentage (%)
poor knowledge (0)	283	35.4
fair knowledge (1)	303	37.9
good knowledge (2)	214	26.8

Mean knowledge score = 0.91 ± 0.784

Table 4.4 presents the distribution of respondents' knowledge levels. About 37.9% demonstrated fair knowledge of glaucoma, 35.4% had poor knowledge, while 26.8% exhibited good

knowledge. The mean knowledge score was 0.91 ± 0.784 , indicating a generally fair level of knowledge among the respondents.

Association between Knowledge of Glaucoma and Demographics

Table 4.5: Association between Knowledge of Glaucoma and Demographics

	poor knowledge	fair knowledge	good knowledge	Chi- Square Tests	P- Value
Age				5.092 ^a	.532
16-20	106	114	68		
21-25	154	165	119		
26-30	22	23	26		
31 and above	1	1	1		
Gender				1.760 ^a	.415
Male	160	155	117		
Female	123	148	97		

Faculty				84.506 ^a	.000
Management Sciences	18	23	9		
Physical Sciences	22	19	9		
Law	20	21	9		
Social Sciences	24	14	12		
Technical and Vocational Education	25	21	4		
Agriculture	19	20	11		
Education	13	24	13		
Medicine	11	18	21		
Pharmacy	16	19	15		
Engineering	17	25	8		
Veterinary Medicine	21	14	15		
Dentistry	14	16	20		
Environmental Sciences	19	19	12		
Arts	26	18	6		
Basic Medical Sciences	11	19	20		
Life Sciences	7	13	30		

Table 4.5 shows the relationship between demographic variables and knowledge of glaucoma. The results indicate no significant association between knowledge and age ($p = 0.532$) or gender ($p = 0.415$). However, a significant association was observed between knowledge and faculty of study ($p < 0.001$). Faculties with higher levels of good knowledge are Life Sciences, Medicine, Dentistry, Basic Medical Sciences, Pharmacy, and Veterinary Medicine.

Perception of Glaucoma

Table 4.6: Perception of Eye Diseases by severity

Disease	Most Severe	Moderate Severe	Least Severe	Most Severe Rank
Cataract	504 (63.0%)	155 (19.4%)	141 (17.6%)	1 st
Glaucoma	209 (26.1%)	520 (65.0%)	71 (8.9%)	2 nd
Diabetic	87 (10.9%)	125 (15.6%)	588 (73.5%)	3 rd

Retinopathy				
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Table 4.6 presents the students' ranking Severity of common eye diseases. Cataract was most frequently ranked as the most severe (63.0%), while glaucoma was placed second on the as most severe (26.1%). Diabetic retinopathy was ranked third on the Most severe list (10.9%).

Association between Perceived Glaucoma severity and Demographics

Table 4.7: Association between Perceived Glaucoma severity and Demographics

	most severe	Moderate Severe	least severe	Chi- Square Tests	P- Value
Age				10.818 ^a	.094
16-20	74	189	25		
21-25	109	293	36		
26-30	24	38	9		
31 and above	2	0	1		

Gender				6.258 ^a	.044
Male	106	278	48		
Female	103	242	23		
Faculty				63.156 ^a	.000
Management Sciences	15	30	5		
Physical Sciences	14	32	4		
Law	13	33	4		
Social Sciences	17	30	3		
Technical and Vocational Education	5	38	7		
Agriculture	21	25	4		
Education	23	24	3		
Medicine	12	33	5		
Pharmacy	13	35	2		
Engineering	8	36	6		
Veterinary Medicine	8	40	2		
Dentistry	18	24	8		
Environmental Sciences	13	29	8		
Arts	3	44	3		
Basic Medical Sciences	9	38	3		
Life Sciences	17	29	4		

Table 4.7 evaluates the association between demographics and perception of Glaucoma severity. Age did not show a significant association ($p = 0.094$). However, gender ($p = 0.044$) and faculty of study ($p < 0.001$) were significantly associated with perception of severity, suggesting differences in concern across these groups. Males showed a higher perception of glaucoma severity, faculties that showed higher perception of glaucoma severity includes Medicine, Dentistry, Life Sciences, Basic Medical Sciences, Veterinary Medicine, and Pharmacy.

Susceptibility of Glaucoma

Table 4.8: Concern of Family Members Regarding Glaucoma

	Frequency	Valid Percent (%)
Do you think it is important for family members of glaucoma patients to be more concerned about getting the disease?		
Yes	654	81.8
Yes	146	18.3

Table 4.8 indicates students' opinions on family members' concern for glaucoma. A large majority (81.8%) believed that family members of glaucoma patients should be more concerned about the disease, while 18.3% did not share this view.

Association between Perceived Susceptibility to Glaucoma and Demographics

Table 4.9: Association between Perceived Susceptibility to Glaucoma and Demographics

	Yes	No	Chi-Square Tests	P-Value
Age			3.238 ^a	.356
16-20	236	52		
21-25	363	75		
26-30	53	18		
31 and above	2	1		

Gender			5.841 ^a	.016
Male	340	92		
Female	314	54		
Faculty			47.153 ^a	.001
Management Sciences	43	7		
Physical Sciences	46	4		
Law	41	9		
Social Sciences	41	9		
Technical and Vocational Education	26	24		
Agriculture	42	8		
Education	38	12		
Medicine	47	3		
Pharmacy	37	13		
Engineering	40	10		
Veterinary Medicine	38	12		
Dentistry	44	6		
Environmental Sciences	41	9		
Arts	43	7		
Basic Medical Sciences	44	6		
Life Sciences	43	7		

Table 4.9 reveals demographic associations with perceived susceptibility to glaucoma. Age was not significantly associated ($p = 0.356$). Gender ($p = 0.016$) show a significant with male showing higher perception. faculty of study ($p < 0.001$), also showed significant associations, the faculties with higher perceived susceptibility of glaucoma includes Medicine, Dentistry, Basic Medical Sciences, Life Sciences, Physical Sciences, Agriculture, Law, Social Sciences, and Environmental Sciences.

Blindness prevention

Table 4.10: Perception of Priority of the prevention of Blindness and other diseases

Disease	(Most Urgent)	Most Frequent Rank
Total blindness	552 (69.0%)	1 st
Stroke or paralysis	89 (11.1%)	3 rd
Cancer	51 (6.4%)	4 th
Schizophrenia	16 (2%)	5 th
Heart disease	92 (11.5%)	2 nd

Table 4.10 summarizes respondents' ranking of blindness prevention and other diseases. Total blindness was considered the most urgent condition by 69.0% of students. Heart disease was mainly ranked second by 11.5% of students, while Stroke or paralysis was placed in third position by 11.1%. Cancer with 6.4% and Schizophrenia with 2% were mostly ranked fourth and fifth respectively.

Table 4.11 Association between Perception of Priority of the prevention of Blindness and other diseases and Demographics

	Total	Other	p-value	Sig,
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	blindness	diseases		
Age			2.012 ^a	.570
16-20	198	83		
21-25	308	128		
26-30	44	24		
31 and above	2	1		
Gender			1.179 ^a	.278
Male	291	135		
Female	261	101		
Faculty			54.979 ^a	.000
Management Sciences	38	12		
Physical Sciences	39	11		
Law	37	13		
Social Sciences	26	24		
Technical and Vocational Education	37	13		
Agriculture	30	20		
Education	32	18		
Medicine	36	14		
Pharmacy	33	17		
Engineering	33	17		
Veterinary Medicine	46	4		
Dentistry	27	23		
Environmental Sciences	26	24		
Arts	39	11		
Basic Medical Sciences	44	6		
Life Sciences	26	24		

Table 4.11 presents the evaluation of perceptions regarding the prevention of total blindness. Age ($p = 0.570$) and gender ($p = 0.278$) showed no significant associations. However, a significant relationship was observed between perception and faculty of study ($p = 0.000$), indicating variation across various faculties. Significant faculties are Veterinary Medicine, Basic Medical Sciences, Physical Sciences, Management Sciences, Law, Medicine, and Arts.

Attitudes towards Glaucoma

Table 4.12 Last visit to an Eye specialist (optometrist/ophthalmologist)

	Frequency	Valid Percent (%)
When did you last visit an ophthalmologist or an optometrist?		
<1 year	96	12.0
2 years	112	14.0
3 years or more	159	19.9
Never	387	48.4
Do not remember	46	5.8

Table 4.12 shows the respondents' last visits to an eye specialist. Almost half (48.4%) had never visited an ophthalmologist/optometrist, while 19.9% had visited three years or more ago. About 14.0% last visited two years ago, 12.0% within the last year, and 5.8% could not remember their last visit.

Table 4.13: Association between screening attitude and Demographics

	<1 year	2 years	3 years or more	Never	Do not remember	P-value	Sig.
Age						22.622 ^a	.031
16-20	29	41	47	156	15		
21-25	65	60	97	190	26		
26-30	2	11	15	39	4		
31 and above	0	0	0	2	1		
Gender						9.153 ^a	.057
Male	40	59	85	218	30		
Female	56	53	74	169	16		
Faculty						80.408 ^a	.040
Management Sciences	7	5	6	29	3		
Physical Sciences	10	7	8	24	1		
Law	2	6	14	25	3		
Social Sciences	7	5	9	25	4		
Technical and Vocational Education	3	8	13	23	3		
Agriculture	7	7	11	22	3		
Education	3	10	9	21	7		
Medicine	1	9	12	27	1		
Pharmacy	7	6	10	23	4		
Engineering	7	7	9	27	0		
Veterinary Medicine	4	8	10	24	4		
Dentistry	5	7	10	27	1		
Environmental Sciences	4	6	7	29	4		
Arts	2	5	13	26	4		
Basic Medical Sciences	9	11	9	19	2		
Life Sciences	18	5	9	16	2		

Table 4.13 presents the association between demographics and glaucoma screening attitudes. Age ($p = 0.031$) and faculty of study ($p = 0.040$) showed significant associations with screening attitudes. The age group with higher know was 21-25 years and the faculties which are significantly associated are Life Sciences, Basic Medical Sciences, Medicine, Pharmacy, Dentistry, Veterinary Medicine. Gender, however was not significantly associated ($p = 0.057$).

Preferred Treatment Approach if Diagnosed with Glaucoma

Table 4.14: Preferred Treatment Approach if Diagnosed with Glaucoma

If you were diagnosed with glaucoma, how would you proceed with treatment?	Frequency	Valid Percent (%)
Medical Treatment	588	73.5
Surgery	104	13.0
Alternative Medicine	108	13.5

Table 4.14 highlights respondents' intended actions if diagnosed with glaucoma. Most students (73.5%) indicated they would go for medical treatment. 13.0% preferred surgery, while 13.5% said they would go for Alternative medicine.

Treatment Preference if Surgery Was the Only Option.

Table 4.15 Treatment Preference if Surgery is indicated as a treatment option.

If surgery is indicated as a treatment option, what would you do?	Frequency	Valid percent (%)
Go ahead with surgery	642	80.3
Delay the surgery	107	13.4
Would not go for the surgery	51	6.4

Table 4.15 reveals respondents' if surgery was indicated as a treatment option. The majority (80.3%) stated they would go for the surgery, 13.4% would delay the surgery, while 6.4% would not go for the surgery.

Table 4.16 Categorization of treatment attitude.

	Frequency	Percentage (%)
Poor treatment attitude (0)	51	6.4
Moderate treatment attitude (1.00)	107	13.4
Positive treatment attitude 2.00	642	80.2

Table 4.16 presents the distribution of respondents' treatment attitude levels. About 13.4% demonstrated fair or Moderate treatment attitude, 6.4% had poor treatment attitude, while 80.2% exhibited good or Positive treatment attitude.

Table 4.17 Association between treatment attitude and Demographics.

	Poor treatment attitude	Moderate treatment attitude	Positive treatment attitude	P- value	Sig.
Age				15.698 ^a	.015
16-20	32	42	211		
21-25	17	52	364		
26-30	2	12	64		
31 and above	0	1	3		
Gender				.475 ^a	.789
Male	31	55	348		
Female	20	52	294		
Faculty				55.631 ^a	.003
Management Sciences	4	9	37		
Physical Sciences	5	5	40		
Law	4	3	43		
Social Sciences	3	10	37		
Technical and Vocational Education	5	8	37		
Agriculture	4	6	40		
Education	4	8	38		
Medicine	3	3	44		
Pharmacy	2	9	39		
Engineering	3	8	39		
Veterinary Medicine	2	8	40		
Dentistry	2	7	41		
Environmental Sciences	3	5	42		
Arts	2	12	36		
Basic Medical Sciences	2	3	45		
Life Sciences	2	2	46		

Table 4.17 presents the association between demographic and treatment attitudes. Age ($p = 0.015$) and faculty of study ($p = 0.003$) showed significant associations with treatment attitudes. The age

range is 21-25 years while the faculties with higher knowledge are Life Sciences, Basic Medical Sciences, Law, Medicine, Environmental Sciences, Agriculture, Dentistry, and Engineering. Gender, however, was not significantly associated ($p = 0.789$).

CHAPTER FIVE

5.0 DISCUSSION

This study assessed the knowledge, attitude and perception of glaucoma among University of Benin students.

Table 4.4 shows the knowledge level of Glaucoma among students. 37.9% demonstrated fair knowledge, 35.4% had poor knowledge, and only 26.8% showed good knowledge. The mean knowledge score of 0.91 ± 0.784 reflects an overall fair understanding among the study population. This supports a study conducted among final-year health science university students in Ghana, Boadi-Kusi *et al.* (2015) reported that although all respondents were aware of glaucoma, only 37.7% demonstrated adequate knowledge of the condition. This shows that even among university students who are expected to have good knowledge about their health, misconceptions about glaucoma persist. Interestingly, the predominance of “fair” knowledge among respondents in this study shows some exposure to correct information, possibly through formal education or digital media, but insufficient knowledge depth.

Table 4.12 shows Attitude of students towards screening. Almost half of the respondents, 48.4% had never visited an ophthalmologist or optometrist, while only 12.0% had done so within the past year. Different glaucoma screening attitude has been found among university student populations in Ghana. Agyemang-Mensah *et al.* (2018) noted that 82.9% of students demonstrated good attitude toward eye health care screening” This contracting finding suggests that a considerable proportion of University of Benin students are not engaging in regular glaucoma screening. Although university students are expected to be health-conscious and

knowledgeable but preventive eye-care by eye screening remain poor among students of the university of benin.

Table 4.16 shows the attitude of students towards glaucoma treatment. A majority of the respondents 80.2% demonstrated a positive attitude, 13.4% showed a moderate attitude, while 6.4% exhibited a poor attitude toward glaucoma treatment. This result on treatment attitude support previous studies on treatment attitude. Mathiba *et al.* (2024), reported that 90% of glaucoma patients in Limpopo, South Africa, displayed a positive attitude toward the benefits of glaucoma medication, while only a small proportion 8% had negative attitudes and 2% were uncertain about its efficacy. A positive attitude among university of benin students shows a general willingness to seek medical help and adhere to treatment if diagnosed with glaucoma though there is still a notable minority who possess either indifferent or negative dispositions toward treatment.

Table 4.6 shows on the perception of Eye Diseases by severity. 26.1% identified glaucoma as the most severe eye disease, a greater proportion (63.0%) perceived cataract as more severe, and only a minority (10.9%) considered diabetic retinopathy as the most severe. In a similar study, Ichhpujani *et al.* (2012) reported that 76.9% of physicians and 60.0% of nurses in a North Indian tertiary hospital prioritized glaucoma treatment over cataract and diabetic retinopathy, reflecting a higher level of perception regarding glaucoma's irreversible vision loss and the importance of early intervention. This contrast finding suggests that medical knowledge and exposure significantly influence the perceived severity of glaucoma. While hospital personnel with clinical experience recognize glaucoma as a leading cause of irreversible blindness, university students particularly non-medical underestimated its severity.

Table 4.8 shows attitude of students towards glaucoma susceptibility that a large majority (81.8%) believed that family members of glaucoma patients should be more concerned about developing the disease, while (18.3%) did not share this view. The hereditary influence on glaucoma has been well established in several studies. For instance, O'Brien *et al.* (2018) found that individuals with a family history of glaucoma were 3.4 times more likely to develop primary open-angle glaucoma, with the highest risk observed among siblings and parents of affected persons. This reinforces the need for targeted family-based screening and education, particularly in populations with high glaucoma prevalence. This finding shows that most University of Benin students are aware that glaucoma can have a hereditary component and recognize that individuals with a family history of the condition face higher risk. However, the fact that nearly one-fifth of respondents did not express such concern shows that a substantial minority may underestimate their personal or familial susceptibility to glaucoma.

Table 4.10 shows perceived prevention of blindness and other diseases 69.0% of respondents ranked blindness prevention as the most urgent health priority, ahead of heart disease (11.5%), stroke or paralysis (11.1%), cancer (6.4%), and schizophrenia (2%). This supports a study done by (Nwosu, 2002), 94.6% of respondents would advise a blind or visually impaired relative to seek hospital treatment, while 93.3% indicated that kinsmen would contribute to treatment of the blind, and 58.7% believed the blind should be exempted from taxes or levies (Nwosu, 2002). This indicates a high perception of preventing blindness among University of Benin students and the general population as large. The strong prioritization of blindness prevention may reflect growing awareness of the impact of visual impairment on education, independence, and quality of life especially among students who rely heavily on vision for academic activities.

Table 4.5 shows that faculty of study was the only demographic factor significantly associated with knowledge of glaucoma ($p < 0.001$), while age ($p = 0.532$) and gender ($p = 0.415$) showed no significant association. This supports previous studies on socio-demographic variation in knowledge of glaucoma. A study on “Knowledge of glaucoma amongst undergraduate students of University of Calabar, Nigeria” (Ogba *et al.*, 2020) showed Statistically significant relationship between knowledge score and faculty of study of undergraduates. This shows that academic background played a major role in determining knowledge level of glaucoma among University of Benin students. Students from health-related faculties such as Life Sciences, Medicine, Dentistry, Basic Medical Sciences, Pharmacy, and Veterinary Medicine, shows higher levels of good knowledge compared to their counterparts in non-health faculties. This significant is attributed to differences in curriculum.

Table 4.13 and Table 4.17 examine the relationship between demographic variables and attitudes toward Glaucoma.

The result in Table 4.13 shows the association between demographic and attitudes toward glaucoma screening among university students. The results reveal that age ($p = 0.031$) and faculty of study ($p = 0.040$) were significantly associated with screening attitudes, while gender ($p = 0.057$) was not. This shows that Students from health-related faculties such as Basic Medical Sciences, Life Sciences, Medicine, and Dentistry showed more positive attitudes toward glaucoma screening and treatment adherence compared to their counterparts in non-health faculties. This may be due to increased exposure to health-related courses, public health awareness programs, and access to health information within their disciplines.

The result in Table 4.17 shows the attitude towards glaucoma treatment. Age was statistically significant. students within the 21–25year age range demonstrated more higher positive treatment attitudes, suggesting that young adults at this developmental stage may be more receptive to preventive and therapeutic eye-health messages.

Faculty of study was also statistically significant.as shown in Table 4.17 students in Life Sciences, Basic Medical Sciences, Law, Medicine, Environmental Sciences, Agriculture, Dentistry and Engineering displayed more positive attitudes compared with other faculties. This supports a Research by Boadi-Kusi *et al.* (2015) which reported that the majority of final-year health-science students in Ghana expressed willingness to seek care if diagnosed with glaucoma. These Findings indicate that students in science-based programs, particularly those in health-related faculties, exhibit greater willingness to undergo glaucoma treatment than their peers in non-science disciplines.

The was also significance in gender as shown in Table 4.17 which indicates that gender alone does not reliably influence treatment attitude once factors such as educational exposure and understanding of the disease are taken into consideration especially in an environment like university of benin.

Table 4.7, Table 4.9 and Table 4.11 shows the variations between demographic factors and perception of glaucoma

Result in Table 4.7 shows the Association between perceived severity of glaucoma and demographics. age did not statistical significance ($p = 0.094$). gender ($p = 0.044$) showed statistical significance. This supports a study by Idler *et al.* (1995) which shows that men

generally perceive their health more positively than women, despite similar objective health outcomes. This finding shows that male student of the university of benin more likely to view glaucoma as serious health concern than their female counterpart. Faculty of study also showed significant association ($p < 0.001$) which indicates that students' academic background influences how they perceive the seriousness of glaucoma. Faculties such as Medicine, Dentistry, Life Sciences, Basic Medical Sciences, Veterinary Medicine, and Pharmacy showed a higher perception of glaucoma severity, suggesting that exposure to health-related courses and clinical information enhances understanding of the disease.

Result in Table 4.9 shows the association between perceived susceptibility to Glaucoma and demographics, The study found that age was not significantly associated with perceived susceptibility to glaucoma This suggests that respondents across different age groups had relatively similar levels of perceived risk. This could be attributed to the narrow age range of the study population, which mostly consisted of young adults. Gender was found to be significantly associated with perceived susceptibility, with male students demonstrating higher levels of perceived susceptibility than their female counterparts. This result indicates that male respondents may be more aware of, or more willing to acknowledge, the potential risk of developing glaucoma. Statistically significant association was found between faculty of study and perceived susceptibility to glaucoma. Faculties such as Medicine, Dentistry, Basic Medical Sciences, Life Sciences, Physical Sciences, and Agriculture showed higher proportions of students who believed they were susceptible to glaucoma compared to non-science-based faculties. This supports a study by Alemu *et al.* (2017), who reported that individuals with higher educational levels or biomedical backgrounds exhibited greater knowledge and perceived risk of glaucoma. The result suggests that students' academic fields play a key role in determining their

level of exposure to health-related knowledge especially when it comes to susceptibility. Students in health and science disciplines likely have more access to information on ocular diseases, risk factors, and preventive practices through lectures, clinical postings, or laboratory experiences.

Table 4.11 shows the association of blindness prevention and other diseases and demographics. The analysis revealed that age ($p = 0.570$) and gender ($p = 0.278$) had no statistically significant association with perception, showing that these demographic factors did not play a decisive role in influencing students' beliefs about blindness prevention. However, a significant association ($p = 0.000$) was found between perception and faculty of study. This supports a study by Lokiria *et al.* (2023) which show that a majority of First-Year Medical Students at Makerere University College of Health Sciences Recognize conditions that can lead to blindness. This indicates that academic discipline or faculty strongly influences students' perceptions of blindness prevention.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 CONCLUSION

This study assessed the knowledge, attitude, and perception of glaucoma among students of the University of Benin. The findings revealed that although awareness of glaucoma was remarkably high, this awareness did not translate into adequate knowledge or preventive practice. Only a small proportion of students demonstrated good knowledge, exposing a significant gap between awareness and true understanding of the disease. Students from health and science-related faculties exhibited higher knowledge and perception levels than those from non-health faculties, indicating that academic exposure plays a key role in shaping health literacy. Most respondents recognized glaucoma as hereditary and acknowledged the importance of blindness prevention, yet many underrated its severity compared to cataract. Despite generally positive attitudes toward treatment, preventive actions such as regular eye screening were notably low. This pattern underscores a broader public health challenge where awareness alone does not guarantee behavioural change.

6.2 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed to enhance glaucoma awareness, knowledge, perception, and preventive behaviour among students of the University of Benin and other higher institutions in Nigeria.

1. Integrate Eye Health Education Across All Faculties:

The University should incorporate fundamental eye health topics into its General Studies (GST) or health awareness curriculum for all students. Teaching the causes, symptoms, risk factors, and prevention of glaucoma will help both health and non-health students develop essential health literacy and appreciation for vision care.

2. Establish Regular Campus Eye Screening Programs:

The University Health Centre, in collaboration with the Faculty of Optometry, should organize annual or biannual eye screenings that are free or subsidized. This will promote early detection and intervention, especially among students with a family history of glaucoma.

3. Leverage Digital Media for Health Promotion:

Since the internet is the main source of health information among students, social media and online platforms should be utilized to share credible glaucoma education materials such as infographics, short videos, and screening reminders. This approach ensures consistent and wide-reaching awareness.

4. Encourage Peer Education and Inter-Faculty Collaboration:

Health-related student associations should lead peer-to-peer health education across faculties. Trained students can serve as “eye health ambassadors,” delivering short awareness sessions and encouraging their peers to prioritize eye checkups.

5. Promote Family-Based Screening and Counseling:

Considering the hereditary nature of glaucoma, students should be encouraged to inform and motivate their families particularly first-degree relatives to undergo regular eye examinations. Eye care professionals should also emphasize family-oriented counseling.

6. Strengthen Partnerships with Health Organizations:

The University should collaborate with the Nigerian Optometric Association (NOA), the Ophthalmological Society of Nigeria (OSN), NGOs, and other stakeholders to support community outreach, public awareness campaigns, and mobilization of resources for glaucoma prevention.

7. Encourage Further Research:

Future studies should involve other Nigerian universities to compare findings across regions and explore factors influencing glaucoma knowledge and screening behaviour. Qualitative research should also identify barriers to regular screening and treatment adherence among young adults.

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APPENDIX

Questionnaire on Knowledge, Attitude and Perception Towards Glaucoma Among University of Benin Students

Dear Participant,

I'm a 600level Optometry Student of the University of Benin conducting a research on *'KNOWLEDGE, ATTITUDE AND PERCEPTION OF GLAUCOMA AMONG UNIVERSITY OF BENIN STUDENTS'*. Your responses will contribute to a better understanding of Glaucoma awareness and inform strategies for promoting eye health. Please answer the questions honestly and all responses will be kept confidential.

Thank you for your cooperation.

SECTION A: Demographic Information

1. Age: ☐ 16–20 years ☐ 21–25 years ☐ 26–30 years ☐ 31 years and above
2. Gender: ☐ Male ☐ Female
3. Faculty: _____

SECTION B: Awareness

5. Are you aware of the disease 'glaucoma'? ☐ Yes ☐ No
6. If yes, what is your source of information? (Select all that apply)
☐ Health shows ☐ Print media ☐ Internet ☐ Relative/Friend with glaucoma ☐
Ophthalmologist/Optometrlist ☐ Medical training

SECTION C: Knowledge

7. What is your understanding of 'glaucoma'?

☐ High pressure in the eye ☐ Damage to the nerve of the eye due to high pressure ☐
Damage to the retina ☐ Colored haloes and pain in the eye

8. Do you think damage due to glaucoma is reversible? ☐ Yes ☐ No

SECTION D: Perception

9. Arrange the following diseases according to severity (1 = most severe, 2= moderate severe 3 = least severe):

Cataract ____ Glaucoma ____ Diabetic Retinopathy ____

10. Do you think it is important for family members of glaucoma patients to be more concerned about getting the disease? ☐ Yes ☐ No

11. Where does blindness prevention come on your priority list compared to other diseases?

Total blindness ☐ Stroke or paralysis ☐ Cancer ☐ Schizophrenia ☐ Heart disease ☐

SECTION E: Attitude

12. When did you last visit an ophthalmologist or an optometrist?

☐ <1 year ☐ 2 years ☐ 3 years or more ☐ Never ☐ Do not remember

13. If you were diagnosed with glaucoma, how would you proceed with treatment?

☐ Medical Treatment ☐ Surgery ☐ Alternative Medicine

14. If surgery was indicated as a treatment option, what would you do?

☐ Go ahead with surgery ☐ Delay the surgery ☐ Would not go for the surgery



I'm a 600level Optometry Student of the University of Benin conducting a research on ***'KNOWLEDGE, ATTITUDE AND PERCEPTION OF GLAUCOMA AMONG UNIVERSITY OF BENIN STUDENTS'***. Your responses will contribute to a better understanding of Glaucoma awareness and inform strategies for promoting eye health.

PLEASE SCAN THE QR CODE ABOVE TO FILL MY QUESTIONNAIRE

QUESTIONNAIRE

Dear Participant,

I'm a 600level Optometry Student of the University of Benin conducting a research on ***'KNOWLEDGE, ATTITUDE AND PERCEPTION OF GLAUCOMA AMONG UNIVERSITY OF BENIN STUDENTS'***. Your responses will contribute to a better understanding of Glaucoma awareness and inform strategies for promoting eye health. Please answer the questions honestly and all responses will be kept

THANK FOR PARTICIPATING

akachukwufrank16@gmail.com
[Switch account](#)
 Not shared

*** Indicates required question**

Do you agree to participant in * this survey

☐ I agree
☐ I Do not agree

Next **Clear form**

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Age *

☐ 16-20
☐ 21-25
☐ 26-30
☐ 31 and Above

Gender *

☐ Male
☐ Female

Faculty *

☐ Agriculture
☐ Arts
☐ Basic Medical Sciences
☐ Dentistry
☐ Education
☐ Engineering
☐ Environmental Sciences
☐ Law
☐ Life Sciences
☐ Management Sciences
☐ Medicine
☐ Pharmacy
☐ Physical Sciences
☐ Social Sciences
☐ Technical and Vocational Education
☐ Veterinary Medicine

Are you aware of the disease 'glaucoma'? *

☐ Yes
☐ No

If yes, what is your source of information? (Select all that apply)

☐ Health shows
☐ Print media
☐ Internet
☐ Relative/Friend with glaucoma
☐ Ophthalmologist/Optomest
☐ Medical training

What is your understanding * of 'glaucoma'?

☐ High pressure in the eye
☐ Damage to the nerve of the eye due to high pressure
☐ Damage to the retina
☐ Colored haloes and pain in the eye

Do you think damage due to * glaucoma is reversible?

☐ Yes
☐ No

Arrange the following *