

**CHALLENGES IN EYE HEALTH CARE IN CHILDREN AND STRATEGIES TO
IMPROVE TREATMENT UPTAKE**

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**A PROJECT WORK SUBMITTED TO THE FACULTY OF OPTOMETRY,
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REQUIREMENTS FOR THE AWARD OF DOCTOR OF OPTOMETRY (O.D)
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CERTIFICATION

This is to certify that this research project titled: **CHALLENGES IN EYE HEALTH CARE IN CHILDREN AND STRATEGIES TO IMPROVE TREATMENT UPTAKE** was carried out by **UWAIFO OSAMAGBE JOEL** in the Faculty of Optometry University of Benin in partial fulfillment of the requirement for the **DOCTOR OF OPTOMETRY (OD)** degree in the 2024/2025 Academic Session.

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DEDICATION

This project work is dedicated to my wonderful grandparents, Mr. and Mrs. Asemota, who have been my unwavering backbone since the day I was born. Your love, guidance, and constant support have shaped me into the person I am today. I am forever grateful for your sacrifices and the strength you have instilled in me.

It is also dedicated to my beloved elder brother, Winner Asemota, who has gone to be with the Lord. Though you are no longer here with me, your memory lives on in my heart every single day. You remain a source of inspiration and love that time can never erase.

You will forever be in my heart.

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ABSTRACT

In Benin City, Nigeria, children continue to suffer from preventable visual impairments due to delayed diagnosis and limited access to specialized eye care. Contributing factors highlighted in prior studies include low caregiver awareness, financial constraints, and systemic weaknesses within the healthcare infrastructure. The purpose of this study was to explore the perspectives of eye care professionals on the major challenges affecting pediatric eye care delivery and to identify feasible strategies to improve treatment uptake among children in Benin City. A qualitative, exploratory design was used. Semi-structured interviews were conducted with 70 eyecare professionals including optometrists, ophthalmologists and ophthalmic nurses in Benin City. The data were analyzed thematically to identify major challenges, barriers, and practical recommendations related to pediatric eye care delivery and utilization. Several systemic and clinical challenges were identified, including poor child cooperation during examination, financial constraints, inadequate infrastructure and equipment, poor follow-up and compliance, and weak school eye health programs. Barriers preventing parents from seeking or adhering to care included lack of awareness, high costs, long clinic waiting times and stigmatization of spectacle. Some of the recommendations made by participants include increasing public awareness campaigns, strengthening school eye health programs and subsidizing pediatric eye care costs. The participants emphasized on enhancing access and treatment compliance through a robust comprehensive approach involving public awareness, policy support, workforce training, community outreaches and integrating pediatric eye care into primary health and school systems.

CHAPTER ONE

1.0 INTRODUCTION

Vision is fundamental to a child's cognitive, social, and emotional development. Unaddressed visual problems impair school readiness and performance, constrain social interaction, and may have lifelong effects on productivity and well-being. Globally, the burden is substantial: an estimated two million children are blind, with many more experiencing visual impairments from largely preventable or treatable causes (Yeh et al., 2024). These realities have placed childhood eye health squarely on the global health agenda, from Vision 2020 to the IAPB's "2030 in Sight" strategy and the Sustainable Development Goals, which call for equitable access to essential eye care across the life course.

Vision provides up to 80% of the sensory input required for learning, and its adequacy is closely linked to early literacy, classroom engagement, and long-term academic success. Children with normal vision are more likely to perform well academically, participate in classroom activities, and achieve their developmental milestones compared to those with uncorrected or untreated visual impairment. By contrast, poor vision during childhood can severely compromise learning potential, leading to reduced concentration, poor academic performance, lower self-esteem, and eventual social exclusion. The impact of poor vision extends beyond academics to affect psychosocial wellbeing, as children with untreated visual impairment are at risk of stigmatization, isolation, and reduced opportunities in later life.

The relationship between vision and education is particularly critical in contexts where academic success directly influences future socioeconomic opportunities. In many developing countries, where educational systems are already strained, children with visual impairment face compounded disadvantages due to limited remedial resources and inadequate specialized support. In Nigeria, for instance, studies have shown that the burden of uncorrected refractive

error and other avoidable causes of visual impairment among school children is high, yet integration of primary eye care into educational and health systems remains weak (Aghaji et al., 2022). The long-term implications of these gaps are profound, as undetected vision problems in childhood can result in lifelong visual disability, perpetuating cycles of poverty and ill-health.

Childhood eye disorders can be broadly categorized into congenital and acquired conditions. Congenital eye problems such as cataract, glaucoma, retinopathy of prematurity (ROP), and congenital anomalies of the globe and adnexa are particularly significant because they interfere with visual development at critical stages. Many of these conditions, if identified early, have a good prognosis following timely medical or surgical intervention. For instance, early surgical treatment of congenital cataract or glaucoma can restore or preserve useful vision and prevent amblyopia, whereas delays can lead to irreversible visual loss. Similarly, the timely screening and treatment of ROP in premature infants is essential to prevent blindness, especially in developing countries where neonatal survival rates have improved without parallel expansion of universal ROP screening (Aghaji et al., 2022).

Acquired childhood eye problems are equally significant in terms of their potential impact on education and quality of life. Refractive error, the most common cause of visual impairment in children, is easily correctable with spectacles, yet it remains underdiagnosed and undertreated in many regions. Studies in Saudi Arabia and India demonstrate that, despite relatively high knowledge among pediatricians and school-based screening programs, systemic gaps in referral and follow-up care hinder effective intervention (Narayanan et al., 2021; Alzuhairy et al., 2024). Amblyopia, another acquired condition, can often be managed successfully if detected during early childhood, but late diagnosis significantly reduces treatment efficacy. Corneal blindness due to infectious keratitis or vitamin A deficiency,

although reduced through immunization and nutritional programs, remains a challenge in some parts of Sub-Saharan Africa where preventive measures are inconsistently implemented.

The burden of untreated congenital and acquired childhood eye conditions extends well into adulthood. Children who miss early detection opportunities often carry the sequelae of avoidable visual impairment into later life, resulting in reduced educational attainment, decreased employability, and increased dependence on family or social support systems. This creates a dual burden for both the individual and society, with long-term economic implications for healthcare systems already struggling with resource limitations. As Christian (2025) highlights, workforce shortages and insufficient pediatric ophthalmology capacity in Nigeria further compound these challenges, creating a backlog of preventable cases that could have been managed effectively if addressed earlier. Similarly, the feasibility study by Aghaji et al. (2022) underscores the inadequacy of primary health care facilities in Nigeria to deliver eye health promotion, suggesting that many children remain undiagnosed at critical stages when treatment would be most beneficial.

Good vision in childhood is not only essential for immediate educational success but also foundational for lifelong health and productivity. The consequences of poor vision during this period are profound, ranging from diminished academic outcomes to lifelong disability. Congenital and acquired childhood eye conditions, if not detected and managed early, create long-term burdens on both individuals and health systems. Addressing these challenges requires integrated strategies that prioritize early detection through school-based vision screening, newborn assessments, and strengthened primary eye care, coupled with effective referral and follow-up systems.

In low and middle-income countries (LMICs), and specifically in Nigeria, pediatric eye health services remain insufficiently integrated and under-resourced relative to need. Earlier

studies from Nigeria have long flagged gaps in pediatric eye care accessibility and quality (Muhit et al., 2011; Abdull et al., 2013), and documented late presentation stemming from poor awareness, sociocultural beliefs, and the absence of routine school or community screening (Ebeigbe and Emedike, 2017). More recent evidence corroborates that avoidable causes continue to dominate. A large review across African settings identifies uncorrected refractive error, amblyopia, pediatric cataract, and corneal opacities as leading causes among conditions that are preventable or reversible with timely diagnosis and appropriate management (Alrasheed et al., 2024). In Nigerian cohorts, population-based estimates similarly show a persistent burden: recent school-age data report visual impairment (mild–severe) in approximately 7% combined, with blindness at 0.2%, driven by ametropia, cataract, corneal scars, and optic atrophy (Eze et al., 2024).

Barriers to timely pediatric eye care in Nigeria reflect the interconnected “AAAQ” dimensions of health services: availability, accessibility, affordability, and quality and are further compounded by acceptability and awareness challenges.

Awareness and Acceptability: Knowledge gaps among caregivers about early vision screening and the signs of ocular disease delay care-seeking; cultural interpretations of eye conditions may further deter biomedical care (Ebeigbe and Emedike, 2017). Across African contexts, inappropriate parental perceptions and incorrect health beliefs are repeatedly associated with poor uptake of services (Alrasheed et al., 2024).

Accessibility and Affordability: Direct costs (examinations, spectacles, surgery) and indirect costs (transport, time off work, referral travel) pose major obstacles, particularly for rural and peri-urban families. Affordability deficits are among the most commonly reported barriers to pediatric eye care across the region (Alrasheed et al., 2024).

Availability and Quality: Shortages of pediatric-trained personnel, limited pediatric-friendly diagnostic equipment, and fragmented referral pathways constrain service delivery. School health systems often lack standardized eye health components; for example, a recent assessment in a Ghanaian municipality found no comprehensive school eye health program, with irregular or ad hoc visual acuity screening the norm; an observation that mirrors experience in many West African settings (Adzaho et al., 2024). Weak primary care integration for eye health, inconsistent supply chains for spectacles and pediatric medications, and urban–rural inequities in facility distribution further depress effective coverage. Providers also cite quality concerns and variable adherence to pediatric protocols as impediments to consistent outcomes (Alrasheed et al., 2024).

These barriers are consequential because the therapeutic window for preventing amblyopia is time-sensitive; late detection of refractive errors, congenital cataract, or strabismus compromises visual development and educational attainment. From a public health perspective, the contrast between the high proportion of avoidable causes and the relatively modest resource requirements for effective interventions (screening, timely referral, affordable spectacles, and accessible surgical care) further highlights this preventable burden.

In Nigeria, improving children’s eye care uptake requires tackling demand- and supply-side barriers. Key strategies include integrating vision screening into schools and child health platforms, reducing financial barriers through subsidies and insurance, strengthening workforce and clinic capacity, and promoting adherence with caregiver-focused counseling and follow-up systems. Insights from eyecare professionals are vital for identifying practical barriers and providing sustainable solutions. As front-line clinicians and program implementers, they observe where referrals break down, which counseling approaches resonate with parents, how procurement or staffing shortfalls delay care, and what incentives improve adherence. Documenting their insights will help clarify the relative weight of

barriers (awareness versus cost versus logistics), identify context-appropriate solutions, and prioritize interventions with the highest likelihood of improving effective coverage.

1.1 BACKGROUND INFORMATION

Childhood eye disorders represent a significant public health concern, as uncorrected refractive error, amblyopia, congenital cataract, and other avoidable causes of visual impairment can severely affect learning, psychosocial development, and long-term productivity. Despite the availability of cost-effective interventions such as vision screening, affordable spectacles, and timely surgical care, treatment uptake among children remains suboptimal in many low- and middle-income settings, including Nigeria.

Barriers to effective eye health care in children are multifaceted. On the demand side, limited awareness, financial constraints, sociocultural beliefs, and poor adherence to spectacle wear or follow-up care often reduce uptake. On the supply side, inadequate integration of eye health into child health services, shortages of trained personnel, weak referral pathways, and limited child-friendly facilities constrain access to quality care.

Addressing these challenges requires context-specific strategies that strengthen both the health system and community engagement. Integrating screening into schools and child health platforms, subsidizing care, building workforce capacity, and adopting culturally sensitive communication approaches are practical avenues for improvement. Documenting the perspectives of eye care professionals, who directly observe barriers and facilitators in service delivery, can provide valuable insights for designing interventions with the greatest potential to improve effective coverage and reduce the preventable burden of childhood visual impairment.

1.2 STATEMENT OF PROBLEM

In Benin, a city that adequately reflects the wider Nigerian urban health systems, eye care remains largely adult-oriented. Pediatric services are underprioritized, resulting in late detection and suboptimal management of treatable conditions (refractive error, strabismus, amblyopia, congenital cataract) (Faderin and Ajaiyeoba, 2001). The public health stakes are high: a recent systematic review of Nigerian children estimates blindness at 0.2%, with visual impairment driven by avoidable causes, notably cataract, corneal scarring, and uncorrected ametropia (Eze et al., 2024). Missed opportunities for early intervention persist because caregivers often lack awareness and because school and primary-care platforms do not consistently screen or refer. Qualitative work in Cross River State documents several modifiable drivers of nonadherence to referrals including parental disbelief in test results, poverty, transport and scheduling barriers, and confusing referral documentation; pointing to systemic, not individual, failures (Lohfeld et al., 2021). Facility reports from Southwestern Nigeria likewise show a high caseload of preventable pediatric ocular morbidity and call for better planning and dedicated resources (Isawumi and Ubah, 2021).

Eyecare professionals in Benin City confront predictable bottlenecks: limited child-appropriate equipment, thin pediatric expertise, weak referral and follow-up systems, and inadequate public financing (Abdull et al., 2013; Kyari et al., 2007). Yet, their practice-based insights remain underdocumented. This study therefore seeks to capture practitioners' perspectives to inform feasible, context-specific strategies that can raise treatment uptake through strengthened school-based screening, clearer referral pathways, caregiver-centered counseling, and affordability measures; so that preventable childhood visual loss is averted.

1.3 AIMS AND OBJECTIVES

1.3.1 AIM

The aim of this study is to determine the challenges of pediatric eye health care and strategies to improve treatment uptake

1.3.2 OBJECTIVES

1. To explore the challenges faced by eyecare professionals in delivering eye care services to children.
2. To understand the barriers preventing parents from seeking or adhering to pediatric eye care for the children.
3. To gather recommendations from professionals on how pediatric eye health services and treatment uptake can be improved in Benin City.

1.4 RESEARCH QUESTIONS

1. What are the major systemic and clinical challenges affecting the provision of pediatric eye care in Benin City?
2. What barriers do eyecare professionals identify that hinder children from receiving timely eye care?
3. What feasible solutions do eyecare professionals propose to enhance pediatric eye health care and increase treatment uptake?

1.5 SIGNIFICANCE OF STUDY

1. This study gathers first-hand perspectives from eye care professionals on what helps or hinders children from receiving treatment in Benin City. It fills a gap in existing evidence and points to solutions suited to the local context.

2. The findings provide practical evidence to support global and national priorities, such as school-based vision screening, better referral systems, and financial support for children's spectacles and surgery, within Edo State's health and education systems.
3. The study highlights practical, low-cost steps that can improve service coverage and adherence.
4. By focusing on underserved children, especially those from low-income and peri-urban areas, the study aims to reduce preventable vision problems, improve school performance, and enhance long-term productivity.

1.6 DEFINITION OF TERMS

1.6.1 EYE HEALTH CARE

Eye health care refers to all activities and services aimed at preventing, detecting, treating, and managing eye conditions. It includes routine eye examinations, vision screening, provision of corrective lenses, medical or surgical treatment of eye diseases, and rehabilitation for those with visual impairment. In the context of children, eye health care emphasizes early detection and timely intervention, since untreated eye problems can significantly affect learning, development, and quality of life.

1.6.2 CHILDREN

For this study, "children" refers to individuals from birth up to 18 years of age. This age group is particularly important for eye health because many visual conditions first appear during childhood and, if left untreated, can result in long-term impairment. Defining children within this age range ensures that the study captures both early childhood and school-age populations, where screening and treatment uptake are most critical.

1.6.3 CHALLENGES

Challenges are the barriers, difficulties, or limitations that prevent effective delivery and use of eye health services for children. These may include inadequate awareness among parents or teachers, shortage of trained eye health professionals, limited access to affordable services, cultural misconceptions about eye care, and weak referral or follow-up systems. Understanding these challenges helps identify why treatment uptake remains low despite the availability of proven interventions.

1.6.4 TREATMENT UPTAKE

Treatment uptake refers to the proportion of children who, after being identified as having an eye health need, actually receive the recommended care and continue to use it as prescribed. This may involve collecting spectacles and wearing them consistently, attending follow-up appointments, or undergoing surgery when indicated. Low treatment uptake means that many children remain visually impaired even when effective solutions exist.

1.6.5 STRATEGIES

Strategies are the specific approaches or interventions designed to overcome challenges and improve treatment uptake among children. These may include integrating vision screening into schools, training teachers and primary health workers, providing affordable or subsidized spectacles, offering culturally appropriate counseling for caregivers, and setting up reminder or follow-up systems. Strategies are considered successful when they are practical, cost-effective, and sustainable within the local health and education systems.

CHAPTER TWO

2.0 REVIEW OF RELATED LITERATURE

2.1 GLOBAL AND REGIONAL BURDEN OF CHILDHOOD VISUAL IMPAIRMENT

Childhood Visual Impairment (CVI) remains a significant public health concern, affecting learning, psychosocial development, and long-term productivity. Globally, Yekta et al. (2022) estimated prevalence at 7.26%, with Africa carrying the highest burden of childhood blindness. Preventable conditions such as cataracts, corneal scarring, and refractive errors remain the major causes, underscoring persistent inequities in access to basic ophthalmic care.

Globally, the majority of childhood visual impairment is preventable or treatable through existing interventions such as immunization, nutritional supplementation, routine newborn and school vision screening, timely provision of spectacles, pediatric cataract surgery, and retinopathy of prematurity (ROP) screening. The World Health Organization and global vision reports indicate that uncorrected refractive error and amblyopia remain the most common causes of moderate visual impairment, while congenital cataract, ROP, and corneal scarring contribute substantially to severe impairment and blindness (Aghaji et al., 2022). Infectious and nutritional causes, such as measles keratitis and vitamin A deficiency, have declined in many parts of the world due to successful public health programs. In contrast, the prevalence of myopia has increased dramatically in East and Southeast Asia, and ROP has emerged as a leading cause of childhood blindness in middle-income countries where neonatal survival has improved without universal screening coverage (Mejia-Salgado et al., 2024).

Recent studies illustrate both systemic and context-specific challenges. In Nigeria, a mixed-methods feasibility study revealed that primary health care facilities are poorly equipped to promote eye health. Many facilities lacked the capacity to deliver the WHO

AFRO primary eye care package. In these facilities, health-promotion activities were sporadic, inadequately supervised, and often hindered by transport limitations (Aghaji et al., 2022). This gap in primary care integration has direct implications for childhood eye health, as caregivers may remain unaware of asymptomatic conditions, leading to delayed treatment uptake.

Similar barriers appear in other regions. In Saudi Arabia, Alzuhairy et al. (2024), found that while pediatricians demonstrated high knowledge about common childhood eye conditions, their attitudes and practices were not consistently aligned with best practice. Only a minority reported excellent practice, and the strongest predictors of good practice were working in hospitals with ophthalmology departments and having received eye-care training. This highlights the role of non-specialist clinicians in bridging the gap between detection and referral.

Evidence from India further underscores the uneven distribution of burden and service capacity. A school-based screening study involving 3,655 children in a tribal cluster in Tamil Nadu revealed a relatively low prevalence of vision impairment (0.62%) and refractive error (0.30%) compared with urban estimates. However, a higher proportion of children presented with ocular conditions requiring specialty or surgical care (Anuradha et al., 2021). These findings suggest the existence of barriers to accessing tertiary services for more complex conditions, thereby increasing the risk of lifelong impairment.

The global distribution of CVI demonstrates marked regional contrasts. In Sub-Saharan Africa, corneal blindness remains a concern in areas with poor immunization and nutrition coverage, though uncorrected refractive error and congenital cataract are now more prominent. Weak integration of eye health into primary health care and limited pediatric surgical capacity continue to restrict early intervention (Niyisabwa and Musenyente, 2021).

In South Asia, school-based screening programs detect refractive error effectively, but referral completion and follow-up care are inconsistent, especially in rural or tribal settings (Anuradha et al., 2021). In the Middle East, clinician knowledge does not always translate into practice, reflecting systemic barriers such as lack of standardized screening programs (Alzuhairy et al., 2024). Meanwhile, in East and Southeast Asia, the unprecedented surge in childhood myopia is driving interest in preventive and myopia-control strategies, while in high-income countries, strong screening systems and low prevalence of severe impairment are offset by persistent inequities in disadvantaged groups (Wilson et al., 2021).

In West Africa, cataracts and corneal diseases remain leading causes, while systemic illnesses such as measles, rubella, vitamin A deficiency, and sequelae of infectious outbreaks like Ebola contribute to ocular morbidity (Adepoju et al., 2024). The Nigerian experience mirrors these challenges. A review of studies between 2003–2022 found prevalence rates of 3.9% for mild visual impairment, 2.7% for moderate visual impairment, 0.3% for severe visual impairment, and 0.2% for blindness, with cataracts, refractive errors, corneal opacity, and optic atrophy being predominant (Abdull et al., 2024).

Community-level studies reveal how widespread but underdiagnosed childhood eye conditions are. In Cross River State, Southern Nigeria, 32.1% of schoolchildren were found to have eye disorders, chiefly conjunctivitis (18.8%) and refractive errors (11.5%), yet nearly 90% had never received an eye exam (Ekpenyong et al., 2017). Similar results have been reported in Zaria, where ocular morbidity among schoolchildren included refractive error, allergic and infectious conjunctivitis, corneal pathology, lid disorders, and trauma, reflecting both preventable and emergent causes (Ames et al., 2011).

Allergic conjunctivitis (AC), though often underreported in prevalence surveys, has emerged as a hidden contributor to child eye morbidity. In Ghana's Kumasi metropolis, Kumah et al.

(2015) found a 40% prevalence of AC among schoolchildren, most of whom had never been treated. Left unaddressed, symptoms such as itching, tearing, and photophobia negatively affect classroom performance and even reduce compliance with spectacle use.

Globally, comparative analyses suggest that avoidable causes of childhood blindness remain disproportionately high in low- and middle-income countries (Koay et al., 2014). While high-income countries face conditions like retinopathy of prematurity (ROP), African contexts continue to grapple with preventable corneal blindness and cataracts. This contrast reinforces the urgent need for locally tailored interventions in Nigeria, where the burden aligns more closely with that of other low-income settings.

Studies have consistently shown that refractive error remains the principal cause of visual impairment among Nigerian children. In a large school-based survey in southeastern Nigeria, Maduka-Okafor et al. (2021) reported that uncorrected refractive error was the leading cause of impaired vision, with myopia more common among females and urban school children. Similarly, Eze et al. (2023), in a systematic review of 17 studies across 13 states, found that refractive error, cataract, and glaucoma accounted for most cases of visual impairment, with blindness prevalence estimated at 0.2%. These findings align with clinical reviews, such as Isawumi and Ubah (2021), who identified conjunctivitis, refractive error, and corneal disease as the most common eye disorders among children presenting to tertiary hospitals.

Beyond refractive errors, ocular trauma represents a significant contributor to childhood visual impairment. Ugalahi et al. (2023), in a retrospective review of emergency eye presentations in Ibadan, found that the majority of childhood injuries occurred at home, with younger children more likely to sustain severe injuries from sharp objects. Closed globe injuries were most common, but open globe injuries carried the greatest risk of long-term visual disability.

2.2 KEY CHALLENGES IN EYE-CARE ACCESS FOR CHILDREN

In regions outside Nigeria, several key challenges have been consistently reported. Across many African countries, children face significant obstacles linked to the availability, accessibility, and affordability of services. Alrasheed (2021) highlighted that non-availability of pediatric eye services, compounded by geographic and socioeconomic barriers, remains a major obstacle in sub-Saharan Africa. Parental misconceptions, lack of awareness, and limited integration of eye health into primary care further exacerbate the problem, restricting children's access to timely and effective interventions. In Saudi Arabia, Alsaqr (2023) found that more than half of surveyed parents had not taken their children for vision screening, largely due to limited knowledge of existing programs, poor understanding of care pathways, and concerns over cost. These findings point to the crucial role of parental awareness and systemic support in shaping health-seeking behavior.

In high-income settings, challenges manifest differently but remain significant. In the United States, uncorrected refractive error continues to disproportionately affect children from minority and low-income groups, with systemic disparities limiting access to both screenings and follow-up care (Ambrosino and Collins, 2024; Antonio-Aguirre, 2023). While school-based vision programs have proven effective in expanding access, integration with healthcare systems and follow-up adherence remains incomplete. In England, Wilson et al. (2023) reported that community optometrists identified time, cost, insufficient training, and parental awareness as persistent barriers to examining young children, highlighting that systemic pressures and lack of pediatric-specific training reduce the quality and availability of services. Conflict settings add another layer of complexity; Masrur et al. (2025) documented how

degraded infrastructure, limited personnel, and unsafe evacuation corridors in Gaza severely compromise pediatric ophthalmic care, leaving children at risk of permanent vision loss. Meanwhile, the exploration of digital applications for home-based vision screening in young children faces limitations due to children's low concentration and inability to use traditional screening formats, suggesting that innovative playful or game-based solutions may help but remain underdeveloped (Asgar et al., 2021).

Certain populations face unique vulnerabilities. Children with special needs are particularly disadvantaged in accessing eye care. Ekenze et al. (2022) reported that more than 40% of children with special needs in Imo State, Nigeria, had never utilized eye care services, largely due to parental misconceptions, poverty, stigma, and inaccessible facilities. Similarly, Uwagboe et al. (2025) found that in Nigeria, optometrists face systemic and financial barriers to implementing advanced myopia control strategies, which further limits children's access to newer interventions. Collectively, these findings underscore that barriers to pediatric eye care exist across diverse contexts, ranging from systemic resource gaps in low-income countries to structural inequities and training shortfalls in high-income countries.

Nigeria exemplifies the intersection of these broader challenges with context-specific barriers. Several studies highlight systemic weaknesses in integrating pediatric eye care into the health system. Aghaji et al. (2021) demonstrated that most primary health care facilities in Nigeria lack policies, equipment, and trained personnel to implement the World Health Organization's primary eye care package, with critical shortages of staff and weak supervision undermining service delivery. Parents' perspectives also shed light on persistent obstacles. Lohfeld et al. (2021), through focus group discussions, revealed that misconceptions, poor communication of referral pathways, and contextual socioeconomic challenges were leading causes of non-adherence to follow-up care after failed school screenings. Similarly, Osayiwu et al. (2025) found that while some parents had taken children

for eye examinations, cost and time remained prohibitive for many, with only about one-third of parents reporting prior eye-care utilization for their children.

The role of parental awareness and education emerges as central in Nigeria. Misconceptions about eye conditions, combined with low levels of health literacy, prevent timely uptake of care. In communities with children with special needs, barriers such as stigma and inaccessible facilities further limit access (Ekenze et al., 2022). At the same time, systemic challenges affect service delivery. Uwagboe et al. (2025) highlighted that optometrists face medico-legal concerns, lack of financial incentives, and absence of appropriate equipment, limiting their ability to provide advanced myopia control strategies. Despite these challenges, innovative interventions show promise. The Noor Dubai Foundation's school-based program in Katsina State significantly improved not only visual outcomes but also educational performance among beneficiaries, demonstrating the impact of treatment-oriented interventions (Yusuf et al., 2024).

2.3 STRATEGIC INTERVENTIONS

Globally, innovative approaches have emerged to improve early detection and management of pediatric eye conditions. Digital health and teleophthalmology interventions have expanded the reach of screening and diagnosis. Dolar-Szczasny et al. (2023) demonstrated the feasibility of incorporating digital vision screening tools for children, which hold potential for bridging gaps in access, particularly in underserved communities. Similarly, Tan et al. (2023) emphasized the potential of artificial intelligence-assisted teleophthalmology in identifying pediatric eye disorders, particularly in resource-constrained environments. These interventions not only improve detection rates but also reduce delays in referrals and specialist consultations.

School-based vision programs have proven particularly effective in low- and middle-income countries (LMICs). Anokye et al. (2025) reported on community-led school screening programs that identified refractive errors and facilitated spectacle provision, thereby directly improving children's learning outcomes. Yang et al. (2022) corroborated the effectiveness of school-based strategies in expanding coverage, noting that teacher involvement in preliminary screenings significantly improved uptake of services. Such interventions emphasize the importance of embedding eye care into educational settings where children are readily accessible.

Efforts to address the growing burden of myopia have also gained prominence. Lawrenson et al. (2023) underscored the role of evidence-based interventions such as low-dose atropine, orthokeratology, and lifestyle modifications to slow myopia progression. Yang et al. (2022) further emphasized the necessity of implementing school and community level interventions that promote outdoor activity and regular screening. These approaches illustrate how preventive strategies can be scaled to address emerging public health challenges in pediatric eye care.

Beyond clinical and school-based models, the linkage of eye health to broader developmental frameworks has been recognized. Zhang et al. (2022) examined how integrating childhood eye health into the United Nations Sustainable Development Goals (SDGs) enhances advocacy and resource mobilization. By situating eye health within the context of education, poverty alleviation, and health equity, strategic interventions are more likely to gain political and financial support. In Africa, integration of primary eye care into health systems has also been recommended.

Promising models from Asia and Africa demonstrate that integrated, school-based approaches can effectively improve uptake of pediatric eye care. In Nepal, Singh et al. (2017), described

a holistic school eye health model combining teacher training, classroom-based screening, on-site dispensing, and low-vision support. This model not only shortened the pathway from detection to spectacle wear but also normalized spectacle use by engaging parents and peers.

Pakistan's integrated SEHP, developed in collaboration with national ministries, illustrates the benefits of multi-stakeholder alignment. By standardizing screening protocols, contracting local optical providers, and embedding hygiene education, the programme achieved higher referral completion and treatment uptake (Yasmin et al., 2019). Sri Lanka offers another instructive example, where routine school medical inspections incorporate eye care as part of primary health services, ensuring institutionalized follow-up (Abeydeera, 2017).

Beyond structural models, behavioural interventions are equally important. A Turkish study demonstrated that school-based eye health promotion significantly improved protective behaviours (e.g., avoiding eye rubbing, maintaining hygiene), which are critical for managing conditions such as allergic conjunctivitis (Kirag and Temel, 2018).

The global eye health community has also developed practical guidelines to standardize school-based services. Akpali et al. (2025) demonstrated the value of community-based programs that combine awareness, screening, and referral mechanisms to improve early detection and treatment uptake in Ghana, a model adaptable across the region. Gilbert et al., (2018) proposed standard school eye health guidelines tailored for low and middle-income countries, covering teacher training, screening protocols, and referral pathways. These complement broader IAPB (2022) recommendations, which emphasize embedding child eye health into universal health coverage agendas and strengthening human resources.

In Nigeria, several targeted interventions have been piloted and studied. Aghaji (2022) highlighted the systemic challenges and opportunities for implementing the World Health Organization's primary eye care package, noting the critical need for human resource

strengthening and governance support. Aghaji et al. (2024) emphasized that health promotion capacity at the primary level is pivotal for sustainable pediatric eye care, as it ensures that parents and caregivers are adequately informed about early detection and treatment options.

Community-driven strategies also represent important innovations in Nigeria. Basharat and Azmat (2024) reported on community ophthalmology interventions that relied on grassroots mobilization, health education, and referrals to enhance access. Similarly, Mustafa and Huma (2024) underscored the importance of building local capacity for sustained community participation. Policy-level interventions are also being explored. Olamola (2023) advocated for aligning childhood eye health initiatives with Nigeria's commitments to the SDGs, stressing that such alignment can help secure political and donor support while ensuring equity in access.

Workforce development has been repeatedly identified as a prerequisite for success. Christian (2021) emphasized that without targeted investments in optometry and ophthalmology training, many of the proposed interventions would not achieve scale. Complementary innovations have also been developed. Olusanya (2021) introduced a pediatric eye screening checklist for primary health care workers, which improved case detection and referrals. Similarly, Aniemeka et al. (2023) demonstrated the effectiveness of training teachers to conduct vision screenings in schools, which significantly increased early detection rates. Patient-centered innovations have extended even to the hospital environment, with Ikechukwu (2023) highlighting how landscaping and child-friendly designs in eye hospitals can reduce anxiety and improve adherence to follow-up visits.

Finally, clinical lessons from Nigeria underscore the importance of closing service delivery gaps. Facility audits suggest that early detection of trauma, prompt treatment of infectious and allergic conjunctivitis, and ready availability of affordable spectacles could substantially

reduce childhood morbidity (Aniemeka et al., 2023). Together, these findings argue for a multi-layered strategy in Benin City: strengthening school programmes, ensuring supply chains for spectacles, embedding hygiene and health education into curricula, and aligning with national immunization and nutrition initiatives.

CHAPTER THREE

3.0 MATERIALS AND METHOD

3.1 STUDY DESIGN

This study is a qualitative cross-sectional design.

3.2 STUDY LOCATION

The study was conducted in Benin City, Edo State, Nigeria.

3.3 STUDY POPULATION

Eye care professionals including optometrists, ophthalmologists, and ophthalmic nurses working in selected government and private facilities in Benin City.

3.4 SAMPLING TECHNIQUE

Purposive sampling was used.

3.5 RESEARCH MATERIAL

1. Survey Instrument:

Structured open-ended questionnaire developed by the researcher, designed to capture eye care professionals' views on challenges and strategies in pediatric eye care.

2. Consent Forms:

Written informed consent forms explaining the study purpose, confidentiality, and voluntary participation.

3. Information Sheets:

Brief documents given to participants detailing their rights and the aims of the study.

4. Data Recording Tools:

Printed copies of surveys for in-person distribution.

Electronic versions (in form of .DOCX files) used for online distribution via email and WhatsApp.

5. Computing Devices:

Laptop computer used for data entry, storage, and management.

6. Data Management Software:

Microsoft Excel software was used for organizing and analyzing qualitative data thematically.

7. Stationery:

Pens, folders, paper for survey administration and note-taking.

8. Ethical Approval Documents:

Clearance letter from the Optometry Research Ethics Committee granting permission to carry out the study.

3.5.1 INCLUSION CRITERIA

1. Professional eye care providers (Optometrists, Ophthalmologists and Ophthalmic nurses) who possess at least two years clinical experience with patients under the age of 18.
2. Professionals who are actively involved in diagnosing or managing pediatric eye conditions.
3. Professionals who consented to participate in the study.

3.5.2 EXCLUSION CRITERIA

Individuals who do not meet all of the inclusion criteria

3.6 DESCRIPTION OF PROCEDURE

Secured approval from the Institutional Ethics Committee covering aims, instruments, risks/benefits, confidentiality, and data handling.

Prepared participant information sheets and consent forms

Conducted pre-testing of the survey with five optometrists/ophthalmic personnel to assess clarity, relevance, length, and flow.

Recorded feedback on ambiguous items and missing response options.

Deployed the finalized questionnaire (paper and/or secure online form) to the target respondents using purposive sampling

Data collected within a period of 8 weeks

Export raw data to Microsoft Excel LTSC software

Input collected data into Statistical Package for the Social Sciences (SPSS), Version 22.0 (IBM Corp., Armonk, New York, USA) for data analysis.

3.7 DATA ANALYSIS

1. Data collected was entered into Microsoft Excel LTSC spreadsheet.
2. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS), Version 22.0 (IBM Corp., Armonk, New York, USA).
3. Data will be analyzed using thematic analysis

3.8 ETHICAL CONSIDERATION

1. Ethical approval to conduct this study was obtained from the Research and Ethics Committee of the Department of Optometry, University of Benin.
2. Consent was obtained from all participants of the study before participation.
3. All participants were given comprehensive information regarding the study and told of their rights to withdraw at any time.
4. To maintain anonymity, personal identifying information such as name, was not collected.
5. Data was used strictly for the purpose of this study.
6. The study adhered to the other tenets of the Helsinki Declaration.

3.9 LIMITATION TO STUDY

1. **Study Design:** The cross-sectional design captures information at only one point in time, without considering changes in pediatric eye care practices or policies over time.
2. **Stakeholder Exclusion:** The study focused exclusively on the perspectives of professional eye care providers, without including parents, teachers, community leaders, or policymakers, who also influence treatment uptake.
3. **Resource Constraints:** Limited resources restricted the use of broader data collection methods (e.g., in-depth interviews, focus groups, or observational studies) that could have enriched the findings.

CHAPTER FOUR

4.0 RESULTS AND DATA ANALYSIS

4.1 DEMOGRAPHICS AND GENERAL CHARACTERISTICS OF STUDY PARTICIPANTS

Participants recruited for this study, comprises professional eye care practitioners including Optometrists, Ophthalmologists and Ophthalmic Nurses who possess at least two years of clinical experience and are actively involved in diagnosing and management of pediatric eye anomalies. A total of 82 survey questionnaire was retrieved, from which 12 was excluded for failing to meet all of the stated inclusion criteria.

Table 4.1 Demography and general characteristics of study participants

Characteristics	Frequency (N)	Percentage (%)
Gender		
Male	27	39
Female	43	64
Type of Professionals		
Optometrists	43	61
Ophthalmologists	7	10
Ophthalmic Nurses	20	29
Type of Facility		
Private	46	66
Government	16	23
Non-Governmental Organizations	8	11
Clinical Experience (Years)		
2-5	10	14
6-10	17	24
11-15	18	26
16-20	13	19
21-25	7	10
26-30	5	7

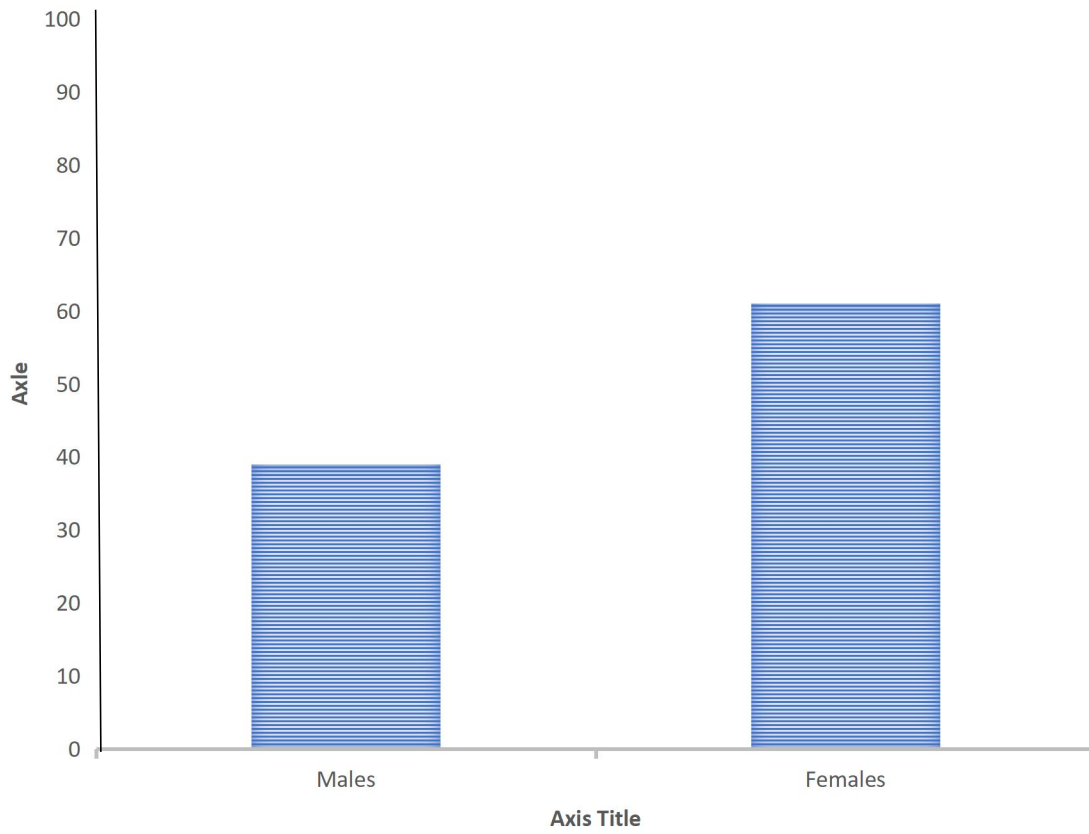


Figure 4.1: Gender Distribution of Study Participants

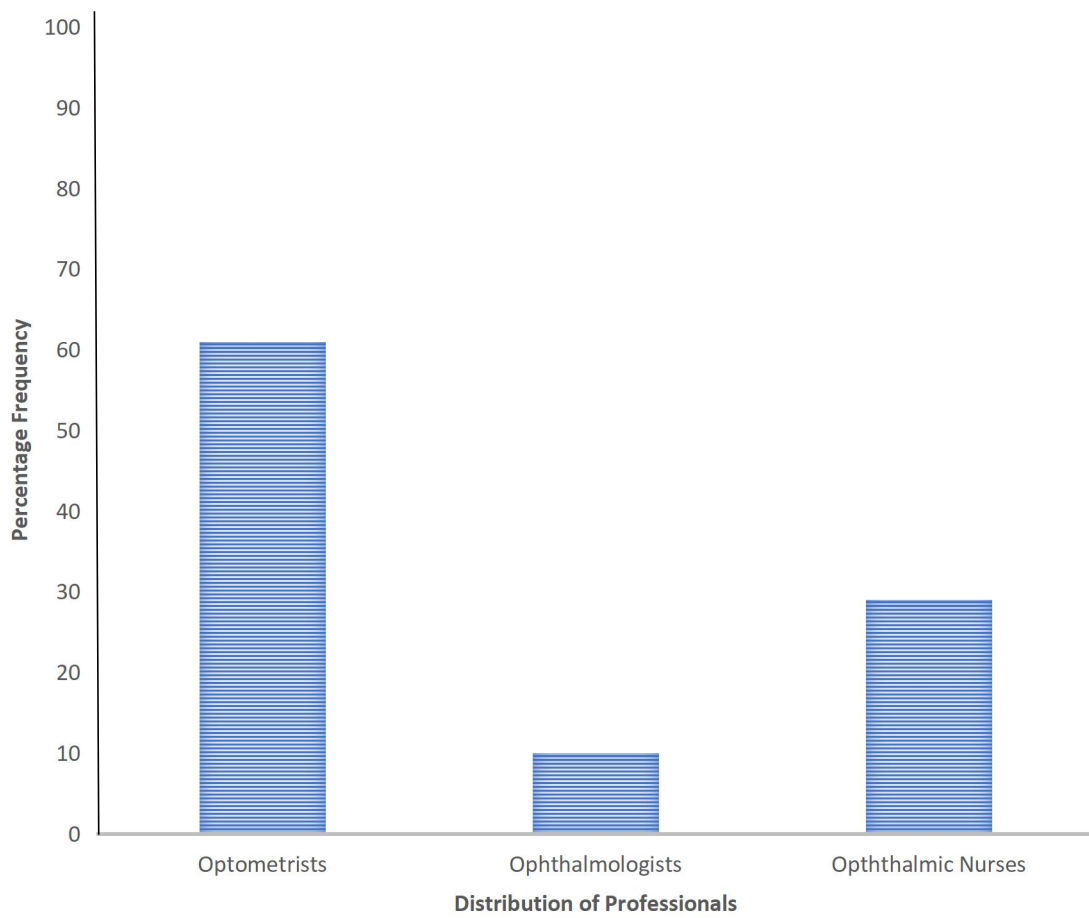


Figure 4.2: Distribution of Participants Based on Profession

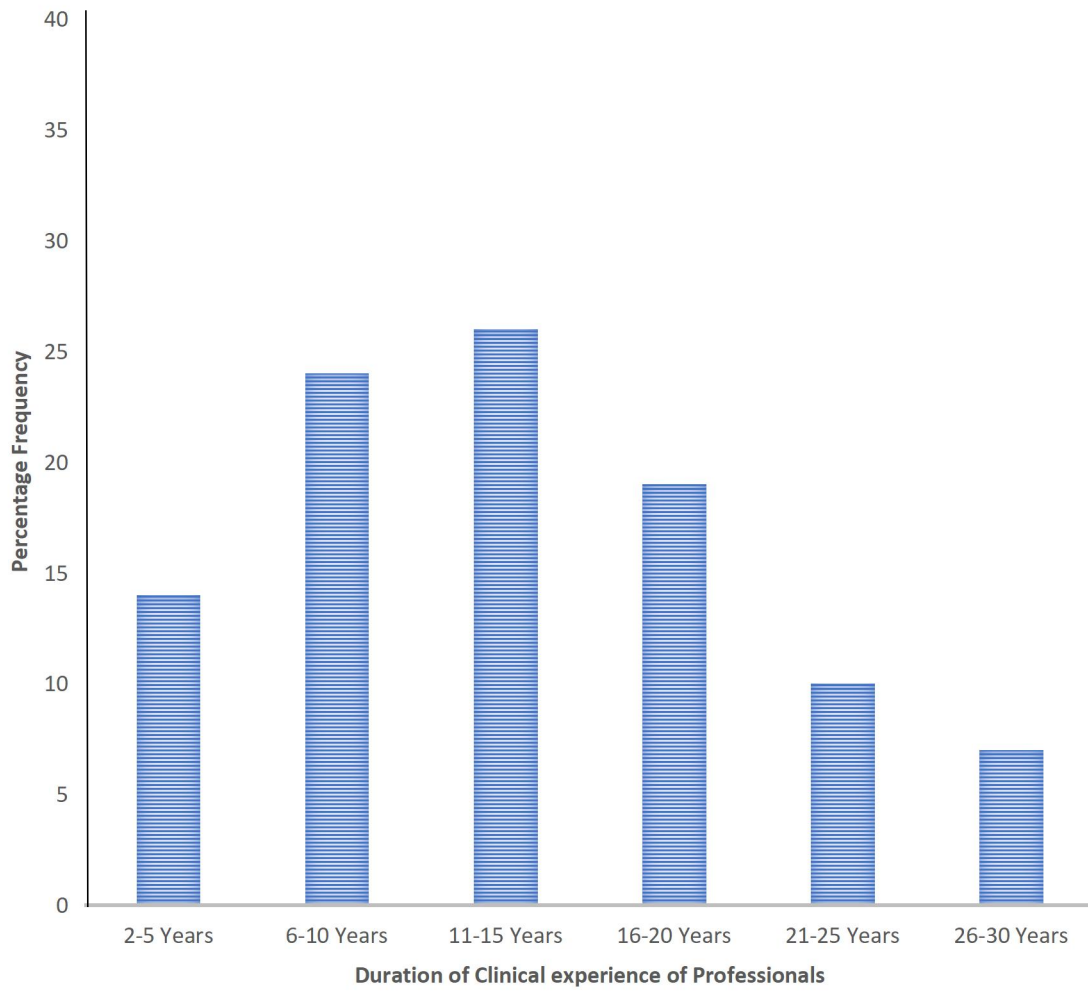


Figure 4.3: Distribution of Participants Based on Clinical Experience

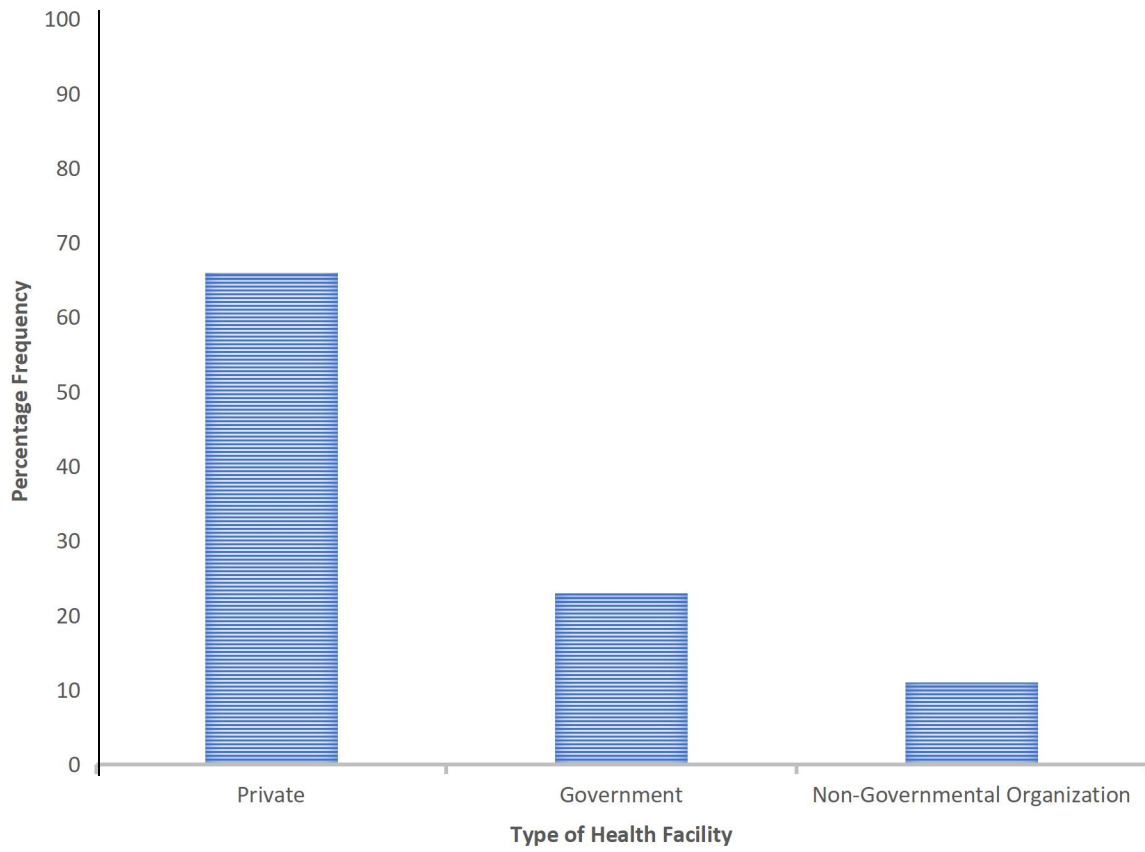


Figure 4.4: Distribution of Participants Based on Type of Health Facility

4.2 MAJOR SYSTEMIC AND CLINICAL CHALLENGES AFFECTING THE PROVISION OF PEDIATRIC EYE CARE IN BENIN CITY

Table 4.2 Thematic Analysis on Systemic and Clinical Challenges Affecting the Provision of Pediatric Eye Care

Theme	Description	Representative Quote
Poor Cooperation from Children During Examination	Difficulty engaging children during eye exams and treatment due to age-related behavior and fear. Children's fear or lack of understanding often interferes with the examination process, reducing test reliability.	"Limited cooperation during exams and difficult to maintain attention. Sometimes the child just won't sit still or look at the target, so it's a bit tricky to get an accurate refraction."
Financial Constraints	Financial constraints limit access to pediatric eye services. Some parents cannot afford diagnostic tests, spectacles, or surgery.	"You can prescribe glasses and medications, but some families won't buy them because of the cost."
Inadequate Infrastructure and Resources	Facilities lack pediatric-specific equipment, consumables, and adequate funding.	"Inadequate funding for pediatric consumables and equipment."
Poor Follow-Up and Treatment Compliance	Clinicians highlighted the difficulty of ensuring adherence to spectacle use, patching therapy, or follow-up visits.	"You see them once, prescribe treatment, but they rarely come back for review. Most stop using the glasses after a few weeks."
Workforce and Training Gaps	Limited training and exposure among professionals in latest pediatric eye care instruments and techniques.	"Limited exposure to new specialized pediatric equipments in low vision rehab"
Shortage of Specialized Personnel	Shortage of pediatric-trained optometrists and ophthalmologists, which results in delayed or incomplete management.	"We often have to refer complicated pediatric cases to tertiary centers because there's no pediatric ophthalmologist here."
Limited School Eye Health Programs	There are few structured school screening programs, meaning many eye defects go undetected until they significantly impair learning.	"If schools had regular vision screening, common eye problems can be detected earlier before they start affecting the child's education."
Poor Communication and Referral Systems	Poor communication and referral feedback systems between optometrists, ophthalmologists, and pediatricians.	"Sub-standard referral system restrict communication and feedback between professionals."

4.3 BARRIERS PREVENTING PARENTS FROM SEEKING OR ADHERING TO PEDIATRIC EYE CARE FOR THE CHILDREN

Table 4.3: Thematic Analysis on Barriers Preventing Parents from Seeking or Adhering to Pediatric Eye Care for Their Children.

Theme	Description	Representative Quote
Lack of Awareness	Parents often do not recognize the importance of early eye checks or the impact of untreated eye problems on a child's learning and development.	"Many parents don't think poor vision can affect their child's performance until the problem becomes obvious."
Financial Constraints	Cost of consultations, spectacles, and surgeries discourages parents from seeking or continuing treatment.	"Many parents can't afford the glasses or surgery we recommend, so they just abandon the treatment halfway."
Long Waiting Times	Prolonged waiting periods at clinics and hospitals discourage parents, especially those who cannot afford to take time off work.	"Parents complain they can't stay long in the clinic queue because they need to get back to their jobs or market."
Stigmatization of Children Wearing Glasses	Negative perceptions and teasing at school discourage both children and parents from continuing spectacle use.	"Some children refuse to wear glasses because their classmates call them names like 'four eyes.'"
Distrust of Eye Clinics	Misconceptions about hospitals and eye clinics make parents hesitant to seek care.	"Some parents believe that eye clinics tends to always prescribe glasses even when it is not needed just collect money."
Cultural and Religious Beliefs	Some families rely on spiritual or traditional remedies instead of visiting hospitals.	"They believe the child's eye problem is spiritual, so they prefer prayers or herbs before coming to us."
Distance to Eye Care Facilities	Eye clinics are concentrated in urban centers, making access difficult for those living in the outskirts or rural communities.	"Some families live far away and say transport to Benin City costs more than the eye test itself."

4.4 RECOMMENDATIONS FROM PROFESSIONALS ON HOW PEDIATRIC EYE HEALTH SERVICES AND TREATMENT UPTAKE CAN BE IMPROVED IN BENIN CITY

Table 4.4 Thematic Analysis on Common Recommendations on how Pediatric Eye Health Services and Treatment Uptake can be Improved

Theme	Description	Representative Quote
Increase Public Awareness Campaigns	Enhance community and media sensitization on childhood eye problems and the importance of early detection.	“We need regular radio and TV programs to educate parents that eye problems in children can be treated if caught early.”
Strengthen School Eye Health Programs	Integrate vision screening into school health services to ensure early detection and referral.	“If every school in Benin City had annual eye screening, most cases would be detected before serious damage occurs.”
Subsidize Pediatric Eye Care Costs	Government through the NHIS, and NGOs should provide subsidies or free eye care for children to reduce the financial constraint on parents.	“Parents would bring their children more often if the cost of consultation and glasses was subsidized or free.”
Equip Eye Clinics with Pediatric Tools	Clinics should be equipped with the latest pediatric instruments, age-appropriate visual acuity charts, trial frames, and fixation targets for children.	“Many clinics lack basic pediatric tools. Specialized pediatric equipment are necessary to examine young children accurately.”
Reduce Waiting Times and Improve Clinic Experience	Introduce appointment systems and child-friendly spaces to make visits more convenient and less stressful.	“Parents get discouraged by long queues. A better scheduling system would encourage regular visits.”
Train More Pediatric Eye Specialists	Increase the number of pediatric optometrists and ophthalmologists through training and incentives.	“We need more trained pediatric eye specialists; the few we have are overwhelmed.”
Strengthen Collaboration Between Schools and Clinics	Develop referral pathways between schools and local eye clinics for children identified with visual problems.	“Teachers should be trained to recognize signs of poor vision and refer pupils to nearby eye clinics.”
Integrate Eye Health into Primary Health Care	Ensure that basic eye screening is part of routine child health checks at primary health centers.	“Primary health workers should be trained to identify eye problems early during immunization or growth monitoring visits.”
Promote Community Outreach and Screening	Organize periodic community-based outreach programs, especially in rural and areas.	“Many parents won’t come to the hospital, so we have to take the services to their communities.”
Continuous Professional Development for Clinicians	Offer regular workshops and training on modern pediatric eye care techniques.	“We need periodic training workshops to manage pediatric eye cases more effectively.”

CHAPTER FIVE

5.0 DISCUSSION

5.1 DEMOGRAPHICS AND GENERAL CHARACTERISTICS OF STUDY PARTICIPANTS

The present study examined the challenges of eye health care in children and strategies to improve treatment uptake, focusing on insights from professional eye care practitioners within Benin City. The demographic and professional composition of the participants provides a meaningful context for interpreting the findings, as the experiences of clinicians shape their understanding of barriers, service gaps, and potential interventions. The results highlight the dominance of optometrists among the workforce, a predominance of female practitioners, a balanced distribution of clinical experience across career stages, and the concentration of pediatric eye care delivery in private facilities. These findings have significant implications for workforce development, accessibility, and the quality of pediatric eye care services in the region.

As shown in Table 4.1, majority of participants were optometrists, representing 61% of the total respondents, while ophthalmologists and ophthalmic nurses constituted 10% and 29%, respectively. This distribution reflects the current professional landscape of eye care delivery in Nigeria, where optometrists form the primary human resource base in most eye clinics and vision centers, particularly within the private sector (Eze et al., 2019). The relatively small number of ophthalmologists underscores the limited availability of surgical specialists for pediatric eye conditions and management of complex childhood eye diseases, a challenge that has been reported in several sub-Saharan African studies (Gilbert and Foster, 2001; Aghaji et al., 2018). Ophthalmic nurses, who typically function as important support staff in both clinical and community eye health settings, formed almost one-third of the participants. Their

inclusion in the study is crucial, as nurses play a pivotal role in case detection, patient counseling, and follow-up; particularly in ensuring treatment compliance among children.

As highlighted in Figure 4.1 the gender distribution of the participants revealed a female majority (61%) compared to males (39%). This gender trend is consistent with the increasing feminization of the health professions, including optometry and nursing, observed across sub-Saharan Africa, while medicine and surgery including ophthalmology, remain male-dominated fields (Umeh et al., 2020). The higher proportion of female practitioners could have implications for pediatric eye health care, given that previous research suggests that female clinicians often demonstrate enhanced communication and empathy in pediatric settings, traits that are beneficial when managing young patients and interacting with caregivers. However, it is also worth noting that female-dominated health sectors sometimes experience workforce retention challenges due to career interruptions related to family responsibilities, which may indirectly affect service continuity and availability, particularly in underserved areas.

In terms of clinical experience, the participants presented a broad distribution ranging from 2 to over 30 years, with a mean of 12.1 years and a standard deviation of 7.12 years. Notably, in Figure 4.4, nearly one-quarter (24%) had between 6 and 10 years of clinical experience, while the largest subgroup (26%) had between 11 and 15 years. This pattern reflects a workforce that is not only experienced but also actively engaged in clinical service delivery at a mature stage of their professional careers. Such experience levels are advantageous for pediatric care, which requires clinical acumen, patience, and diagnostic precision. However, the relatively smaller number of practitioners with over 25 years of experience may point to issues related to workforce attrition or limited retention of senior specialists in clinical roles. Retaining experienced clinicians is vital to sustaining mentorship and continuous professional development among younger eye care practitioners.

A further observation of significance is the predominance of private facilities as the primary place of employment for participants, accounting for 66% of respondents. Government-owned facilities represented only 23%, while 11% worked with non-governmental organizations (NGOs) (Figure 4.3). This distribution underscores the central role of the private sector in the provision of pediatric eye health services in Benin City and, by extension, many Nigerian urban centers. The proliferation of private eye clinics has been driven by inadequate public-sector funding, limited and overwhelmed practitioners in government hospitals, and increasing demand for vision correction services (Aghaji et al., 2018). While private facilities may offer more flexible and efficient service delivery, they often operate on a fee-for-service model and are concentrated in urban areas, which can limit access for children from low-income families and rural communities. Conversely, public facilities, although fewer in number, are typically more affordable but may suffer from overcrowding, bureaucratic delays, and inadequate equipment. The small but notable presence of NGO-based practitioners indicates that non-profit organizations remain active contributors to community-based eye health interventions, particularly in preventive and outreach programs.

The dominance of private practice among participants also reflects a broader trend in Nigeria's health system, where privatization of healthcare services has expanded to fill the gaps left by limited public infrastructure. However, in the context of pediatric eye health, this trend raises important equity concerns. Many parents may delay or forgo eye care for their children due to cost barriers in private settings, leading to late presentation and preventable vision loss. Thus, while private clinics enhance service availability, their predominance necessitates deliberate policies to ensure that essential pediatric eye care remains accessible and affordable. Strengthening government involvement and integrating pediatric eye care into primary health care systems could help bridge this gap.

The findings from this study, particularly the diverse range of clinical experience and the distribution of practitioners across facility types, suggest that pediatric eye care in Benin City is supported by a relatively young but capable workforce. Nonetheless, the unequal distribution of expertise across sectors and the limited number of ophthalmologists underscore the need for more structured collaborations between optometrists, ophthalmologists, and ophthalmic nurses. Multidisciplinary cooperation would not only enhance the quality of pediatric eye care but also promote knowledge sharing and efficient referral systems. Furthermore, the presence of practitioners in NGO settings highlights an untapped potential for partnership-driven initiatives that can complement formal health services, especially in conducting school screenings and community eye health education.

In synthesis, the demographic and professional profile of the study participants mirrors the strengths and limitations of the broader eye health system in Nigeria. The predominance of female optometrists and moderately experienced clinicians working in private facilities indicates a robust but unevenly distributed workforce. Addressing this imbalance will require strategic workforce planning, incentives for specialists to remain in the public sector, and the establishment of collaborative frameworks that integrate clinical care, public health outreach, and policy advocacy. These foundational aspects will be essential in overcoming the persistent challenges in pediatric eye care and in implementing sustainable strategies to improve treatment uptake among children in Benin City and similar settings.

5.2 MAJOR SYSTEMIC AND CLINICAL CHALLENGES AFFECTING THE PROVISION OF PEDIATRIC EYE CARE IN BENIN CITY

This study underscores a complex landscape of clinical and systemic barriers influencing pediatric eye care delivery in Benin City, echoing patterns reported in the broader literature from Nigeria and other sub-Saharan African contexts. Through thematic analysis, this study identified eight dominant challenges: poor cooperation from children during examination, financial constraints, inadequate infrastructure and resources, poor follow-up and treatment compliance, workforce and training gaps, shortage of specialized personnel, limited school eye health programs, and poor communication and referral systems. Together, these themes reinforce the argument consistently emphasized across the literature, that pediatric eye care in low- and middle-income settings is shaped by the intersection of behavioral, institutional, and socioeconomic determinants.

The difficulty clinicians face in obtaining cooperation from children during eye examinations is a recurring theme in pediatric eye care literature. Similar to findings by Isawumi and Ubah (2021) and Gai et al. (2024), many practitioners in this study described challenges in maintaining children's attention and cooperation during refraction and diagnostic procedures, often due to fear, restlessness, or lack of understanding. Pediatric eye care requires a delicate balance of clinical skill and behavioral management yet many facilities in Nigeria lack child-adapted examination environments. The implication is that even where diagnostic capacity exists, behavioral barriers can undermine the quality of assessment. This finding aligns with the consensus in earlier research that pediatric-friendly environments, play-based examination methods, and clinician training in behavioral engagement are crucial for improving diagnostic accuracy.

Financial constraint was another recurrent and cross-cutting theme. Many clinicians observed that parents frequently failed to purchase prescribed spectacles or medications and often could not afford recommended diagnostic tests or surgical interventions. These findings reinforce earlier evidence from Maduka-Okafor et al. (2021) and Chan et al. (2021), which identified the cost of eye care as one of the most significant deterrents to treatment uptake among Nigerian families. Because most pediatric eye services operate on a fee-for-service basis and are not covered by national health insurance, families must rely on out-of-pocket payment. This structural limitation perpetuates inequities in access, particularly for low-income households. The results suggest that improved health financing mechanisms such as inclusion of more pediatric eye services within the National Health Insurance Scheme (NHIS) framework would help in reducing these disparities.

The inadequacy of infrastructure and equipment was also a prominent concern. Participants described persistent shortages of pediatric-specific instruments, consumables, and rehabilitation materials. These reports are consistent with the observations of

Eze et al. (2023), who found that many Nigerian eye clinics lack essential pediatric tools such as child-sized trial frames, fixation targets, or age-appropriate vision testing charts. Underfunding and insufficient equipment directly undermine the quality of clinical assessment and management, especially for children requiring specialized evaluation for amblyopia, refractive errors, or congenital ocular anomalies. Without targeted resource allocation, clinicians remain constrained in their capacity to deliver comprehensive pediatric care.

Poor follow-up and treatment compliance were also widely reported. Practitioners described high rates of default from review appointments and premature discontinuation of treatment plan, particularly spectacle use and occlusion therapy. These findings are congruent with

studies by Aghaji et al. (2022), which reported defaulter rates exceeding 50 percent among children prescribed optical correction. The reasons for such non-adherence are multifactorial, including low parental awareness, stigma associated with spectacle wear, financial limitations, and the absence of effective recall systems. Without structured follow-up and consistent parental engagement, therapeutic outcomes for childhood visual disorders are significantly compromised.

Workforce and training deficiencies were another theme. A few participants emphasized the limited opportunities for advanced training in pediatric eye care and restricted exposure to specialized diagnostic technologies. Inadequate training perpetuates reliance on tertiary centers for complex pediatric cases and limits the ability of primary and secondary facilities to manage even moderately difficult cases independently.

Closely related to the training gap is the overall shortage of pediatric-trained specialists. Respondents noted that most facilities in Benin City lack resident pediatric ophthalmologists, forcing them to refer many children to tertiary hospitals. This echoes findings by Alrasheed et al. (2024) who reported that fewer than one pediatric ophthalmologist serves several million children in many Nigerian states and Africa at large. The uneven geographic distribution of these specialists results in long travel distances, treatment delays, and frequent default, especially among rural and peri-urban families. Expanding pediatric subspecialty training programs and incentivizing deployment to underserved regions remain urgent priorities.

The limited availability of school eye health programs also emerged as a critical barrier. Participants expressed concern that many vision problems in children remain undetected until they significantly affect academic performance. Isawumi and Ubah (2021) documented that only a small proportion of schools in southern Nigeria conduct routine vision screening. School-based programs are globally recognized as an effective strategy for early detection of

refractive errors, amblyopia, and other ocular disorders. Their absence represents a missed opportunity for prevention and early intervention. Strengthening the integration of eye screening into school health initiatives could substantially improve early case detection and reduce the burden of avoidable childhood visual impairment.

The reports from these eye care professionals also highlights the deficiencies in communication and referral systems between optometrists, ophthalmologists, and pediatricians. Inadequate feedback mechanisms and fragmented coordination were seen as barriers to effective continuity of care. This aligns with findings from Eze et al. (2023) and Gai et al. (2024). These studies highlighted the absence of standardized referral protocols and weak interdisciplinary collaboration as persistent bottlenecks in Nigeria's eye health system. Improved referral tracking, shared electronic records, and periodic inter-professional case conferences could strengthen continuity of pediatric eye care.

5.3 BARRIERS PREVENTING PARENTS FROM SEEKING OR ADHERING TO PEDIATRIC EYE CARE FOR THE CHILDREN

The findings from this study also revealed that multiple interrelated factors hinder parents from seeking or adhering to pediatric eye care for their children in Benin City. The thematic analysis identified key barriers facilitated socioeconomic conditions, sociocultural perceptions, and perceived systemic inefficiencies within the eye health delivery structure.

A dominant theme in the present findings is the lack of awareness among parents regarding the importance of early eye examinations and timely management of childhood eye conditions. Clinicians reported that many caregivers only recognize visual problems when the child's learning or daily functioning has already been affected. This observation is consistent with evidence from Anokye et al. (2025), who documented that poor parental knowledge and low health literacy are key determinants of delayed presentation for pediatric eye care.

Similarly, Yusuf et al. (2024) emphasized that many parents view children's eye conditions as self-limiting or inconsequential, often attributing poor school performance to lack of intelligence rather than vision problems. The lack of awareness also extends to understanding the benefits of regular follow-up, which contributes to poor compliance after initial consultation. Strengthening community and school-based health education programs, therefore, remains essential for improving parental recognition of childhood eye health needs.

Financial constraint emerged as another major deterrent. Many clinicians indicated that the cost of consultation, spectacles, and surgical interventions prevents families from accessing or continuing care. This finding mirrors widespread evidence across Nigeria and sub-Saharan Africa, where pediatric eye care is often excluded from public health insurance schemes Uwagboe et al. (2025). The reliance on out-of-pocket expenditure forces families particularly those in low-income settings to prioritize other immediate household needs over medical care. The recurring theme of cost underscores the systemic inequity in access to pediatric eye services and emphasizes the need for policy reforms that would subsidize or integrate eye care into national and state insurance coverage for children.

Another barrier identified in this study was long waiting times in hospitals and eye clinics. Parents expressed difficulty in waiting for extended hours due to occupational demands or economic activities. For many parents, especially those engaged in informal trading or daily wage labor, the opportunity cost of time spent at the clinic equates to financial loss. The lack of dedicated pediatric units or appointment-based systems further compounds this issue, leading to congestion and frustration. Addressing this challenge requires reorganization of service delivery, such as instituting child-specific time slots, outreach programs, or decentralized eye clinics in community settings.

The stigmatization of children wearing glasses also surfaced as a subtle yet influential factor affecting adherence. Clinicians observed that many children, especially school-aged ones, face teasing and name-calling from peers, leading them to abandon spectacles despite clinical need. Parental discouragement also plays a role, as some caregivers perceive glasses as a cosmetic defect or believe they will worsen vision over time. Maduka-Okafor et al. (2021) and Oveneri-Ogbomo et al. (2019) have reported similar attitudes in Nigerian and Ghanaian populations, emphasizing that social stigma surrounding spectacle use remains a persistent cultural barrier. The implication is that clinical interventions alone are insufficient; rather, sustained community sensitization, school-based counseling, and involvement of teachers in promoting positive attitudes toward spectacle use are critical for long-term compliance.

Another significant barrier was distrust of eye clinics, with some parents believing that practitioners recommend spectacles unnecessarily for profit motives. This distrust reflects broader skepticism toward private and public healthcare systems in Nigeria, where past experiences of misdiagnosis, high treatment costs, and perceived commercialization of medical services have eroded public confidence. A study by Masrur et al. (2025) found that perceived profiteering among optical shops discouraged patients from completing refraction or spectacle purchase. This perception undermines the clinician–parent relationship, reduces adherence, and promotes alternative, often ineffective, treatment-seeking behaviors. Improving transparency, patient communication, and professional ethics are therefore essential for rebuilding trust.

Cultural and religious beliefs were also found to shape parental decision-making. Several respondents noted that some families interpret childhood visual problems through a spiritual lens, attributing them to curses, witchcraft, or divine punishment. Consequently, such families may seek prayers or herbal remedies before—or instead of—visiting an eye clinic. In many communities, cultural authority figures such as pastors, traditional healers, or elders

exert more influence than healthcare professionals. Engaging these gatekeepers through culturally sensitive eye health promotion campaigns could therefore bridge the gap between biomedical care and community beliefs.

The distance to eye care facilities further compounds the problem, particularly for families residing in peri-urban or rural outskirts of Benin City. Participants reported that some parents find transport costs and logistics prohibitive, making access to urban-based clinics difficult. This barrier is consistent with the spatial distribution of eye care services in Nigeria, which are predominantly concentrated in state capitals and tertiary hospitals Eze et al. (2023). Aghaji et al. (2022) similarly show that geographical inaccessibility significantly reduces pediatric eye service utilization. Mobile outreach programs and satellite vision centers could play a crucial role in bridging this urban–rural divide and increasing equitable access to care.

Taken together, these findings highlight that barriers to pediatric eye care in Benin City are multidimensional, encompassing socioeconomic, behavioral, cultural, and systemic domains. The interplay between these factors creates a cycle of delay, neglect, and poor adherence that ultimately perpetuates avoidable childhood visual impairment. This study infers that Parents' health-seeking behavior is influenced not only by knowledge and affordability but also by perceptions of stigma, trust, and convenience.

5.3 RECOMMENDATIONS ON HOW PEDIATRIC EYE HEALTH SERVICES AND TREATMENT UPTAKE CAN BE IMPROVED IN BENIN CITY.

The recommendations obtained from clinicians in this study provide crucial insights into pragmatic strategies for strengthening pediatric eye health services and improving treatment uptake among children in Benin City. The emerging themes emphasize a multidimensional approach that encompasses public education, health system strengthening, workforce development, and community engagement. These recommendations collectively align with

the World Health Organization's (WHO) framework for Integrated People-Centered Eye Care and resonate with evidence from similar studies conducted across Nigeria and sub-Saharan Africa.

A central recommendation highlighted by practitioners was the need to increase public awareness campaigns on childhood eye health. Majority of participants emphasized the importance of sustained media and community sensitization to dispel misconceptions and enhance early health-seeking behavior among parents. This aligns with the findings of Ikechukwu et al. (2023), who observed that poor parental awareness remains a key determinant of delayed presentation and poor compliance with treatment among children with visual problems. Awareness campaigns through radio, television, and social media platforms have been shown to improve health literacy and stimulate demand for preventive and curative eye care services. In contexts such as Benin City, where cultural beliefs and misinformation often influence health decisions, a well-designed communication strategy can substantially improve early detection and treatment adherence.

The recommendation to strengthen school eye health programs reflects a global consensus that schools provide a strategic entry point for vision screening and health promotion. Participants argued that integrating annual vision checks within school health services would facilitate early identification and timely referral of children with visual impairments. Studies by Aniemeka et al. (2023) and Olusanya (2021) demonstrated that school-based screening initiatives are among the most cost-effective interventions for reducing childhood visual disability in Nigeria. Moreover, the WHO's "VISION 2020" initiative underscores the value of such programs in building sustainable eye health systems. Implementing structured partnerships between schools and nearby eye clinics would not only improve case detection but also foster a culture of routine eye examination among school-aged children.

The issue of cost was repeatedly emphasized by respondents, who called for the subsidization of pediatric eye care services. The suggestion that government agencies, non-governmental organizations (NGOs), and the National Health Insurance Scheme (NHIS) should support free or reduced-cost services reflects a recognition of the profound economic barriers families face. Akpali et al. (2025) confirm that financial hardship remains one of the strongest predictors of non-presentation and non-adherence in pediatric eye care. Without financial protection, families are often forced to prioritize immediate household needs over healthcare expenditure. Subsidies, health insurance coverage, or donor-supported interventions would therefore significantly improve equity in access and compliance with recommended treatment regimens.

Clinicians also recommended equipping eye clinics with pediatric-specific instruments to improve diagnostic accuracy and child comfort. This concern addresses an ongoing infrastructural deficiency in Nigerian eye care facilities, where many clinics lack child-appropriate trial frames, fixation targets, and visual acuity charts. The acquisition of age-appropriate tools is not merely a logistical matter but a critical determinant of diagnostic quality, particularly in assessing visual acuity, refraction, and binocular function in young children.

Another theme centered on the need to reduce waiting times and improve the overall clinic experience for children and their caregivers. Long waiting times and unfriendly clinical environments were cited as key deterrents to follow-up and regular attendance. The introduction of appointment systems, child-friendly waiting areas, and efficient patient flow management could enhance the overall experience of pediatric patients.

The recommendation to train more pediatric eye specialists highlights a critical workforce issue that has long constrained the delivery of child-focused eye care in Nigeria. Respondents

expressed concern that the few existing pediatric optometrists and ophthalmologists are overburdened, resulting in delayed services and limited coverage. This finding mirrors the workforce distribution data reported by Mustafa and Huma (2024), showing a severe shortage of pediatric ophthalmologists across Nigeria. Expanding residency and postgraduate training in pediatric ophthalmology, low vision, and orthoptics would build national capacity and enhance the quality of specialized care for children. Furthermore, creating incentive structures for trained specialists to serve in underserved regions would promote equity in service distribution.

Some clinicians emphasized the need to strengthen collaboration between schools and eye care clinics through the establishment of referral pathways and feedback mechanisms. This recommendation underscores the importance of inter-sectoral cooperation between the education and health systems. Teachers are often the first to observe visual difficulties that affect a child's academic performance; equipping them with basic training to recognize signs of poor vision could facilitate earlier intervention. Similar models implemented in India and Kenya (Limburg et al., 2018; Rono et al., 2019) demonstrated that teacher-led screening and referral networks significantly improved early detection rates and reduced visual morbidity among schoolchildren.

Integration of eye health into primary health care (PHC) services was another prominent recommendation. Participants proposed that basic visual screening be incorporated into routine child health visits, such as immunization or growth monitoring sessions. This approach aligns with the WHO's integrated eye health framework, which advocates for early detection and management of eye disorders within the primary care level. Studies in Nigeria (Ekpenyong and Nwoha, 2022) have shown that training primary health workers to recognize and refer common childhood eye conditions substantially improves early presentation and reduces avoidable blindness.

A related recommendation involved promoting community outreach and screening programs, particularly in rural and peri-urban areas where access to eye clinics remains limited. Clinicians stressed that many parents will not voluntarily present at hospitals due to distance, cost, or lack of awareness; therefore, services must be taken to the community. Outreach programs not only expand coverage but also serve as effective platforms for health education. Empirical evidence from northern Nigeria (Christian et al., 2021) and Ethiopia (Mekonnen et al., 2021) demonstrates that community-based screening can detect and manage a significant proportion of treatable childhood eye disorders that would otherwise remain undiagnosed.

Finally, the theme of continuous professional development (CPD) was highlighted by certain participants. Practitioners advocated for regular workshops, seminars, and hands-on training sessions focused on the latest pediatric diagnostic and management techniques. CPD is a recognized cornerstone of quality assurance in clinical practice, ensuring that professionals remain updated with evolving technologies and treatment protocols.

Taken together, these recommendations underscore a holistic, systems-oriented approach to strengthening pediatric eye health services in Benin City. The clinicians' perspectives reveal that improving treatment uptake among children requires interventions across multiple levels: community awareness, school-based screening, financial accessibility, infrastructural enhancement, human resource development, and service integration. Addressing these domains collectively would not only improve the efficiency and reach of pediatric eye care but also align local practice with global goals for eliminating avoidable childhood blindness. Policymakers, educators, and healthcare administrators must therefore work collaboratively to operationalize these strategies through structured implementation plans, budgetary commitments, and sustained stakeholder engagement.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

This study examined the challenges of eye health care in children and strategies to improve treatment uptake in Benin City, with insights drawn from professional eye care practitioners including optometrists, ophthalmologists, and ophthalmic nurses. The findings have provided a holistic understanding of the systemic, clinical, and socioeconomic factors that influence the provision and utilization of pediatric eye health services in the city.

The study revealed that despite the presence of qualified eye care professionals, the delivery of pediatric eye care remains hampered by a range of interrelated challenges. Clinicians identified poor cooperation from children during examination as a major clinical constraint that affects diagnostic accuracy and treatment outcomes. Younger children often display anxiety, fear, or poor attention during assessment, which complicates refraction, visual acuity testing, and other clinical procedures. This highlights the need for more child-centered examination techniques and specialized tools.

Systemic challenges such as financial constraints, inadequate infrastructure, and shortage of specialized personnel were found to significantly undermine service quality. Many clinics lack pediatric-specific equipment, consumables, and funding necessary for comprehensive child eye care. Furthermore, the limited number of pediatric-trained eye specialists results in delayed management and excessive referrals to tertiary facilities. Workforce and training gaps also emerged as a recurring theme, with clinicians citing inadequate exposure to advanced pediatric techniques and technologies.

Another important dimension uncovered in this study relates to poor follow-up and treatment compliance. Clinicians noted that many children do not return for scheduled reviews or fail to

adhere to spectacle wear and patching regimens. This finding underscores the importance of caregiver education, effective counseling, and follow-up reminder systems. Additionally, the study found that limited school eye health programs and poor referral communication between healthcare providers hinder the continuity and integration of pediatric eye care services within the broader health and education systems.

From the caregivers' perspective, several barriers preventing parents from seeking or adhering to pediatric eye care were identified. These include lack of awareness, financial difficulties, long waiting times at clinics, stigmatization of children wearing glasses, distrust of eye clinics, cultural and religious beliefs, and distance to eye care facilities. The interplay of these factors perpetuates delays in seeking treatment and contributes to preventable visual impairment in children. The findings reinforce the fact that improving pediatric eye health requires not only clinical interventions but also socio-behavioral and economic considerations.

6.2 RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations are proposed for various stakeholders:

A. Policy and Governmental Level

1. **Integrate Pediatric Eye Health into National Health Policies:** The Federal Ministry of Health and State Ministries should ensure that pediatric eye care is recognized as a priority within child health programs and adequately funded.
2. **Subsidize Pediatric Eye Care Services:** The National Health Insurance Scheme (NHIS) should expand coverage to include pediatric eye examinations, spectacles, and surgical procedures to alleviate financial barriers faced by families.

3. **Invest in Pediatric Eye Infrastructure:** Governments at all levels should allocate budgetary resources for the procurement of child-friendly ophthalmic instruments and the upgrading of eye care facilities.
4. **Train and Deploy More Pediatric Eye Specialists:** Scholarships, professional incentives, and continuous education programs should be established to increase the number of trained pediatric ophthalmologists and optometrists in the country.
5. **Strengthen Primary Health Care Integration:** Eye screening should be incorporated into routine child health visits, immunization programs, and school health initiatives at the primary care level.

B. Institutional and Professional Level

1. **Enhance Continuous Professional Development:** Regular workshops, seminars, and hands-on training should be organized to build clinicians' capacity in pediatric eye care techniques and new technologies.
2. **Improve Clinic Efficiency and Experience:** Hospitals and clinics should implement appointment scheduling systems and design child-friendly waiting areas to reduce waiting times and make the clinical environment more appealing to children and parents.
3. **Establish Effective Referral and Feedback Systems:** Clear communication pathways should be created between optometrists, ophthalmologists, pediatricians, and school health personnel to ensure timely referrals and continuity of care.
4. **Promote Research and Data Management:** Institutions should strengthen routine data collection and encourage local research to monitor trends in childhood eye health and evaluate program effectiveness.

C. Community and Educational Level

1. **Implement Comprehensive School Eye Health Programs:** The Ministry of Education in collaboration with the Ministry of Health should ensure regular vision screening in schools and provide referral mechanisms for detected cases.
2. **Increase Public Awareness and Health Education:** Media campaigns, community outreaches, and parental education programs should be intensified to improve awareness about the importance of early eye examination and adherence to treatment.
3. **Address Cultural and Stigmatization Issues:** Community leaders and teachers should be involved in sensitization campaigns to discourage stigmatization of children who use spectacles or undergo eye treatment.
4. **Promote Community-Based Outreach Programs:** Regular outreach and mobile eye clinics should be organized in rural and peri-urban communities to reach underserved populations.
5. **Enhance Parental Support and Engagement:** Eye care providers should strengthen parent–clinician communication through counseling, follow-up reminders, and involvement of caregivers in treatment planning.

Future research should also explore parental perspectives through qualitative interviews to complement clinician-based findings and provide a more comprehensive understanding of behavioral and cultural determinants of treatment uptake. Longitudinal studies could also assess the impact of implemented interventions such as school eye health programs or NHIS coverage, on pediatric eye health outcomes in Benin City and other parts of Nigeria. Additionally, operational research on cost-effectiveness and sustainability of pediatric eye care interventions would help guide evidence-based policy formulation.

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APPENDIX I

APPENDIX II

CONSENT FORM

Title of Study:

Challenges in Eye Health Care in Children and Strategies to Improve Treatment Uptake in Benin City

Researcher:

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Department of Optometry,

University of Benin, Benin City, Edo State, Nigeria.

Supervisor:

Prof. (Mrs.) J. A. Ebeigbe

Purpose of the Study:

This research seeks to assess the challenges encountered in providing pediatric eye care and to identify practical strategies that can improve treatment uptake among children in Benin City. The study focuses on insights from eye care professionals including optometrists, ophthalmologists, and ophthalmic nurses.

Participant Involvement:

If you agree to participate, you will be asked to complete a short questionnaire designed to gather your professional experiences and opinions about pediatric eye care. The process will take approximately 10–15 minutes.

Participation is completely voluntary, and you may choose to withdraw at any point without any consequence.

Confidentiality:

All information provided will be treated with strict confidentiality. Your name or any identifying information will not appear in any report or publication. Data collected will be used solely for academic research and stored securely.

Potential Risks and Benefits:

There are no known risks associated with participating in this study. While you may not receive any direct benefit, your contributions will provide valuable insights that can improve pediatric eye health services and outcomes in Nigeria.

Voluntary Participation and Right to Withdraw:

Your participation is voluntary. You are free to decline participation or withdraw at any time without giving any reason and without any negative consequences.

Consent Statement:

I have read and understood the information above. I have had the opportunity to ask questions about the study, and all my questions have been answered satisfactorily. I voluntarily agree to participate in this study.

Profession: _____

Signature/Thumbprint: _____

Date: _____

Researcher's Signature: _____

APPENDIX III

Questionnaire for Eye care Professionals in Benin City

Challenges in Eye Health Care in Children and Strategies to Improve Treatment

Uptake

Instructions: This questionnaire is designed to gather your professional insights and experiences regarding pediatric eye care in Benin City. Please answer each question honestly and in detail. All responses will remain confidential and used for academic research only.

Section A: Demographic Information

1. Sex: Male Female Prefer not to say
2. Age Group: 25-29 30-39 40-49 50+
3. Profession: Optometrist Ophthalmologist Ophthalmic Nurse Other (please specify): _____
4. For Optometrists, any postgraduate specialized training in pediatric Optometry? Yes
 No
5. Years of experience in General eye care: 2-6yrs 7-11yrs 12-16yrs >16yrs
6. Type of facility:
 Government Private NGO Other (please specify): _____
7. Years of experience managing pediatric eye cases: 1-3yrs 4-7yrs 8-10yrs >10yrs
8. Location of practice within Benin City urban semi-urban rural
9. Does your facility have specialized pediatric equipment: Yes No

Section B: Open-Ended Questions

10. In your experience, what are the most common eye conditions you encounter in children? _____

11. What challenges do you face in managing eye conditions in children compared to adults? _____

12. What challenges do caregivers (parents/guardians) face in accessing or complying with pediatric eye care recommendations ? _____

13. Do you believe that pediatric eye health care is adequately prioritized within the current health system?: Yes No

14. In response to the question above Why or why not? _____

15. In your view, what are the major systemic or institutional barriers to effective pediatric eye care in Benin

city ?.

16. Are there any community level or cultural beliefs that affect how eye conditions in children are perceived or treated? (Give examples if applicable).

.

17. What strategies do you think could help improve early detection and treatment of childhood eye conditions

in ?.

18. Have you or your facility implemented any initiatives, outreach programs or school screenings specifically for pediatric eye care? Yes No

19. If yes, please describe them, and what were the outcomes?.

.

20. Are there adequate opportunities for continued professional training in pediatric eye care in Nigeria? Yes No

21. if No, what specific training needs do you identify? _____

22. How well do you think primary health workers are equipped to identify or refer pediatric eye conditions ? _____

23. What role can schools or teachers play in improving pediatric eye health outcomes? _____

24. Do you have any additional recommendations or innovative ideas on how to increase the uptake of pediatric eye care services in your community? _____
