



The Prevalence of Ocular Disorders and Ease of Access to Eye Care Service among Internally Displaced Persons in Benue State

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ABSTRACT

Ocular disorders pose a significant public health challenge among internally displaced persons (IDPs) in Benue State, Nigeria, where displacement due to communal conflicts and environmental challenges exacerbates health vulnerabilities. This study aimed to assess the prevalence of ocular disorders, identify common types, evaluate access to eye care services, and determine barriers to access among IDPs. A descriptive cross-sectional design was employed, involving 259 IDPs aged 18 years and above from selected camps in Benue State. Data were collected through structured questionnaires and clinical examinations using standard ophthalmic tools. Findings revealed a high prevalence of ocular disorders (62.5%), with refractive errors (24.3%), cataracts (16.2%), and conjunctivitis (12.0%) being the most common conditions. Only 30.1% of participants had accessed eye care services, with significant barriers including lack of money (60.2%), absence of nearby clinics (44.8%), and low awareness (36.5%). Age, education, and income were significantly associated with both ocular disorder prevalence and access to care, while gender showed no significant association. These findings highlight the urgent need for integrated eye care services in IDP camps, including mobile clinics, subsidized care, and community health education. The study contributes to understanding ocular health challenges among IDPs and informs targeted interventions to reduce preventable vision loss and improve quality of life in this vulnerable population.

ARTICLE'S INFO

Article No.: 013126019

Type: Research

Full Text: [PDF](#), [PHP](#), [HTML](#), [EPUB](#), [MP3](#)

DOI: [10.15580/gjbhs.2026.1.013126019](https://doi.org/10.15580/gjbhs.2026.1.013126019)

Accepted: 02/02/2026

Published: 17/02/2026

Keywords: Ocular disorders, internally displaced persons, Eye care access, Refractive errors, cataracts, Conjunctivitis

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Article's QR code



INTRODUCTION

Ocular health is a critical component of overall well-being, influencing an individual's quality of life, productivity, and socio-economic status (World Health Organization [WHO], 2019). Globally, visual impairment and blindness remain significant public health concerns. According to the WHO, at least 2.2 billion people have a vision impairment, of whom at least 1 billion cases could have been prevented or are yet to be addressed (WHO, 2019).

In Nigeria, the prevalence of ocular disorders is substantial, with millions affected by conditions such as cataracts, glaucoma, and refractive errors (Abdull *et al.*, 2009). Cataracts remain the leading cause of blindness, contributing to over 50% of blindness cases in sub-Saharan Africa (WHO, 2013). Studies suggest that the prevalence of uncorrected refractive errors in Nigeria is between 11% and 16%, further emphasizing the burden of treatable visual impairments (Dandona & Dandona, 2006).

Internally Displaced Persons (IDPs) represent a particularly vulnerable segment of the population concerning health issues, including ocular disorders (United Nations High Commissioner for Refugees [UNHCR], 2022). Displacement due to communal conflicts, natural disasters, or other crises leads to disrupted living conditions, limited access to healthcare, and increased exposure to health risks (UNHCR, 2022). In Benue State, Nigeria, recurrent conflicts and environmental challenges have resulted in a significant number of IDPs residing in camps and host communities (International Organization for Migration [IOM], 2023). These individuals face inadequate shelter, poor nutrition, and limited access to essential healthcare services, exacerbating their vulnerability to various health conditions, including ocular disorders (IOM, 2023).

The prevalence of ocular disorders among IDPs in Benue State is influenced by several factors. Poor living conditions in IDP camps, characterized by overcrowding and inadequate sanitation, increase the spread of infectious eye diseases such as conjunctivitis and trachoma (Resnikoff *et al.*, 2004). Limited access to clean water and proper hygiene facilities further exacerbates the risk of eye infections (Adeoti *et al.*, 2020). Malnutrition, prevalent among displaced populations due to food insecurity, leads to vitamin deficiencies, particularly Vitamin A deficiency, which is associated with xerophthalmia and night blindness (WHO, 2013). Psychological stress, common among displaced persons, contributes to systemic health issues such as hypertension and diabetes, which are risk factors for ocular conditions like hypertensive retinopathy and diabetic retinopathy (Klein *et al.*, 2010).

Access to eye care services for IDPs in Benue State is notably limited. Healthcare infrastructure in displacement settings is often strained, with insufficient medical personnel, inadequate medical supplies, and

limited specialized services such as ophthalmic care (Ajayi *et al.*, 2014). Financial constraints further impede access, as many IDPs lack the resources to afford medical consultations, corrective lenses, or surgical interventions (Ajayi *et al.*, 2014). Geographical barriers also play a role, as IDP camps are frequently located in remote areas with poor transportation networks, making it challenging for individuals to reach healthcare facilities (Ajayi *et al.*, 2014). Additionally, cultural factors and a lack of awareness about the importance of eye health contribute to the underutilization of available services (Abdull *et al.*, 2009).

Efforts have been made to address these challenges. For instance, in November 2024, the Benue State Government partnered with Eye Care Services to launch a free community eye care program in Benue South, benefiting over 9,000 individuals. This initiative provided free eye tests, cataract surgeries, medical glasses, and treatments to underserved populations (TVC News, 2024).

Similarly, in March 2018, the Nigerian Air Force conducted a three-day medical outreach for IDPs at the Abagana-Agan camp in Benue State, which housed over 20,000 individuals. This outreach offered eye surgeries, general medical check-ups, and medicated glasses (Punch, 2018). Despite these interventions, significant gaps remain. A study conducted in an underserved community in Enugu State, Nigeria, identified cost (30%), distance (22.6%), and poor road infrastructure (15.2%) as major barriers to accessing eye care services, challenges reflective of the situation in Benue State (Ajayi *et al.*, 2014).

Addressing the ocular health needs of IDPs requires a multifaceted approach, including improving living conditions to reduce the risk of eye diseases, enhancing the availability and accessibility of eye care services, and increasing awareness about eye health. Collaborative efforts between government agencies, non-governmental organizations, and international bodies are essential to mitigate the burden of ocular disorders among IDPs in Benue State and similar settings.

Ocular disorders remain a significant yet under-addressed public health concern, particularly among vulnerable populations such as internally displaced persons (IDPs). In Benue State, Nigeria, prolonged communal conflicts have led to the displacement of large populations, who are now living under poor conditions that increase their risk of eye diseases. These include refractive errors, cataracts, glaucoma, and infectious ocular conditions, all of which are exacerbated by overcrowding, poor sanitation, malnutrition, and the presence of chronic diseases like diabetes and hypertension. Despite these evident risks, access to eye care among IDPs is severely limited due to financial hardship, geographic isolation, poor transportation, cultural misconceptions, and low health literacy. Consequently, many IDPs suffer avoidable vision loss, which negatively impacts their quality of life, productivity,

and independence, while further burdening already strained healthcare systems. Unfortunately, there is a lack of empirical data on the ocular health status of IDPs in Benue State, limiting the development of effective, evidence-based policies and interventions. This research seeks to address this gap by investigating the prevalence and pattern of ocular disorders and the barriers to eye care access among IDPs in the region.

MATERIALS AND METHODS

Ethical Considerations

Ethical considerations were central to this study to protect participants' rights, ensure fairness, and maintain professional standards. The following principles were adhered to:

1. **Approval by an Ethics Review Board:** The study was reviewed and approved by an institutional research ethics board, ensuring compliance with ethical guidelines for research involving human participants.
2. **Informed Consent:** Written and verbal consent was obtained from participants after explaining the study's purpose, procedures, risks, and benefits in a language they understood.
3. **Confidentiality:** All personal data were kept confidential. Participant names were replaced with unique identification codes to anonymize the data.
4. **Voluntary Participation:** Participation was entirely voluntary, and participants were informed of their right to withdraw from the study at any point without any consequences.
5. **Non-Maleficence:** The study ensured that no harm, either physical or psychological, was inflicted on participants. All procedures followed non-invasive and safe practices.
6. **Feedback to Participants:** Participants who exhibited ocular disorders requiring immediate attention were referred to appropriate healthcare facilities, and basic health education on eye care was provided.
7. **Equity and Fairness:** Efforts were made to include diverse participants across gender, age, and socioeconomic backgrounds to ensure inclusivity and fairness.

Research Design

The study adopted a descriptive cross-sectional research design to assess the prevalence of ocular disorders and barriers to accessing eye care services among IDPs. This design was appropriate because it allowed the collection of data from a population at a single point in time, providing a snapshot of the prevalence and factors influencing eye health. The design also facilitated the identification of patterns, correlations, and relationships between variables.

Area of Study

The study was conducted in Benue State, located in the North-Central region of Nigeria. It lies between latitudes 6°25' and 8°8'N and longitudes 7°47' and 10°E. The state shares boundaries with Nasarawa, Taraba, Enugu, and Ebonyi States and the Republic of Cameroon.

Benue State is predominantly agrarian, earning its reputation as the "Food Basket of the Nation." The majority of residents engage in subsistence farming, producing crops such as yams, cassava, rice, and maize. Fishing and small-scale trading are also common economic activities. Health facilities in Benue State include primary health centers, general hospitals, and private clinics. However, specialized eye care services are limited, especially in rural and underserved areas. IDP camps often lack permanent healthcare infrastructure, making this study crucial in understanding the gaps in eye care services.

Benue State was selected as the study area due to the high concentration of IDPs resulting from communal conflicts, herdsmen attacks, and flooding. These factors have created vulnerable populations at risk of neglect, making the state an ideal location to study the prevalence of ocular disorders and access to care.

Study Population

The study population comprised internally displaced persons living in camps across Benue State. Participants included men and women aged 18 years and above. The population was characterized by low socioeconomic status, limited access to healthcare, and poor living conditions. These factors made them particularly vulnerable to ocular disorders and barriers to accessing care.

Inclusion and Exclusion Criteria

Based on the objectives and research design of this study the following categories of participants were included as subjects in the investigation: Internally displaced persons aged 18 years and above, individuals who had been living in IDP camps for at least six months, and participants who consented to participate and undergo ocular examinations.

Exclusion Criteria

The inclusion criteria ensure that participants were directly involved in road construction tasks and are representative of the target population.

However the study excluded individuals with severe systemic illnesses that could impair their participation, persons who declined to give consent, children below the age of 18 years and individuals who had undergone recent eye surgeries, as this could bias the findings.

Sampling

Sample Size Determination

The sample size will be calculated using the formula for estimating prevalence in cross-sectional studies:

$$n = \frac{Z^2 \times p \times X(1-p)}{(e^2)}$$

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n= required sample size

Z= Z-score for 95% confidence level (1.96)

p= estimated prevalence (0.50, as specific prevalence data for this population is unavailable)

e= margin of error (0.05)

Based on this formula, the sample size calculation is as follows:

$$= \frac{1.96^2 \times 0.50 \times (1-0.50)}{(0.05^2)}$$

n= 384

Rounding up, the sample size required is 384 participants. To account for potential non-response or incomplete data, an additional 10% will be added, resulting in a final sample size of approximately 422 participants.

A total of 259 participants participated in the study, the reduction in sample size was for the proper documentation, easy collection and management of data the short duration of the research also accounted for the reduction in sample size.

Sampling Procedure

A multi-stage sampling method was employed:

1. IDP camps in Benue State were stratified based on size and location.
2. A random selection of camps was performed to ensure geographical representation.
3. Within the selected camps, systematic random sampling was used to select participants, with sampling intervals determined based on the camp population size.

Instrument for Data Collection

Questionnaire:

The semi-structured questionnaire consisted of five sections:

Section A: Captured demographic data, such as age, gender, educational level, and occupation.

Section B: Addressed the prevalence of ocular disorders, including symptoms and their duration.

Section C: Focused on the types of ocular disorders observed during clinical examinations.

Section D: Examined barriers to accessing eye care services, such as financial constraints, distance, and awareness.

Section E: Assessed the impact of ocular disorders on participants' daily lives, including productivity and quality of life.

Examination Instruments:

Snellen Chart: Used to measure visual acuity.

Retinoscope: Utilized for refractive error assessment.

Direct Ophthalmoscope: Employed for examining the posterior segment of the eye.

Slit Lamp Biomicroscope: Used for detailed examination of the anterior segment.

Reliability & Validity of the Study

The equipment and procedures used to obtain data in this area are all approved by World Council of Optometry and also is in line with the approved criteria for optometric practice in Nigeria by the Optometrist and Dispensing Opticians Registration Board of Nigeria (ODOBRN).

The content validity of the questionnaire was ensured through input from experts in occupational health, optometry, and survey methodology. The questionnaire underwent rigorous review and revision to ensure that it captured relevant constructs related to oculovisual problems among road construction workers. Content validity was further assessed through face validity, ensuring that the questionnaire was clear, understandable, and relevant to the target population. Additionally, the questionnaire was pre-tested on a small sample of the study population to identify any potential ambiguities or inconsistencies in item wording and response options.

Reliability refers to the capacity of the instrument to produce consistent results on repeated use. In order to ensure reliability of the instrument used were appropriately calibrated according to manufacturer's instructions and a test was carried out on a smaller group of subjects using the calibrated equipment three times and the values obtained were compared to ensure there was consistency. This was done to ensure that the instrument was reasonably appropriate for the study. It was also to ensure the reliability of the instrument.

The reliability of the questionnaire was assessed using a test-retest method. A pilot study was conducted on a small sample of the study population, and the questionnaire was administered twice with a time

interval to assess the consistency of responses. The test-retest reliability coefficient was calculated using appropriate statistical methods, to determine the stability of responses over time.

Procedure for Data Collection

Ethical approval to conduct this study was obtained from Management of the camps as well as the research and ethical committee of Optometry Department Madonna University Nigeria. Detailed information about the research was relayed to the individuals in the camps, explaining its purpose, procedures, and their role as participants. Prior to data collection, written informed consent was obtained from each participant. This step was crucial for ensuring that participants understood the study's purpose, procedures, risks, and benefits, and that their participation is entirely voluntary. Data collection was conducted over six weeks. Trained research assistants administered the questionnaire via face-to-face interviews. Ocular examinations were performed by licensed optometrists using portable equipment. Participants requiring follow-up care were referred to appropriate health facilities.

Data was collected through a combination of structured questionnaires and clinical examinations:

1. Questionnaire: The questionnaire was designed to capture demographic information, ocular health history, and access to eye care services. It included sections on:

- Demographics (age, gender, education level, occupation)
- History of ocular symptoms and conditions
- Previous eye care consultations and treatments
- Barriers to accessing eye care services (financial, geographical, awareness, etc.)

2. Clinical Examination: Trained ophthalmologists and optometrists conducted clinical examinations to diagnose ocular disorders. The examinations included:

- Visual acuity testing using a Snellen chart
- Slit-lamp examination to assess the anterior segment of the eye
- Fundoscopy to examine the posterior segment of the eye
- Intraocular pressure measurement using a tonometer - Additional tests as needed based on clinical findings

3.10 Data Analysis

Data will be analyzed using Statistical Package for the Social Sciences (SPSS) software version 25. Descriptive statistics will be used to summarize demographic characteristics, prevalence of ocular disorders, and accessibility to eye care services. Prevalence rates will be calculated with 95% confidence intervals. Inferential

statistics will be employed to explore associations between variables. Chi-square tests will be used to determine the relationship between demographic factors and the prevalence of ocular disorders. Logistic regression analysis will be conducted to identify predictors of access to eye care services and barriers encountered by the participants.

RESULTS

Table 1: Demographic and Socioeconomic Characteristics of Internally Displaced Persons (IDPs) in Benue State

Variable	Frequency (n=259)	Percentage (%)
Gender		
Male	112	43.2
Female	147	56.8
Age Group (years)		
18–29	70	27.0
30–39	102	39.4
40–49	59	22.8
50 and above	28	10.8
Education Level		
No formal education	91	35.1
Primary	83	32.0
Secondary	58	22.4
Tertiary	27	10.4
Monthly Income (₦)		
<10,000	144	55.6
10,000–30,000	83	32.0
>30,000	32	12.4

A total of 259 internally displaced persons (IDPs) residing in Benue State participated in this study. Their demographic and socioeconomic characteristics are presented in Table 4.1 and described as follows.

Among the respondents, 112 (43.2%) were male, while 147 (56.8%) were female, indicating a slightly higher proportion of female participants in the study population. The age distribution showed that the majority of participants fell within the 30–39 years age bracket, accounting for 102 individuals (39.4%). This was followed by 70 respondents (27.0%) aged 18–29 years, 59 (22.8%) aged 40–49 years, and 28 (10.8%) who were aged 50 years and above. This suggests a concentration of respondents within the young to middle-aged adult groups.

In terms of educational attainment, 91 respondents (35.1%) reported having no formal education, while 83 (32.0%) had completed primary education. A further 58 respondents (22.4%) attained secondary education, and only 27 (10.4%) had tertiary-level education. These figures highlight a generally low level of formal education among the IDP population surveyed.

With regard to monthly income, 144 respondents (55.6%) indicated earning less than ₦10,000, while 83

respondents (32.0%) reported earnings between ₦10,000 and ₦30,000. Only 32 respondents (12.4%) earned more than ₦30,000 monthly. This distribution suggests that the majority of participants were within the low-income bracket.

Prevalence of ocular disorders among IDPs

Research Question 1: What is the prevalence of ocular disorders among IDPs in Benue State?

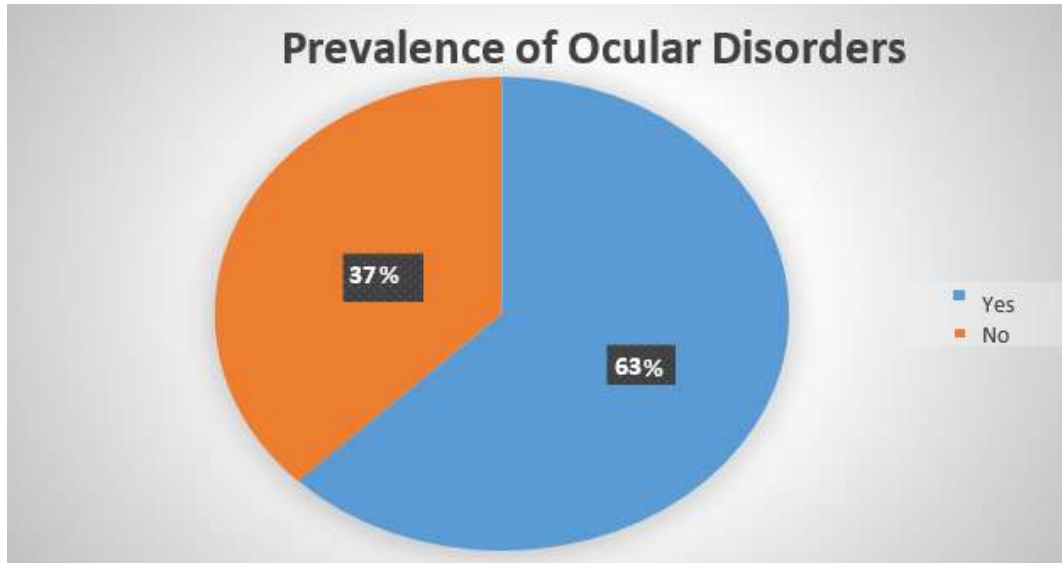


Figure 1: Prevalence of Ocular disorders

Figure 1 above presents the distribution of respondents based on the presence or absence of ocular disorders as determined through clinical examination.

Out of the 259 individuals examined, 162 (62.5%) were found to have one or more ocular disorders, while 97 respondents (37.5%) showed no clinical signs of ocular disease at the time of examination. This suggests that ocular conditions are relatively common within the studied IDP population.

Association between demographic factors and prevalence of ocular disorders

Research Question 2: What demographic or socioeconomic factors are associated with the presence of ocular disease?

Table 2: Association between Demographic/Socioeconomic Variables and Prevalence of Ocular Disorders among IDPs

Demographic Variable	Ocular Disorder Present n (%)	No Ocular Disorder n (%)	Chi-square (χ^2)	p-value
Age Group (years)			11.21	0.01*
18–29	35 (50.0)	35 (50.0)		
30–39	67 (65.7)	35 (34.3)		
40–49	43 (72.9)	16 (27.1)		
≥50	17 (60.7)	11 (39.3)		
Gender			1.87	0.17
Male	71 (63.4)	41 (36.6)		
Female	91 (61.9)	56 (38.1)		
Educational Level			9.32	0.03*
No formal education	67 (73.6)	24 (26.4)		
Primary education	48 (57.8)	35 (42.2)		
Secondary education	37 (63.8)	21 (36.2)		
Tertiary education	10 (37.0)	17 (63.0)		
Monthly Income (₦)			12.05	0.007*
<10,000	106 (73.6)	38 (26.4)		
10,000–30,000	44 (53.0)	39 (47.0)		
>30,000	12 (37.5)	20 (62.5)		

Table 4.2 above presents the association between various demographic and socioeconomic factors and the presence of ocular disorders among the 259 internally displaced persons (IDPs) surveyed in Benue State. Regarding age, a statistically significant association was found ($\chi^2 = 11.21$, $p = 0.01$). The prevalence of ocular disorders increased with age: 50.0% of respondents aged 18–29 years had ocular disorders, while this prevalence rose to 65.7% among those aged 30–39 years and further to 72.9% in the 40–49 years group. Among respondents aged 50 years and above, 60.7% had ocular disorders. This trend indicates that older age groups were more likely to have ocular disorders compared to younger participants. Gender, however, was not significantly associated with the presence of ocular disorders ($\chi^2 = 1.87$, $p = 0.17$). Among males, 63.4% had ocular disorders compared to 61.9% among females, showing a similar burden across genders in this population. Educational level showed a significant relationship with ocular disorder prevalence ($\chi^2 = 9.32$, p

$= 0.03$). The highest prevalence was observed among those with no formal education (73.6%), while those with tertiary education had the lowest prevalence (37.0%). This suggests that higher educational attainment may be linked to lower risk or better prevention of ocular disorders.

Income level was also significantly associated with ocular disorder presence ($\chi^2 = 12.05$, $p = 0.007$). Participants earning less than ₦10,000 monthly had the highest prevalence of ocular disorders (73.6%), compared to 53.0% among those earning ₦10,000–30,000 and 37.5% among those earning above ₦30,000. This indicates that lower income is correlated with a higher burden of ocular disorders in this IDP population.

Distribution of ocular disorders

Research Question 3: What are the most common ocular disorders affecting IDPs in this region?

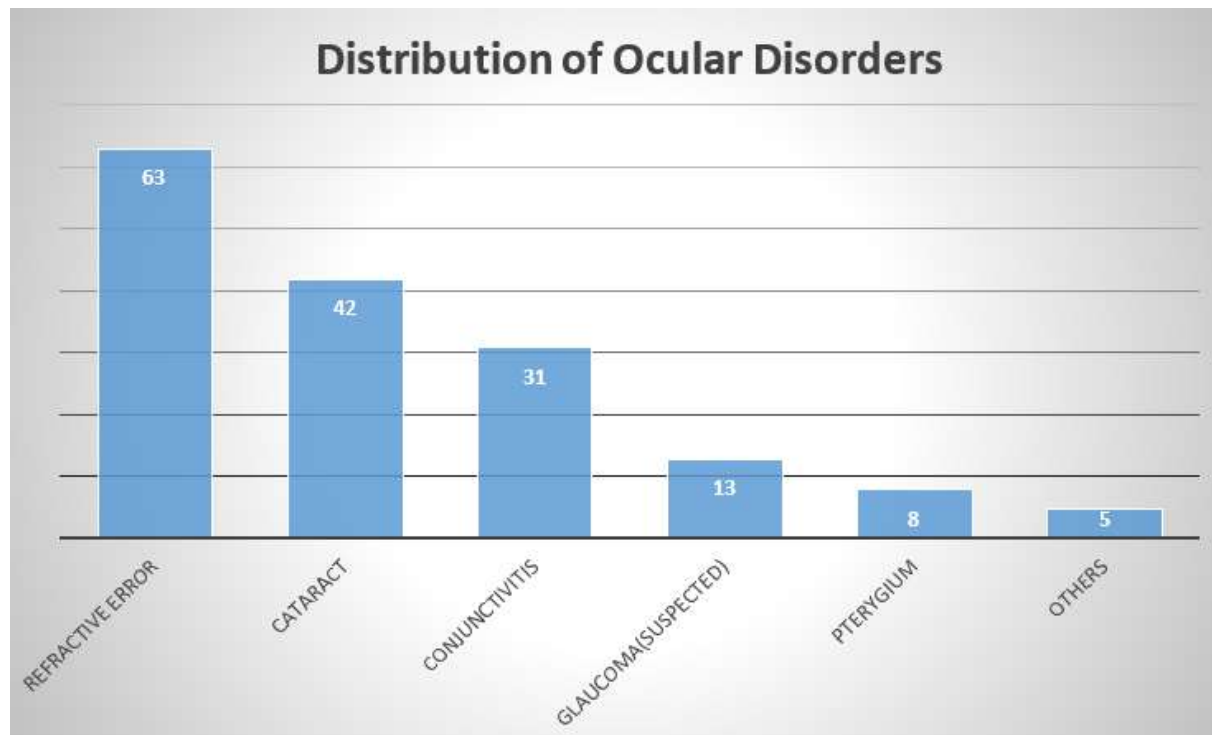


Figure 2: Distribution of Specific Ocular Disorders Identified Among IDPs

The most prevalent ocular condition was refractive error, affecting 63 respondents (24.3%). This was followed by cataracts, observed in 42 individuals (16.2%), and conjunctivitis, which affected 31 individuals (12.0%). Other conditions included glaucoma (suspected) in 13 cases (5.0%), pterygium in 8 cases (3.1%), and other conditions such as corneal scarring in 5 cases (1.9%). This distribution provides a detailed breakdown of the

types of ocular pathologies observed in the IDP population.

Access to eye care services

Research Question 4: What is the level of access to eye care services for IDPs in Benue State?

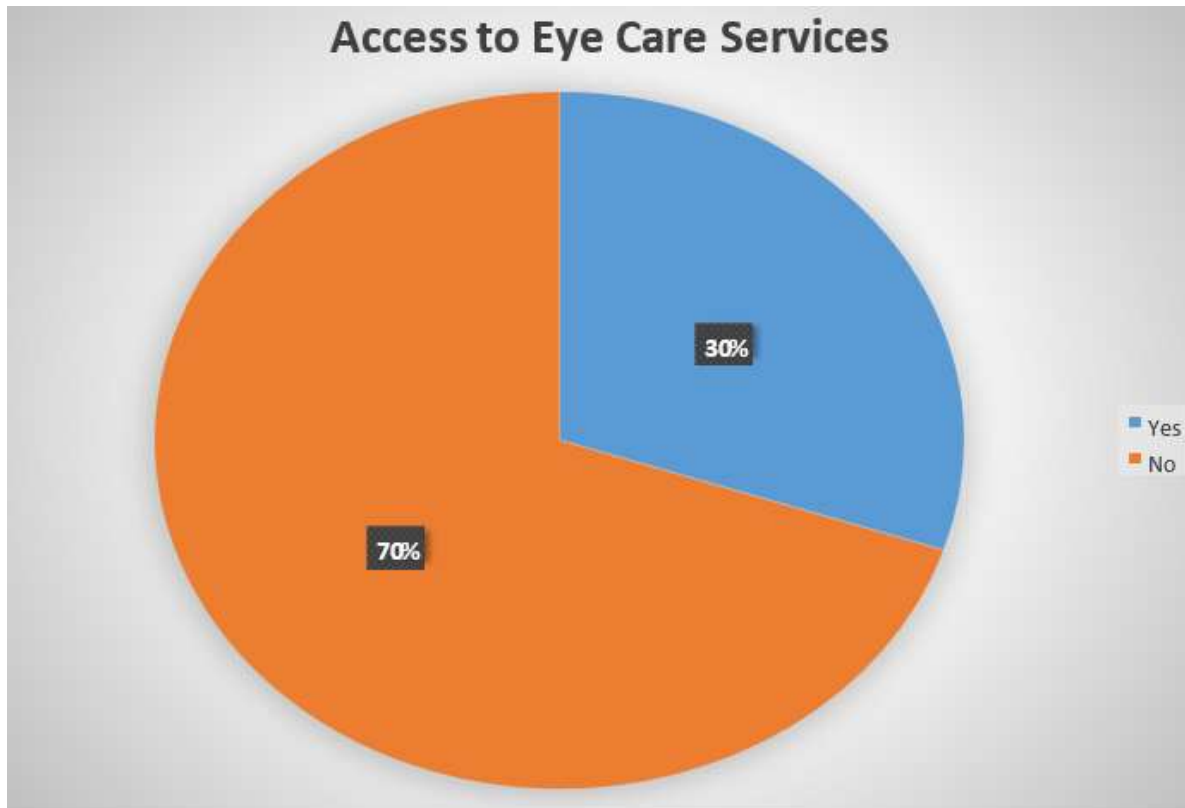


Figure 3: Utilization of Eye Care Services among IDPs in Benue State

Among the 259 participants, only 78 individuals (30.1%) reported having accessed any form of eye care services in the past, while 181 individuals (69.9%) had not accessed such services. This data highlights the utilization rate of eye care services among IDPs in the study area.

Association between demographic characteristics and access to eye care

Research Question 5: Is there an association between demographic characteristics and access to eye care services?

Table 3: Association between Demographic/Socioeconomic Characteristics and Access to Eye Care Services among IDPs

Demographic Variable	Accessed Eye Care n (%)	Did Not Access Eye Care n (%)	Chi-square (χ^2)	p-value
Age Group (years)			8.94	0.04*
18–29	26 (37.1)	44 (62.9)		
30–39	32 (31.4)	70 (68.6)		
40–49	14 (23.7)	45 (76.3)		
≥50	6 (21.4)	22 (78.6)		
Gender			2.07	0.15
Male	41 (36.6)	71 (63.4)		
Female	37 (25.2)	110 (74.8)		
Educational Level			7.51	0.05*
No formal education	16 (17.6)	75 (82.4)		
Primary education	32 (38.6)	51 (61.4)		
Secondary education	22 (37.9)	36 (62.1)		
Tertiary education	8 (29.6)	19 (70.4)		
Monthly Income (₦)			14.23	0.002*
<10,000	20 (13.9)	124 (86.1)		
10,000–30,000	39 (47.0)	44 (53.0)		
>30,000	19 (59.4)	13 (40.6)		

Table 4.3 shows the relationship between selected demographic characteristics and access to eye care services among the 259 internally displaced persons (IDPs) surveyed in Benue State. The analysis sought to determine if age, gender, education level, or monthly income influenced whether participants accessed eye care services. Starting with age, there was a statistically significant association with access to eye care ($\chi^2 = 8.94$, $p = 0.04$). Younger participants aged 18–29 years had the highest proportion accessing eye care services (37.1%), followed by those aged 30–39 years (31.4%). Access decreased notably among older groups, with only 23.7% of participants aged 40–49 years and 21.4% of those aged 50 years and above having accessed services. This indicates younger IDPs were more likely to seek eye care compared to their older counterparts.

Regarding gender, no statistically significant difference was observed ($\chi^2 = 2.07$, $p = 0.15$). Among males, 36.6% had accessed eye care, while only 25.2% of females reported accessing such services. Though males showed a somewhat higher access rate, the difference was not statistically meaningful in this sample. Educational level showed a borderline significant association with access to eye care services ($\chi^2 = 7.51$, $p = 0.05$). Access rates were lowest among those with no formal education (17.6%), while individuals with primary and secondary education reported higher access rates at 38.6% and 37.9%, respectively. Participants with tertiary education had an access rate of 29.6%. This suggests that even limited formal education is associated with better utilization of eye care services compared to no education. Finally, monthly income was strongly associated with access to eye care ($\chi^2 = 14.23$, $p = 0.002$). Respondents earning less than ₦10,000 monthly had the lowest access rate at 13.9%. Those earning between ₦10,000 and ₦30,000 had a much higher access rate of 47.0%, and the highest income group (>₦30,000) had an access rate of 59.4%. This clearly demonstrates that higher income levels facilitate better access to eye care services among IDPs. In summary, age, educational attainment, and income were significant determinants of access to eye care services within this population. Younger, more educated, and higher-income individuals were more likely to utilize available eye care resources, while gender did not show a significant effect on access in this study.

Barriers to accessing eye care

Research Question 6: What barriers prevent IDPs from accessing eye care services?

Table 4: Reported Barriers Preventing Access to Eye Care Services Among IDPs

Barrier	Frequency	Percentage (%)
Lack of money	109	60.2
No clinic nearby	81	44.8
No awareness of where to go	66	36.5
No transport	53	29.3
Fear of treatment	21	11.6
Long waiting time	18	9.9

The specific reasons given by the 181 individuals who had not accessed eye care services are presented in Table 4.4 above

The most commonly reported barrier was lack of money, cited by 109 respondents (60.2%). This was followed by absence of a nearby eye clinic, reported by 81 respondents (44.8%). Lack of awareness of where to go for care was reported by 66 individuals (36.5%), while lack of transportation was a barrier for 53 respondents (29.3%). Additional reasons included fear of treatment (21 respondents or 11.6%) and long waiting times (18 respondents or 9.9%).

DISCUSSION

This study investigated the prevalence, pattern, and determinants of ocular disorders, as well as access and barriers to eye care services among Internally Displaced Persons (IDPs) in Benue State, Nigeria. The findings reveal the relationship between sociodemographic factors, health status, and service utilization in a vulnerable population group.

The demographic breakdown revealed that females (56.8%) outnumbered males (43.2%) among the IDPs surveyed. This gender disparity aligns with humanitarian data globally, which show that women and children form the majority of displaced persons, largely due to gender-based violence, death of male family members during conflict, or the cultural tendency to keep women and children in camps while men seek work elsewhere. A similar demographic pattern was reported in a study by Musa et al. (2020) among IDPs in Borno State, Nigeria, where females also predominated. This female majority has implications for eye health planning in IDP settings, as women may face additional health barriers such as caregiving burdens, cultural taboos, or lack of autonomy in health decision-making.

The age distribution showed that the majority were young to middle-aged adults (18–39 years), constituting 66.4% of respondents. This mirrors the findings of Ochei et al. (2018), who noted that economically active age groups are most likely to be displaced, as they often bear the brunt of socioeconomic instability. However, the burden of ocular disorders among this group could severely impact camp productivity, reduce their participation in rebuilding

efforts, and lead to early disability if not addressed. Vision loss in these age groups can limit opportunities for education, employment, and mobility, thus perpetuating a cycle of poverty and dependency within IDP settings.

The data showed a very low level of formal education, with 35.1% of respondents having no formal education. This is notably higher than the 31.2% national average reported by the National Demographic and Health Survey (NDHS) (2023) in rural Northern Nigeria. The lower educational attainment among IDPs may be attributed to the direct disruption of schooling due to conflict, destruction of infrastructure, and displacement itself. This has significant implications for healthseeking behavior, as poor literacy reduces understanding of preventive health practices and limits awareness of available health services (Ekezie et al., 2022). It also affects the uptake of community health education programs.

The socioeconomic analysis revealed that more than half (55.6%) of respondents earned less than ₦10,000 monthly, placing them below the extreme poverty line. This level of poverty was also observed in humanitarian studies by UNHCR (2021), which highlighted how displacement strips individuals of economic power and access to livelihood opportunities. Compared to other studies like that of Ebeigbe & Akpalaba (2016) in Delta State, where the rural poor still earned slightly more, this finding indicates even more dire conditions among IDPs. The implication is that even low-cost health interventions may be unaffordable for most IDPs, making it necessary for eye care services to be entirely free or heavily subsidized.

The study found that 62.5% of the respondents had one or more ocular disorders, a strikingly high figure that suggests widespread visual health challenges among IDPs. This is significantly higher than the prevalence of ocular morbidity in the general Nigerian population, where the National Demographic and Health Survey (2023) reported a 5.1% blindness rate and approximately 32% prevalence of other visual impairments among adults aged 40 and above.

The disparity may be due to several factors. Overcrowded living conditions in IDP camps promote the spread of infectious eye diseases such as conjunctivitis and trachoma. Limited access to basic eye care services and optical correction often results in untreated refractive errors. Psychological stress and malnutrition can also compromise immune defenses, making residents more susceptible to infections and degenerative ocular changes.

In a similar study among displaced populations in Northern Nigeria, Chuemere et al. (2020) also reported a high prevalence of ocular disorders (58.1%), reinforcing the idea that displacement significantly worsens ocular health outcomes. However, the slightly higher figure in this study could reflect regional differences in camp infrastructure, exposure to sunlight/dust, and population density.

A statistically significant relationship was found between age and the prevalence of ocular disorders ($p =$

0.01), with prevalence increasing from 50.0% in the 18–29 age group to 72.9% in the 40–49 group. This trend is expected, as aging is a known risk factor for cataracts, presbyopia, and glaucoma due to oxidative stress and structural changes in ocular tissues (Kyari et al., 2015). This finding matches the results of Eze et al. (2021), who found an age-related increase in visual morbidity in rural Southeastern Nigeria. However, unlike in developed countries where early detection and management are standard, the IDPs in this study may lack even basic screening, allowing conditions to progress unchecked.

Educational status was significantly associated with ocular morbidity ($p = 0.03$), with prevalence highest among those with no formal education (73.6%) and lowest among tertiary-educated individuals (37.0%). This is consistent with findings by Ilochi et al. (2010), who observed that health literacy enhances both recognition of symptoms and utilization of health services. The difference in this study is particularly pronounced, likely due to the added disadvantage of displacement, which further widens the knowledge and access gap among the uneducated.

Income level also showed a significant inverse association with ocular disorders ($p = 0.007$). Individuals earning less than ₦10,000 monthly had a prevalence of 73.6%, compared to 37.5% among those earning above ₦30,000. This pattern was similarly observed in Aghaji et al. (2018), where lower-income individuals had a significantly higher risk of ocular morbidity. The reason is twofold: (1) low-income individuals are more exposed to risk factors (e.g., unprotected outdoor labor, poor hygiene), and (2) they are less likely to afford preventive care or spectacles. Gender, however, was not significantly associated with ocular morbidity ($p = 0.17$), although males (63.4%) had a marginally higher prevalence than females (61.9%). This result agrees with the findings of Abah et al. (2016), who also reported no significant gender difference in ocular morbidity in rural Nigeria. However, other studies such as Tesfaye et al., 2019 in Ethiopia observed higher prevalence among women, attributed to gender roles that increase exposure to cooking smoke and domestic stress. The lack of difference in this study could indicate uniform exposure and vulnerability within the camp environment, where living conditions affect all genders similarly.

Refractive errors (24.3%) were the most common condition, followed by cataracts (16.2%) and conjunctivitis (12.0%). This mirrors the global burden of eye disease as described in WHO (2019) reports, which cite uncorrected refractive errors and cataracts as the leading causes of visual impairment worldwide.

In a similar community-based study by Adepoju et al. (2022) in Southwest Nigeria, refractive errors were also the most prevalent disorder. However, the 24.3% in this IDP population is likely underestimated due to the lack of objective refraction equipment and access to comprehensive optometry services.

The high rate of cataracts is consistent with other studies in underserved populations, such as

Mahdi et al. (2023), who found untreated cataracts to be prevalent in rural Nigerian communities. Cataract prevalence increases with age and UV exposure, two relevant factors in the IDP context where older individuals live under poor shelter and have prolonged sun exposure.

Conjunctivitis, which accounted for 12%, is significantly higher than the general Nigerian prevalence (6–8%), likely due to camp-related environmental exposures. Shared personal items, poor sanitation, and dust-laden air facilitate the spread of infectious conjunctivitis. Similar findings were reported by Ilochi et al. (2020), who observed high rates of red eye and eye infections in overcrowded IDP camps in Borno State.

Other conditions such as suspected glaucoma (5.0%), pterygium (3.1%), and corneal scarring (1.9%) reflect the cumulative effects of neglect, environmental irritation, and lack of early intervention. These conditions, though less common, are often irreversible and can lead to permanent vision loss if undiagnosed.

Only 30.1% of IDPs had accessed eye care services, indicating critically low utilization. This is far below the 41.7% reported by Ebeigbe and Akpalaba (2016) in rural Delta communities and even lower than the 38% reported by Ilochi et al. (2018) in Enugu State, Nigeria. The lower rate among IDPs reflects additional constraints such as disrupted health infrastructure, donor fatigue, and poor integration of specialized care in humanitarian responses.

The implication is that the majority of ocular disorders among IDPs go undiagnosed and untreated.

This results in increased disability, reduced quality of life, and long-term socioeconomic dependency. The finding highlights an urgent need to integrate eye care into the basic health services offered in IDP camps.

Age was significantly associated with access ($p = 0.04$), with younger adults (18–29 years) more likely to access services than older adults (≥ 50 years). This contradicts clinical need, as older adults are more likely to require eye care. A similar age paradox was noted by Okoye et al. (2020), who observed that younger IDPs were more mobile, more informed, and more likely to seek external assistance.

Education was marginally significant ($p = 0.05$), with individuals having at least primary education more likely to access care. This supports Arthur et al. (2018), who found that health literacy significantly influences the utilization of eye care services in rural Nigerian communities. However, the small difference between secondary and tertiary-educated respondents suggests that even basic literacy can improve health-seeking behavior among IDPs.

Income had the strongest association ($p = 0.002$), reinforcing the consistent finding that affordability is a key driver of healthcare utilization (Aghaji et al., 2018). The more an individual earns, the greater their likelihood to afford transport, consultation, and treatment costs even in displacement settings.

Gender was not statistically significant, despite a visible trend of higher access among males (36.6%)

compared to females (25.2%). Cultural restrictions, safety concerns, and household responsibilities may silently prevent women from accessing services, even if not statistically captured.

The most reported barrier was lack of money (60.2%), followed by absence of nearby clinics (44.8%), and lack of awareness (36.5%). These findings are similar to those of Aghaji et al. (2018) and Ademola et al. (2025), indicating that cost and proximity remain the greatest barriers to eye care in Nigeria. Among IDPs, these barriers are magnified by systemic neglect and weak integration of specialized services in relief programs.

Barriers such as lack of transport (29.3%), fear of treatment (11.6%), and long waiting times (9.9%) reflect both logistical and psychological challenges. These were also observed in community studies by Ebeigbe & Akpalaba (2016), who emphasized the need to address patient perceptions and provider-side constraints. In IDP settings, fear may also stem from mistrust in temporary health providers or lack of understanding of medical procedures.

CONCLUSION

This study provides an in-depth examination of ocular health status, patterns of eye disorders, access to eye care services, and perceived barriers among Internally Displaced Persons (IDPs) in Benue State, Nigeria. It represents one of the few investigations focusing on the visual health challenges within displaced populations in Nigeria a group that remains marginalized in terms of both policy attention and healthcare access.

The findings unequivocally demonstrate that ocular morbidity is alarmingly high among IDPs, with 62.5% of the studied population presenting with one or more ocular disorders. This burden is disproportionately higher than that reported in the general Nigerian population, suggesting that the conditions of displacement characterized by poor sanitation, overcrowding, nutritional deficits, psychological stress, and limited access to healthcare play a major role in exacerbating visual health issues.

The study identified refractive error as the most common ocular condition, affecting nearly one quarter (24.3%) of respondents. Cataracts (16.2%) and conjunctivitis (12.0%) were also prevalent. These are predominantly preventable or treatable conditions, yet they remain unaddressed in this population, highlighting a major public health gap. Furthermore, the presence of conditions such as suspected glaucoma and pterygium, although less frequent, indicates the need for comprehensive screening and specialist care even in emergency settings.

The demographic analysis revealed that age, level of education, and income significantly influence the prevalence of ocular disorders and access to care. Older individuals, those with no formal education, and those living in extreme poverty were significantly more likely to

suffer from eye diseases and less likely to access appropriate services. These findings are consistent with the health access inequality model and reinforce the urgent need for targeted interventions that prioritize the most vulnerable segments of the population.

Alarming, only 30.1% of IDPs had ever accessed eye care services, and multiple access barriers were identified. Economic hardship was the predominant barrier, followed by the lack of nearby clinics, low awareness of available services, poor transport access, and fear of treatment. These barriers reflect both supply- and demand-side deficiencies and paint a grim picture of the unmet eye care needs in displaced populations.

Moreover, the absence of significant associations with gender both in ocular disorder prevalence and access suggests that displacement environments may homogenize some risk exposures across sexes, although qualitative studies are needed to explore hidden gendered barriers further.

The collective findings of this study underscore that IDPs are disproportionately affected by preventable ocular diseases, yet they are least likely to receive care. This dual burden threatens not just individual well-being, but also community functionality, as impaired vision diminishes educational opportunities, limits employment capacity, and increases dependency in already resource-constrained camp environments.

The implications of these findings are wide-reaching. There is a clear need to integrate eye health services into primary healthcare systems serving displaced populations. This includes routine vision screening, the provision of low-cost corrective lenses, surgical services for cataracts, treatment of infections, and long-term management of chronic eye conditions such as glaucoma. Addressing these issues is not only a medical necessity but also a human rights obligation and a critical component of restoring dignity and functionality among displaced persons.

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