

Research Article

# Eye Health Seeking Behavior and Its Associated Factors among Adult Population in Mangu LGA, Plateau State, Nigeria

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## Abstract

**Purpose:** This study was aimed to explore the eye health-seeking behaviors and its associated factors among adult population of Mangu Local Government Area (LGA) of Plateau State, Nigeria in order to promote individual determination for attaining better eye health-seeking behaviors.

**Methods:** This study was a population-based descriptive cross-sectional survey of 802 adult population aged 18 years and above was conducted in Mangu L.G.A, Plateau State, Nigeria using a multi-stage cluster random sampling design. Sociodemographic and eye health-seeking behavior data were collected using self-administered questionnaires. Vision status was defined using World Health Organization categories of visual impairment based on presenting Visual Acuity (VA). Data collected were analyzed using IBM SPSS version 20.0. All p-values reported were two tailed and significance was defined as  $P < 0.05$ .

**Results:** Although a total of 960 respondents were enumerated for the study, 802 (83.5%) adults participated. There were more female 525 (65.5%) than males 277 (34.5%). The majority 585 (72.9%) of respondents who had eye problems sought care for the eye problem. One hundred and fifty-seven (36.0%) and 153 (35.1%) sought care at the General hospital and at the community health centre respectively. While 38 (8.7%) and 29 (6.7%) sought care from ophthalmologists and Optometrists respectively. Cost of services (34.4%), language barrier (13.0%), decides not to seek care (10.1%) and transportation (9.1%) were the major reasons for not seeking eye care.

**Conclusion:** Although the majority of the respondents sought care for their eye problems, quite a large number of them sought care from non-eye care professionals. Cost of services, language barrier, transportation and services not available in the area were the major factors associated with eye health-seeking behaviour. Reduction in cost of services and health insurance coverage

will mitigate these barriers substantially.

**Keywords:** Eye Health-Seeking Behaviors; Health-Seeking Behaviors; Visual Impairments; Barriers; Quality of Vision; Blindness; Factors Associating

## Introduction

Eye Health-Seeking behavior (HSB) can be defined as willful action taken by individuals who have eye problems with the intention of finding a possible solution [1,2]. Behavior being a pattern or way of life could be obvious or hidden traits, that influence a man's attitude toward seeking eye health care through various factors such as socioeconomic factors, psychological factors, political factors, environmental factors, pathophysiological factors and cultural beliefs and practices [2]. Health-seeking

behavior of patient is a complex decision-making especially when it comes to the uptake of healthcare interventions, being influenced by the patients' overall engagement with health and healthcare, patient-healthcare provider relationships and previous experiences; and the socio-economic context of decision-making [3-5]. Studies in sub-Saharan Africa identified barriers to HSB among adults to include socioeconomic status, masculinity, lack of awareness of the need for primary eye care, cultural beliefs, peer influences, distance and cost, health and illness values, social support, residence and access to health resources, as well as lack of availability of eye care services, lack of awareness about the need and availability of services, financial constraints, utilization of time to receive such services, improper referral by general practitioners and belief in traditional medicine and taboos [6-11]. While suitable health-seeking behavior is important for better health outcomes, improper health-seeking behavior can promote ill-health outcomes leading to increased morbidity and mortality risks [4,12].

Good vision correlates with an individual's ability to perform daily activities and locomotion independently and visual impairment imping heavy burden on the individual and the society in general [13]. Study carried out in Jos, Plateau State, shows that the prevalence of visual impairment was 29.4% compared to the prevalence of 6.7% and 7.3% in South-West and South-South of Nigeria respectively [14,15]. This evidently indicate that the visual status of the people of Plateau state needs urgent attention. There is paucity of epidemiological data on eye health-seeking behavior among the adult population of Plateau State, Nigeria towards finding solution to their eye problems. This study was designed to explore the eye health-seeking behaviors and its associated factors among adult population of Mangu Local Government Area of Plateau State, Nigeria to promote individual determination for attaining better eye health-seeking behaviors.

## Material and Methods

### *Study Design and Sampling Procedure*

The study was a population based descriptive cross-sectional study of adult population in Mangu L.G.A. The study population comprised of adults in Mangu LGA aged 18 years and above. Mangu is a Local Government Area in Plateau State, Nigeria. Its headquarters are in the town of Mangu at 9°31'00"N 9°06'00"E. It has an area of 1,653 km<sup>2</sup> and a population of 294,931 at the 2006 census [16]. A multi-stage cluster random sampling technique was used to sample respondents for this study. There are eight (8) political districts comprising of 36 villages in Mangu L.G.A. In the first stage, four districts were randomly selected using random numbers generated from Microsoft excel. In the second stage, 16 villages from the four districts were surveyed. In the third stage, 20 households were randomly selected from each village (cluster) using random number generated from the sample frame, giving a total of 320 households. In the fourth stage, 3 adults aged 18 years and above were randomly selected from each household. In household where adult is less than 3, neighboring household with greater than 3 adults were used to make up for such households. 60 eligible respondents were recruited from the 16 villages making a total of 960 eligible individuals enumerated from the four districts. All enumerated participants were directed to the primary health centre (or community town hall in the absence of PHC) for data collection and comprehensive clinical examination.

Social and demographic data of all selected participants that gave consent were collected using self-administered structured questionnaire. Demographic data collected at the household enumeration interview included; age, sex, Occupation, Religion, level of education, family size, marital status, housing unit, source of drinking water, smoking status and average monthly income. The study was carried out in accordance with the code of ethics of the World Medical Association (Declaration of Helsinki) and ethical clearance was obtained from the Research and Ethic Committee of the University of Jos Teaching Hospital, Jos, Plateau State. Permission was also taken from the chairman of Mangu local government council as well as from the district head of the various villages. Informed consent was obtained from all participants or guardians after detailed explanation of the study procedure was done in both local dialects and English language. Confidentiality of the information collected was assured to the respondents.

### *Data Analysis*

All data collected were entered into IBM SPSS version 20.0 software for data analysis. Data analysis was performed using Chi square test. Relationship between visual impairment and health seeking behaviour were done using Chi square test. Fisher's exact test of chi square test was used whenever the count of sample in a cell is less than 5. All p-values reported are two tailed and significance was defined as  $P < 0.05$ .

## Results

A higher proportion of the respondents were in the age group 40-59 years with a mean age of  $51.6 \pm 17.4$  years (standard deviation). There were more female 525 (65.5%) than males with about half 405 (50.5%) of the respondents having no formal education. A majority 552 (68.8%) of the respondents were employed, married 628 (78.3%) and Christians 488 (60.8%). More than one-fourth of the respondents earn below 18,000 naira while majority 709 (88.4%) of the respondents had never smoked. More than half 456 (56.9%) of the respondents reside in two-bedroom housing units and had family sizes of seven and above. Their main source of water is well; 309 (38.5%), followed by piped water; 253 (31.5%) (Table 1).

| Variable                      | Options             | Frequency (n = 802) | Percent |
|-------------------------------|---------------------|---------------------|---------|
| Age Group (years)*            | <20                 | 24                  | 3.0     |
|                               | 20-39               | 143                 | 17.8    |
|                               | 40-59               | 382                 | 47.6    |
|                               | 60-79               | 180                 | 22.4    |
|                               | 80+                 | 73                  | 9.1     |
| Sex                           | Male                | 277                 | 34.5    |
|                               | Female              | 525                 | 65.5    |
| Level of education            | No formal education | 405                 | 50.5    |
|                               | Primary             | 121                 | 15.1    |
|                               | Secondary           | 179                 | 22.3    |
|                               | Tertiary            | 97                  | 12.1    |
| Employment status*            | Employed            | 552                 | 68.8    |
|                               | Unemployed          | 250                 | 31.2    |
| Marital status                | Single              | 63                  | 7.9     |
|                               | Married             | 628                 | 78.3    |
|                               | Divorced/separated  | 27                  | 3.4     |
|                               | Widowed             | 84                  | 10.5    |
| Religion                      | Christianity        | 488                 | 60.8    |
|                               | Islam               | 308                 | 38.4    |
|                               | ATR                 | 1                   | 0.1     |
|                               | Others**            | 5                   | 0.6     |
| Income per month in Naira (₦) | < 18,000            | 229                 | 28.6    |
|                               | 18,000-50,000       | 189                 | 23.6    |
|                               | 51,000-100,000      | 21                  | 2.6     |
|                               | >100,000            | 5                   | 0.6     |
|                               | None response       | 358                 | 44.6    |
| Smoking status                | Current smoker      | 45                  | 5.6     |
|                               | Former smoker       | 48                  | 6.0     |
|                               | Never smoked        | 709                 | 88.4    |
| Housing unit                  | One-bedroom         | 158                 | 19.7    |
|                               | Two bedrooms        | 456                 | 56.9    |
|                               | Three bedrooms      | 124                 | 15.5    |
|                               | ≥ Four bedrooms     | 64                  | 8.0     |
| Main Sources of water         | Well                | 309                 | 38.5    |
|                               | Piped water         | 253                 | 31.5    |
|                               | Rain                | 87                  | 10.8    |
|                               | Spring              | 86                  | 10.7    |
|                               | River               | 39                  | 4.9     |
|                               | Ponds/surface water | 28                  | 3.5     |

|                                                                                                                                                                                                                                                                                                                                                      |       |     |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|------|
| Household size++                                                                                                                                                                                                                                                                                                                                     | 1 - 6 | 291 | 36.3 |
|                                                                                                                                                                                                                                                                                                                                                      | ≥ 7   | 511 | 63.7 |
| *Mean ± standard deviation = 51.6 ± 17.4 years; +Farmers (31.9%), daily labourers (16.3%), Government employees (11.5%) and self-employed (10.6%), while unemployed are house wife (15.6%), student (5.7%) and others (8.4%); ** Such as Eckankar (0.3%), Ogboni confraternity (0.2%), Buddhism (0.1%); ++Median (interquartile range) = 9 (5 to 15) |       |     |      |

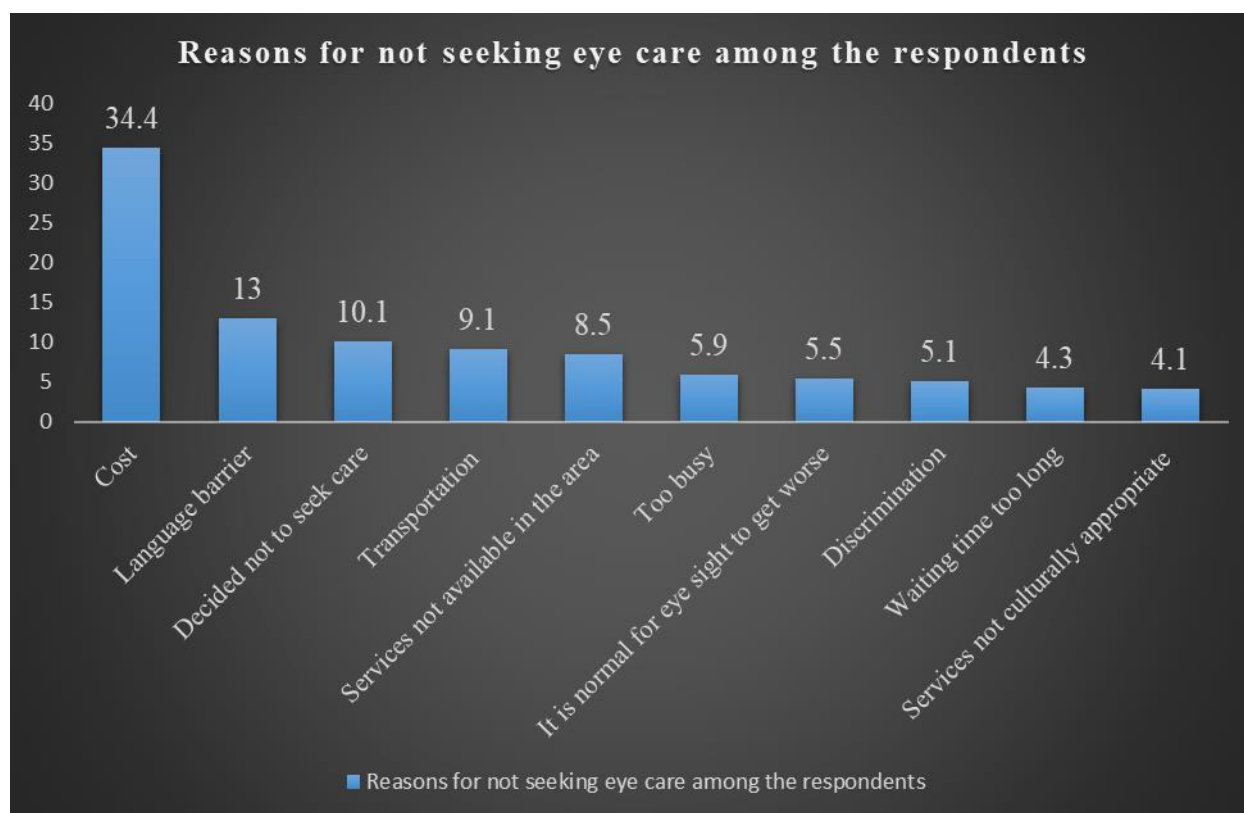
**Table 1:** Socio-demographic characteristics of the respondents.

About two-third 585 (73.0%) of the respondents had ever had eye problems, of which 585 (72.9%) had sought care for the eye problem. One hundred and fifty-seven (36.0%) sought care at the General hospital, 153 (35.1%) at the community health centre, 38 (8.7%) at the general practitioners and ophthalmologist respectively, twenty-nine (6.7%) and twenty (4.6%) at the Optician and Optometrist respectively. Finding shows that only one hundred and thirty-four (30.7%) of the respondents with eye problems had it resolved while the majority 302 (69.3%) of the respondents had their eye problems unresolved (Table 2).

| Variable                                    | Options                                | Frequency (n = 802) | Percent |
|---------------------------------------------|----------------------------------------|---------------------|---------|
| Ever had eye problems                       | Yes                                    | 586                 | 73.0    |
|                                             | No                                     | 216                 | 27.0    |
| Sought care for the eye problem             | Yes                                    | 585                 | 72.9    |
|                                             | No                                     | 217                 | 27.1    |
| Place of treatment for eye care (n = 436) * | General Hospital                       | 157                 | 36.0    |
|                                             | Community health centre                | 153                 | 35.1    |
|                                             | General practitioners (private clinic) | 38                  | 8.7     |
|                                             | Ophthalmologist                        | 38                  | 8.7     |
|                                             | Optician                               | 29                  | 6.7     |
|                                             | Optometrist                            | 20                  | 4.6     |
|                                             | Others                                 | 1                   | 0.2     |
| Eye problem resolved (n = 436)              | Yes                                    | 134                 | 30.7    |
|                                             | No                                     | 302                 | 69.3    |

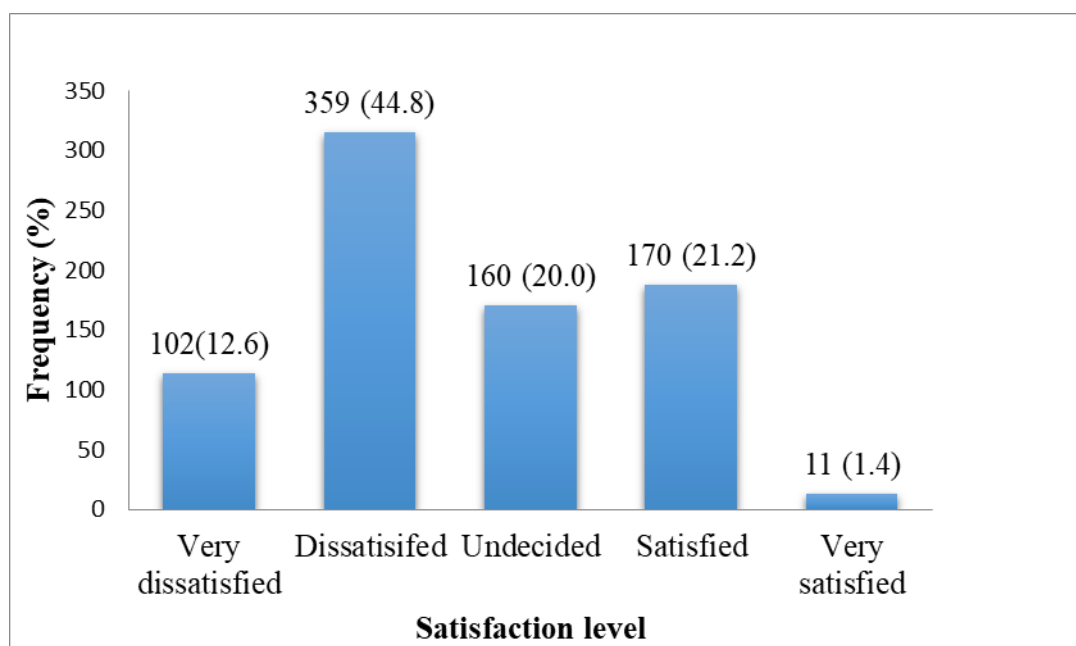
**Table 2:** Eye care seeking behavior among the respondents.

Over one-third 201 (34.4%) of the respondents had cost of service as the reason for not seeking eye care. Other reasons included; language barrier 76 (13.0%), decides not to seek care 59 (10.1%), transportation 53 (9.1%), service not available in the area 50 (8.5%). Services not culturally appropriate 24 (4.1%) was the least reason for not seeking eye care by the respondents (Fig. 1).



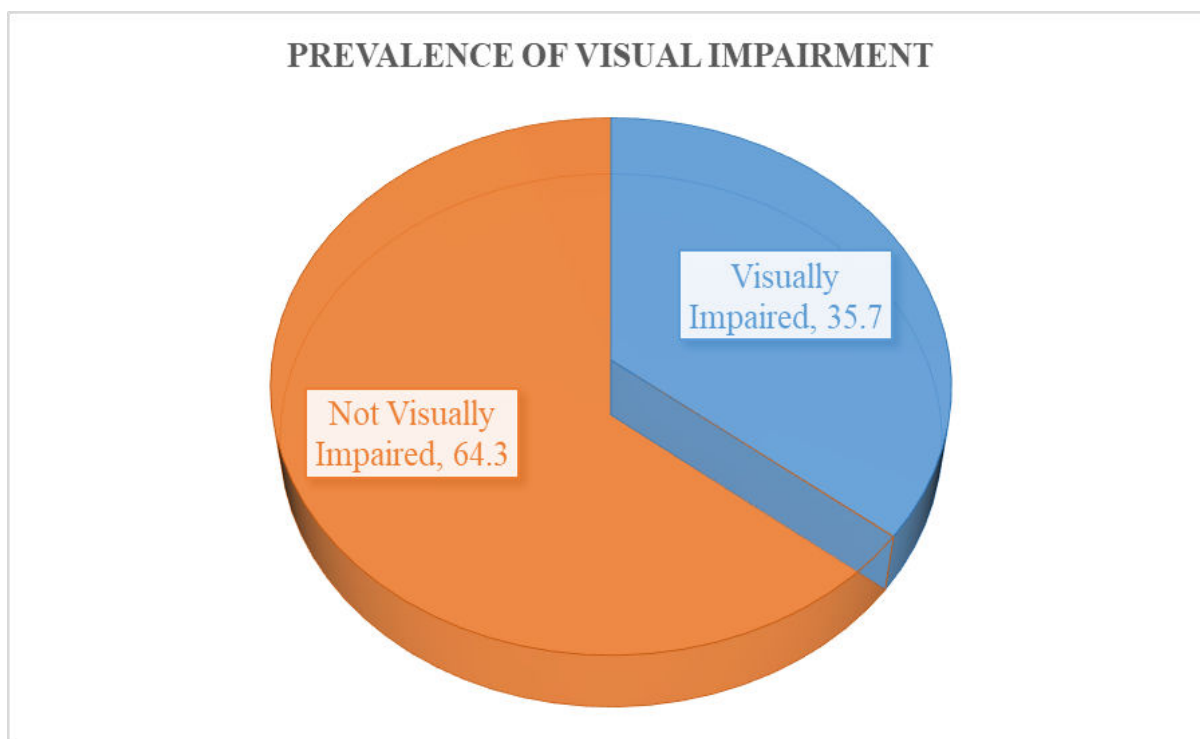
**Figure 1:** Reasons for not seeking eye care among the respondents (n = 585, multiple responses).

In Fig. 2, the majority of the respondents 359 (44.8%) were dissatisfied with the quality of their vision and only 11 (1.4%) were very satisfied with the quality of their vision.



**Figure 2:** Level of satisfaction with the quality of vision among the participants.

Over one-third of the respondents 286 (35.7%) were visually impaired. Low vision accounted for 27.6% (221) and Blindness accounted for 8.1% (65) of the respondents (Fig. 3).



**Figure 3:** Prevalence of visual impairment among the respondents.

In Table 3, Sixty-five (63.7%) of the respondents who were very dissatisfied with their level of vision had impaired vision, compared to 122 (34.0%) of those who were dissatisfied and 66 (41.3%) of those who were undecided. 33 (19.4%) of those who were satisfied with their level of vision had impaired vision. The association between level of vision satisfaction and impaired vision was statistically significant ( $\chi^2=59.858$ ,  $p<0.001$ ).

Two hundred and seventeen (37.0%) of respondents who have had eye problems were visually impaired compared with 69 (32.4%) of those without eye problems. The association between previous eye problems and impaired vision was not statistically significant ( $\chi^2=1.177$ ;  $p= 0.312$ ).

One hundred and eighty-four (37.9%) of respondents who sought care for eye problems had impaired vision compared with 102 (32.2%) that do not seek care. The association between seeking care for eye problems and impaired vision was not statistically significant ( $\chi^2=1.988$ ;  $p= 0.162$ ).

Seventy-three (46.5%) of respondents who sought care at a general hospital had impaired vision, compared with 59 (38.6%) of those who sought care at community health centers and 16 (42.1) sought care from a general practitioner (private clinic). 22 (57.9%) who sought care from an ophthalmologist and 10 (34.5%) from an optician had impaired vision compared with 5 (25.0%) who sought care from an optometrist. The association between place of eye care seeking and impaired vision was not statistically significant ( $\chi^2=10.073$ ;  $p= 0.103$ ). Eighty-eight (43.8%) of respondents who gave cost of service as the reason for not seeking care had impaired vision as compared with 12 (40.0%) for discrimination, 42 (55.3%) for language and 22 (43.3) for transport. The association between the reason for not seeking care and impaired vision was statistically significant ( $\chi^2=19.003$ ;  $p= 0.025$ ).

| Variables                    | Options           | Normal vision n = 516 (%) | Impaired vision n = 286 (%) | p-value* |
|------------------------------|-------------------|---------------------------|-----------------------------|----------|
| Level of Vision Satisfaction | Very dissatisfied | 37 (36.3)                 | 65 (63.7)                   | <0.001+  |
|                              | Dissatisfied      | 237 (66.0)                | 122 (34.0)                  |          |
|                              | Undecided         | 94 (58.7)                 | 66(41.3)                    |          |
|                              | Satisfied         | 137 (80.6)                | 33 (19.4)                   |          |
|                              | Very satisfied    | 11 (100.0)                | 0 (0)                       |          |
| Past Eye Problem             | Yes               | 369 (62.9)                | 217 (37.1)                  | 0.312    |
|                              | No                | 147 (67.6)                | 69 (32.4)                   |          |

|                                        |                                         |            |            |        |
|----------------------------------------|-----------------------------------------|------------|------------|--------|
| Sought Care for Eye Problem            | Yes                                     | 301 (62.1) | 184 (37.9) | 0.162  |
|                                        | No                                      | 215 (67.8) | 102 (32.2) |        |
| Place of Eye Care Seeking (N=436)      | General hospital                        | 84 (53.5)  | 73 (46.5)  | 0.103+ |
|                                        | Community health centre                 | 94 (61.4)  | 59 (38.6)  |        |
|                                        | General practitioner                    | 22 (57.9)  | 16 (42.1)  |        |
|                                        | Ophthalmologist                         | 16 (42.1)  | 22 (57.9)  |        |
|                                        | Optician                                | 19 (65.5)  | 10 (34.5)  |        |
|                                        | Optometrist                             | 15 (75.0)  | 5 (25.0)   |        |
|                                        | Others                                  | 0 (0)      | 1 (100.0)  |        |
| Reasons for Not Seeking Eye Care       | Cost of services                        | 113 (56.2) | 88 (43.8)  | 0.025  |
|                                        | Discrimination                          | 18 (60.0)  | 12 (40.0)  |        |
|                                        | Language                                | 34 (44.7)  | 42 (55.3)  |        |
|                                        | Transport                               | 30 (57.7)  | 22 (43.3)  |        |
|                                        | Service not culturally appropriate      | 13 (54.2)  | 11 (45.8)  |        |
|                                        | Decided not to seek care                | 40 (67.8)  | 19 (32.2)  |        |
|                                        | Waiting time too long                   | 19 (76.0)  | 6 (24.0)   |        |
|                                        | It is normal for eye sight to get worse | 25 (80.6)  | 6 (19.4)   |        |
|                                        | Too busy                                | 22 (62.9)  | 13 (37.1)  |        |
|                                        | Service not available in Area           | 31 (63.3)  | 18 (36.7)  |        |
| *Chi-square test; +Fisher’s exact test |                                         |            |            |        |

**Table 3:** Eye care-seeking behavior by visual impairment among respondents.

## Discussion

This study was designed to explore the eye health-seeking behaviors and its associated factors among adult population of Mangu Local Government Area of Plateau State, Nigeria. A total of 802 (83.5%) respondents participated in the survey, of which over two-third 585 (73.0%) of the respondents had eye problems. Although majority 585 (72.9%) had sought care for their eye problems, only 20.0% of them sought care from eye care practitioners (Optometrists, Ophthalmologists and Opticians). Similar studies found that most people with eye problem seek care from general hospital and from general physicians in private clinics instead of professional eye care practitioners [17,18]. The reasons could either be many people do not consider eye problem serious enough to seek urgent help from a professional or there is an absolute lack of awareness about eye care professional and facilities which provide eye care [17]. Therefore, is an expedient strategy to integrate Primary Eye Care (PEC) into Primary Health Care (PHC) in order to provide grassroots promotive, preventive and curative eye care services at all levels of health care for effective utilization of health care delivery, especially among people in rural areas [19,20]. The results of the study shows that the major barriers to seeking eye care were cost of services (34.4%), Language barrier (13.0%), decision not to seek care (10.1%), transportation (9.1%) and Services not available in the area (8.5%). The association between the reason for not seeking care and impaired vision was statistically significant ( $\chi^2=19.003$ ;  $p=0.025$ ). These barriers are in consonants with the barriers identified in sub-Saharan Africa [6,7]. In similar trends, previous studies show that the cost of eye care services and transportation to eye care facilities were the major barriers to seeking eye care [21-24]. Cost of eye care service as a barrier was further proven when individuals with insurance coverage were found to have better eye care seeking behavior than those without insurance coverage [10,25,26]. In a similar study conducted by Kumar et al. to understand treatment-seeking behavior of patients with Sight Threatening Diabetic Retinopathy (STDR) in India, they found that Cost of care, access to care and financial constraints were the major barriers to seeking eye care, while fear of losing vision was the main cues to action that motivated the respondents to seek eye care [27].

This study found that 63.7% of the respondents who were very dissatisfied with their level of vision had impaired vision and the association between level of vision satisfaction and impaired vision was statistically significant ( $\chi^2=59.858$ ,  $p<0.001$ ). Level of

satisfaction with vision is a pointer to either healthy eyes or ill eyes. Increasing level of dissatisfaction should be the subjective litmus test for an individual to seek immediate attention to his or her eye problems. Failure to seek timely remedy to the red-flag level of vision dissatisfaction may lead to preventable loss of vision. Studies had shown that delayed presentation of patients to eye care facilities is a key determinant of outcomes of the eye disorders [28,29]. Delay in receiving requisite eye care may consequently lead to serious eye problems including blindness, with its associated physical, psychological, socio-economic and environmental consequences [30].

## Conclusion

Although the majority of the respondents sought care for their eye problems, quite a large number of them sought care from non-eye care professionals such as general hospitals, community health centre and general practitioners in private clinics. Only a few of the respondents with eye problems sought care from ophthalmologists and optometrists. The majority of the respondents were not satisfied with their level of vision. The major barriers to seeking eye care in this study were cost, Language barrier, transportation and Services not available in the area. Many people in the “at-risk population” group frequently do not have regular and timely eye examinations to ensure early diagnosis and treatment. Appropriate eye health education may encourage preventative eye health care, creating an avenue for early diagnosis and treatment before visual loss has occurred.

## Conflict of Interests

The authors have no conflict of interest to declare.

## References

1. Oberoi S, Chaudhary N, Patnaik S, Singh A. Understanding health seeking behavior. *Fam Med Prim Care Rev.* 2016;2:463-4.
2. Ng'ambi W, Mangal T, Phillips A, Colbourn T, Nkhoma D, Revill P, et al. A cross-sectional study on factors associated with health seeking behavior of Malawians aged 15 + years in 2016. *Malawi Med J.* 2020;32(4):205-12.
3. Bechange S, Jolley E, Tobib P, Mailud E, Sentongoe J, Chulua T, et al. Understanding patient health-seeking behavior to optimise the uptake of cataract surgery in rural Kenya, Zambia and Uganda: findings from a multisite qualitative study. *Int Health.* 2022;14(1):57-63.
4. Latunji O, Akinyemi O. Factors Influencing Health-Seeking behavior among civil servants in Ibadan, Nigeria. *Ann Ib Postgr Med.* 2018;16(1):52-60.
5. Musoke D, Boynton P, Butler C. Health seeking behavior and challenges in utilizing health facilities in Wakiso district, Uganda. *Afr Heal Sci.* 2014;14(4):1046-55.
6. Hertz J, Sakita F, Kweka G, Loring Z, Thielman N, Temu G. Healthcare-seeking behavior, barriers to care and predictors of symptom improvement among patients with cardiovascular disease in northern Tanzania. *Int Heal.* 2022;14:373-80.
7. Gordon T, Booysen F, Mbonigaba J. Socio-economic inequalities in the multiple dimensions of access to healthcare: the case of South Africa. *BMC Public Health.* 2020;20(1):289.
8. Kuuire V, Bisung E, Rishworth A, Dixon J, Luginaah I. Health seeking behavior during times of illness: a study among adults in a resource poor setting in Ghana. *J Public Heal.* 2015;38(4):e545-53.
9. Balasubramaniam S, Kumar D, Kumaran S, Ramani K. Factors affecting eye care-seeking behavior of parents for their children. *Optom Vis Sci.* 2013;90(10):1138-42.
10. Akowuah P, Merepa S, Abazele A, Gyamfi J, Adjei-Anang J, Djeagbo P, et al. Barriers to utilization of eye care services in the upper east region, Ghana. *Adv Ophthalmol Vis Syst.* 2017;7(6):405-7.
11. Ebeigbe J. Factors influencing eye-care seeking behavior of parents for their children in Nigeria. *Clin Exp Optom.* 2018;101(4):560-4.
12. Hussain A, Islam L, Mashreky S, Rahman A, Viitasara E, Dalal K. Barriers to the uptake of eye health services of the children in rural Bangladesh : A community-based crosssectional survey. *PLoS One.* 2023;18(12):e0295341.
13. Moyegbone JE, Nwose E, Kio F, Agege E, Omatsuli T, Odoko J, et al. Prevalence and Pattern of Visual Impairment among Adult Population in Mangu Local Government Area of Plateau State, Nigeria. *Ophthalmol Res An Int J.* 2023;18(2):18-29.
14. Malu K. Blindness and visual impairment in north central Nigeria: a hospital-based study. *Niger Postgr Med J.* 2013;20(2):98-103.
15. Moyegbone J, Nwose E, Anowa E, Clarke A, Odoko J, Agege A. Prevalence of visual impairment among primary and secondary school children in delta state, Nigeria. *J Niger Optom Assoc.* 2023;25(1):42-53.

16. National Population Commission. Population distribution by sex, state, LGA and senatorial district. Fed Repub Niger. 2006.
17. Shukla P, Vashist P, Suraj S, Gupta V, Gupta N, Bharadwaj A. Effect of Integrated People-Centred Eye Care (IPEC) model on eye care seeking behaviour of community. *Indian J Public Health*. 2022;66(3):282-6.
18. Arjun P, Nair S, Jilisha G, Anand J, Babu V, Moosan H. Assessing health-seeking behavior among Asthma and COPD patients in urban South India. *J Fam Med Prim Care*. 2019;8:2714-9.
19. Moyegbone JE, Nwose EU, Nwajei SD, Agege EA, Odoko JO, Igumbor EO. Integration of eye care into primary healthcare tier in Nigeria health system: A case for Delta State. *Clin Med Rev Reports*. 2020;3(2):1-6.
20. Rangavittal S, Narayanan A. Eye care seeking behavior among rural adults in South India: Tamil Nadu Rural Eye Examination (TREE) Study Report 1. *Indian J Ophthalmol*. 2022;70:3255-9.
21. Palagyi A, Ramke J, du Toit R, Brian G. Eye care in Timor-Leste: a population-based study of utilization and barriers. *Clin Exp Ophthalmol*. 2008;36(1):47-53.
22. Kovai V, Krishnaiah S, Shamanna B, Thomas R, Rao G. Barriers to accessing eye care services among visually impaired populations in rural Andhra Pradesh, South India. *Indian J Ophthalmol*. 2007;55(5):365-71.
23. Ndegwa L, Karimurio J, Okelo R, Adala H. Barriers to utilisation of eye care services in Kibera slums of Nairobi. *East Afr Med J*. 2005;82(10):506-8.
24. Chou C, Sherrod C, Zhang X, Barker L, Bullard K, Crews J, et al. Tiers to eye care among people aged 40 years and older with diagnosed diabetes, 2006-2010. *Diabetes Care*. 2014;37(1):180-8.
25. Harmon C, Nolan B. Health insurance and health services utilization in Ireland. *Heal Econ*. 2001;10(2):135-45.
26. Gnawali D, Pokhrel S, Sié A, Sanon M, De Allegri M, Souares A, et al. The effect of community-based health insurance on the utilization of modern health care services: evidence from Burkina Faso. *Health Policy (New York)*. 2009;90:214-22.
27. Kumar S, Mohanraj R, Raman R, Kumar G, Luvies S, Machhi S, et al. I don't needs an eye check-up. A qualitative study using a behavioral model to understand treatment-seeking behavior of patients with Sight Threatening Diabetic Retinopathy (STDR ) in India. *PLoS One*. 2023;18(6):e0270562.
28. Arunga S, Kintoki G, Gichuhi S, Onyango J, Newton R, Leck A. Delay along the care seeking journey of patients with microbial keratitis in Uganda. *Ophthalmic Epidemiol*. 2019;26(5):311-20.
29. Burton M, Pithuwa J, Okello E. Microbial keratitis in East Africa: why are the outcomes so poor? *Ophthalmic Epidemiol*. 2011;18(4):158-63.
30. Onyiaorah A, Kizor, Akaraiwe N, Nwosu S. Eye Health-seeking behavior of traders in rural Nigeria. *J West Afr Coll Surg*. 2022;12:7-11.

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