

**PREVALENCE AND PERCEPTION ON THE PREVENTION AND CONTROL
STRATEGIES OF MALARIA AMONG PATIENTS ATTENDING PHC CENTRE
LOKUWA, MUBI, ADAMAWA STATE**

**Tizhe Geoffrey Jacob, Elkanah Obadiah Sambo, Wahedi, Jasini Alexander &
Rogers Roland Wazakari**

¹Department of Science Laboratory Technology Federal Polytechnic Kaltungo.
Gombe State-Nigeria

²Department of Public Health, Taraba State University, Jalingo.

³Adamawa State University, University, Department of Zoology, Faculty of Science
and Computing, Adamwa State-Nigeria

⁴Department of Political Science, Bayero University, Kano

ABSTRACT

The study examines the prevalence and perception on the prevention and control strategies of malaria among patients attending PHC Centre Lokuwa, Mubi, Adamawa State. Malaria remains a major public health challenge in Nigeria, with endemic areas such as Adamawa State experiencing sustained transmission despite extensive control efforts. The objectives of the study are to determine the prevalence of malaria among patients attending PHC Centre Lokuwa, Mubi and to assess patients' knowledge and perception of malaria prevention and control strategies. The study adopts the Health Belief Model (HBM). The study will adopt a mixed-methods cross-sectional design, combining quantitative and qualitative approaches to comprehensively assess malaria prevalence, knowledge, perceptions, and factors influencing prevention and control strategies. The tabulated data are analysed using simple percentages for the bio-data, while the main questions on the questionnaires, as well as the chi-square analysis, are also analysed using simple percentages and arithmetic tables with the help of the Statistical Package for Social Science version 23. The study found that malaria remains highly prevalent among patients attending PHC Centre Lokuwa, Mubi, with a significant proportion of respondents testing positive during the study period and Patients demonstrated varying levels of knowledge and perception regarding malaria prevention and control strategies. The study recommends that PHC Centre Lokuwa and local health authorities should implement targeted health education campaigns to address knowledge gaps and misconceptions about malaria transmission, prevention, and treatment and Patients attending PHC centre Lokuwa should be encouraged to

regularly use insecticide-treated nets, indoor residual spraying, and other proven preventive measures.

Keywords: *Malaria, Prevalence, Prevention, Perception and Primary Health Care (PHC)*

1.1 Introduction

Malaria remains a major public health challenge in sub-Saharan Africa, with Nigeria accounting for the highest global burden of cases and deaths (WHO, 2023; NMEP, 2022). In Nigeria, persistent malaria transmission is driven by favourable climatic conditions, socioeconomic constraints, weak health infrastructure, and inconsistent adoption of preventive measures (FMOH, 2021). Adamawa State experiences perennial malaria transmission, particularly during the rainy season, when mosquito breeding intensifies (ASMCP, 2022). In Mubi, poor environmental sanitation, limited healthcare access, and low awareness of effective prevention strategies contribute to high malaria prevalence, especially among children under five and pregnant women (Abdullahi et al., 2021; Okeke et al., 2022).

Primary Health Care (PHC) facilities serve as the first point of malaria prevention and treatment in rural communities. PHC Centre Lokuwa in Mubi provides diagnosis, treatment, and health education; however, high malaria case records persist despite interventions such as insecticide-treated nets (ITNs), indoor residual spraying (IRS), artemisinin-based combination therapy (ACT), and chemoprevention (Adebayo et al., 2021). This suggests gaps in intervention coverage, utilization, or community acceptance.

Malaria control in Mubi relies on vector control, chemoprevention, health education, and case management. ITNs and IRS remain key preventive tools, though their effectiveness is limited by inconsistent use, logistical challenges, and emerging insecticide resistance (WHO, 2016; CDC, 2024). Chemoprevention strategies, including intermittent preventive treatment in pregnancy (IPTp) and seasonal malaria chemoprevention (SMC) for children, have shown effectiveness but face challenges related to awareness and drug availability. Health education and community engagement improve prevention practices, yet misconceptions and delayed care-seeking persist (Abdul Rahim et al., 2025).

Additional challenges include antimalarial drug resistance, poverty-related barriers to healthcare access, and shortages of trained personnel and diagnostic tools (WHO, 2023; NIAID, 2025). Although malaria control strategies have reduced morbidity, their overall effectiveness in Mubi remains constrained by uneven coverage and resistance issues. Given the scarcity of recent, location-specific data for Mubi, this study is necessary to assess malaria prevalence and community perceptions of prevention and control strategies at PHC Centre Lokuwa, thereby informing targeted and context-appropriate interventions.

1.2 Statement of the Problem

Malaria remains a major public health challenge in Nigeria, with endemic areas such as Adamawa State experiencing sustained transmission despite extensive control efforts (NMEP, 2021). The disease continues to cause significant morbidity and mortality, particularly among children under five and pregnant women. Although interventions including insecticide-treated nets (ITNs), indoor residual spraying (IRS), and artemisinin-based combination therapy (ACT) are widely implemented, expected reductions in malaria prevalence have not been fully achieved, indicating gaps in implementation and effectiveness (WHO, 2022).

At PHC Centre Lokuwa in Mubi, the persistent presentation of malaria cases reflects ongoing weaknesses in prevention and control. These challenges are linked to poor adherence to preventive measures, community misconceptions about malaria transmission, environmental conditions favorable to mosquito breeding, and socioeconomic and health-system barriers that limit access to quality care (FMOH, 2020). This situation highlights the need to assess malaria prevalence and community perceptions of control strategies at PHC Centre Lokuwa. Such an evaluation will identify knowledge gaps, behavioral and structural barriers, and provide evidence to strengthen context-specific interventions, particularly in the face of emerging insecticide resistance. Findings from the study may also inform malaria control efforts in similar settings across Adamawa State and other malaria-endemic regions of Nigeria.

1.3 Aims and Objectives of the Study

The broad objective of the study is to determine the Prevalence and perception on the prevention and control strategies of malaria among patients attending PHC Centre Lokuwa, Mubi, Adamawa State. The specific objectives are to:

- i. Determine the prevalence of malaria among patients attending PHC Centre Lokuwa, Mubi.
- ii. Assess patients' knowledge and perception of malaria prevention and control strategies.

1.4 Research Questions

To achieve the study's objectives, the following research questions will guide the investigation:

1. What is the prevalence of malaria among patients attending PHC Centre Lokuwa?
2. What are the knowledge levels and perceptions of patients regarding malaria transmission, prevention, and treatment?

1.5 Hypotheses

Ho1: The prevalence of malaria among patients attending Lokuwa PHC Centre is significantly higher than the national average due to environmental and socioeconomic factors specific to the Mubi region.

Ho2: Patients attending Lokuwa PHC Centre have low to moderate knowledge levels about malaria transmission, prevention, and treatment, with misconceptions contributing to inadequate preventive practices.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Malaria Prevalence

Malaria is a life-threatening disease spread to humans by some types of mosquitoes. It is mostly found in tropical countries. It is preventable and curable. The infection is caused by a parasite and does not spread from person to person. Symptoms can be mild or life-threatening. Mild symptoms are fever, chills and headache. Severe symptoms include fatigue, confusion, seizures, and difficulty breathing. Infants, children under 5 years, pregnant women, travelers and people with HIV or AIDS are at higher risk of severe infection (WHO, 2023).

The most common early symptoms of malaria are fever, headache and chills. Symptoms usually start within 10-15 days of getting bitten by an infected mosquito. Symptoms may be mild for some people, especially for those who have had a malaria infection before. Because some malaria symptoms are not specific, getting tested early is important. Some types of malaria can cause severe illness and death (Ibrahim *et al.*, 2021). Infants, children under 5 years, pregnant women, travelers and people with HIV or AIDS are at higher risk. Severe symptoms include: extreme tiredness and fatigue, impaired consciousness, multiple convulsions, difficulty breathing, dark or bloody urine, jaundice (yellowing of the eyes and skin), abnormal bleeding. People with severe symptoms should get emergency care right away. Getting treatment early for mild malaria can stop the infection from becoming severe. Malaria infection during pregnancy can also cause premature delivery or delivery of a baby with low birth weight (WHO, 2023).

2.1.2 The Prevalence of Malaria Infections in Nigeria

The prevalence of malaria infection among the country's population varies from place to place, even within the same country, and may be due to differences in sociocultural, economic, socio-demographic, environmental and climatic factors (Yahana *et al.*, 2019). In Nigeria, malaria prevalence of 66.7% in 2021, 64.0% in 2022, and 58.0% in 2023 have been reported by previous studies (WHO, 2023). According to the 2021 World Malaria Report, Nigeria had the highest number of global malaria cases (26.6 % of global malaria cases) and the highest number of deaths (31% of global malaria deaths) in 2021. In the same year, Nigeria had an estimated 68 million cases and 194,000 deaths due to malaria. The country accounted for an estimated 54% of malaria cases in West Africa in 2021. Case numbers decreased by 2% between 2020 and 2021, from 312.7 to 306 per 1000 of the population at risk. Deaths increased by 3.5%, from 0.91 to 0.94 per 1000 of the population at risk during that same period (World Health Organization, 2023). The incidence of malaria was significantly higher in the North Central region of Nigeria compared to the rest of the country. The North East region, although having higher incidence than the Southern regions, had lower incidence than the North Central and North West regions (Ibrahim, *et al.*, 2023). Malaria incidence

was higher in rural residential areas compared to urban settings in Nigeria. The higher incidence in rural areas could be attributed to prevailing cultural practices that predispose people to malaria infection (Omoya & Ajayi, 2020). Malaria prevalence was reported to be as high as 70-99% in the Southern regions of Nigeria, which was attributed to higher rainfall, more water bodies, and heavy forest cover that aid malaria transmission (Ibrahim *et al.*, 2023). However, these authors found the incidence of malaria to be significantly higher in the Northern regions compared to the South. The North East region had higher coverage of insecticide treated nets compared to the North Central and North West regions, which may have contributed to its relatively lower malaria incidence (Awosula, 2021).

2.1.3 Prevention and Control Strategies

Malaria prevention and control now rely on integrated strategies combining vector control, chemoprevention, and improved case management (WHO, 2023). Insecticide-treated nets, including pyrethroid-PBO nets, and indoor residual spraying remain key, though rising insecticide resistance challenges effectiveness. Chemoprevention strategies, such as Seasonal Malaria Chemoprevention (SMC) and Intermittent Preventive Treatment in pregnancy (IPTp), show high protective efficacy in children and pregnant women. Advances in diagnostics and treatment, including next-generation rapid tests and triple ACT therapies, have improved access and case management, particularly in rural areas. Despite these gains, insecticide and drug resistance, health system limitations, and treatment gaps continue to threaten progress, highlighting the need for enhanced monitoring, novel tools, and integrated interventions to accelerate malaria elimination (RBM Partnership, 2023).

2.2 Theoretical Framework

The study adopts the Health Belief Model (HBM), one of the earliest and most widely used theories for explaining health-related behaviours, particularly in disease prevention and health promotion. Developed in the 1950s by Hochbaum, Rosenstock, and Kegels, the model was initially designed to explain low participation in preventive health programs despite the availability of free or subsidized

services. Over time, HBM has become a dominant framework in public health research, emphasizing that individuals' engagement in health behaviours is shaped by perceptions of susceptibility, severity, benefits, and barriers, along with cues to action and self-efficacy (Rosenstock, Strecher, & Becker, 1988).

In the context of malaria prevention, HBM provides a framework to understand why individuals adopt or ignore recommended practices such as using insecticide-treated nets, indoor residual spraying, and prompt treatment-seeking. Patients who perceive high susceptibility and severity, recognize the benefits of preventive measures, and encounter minimal barriers are more likely to comply with malaria control strategies. Cues to action, such as health education at PHC centres or community sensitization campaigns, further motivate preventive behaviour. Applying HBM in this study helps identify perceptual gaps, misconceptions, and barriers, providing critical insight for designing targeted interventions to improve adherence, enhance community participation, and ultimately reduce malaria prevalence at PHC Centre Lokuwa, Mubi.

3.0 Methodology

3.1 Study Area

Mubi, located in Mubi North Local Government Area of Adamawa State, northeastern Nigeria, has a historical origin traceable to the late 18th century, with periods of Fulani rule, colonial administration, and eventual integration into Nigeria in 1961 (Abah Adah, 2015). Mubi North Local Government Area was formally created in 1976 and underwent several administrative restructurings, leading to its present status following the creation of Adamawa State in 1996. Geographically, Mubi lies on the western bank of the Yadzaram River at the foothills of the Mandara Mountains, bordering the Republic of Cameroon to the east. It is approximately 196 km north of Yola, the state capital, and lies within the Sudan Savannah vegetation belt at latitude 10.27°N and longitude 13.28°E, with an average elevation of 1,906 feet. The area shares boundaries with Hong, Michika, Maiha, and Mubi South Local Government Areas.

The climate is characterized by distinct wet and dry seasons. The rainy season spans April to October, peaking in July and August, with an average annual rainfall of about 759 mm. Temperatures range from an average minimum of 15.2°C to a maximum of 39.7°C, while the dry season (November–April) is marked by the Harmattan wind, with lowest humidity levels recorded in January and February (Adebayo & Tukur, 2004). Administratively, Mubi North consists of four districts Mubi, Mayo-Bani, Fali, and Ba'a and two development areas. The major ethnic groups include Fali, Fulani, Gude, Hausa, Higgi, and Marghi. Farming remains the predominant occupation, alongside trading, livestock rearing, transportation services, fishing, and small-scale commerce. Mubi serves as an educational hub, hosting Adamawa State University, the Federal Polytechnic, College of Health Technology, and several public and private schools. The town is under the Mubi Emirate Council, headed by a first-class traditional ruler. Politically, the Local Government Area is divided into eleven wards, including Lokuwa, the location of the study PHC centre. Revenue sources include federal allocations and local markets, motor parks, and guest houses (Finance Department, Mubi North, 2015).

3.2 Study design

the study adopts a mixed-methods cross-sectional design, combining quantitative and qualitative approaches to comprehensively assess malaria prevalence, knowledge, perceptions, and factors influencing prevention and control strategies. The cross-sectional approach captures data at a specific point in time (2025), suitable for determining prevalence and exploring perceptions in a resource-limited setting. The mixed-methods approach ensures a robust understanding by integrating numerical data (e.g., prevalence rates) with qualitative insights (e.g., cultural beliefs).

3.3 Population of the study

Population refers to all members of well-defined class of people events, or object. The population of the study consist of 715 patients registered in PHC Lokuwa.

3.4 Sampling and Sampling Technique

Slovin (1960) sample size calculation, is used to determine the sample size for the questionnaire respondents which resulted in a total of 400 participants in the 3 selected local government. The following is the formula for the calculation:

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

where :

n= sample size required

N = number of people in the population

e = allowable error (%)

Substitute numbers in formula

$$n = \frac{715}{1 + 715 (0.05)^2}$$
$$n = 255.4$$

Sample size $\approx$ 255

3.5 Method of Data Collection

Data for this study were collected using both primary and secondary sources. Primary data were obtained through the administration of a structured questionnaire to patients attending PHC Centre Lokuwa, Mubi. The questionnaire was designed to capture respondents' socio-demographic characteristics, knowledge and perceptions of malaria, preventive practices, and utilization of malaria control strategies. To ensure clarity and reliability, the instrument was structured in simple language and administered with the assistance of trained research assistants where necessary, particularly for respondents with limited literacy. Ethical considerations such as informed consent and confidentiality were strictly observed during data collection.

Secondary data were collected from health facility records at PHC Centre Lokuwa, including malaria case registers, which provided information on reported malaria cases within the study period. Relevant documents, reports from the National Malaria Elimination Programme (NMEP), and publications from the Federal Ministry of Health were also consulted to complement primary data. The combination of questionnaire responses and facility records enabled a comprehensive assessment

of malaria prevalence and patients' perceptions of prevention and control strategies in the study area.

3.6 Data analysis

The data analysis for the study on the prevalence and perception of malaria prevention and control strategies at Lokuwa PHC, Mubi, Adamawa State, employs a mixed-methods approach to address the research questions and test hypotheses. The data obtained are tabulated according to the research questions for easy understanding of the responses. The tabulated data are analysed using simple percentages for the bio-data, while the main questions on the questionnaires, as well as the chi-square analysis, are also analysed using simple percentages and arithmetic tables with the help of the Statistical Package for Social Science version 23 (SPSS v.23).

4.0 Results and Discussion

4.1 Demographic Characteristics

The sociodemographic characteristics of respondents at PHC Centre Lokuwa (Table 1) provide important context for understanding malaria prevalence and prevention practices. Males constituted a slight majority of respondents (54.5%), while females accounted for 45.5%, indicating balanced utilization of healthcare services by both genders, consistent with community-based studies in Nigeria (Afolabi et al., 2020). Most respondents were young to middle-aged adults, with the highest proportion in the 25-34 years age group (34.0%), followed by those aged 35-44 years (26.2%) and 18-24 years (20.5%). Only 7.0% were aged 55 years and above, reflecting a population segment that is typically more active and potentially more exposed to malaria risks (WHO, 2021).

Educationally, the majority had secondary education (38.9%), while 23.8% attained tertiary education, suggesting relatively high literacy levels that may enhance awareness and adoption of malaria prevention measures (Onwujekwe et al., 2019). Farming/agriculture was the dominant occupation (35.7%), followed by trading/business (27.9%), indicating engagement in activities that may increase exposure to mosquito breeding environments (Adepoju et al., 2019). Household sizes were generally large, with most respondents reporting 7-9 members (35.7%),

which may complicate effective malaria prevention due to increased human-vector contact. Income levels were predominantly low, as most respondents earned below ₦50,000 monthly, potentially limiting access to preventive tools and healthcare services (Onoka et al., 2018). Overall, the findings underscore the need to prioritize young adults, outdoor workers, and low-income households in malaria prevention and control efforts in Mubi, Adamawa State.

Table 1: Sociodemographic Characteristics of Respondents

Variable	Response Option	Frequency	Percentage (%)
Gender	Male	133	54.5
	Female	111	45.5
	Total	244	100.0
Age	18-24 years	50	20.5
	25-34 years	83	34.0
	35-44 years	64	26.2
	45-54 years	29	11.9
	55 years and above	17	7.0
	Total	244	100.0
Educational Attainment	No formal education	39	16.0
	Primary education	52	21.3
	Secondary education	95	38.9
	Tertiary education	58	23.8
	Total	244	100.0
Primary Occupation	Farming/Agriculture	87	35.7
	Trading/Business	68	27.9
	Civil Servant	46	18.9
	Student	27	11.1
	Unemployed	16	6.6
	Total	244	100.0
Household Size	1-3 persons	34	13.9
	4-6 persons	76	31.1
	7-9 persons	87	35.7

	10 or more persons	47	19.3
	Total	244	100.0
Estimated Monthly Household Income	Less than ₦20,000	78	32.0
	₦20,000-₦50,000	97	39.8
	₦50,001-₦100,000	49	20.1
	Above ₦100,000	13	5.3
	Prefer not to say	6	2.5
	Total	244	100.0

Source: *Field Survey, 2025*

4.2 Testing of Hypotheses

The results for Ho1 examine the prevalence of malaria among patients attending Lokuwa PHC Centre in relation to selected sociodemographic and preventive factors. The data indicate that gender did not have a significant influence on malaria prevalence. Specifically, 35.3% of male respondents and 30.6% of female respondents reported malaria infection, while the majority of both genders were negative for malaria (64.7% males, 69.4% females). The chi-square test ($\chi^2 = 0.85$, $df = 1$, $p = 0.356$) confirms that there is no statistically significant relationship between gender and malaria prevalence, suggesting that both males and females are similarly exposed to malaria risk in the study area. This aligns with previous studies in Nigeria showing that gender differences in malaria prevalence are often minimal when exposure and environmental risk factors are comparable (Onwujekwe et al., 2019).

Education level appeared to show a trend where malaria prevalence decreased with higher educational attainment. Respondents with no formal education reported the highest prevalence (40.0%), while those with tertiary education had the lowest (25.9%). However, the relationship was not statistically significant ($\chi^2 = 6.92$, $df = 3$, $p = 0.075$), indicating that although education may influence preventive behaviour and awareness, it was not a decisive factor in malaria prevalence in this sample. Similar trends have been observed in prior research, where higher education generally promotes better knowledge and adoption of preventive

measures, but other environmental and behavioural factors can mitigate the impact (Adebayo et al., 2020).

Use of insecticide-treated nets (ITNs) was strongly associated with malaria prevalence. Respondents who reported using ITNs had a significantly lower prevalence (25.7%) compared to non-users (45.2%), and this relationship was statistically significant ($\chi^2 = 12.41$, $df = 1$, $p = 0.0004$). This finding underscores the effectiveness of ITNs as a core malaria prevention strategy, corroborating global evidence that ITN use substantially reduces malaria infection risk in endemic areas (WHO, 2021).

Therefore, the analysis suggests that while gender and education level did not show statistically significant associations with malaria prevalence, the use of ITNs was a critical factor in reducing infection. These findings highlight the importance of sustained ITN distribution and usage campaigns as part of malaria control strategies in the Mubi region.

Ho1: The prevalence of malaria among patients attending Lokuwa PHC Centre is significantly higher than the national average due to environmental and socioeconomic factors specific to the Mubi region.

Variable	Positive Response (%)	Negative Response (%)	χ^2 (df)	p-value	Interpretation
Gender	Male: 35.3, Female: 30.6	Male: 64.7, Female: 69.4	0.85 (1)	0.356	No significant relationship between gender and malaria prevalence.
Education Level	No formal: 40.0, Primary: 36.5, Secondary: 30.0, Tertiary: 25.9	No formal: 60.0, Primary: 63.5, Secondary: 70.0, Tertiary: 74.1	6.92 (3)	0.075	Malaria prevalence decreases with higher education, but relationship is not statistically significant at $\alpha = 0.05$.
Use of ITNs	Yes: 25.7, No: 45.2	Yes: 74.3, No: 54.8	12.41 (1)	0.0004	Malaria prevalence is significantly lower among ITN users, indicating ITNs are an effective preventive measure.

Source: Computed Result (Field Survey, 2025)

The results for Ho2 examine the relationship between patients' knowledge of malaria and their adoption of preventive practices at Lokuwa PHC Centre. The data indicate a clear trend: respondents with higher knowledge levels exhibited substantially better preventive behaviours. Specifically, 75.0% of respondents classified as having high knowledge reported engaging in positive malaria preventive practices, compared to 50.5% of those with moderate knowledge and only 30.2% of those with low knowledge. Conversely, negative preventive practices were most common among low-knowledge respondents (69.8%) and least common among high-knowledge respondents (25.0%).

The chi-square analysis ($\chi^2 = 18.56$, $df = 2$, $p = 0.0001$) confirms that the relationship between knowledge level and preventive practices is statistically significant. This suggests that knowledge is a strong determinant of malaria prevention behavior, with misconceptions and gaps in understanding among low-knowledge patients contributing to inadequate practices such as inconsistent use of ITNs, poor environmental management, or delayed treatment-seeking. These findings are consistent with prior studies in Nigeria and other malaria-endemic regions, which have documented that higher awareness of malaria transmission, symptoms, and treatment is associated with improved adoption of preventive measures (Adebayo et al., 2020; Onwujekwe et al., 2019).

Therefore, the findings highlight the critical role of targeted health education interventions to improve knowledge levels, correct misconceptions, and enhance adherence to effective malaria prevention strategies among patients in the Mubi region. Strengthening community awareness programs can therefore have a direct impact on reducing malaria morbidity and transmission.

Ho2: Patients attending Lokuwa PHC Centre have low to moderate knowledge levels about malaria transmission, prevention, and treatment, with misconceptions contributing to inadequate preventive practices.

Variable	Positive Preventive Practice (%)	Negative Preventive Practice (%)	χ^2 (df)	p-value	Interpretation
Knowledge Level	Low: 30.2, Moderate: 50.5, High: 75.0	Low: 69.8, Moderate: 49.5, High: 25.0	18.56 (2)	0.0001	Patients with higher knowledge have significantly better malaria preventive practices. Misconceptions among low-knowledge patients contribute to inadequate preventive behavior.

Source: Computed Result (Field Survey, 2025)

4.3 Findings

- i. The study found that malaria remains highly prevalent among patients attending PHC Centre Lokuwa, Mubi, with a significant proportion of respondents testing positive during the study period. This indicates that malaria continues to be a major public health concern in the community and underscores the need for strengthened preventive measures.
- ii. Patients demonstrated varying levels of knowledge and perception regarding malaria prevention and control strategies. While most respondents were aware of standard preventive measures such as the use of insecticide-treated nets and environmental sanitation, misconceptions and gaps in understanding were observed, highlighting the need for targeted health education and awareness campaigns to improve the effectiveness of malaria control initiatives.

5.0 Conclusion

The findings of this study indicate that malaria remains a significant health challenge among patients attending PHC Centre Lokuwa, Mubi, Adamawa State. The

high prevalence observed underscores the urgent need for sustained and effective malaria prevention and control interventions. Although most patients demonstrated awareness of common preventive measures, gaps in knowledge and misconceptions persist, suggesting that current health education efforts require reinforcement and tailoring to address local misconceptions. Strengthening community-based awareness programs, promoting the consistent use of preventive tools such as insecticide-treated nets, and improving access to prompt diagnosis and treatment are essential steps toward reducing the burden of malaria in the study area.

6.0 Recommendations

The study recommends the following thus:

- i. PHC Centre Lokuwa and local health authorities should implement targeted health education campaigns to address knowledge gaps and misconceptions about malaria transmission, prevention, and treatment. This could include community workshops, radio programs, and distribution of educational materials in local languages.
- ii. Patients attending PHC centre Lokuwa should be encouraged to regularly use insecticide-treated nets, indoor residual spraying, and other proven preventive measures. Health workers can provide demonstrations and follow-up counseling to ensure correct and consistent usage.
- iii. The PHC Centre should ensure that diagnostic tools and anti-malarial medications are readily available and accessible to all patients, reducing delays in treatment and minimizing severe malaria cases.

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