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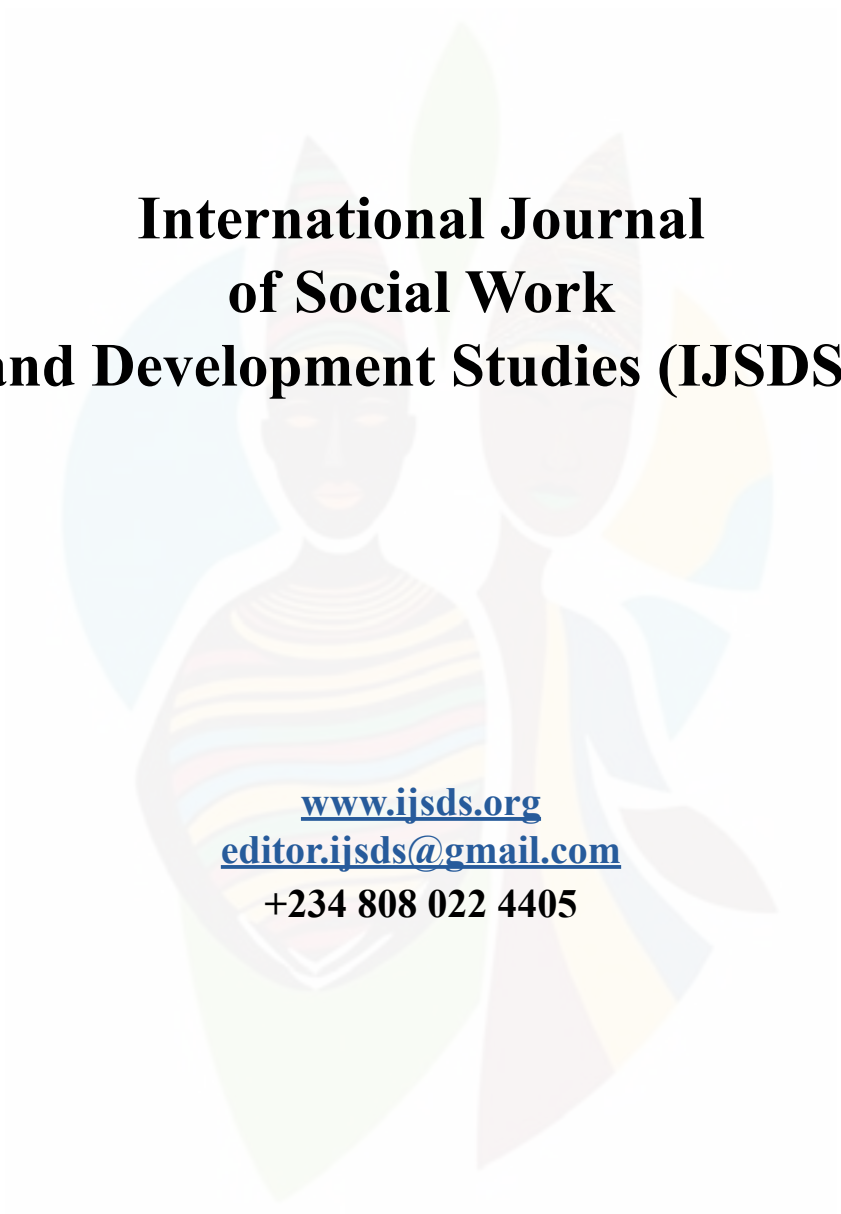


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**AN EXAMINATION OF THE PREVALENCE
PREDISPOSING FACTORS AND MANAGEMENT OF
MALARIA IN ZAMFARA STATE**

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ABSTRACT

This study was carried out on an examination of the prevalence of predisposing factors and management of malaria in Zamfara state .To achieve this objective, the researcher developed and administered a questionnaire on one hundred and twenty selected staff of different agencies in Zamfara state. The Chi-square was used in testing the null hypothesis. From the study, it was observed that Malaria is common in their community. It was also observed that most people have had malaria at least once in the past year. It was discovered that Malaria cases are not reported frequently in health facilities. It was also discovered that poor sanitation in their community contributes to the prevalence of malaria. It was observed that the presence of stagnant water in their area increases the chances of malaria. The findings show that high humidity and climate conditions in my region make it conducive for malaria mosquitoes to breed. The finding also shows that Limited use of insecticide-treated bed nets increases the risk of malaria. finding also shows that they received education on how to prevent malaria. It was also discovered there is no adequate access to malaria treatment in their community. It was also discovered that Malaria management services in local health centers are not effective. Findings show that the government does not provide enough resources for malaria prevention and management. Findings also show that they have not received prompt medical treatment whenever they contract malaria. findings show that Traditional medicines are commonly used in my community to treat malaria. Findings show that malaria can be completely eradicated in my area with proper management. The study recommends, Establish more healthcare centers in rural areas of Zamfara State to enhance access to malaria treatment and preventive care, especially for vulnerable populations. The state government should collaborate with stakeholders to implement sustained vector control programs, including indoor residual spraying and environmental management to reduce mosquito breeding sites. Provision of free or affordable malaria treatment, especially for pregnant women and children under five, to reduce mortality and morbidity rates. Local communities should be actively involved in malaria prevention initiatives, with trained health volunteers supporting surveillance, treatment, and education efforts. Invest in clean water supply and proper waste disposal systems to minimize conditions that promote mosquito breeding in communities. Expand the implementation of SMC programs, especially during peak malaria transmission seasons, to protect children and high-risk groups. Continuous monitoring of malaria prevalence, drug resistance, and effectiveness of control measures should be conducted to adapt policies and interventions accordingly.

1.0 INTRODUCTION

Malaria remains a significant public health concern in Nigeria, particularly in Zamfara State, where it poses a considerable burden on healthcare systems and the population. The disease is caused by Plasmodium parasites, which are transmitted to humans through the bites of infected female Anopheles mosquitoes (World Health Organization [WHO], 2022). Malaria is endemic in Zamfara State, with seasonal variations that increase transmission rates during the rainy season when mosquito breeding sites become more prevalent (National Malaria Elimination Programme [NMEP], 2021). The high prevalence of malaria in Zamfara State can be attributed to several predisposing factors, including environmental conditions, socioeconomic status, inadequate healthcare infrastructure, and resistance to antimalarial drugs.

One of the primary factors contributing to the prevalence of malaria in Zamfara State is the favorable environmental conditions for mosquito breeding. The state experiences prolonged rainy seasons, which create stagnant water bodies that serve as breeding grounds for mosquitoes (Adewale et al., 2020). Poor drainage systems and the presence of unplanned settlements further exacerbate the proliferation of mosquito populations. Studies have shown that regions with inadequate sanitation and water management are at higher risk of malaria outbreaks due to increased mosquito breeding sites (Okeke & Okechukwu, 2019).

Socioeconomic factors also play a crucial role in malaria transmission in Zamfara State. Poverty, low literacy levels, and limited access to healthcare services contribute to high infection rates (Ugwu & Eze, 2021). Many residents lack the financial resources to afford insecticide-treated nets (ITNs), indoor residual spraying (IRS), or effective antimalarial medications. Additionally, traditional beliefs and misconceptions about malaria hinder effective prevention and treat-

ment. Some individuals rely on herbal remedies instead of seeking medical attention, leading to increased morbidity and mortality (Adamu et al., 2022).

Furthermore, inadequate healthcare infrastructure significantly affects malaria management in Zamfara State. Many rural communities have limited access to healthcare facilities, leading to delayed diagnosis and treatment (NMEP, 2021). A shortage of trained medical personnel, essential diagnostic tools, and antimalarial drugs further complicates malaria management. In some cases, individuals self-medicate with substandard or counterfeit drugs, which contributes to the development of drug-resistant Plasmodium strains (Akinola & Adeyemi, 2020).

Effective malaria management in Zamfara State involves a combination of preventive and curative measures. The use of insecticide-treated nets (ITNs) has been identified as one of the most effective malaria prevention strategies. Research indicates that consistent use of ITNs can reduce malaria incidence by up to 50% (WHO, 2022). However, challenges such as improper use, limited distribution, and cultural resistance hinder the widespread adoption of this preventive measure (Adebayo et al., 2021).

Indoor residual spraying (IRS) with insecticides is another crucial intervention for malaria control. IRS has been implemented in some parts of Zamfara State; however, logistical challenges, including inadequate funding and community resistance, have limited its success (NMEP, 2021). Additionally, environmental management strategies, such as drainage maintenance and mosquito habitat elimination, are essential in reducing mosquito populations. However, poor implementation and lack of community participation remain significant obstacles (Okonkwo et al., 2020).

Prompt diagnosis and effective treatment are critical components of malaria management. The World Health Organization (2022) recommends the use of rapid diagnostic tests (RDTs) and microscopy for

accurate malaria diagnosis. Artemisinin-based combination therapies (ACTs) are the first-line treatment for malaria in Nigeria, as they have been proven to be highly effective in clearing *Plasmodium* parasites from the bloodstream (Federal Ministry of Health, 2021). However, access to these treatments remains a challenge for many residents of Zamfara State, particularly those in remote areas (Adebisi et al., 2022).

The Nigerian government, in collaboration with international organizations such as the WHO, the Global Fund, and the Roll Back Malaria (RBM) initiative, has implemented various malaria control programs in Zamfara State. These programs focus on mass distribution of ITNs, provision of free malaria treatment for vulnerable groups, and public health education campaigns (NMEP, 2021). Despite these efforts, gaps in implementation, funding constraints, and community-level challenges continue to hinder the effectiveness of malaria control strategies (Ajayi & Bello, 2020).

Community participation is vital in malaria prevention and management. Studies have shown that increased awareness and community engagement significantly improve malaria control outcomes (Eze & Okoro, 2021). Local health workers, religious leaders, and community-based organizations play a crucial role in educating residents on malaria prevention, early diagnosis, and appropriate treatment-seeking behaviors. Strengthening community involvement in malaria control programs can enhance the effectiveness of existing interventions and reduce the disease burden in Zamfara State.

1.1 Statement Of The Problem

Malaria remains one of the most significant public health challenges in Nigeria, particularly in states like Zamfara, where environmental and socio-economic factors contribute to its high prevalence (World Health Organization [WHO], 2021). Despite various control and management strategies, malaria contin-

ues to pose severe health and economic burdens on the population. The prevalence of malaria in Zamfara State is influenced by several predisposing factors, including poor sanitation, inadequate healthcare infrastructure, climatic conditions, and socio-cultural practices that hinder effective disease prevention and treatment (Adewuyi et al., 2020).

One of the critical challenges in malaria management is the inadequate access to proper healthcare services, especially in rural areas where most of the population resides. Studies have shown that many residents in Zamfara State rely on traditional medicine or self-medication rather than seeking treatment from healthcare facilities, which often results in misdiagnosis and improper treatment (Yahaya & Suleiman, 2019). Additionally, the shortage of healthcare professionals and medical supplies in primary healthcare centers further complicates effective malaria management (National Malaria Elimination Programme [NMEP], 2022).

Furthermore, environmental factors such as stagnant water, poor drainage systems, and inadequate waste management contribute to the breeding of *Anopheles* mosquitoes, which are the primary vectors of malaria (Okonkwo et al., 2021). Climate change has also been identified as an exacerbating factor, with rising temperatures and increased rainfall creating more favorable conditions for mosquito proliferation (Omodior et al., 2021).

Socioeconomic conditions, including poverty and low literacy levels, also play a crucial role in the prevalence and management of malaria in Zamfara State. Many households cannot afford insecticide-treated nets (ITNs) or antimalarial medications, leading to increased vulnerability to infection (Bello et al., 2020). Moreover, there is a general lack of awareness and adherence to malaria prevention strategies, such as the use of ITNs and indoor residual spraying (IRS), due to cultural beliefs and misinformation (Umar et

al., 2021).

Despite the implementation of malaria control programs, such as the distribution of ITNs, intermittent preventive treatment, and public health campaigns, malaria morbidity and mortality rates remain high in Zamfara State (Federal Ministry of Health [FMOH], 2022). This raises concerns about the effectiveness of current malaria management strategies and the need for a more integrated approach that addresses both medical and socio-environmental determinants of the disease.

Given the persistent burden of malaria in Zamfara State, this study seeks to examine the prevalence of predisposing factors and evaluate the management strategies in place. Understanding these factors is essential for developing targeted interventions that can effectively reduce malaria transmission and improve health outcomes in the region.

1.2 Objective of the Study

- To assess the prevalence of malaria in Zamfara State over a specific period, considering variations across different demographics such as age, gender, and geographical locations.
- To identify the key predisposing factors contributing to malaria infections in the study area, including environmental, socio-economic, and behavioral determinants.
- To evaluate the effectiveness of existing malaria prevention and control measures implemented by health agencies, government bodies, and local communities in Zamfara State.
- To examine the healthcare-seeking behavior and management strategies adopted by individuals and healthcare providers in the diagnosis and treatment of malaria.
- To recommend policy interventions and improved malaria management strategies that can enhance

prevention, treatment, and overall reduction of malaria cases in Zamfara State.

1.3 Research Questions

- What is the prevalence rate of malaria in Zamfara State across different demographic groups?
- What are the major predisposing factors contributing to malaria infections in Zamfara State?
- How effective are the existing malaria management strategies, including prevention and treatment, in Zamfara State?
- What are the challenges faced by healthcare providers in diagnosing and treating malaria in Zamfara State?
- What are the perceptions and practices of the local population regarding malaria prevention and control measures in Zamfara State?

1.4 Prevalence Of Malaria In Nigeria And Zamfara State

Malaria is a major public health problem in Nigeria, contributing significantly to morbidity and mortality, especially among children under five and pregnant women. Nigeria accounts for about 27% of the global malaria burden and 23% of malaria-related deaths worldwide (World Health Organization [WHO], 2021). The disease is endemic in all regions of Nigeria, with varying prevalence across states due to environmental, socioeconomic, and healthcare-related factors (Federal Ministry of Health [FMOH], 2022). Zamfara State, located in northwestern Nigeria, experiences high malaria transmission rates due to its climatic conditions, inadequate healthcare infrastructure, and limited access to preventive measures.

1.4.1 Prevalence of Malaria in Nigeria

Malaria is hyperendemic in Nigeria, meaning transmission occurs throughout the year, with seasonal variations depending on rainfall and temperature. The

2021 Nigeria Malaria Indicator Survey (NMIS) reported that malaria prevalence based on rapid diagnostic tests (RDTs) was 22% nationwide, with significant regional disparities (National Malaria Elimination Programme [NMEP], 2021). The highest prevalence is found in the northwest (33%), while the lowest is in the southeast (7%) (NMEP, 2021). Factors such as poverty, inadequate access to healthcare, low usage of insecticide-treated nets (ITNs), and resistance to antimalarial drugs contribute to the persistent high burden of malaria in Nigeria (WHO, 2022).

According to WHO (2021), Nigeria recorded an estimated 64 million malaria cases and about 194,000 deaths in 2020. Children under five accounted for 60% of malaria-related deaths, while pregnant women remain highly vulnerable to the disease due to complications such as maternal anemia, low birth weight, and stillbirths (FMOH, 2022). The government has implemented various malaria control programs, including the distribution of ITNs, seasonal malaria chemoprevention (SMC), and improved access to artemisinin-based combination therapies (ACTs) (United Nations Children's Fund [UNICEF], 2023).

1.4.2 Prevalence of Malaria in Zamfara State

Zamfara State has one of the highest malaria prevalence rates in Nigeria due to its geographic and climatic conditions, which favor mosquito breeding. The 2021 NMIS report indicates that malaria prevalence in Zamfara State is 48%, making it one of the most affected states in the country (NMEP, 2021). The high burden of malaria in the state is attributed to several factors, including:

- **Environmental Conditions:** The state's warm climate and seasonal rainfall create ideal conditions for mosquito breeding (Nigeria Centre for Disease Control [NCDC], 2022).
- **Limited Access to Healthcare:** Many rural communities in Zamfara State lack access to quality healthcare facilities, leading to delayed malaria

diagnosis and treatment (FMOH, 2022).

- **Low ITN Coverage and Usage:** While the government distributes ITNs, usage remains low due to cultural beliefs, lack of awareness, and improper net maintenance (UNICEF, 2023).
- **High Poverty Levels:** Many households cannot afford proper malaria treatment, leading to increased reliance on ineffective traditional remedies (NMEP, 2021).

2.0 RESEARCH METHODOLOGY

2.1 Data Collection Procedure

For the purpose of this research work, the researcher used the questionnaire, which is a structured series of questions in written form meant to be answered by respondents. The question forms are to be either ticked or chosen by those concerned. The researcher issued questions to staff of different hospitals and Agencies selected, the questionnaires for staff were mainly issued to obtain information.

2.2 Target Population

The Population of this study comprises some selected members of different Hospitals and Health agencies within the study location Zamfara state. Comprising of 120 in all

2.3 Method Of Data Analysis

In order to facilitate the execution of this research work, certain forms of data were utilized; they are primary and secondary data.

2.4 Research Instrumentation

In choosing stated research instrument, the researcher takes into consideration the nature and scope of the research study, the structure and activities and the convenience associated with cost. The researcher administered questionnaires on the quest to obtain in-

formation.

2.5 Sampling Technique

The technique used in this research work is Random sampling technique. This method enabled the researcher to select a sample from the population so that each member has equal chance of being selected. This technique simply uses a sample from the population.

2.6 Analytical Tool

The analytical tool used in this research is a simple percentage method. In order to analyze the data, the methodology used is likert Scale method, (Statistical and graphical method). Ordinary data in this form are unbiased. Is the most widely employed form of attitude measurement in Survey research? The likert scale is a special type of the more general class of summated rating scale constructed from multiple ordered – category items.

Each item uses a set of symmetrically balanced bipolar response categories indicating varying levels of agreement or disagreement with a specific stimulus statement expressing an attitude or opinion The researcher uses a simple percentage method, which is believed to be a straightforward, easy to interpret and understand method. The researcher therefore chooses the simple percentage as the method to use.

The formula for percentage is shown as.

$$\% = f/N \times 100/1$$

Where f = frequency of respondents response

N = Total Number of response of the sample,

100 = Consistency in the percentage of respondents for each item contained in questions

3.0 CONCLUSION

This study examined the prevalence of predisposing factors and the management of malaria in Zamfara

State. The findings revealed that malaria remains a significant public health challenge in the state, with various environmental, socio-economic, and behavioral factors contributing to its persistence. Poor sanitation, inadequate drainage systems, stagnant water, and low awareness of preventive measures were identified as major predisposing factors. Additionally, socio-economic constraints, including poverty and limited access to healthcare services, further exacerbate the malaria burden.

In terms of management, the study found that while antimalarial medications and insecticide-treated nets (ITNs) are available, their utilization is often hindered by affordability issues, inadequate distribution, and poor healthcare infrastructure. The role of government interventions, non-governmental organizations, and community efforts was acknowledged; however, there is a need for more strategic policies and implementation of malaria control programs to enhance their effectiveness.

To mitigate the impact of malaria in Zamfara State, a multi-faceted approach is necessary. This includes increased public awareness campaigns, improved sanitation, strengthened healthcare systems, and better access to malaria prevention and treatment measures. Sustainable malaria control efforts, coupled with community participation, will be essential in reducing malaria prevalence and improving public health outcomes in the state.

4.0 RECOMMENDATIONS

Based on the thesis an examination prevalence of predisposing factors and management of malaria in Zamfara state, the following recommendations are made:

- Enhanced Public Health Education: The government and health agencies should intensify awareness campaigns on malaria prevention, emphasizing the importance of sanitation, use of in-

secticide-treated nets (ITNs), and early diagnosis.

- **Improved Access to Healthcare Services:** Establish more healthcare centers in rural areas of Zamfara State to enhance access to malaria treatment and preventive care, especially for vulnerable populations.
- **Strengthening Vector Control Measures:** The state government should collaborate with stakeholders to implement sustained vector control programs, including indoor residual spraying and environmental management to reduce mosquito breeding sites.
- **Free or Subsidized Malaria Medications:** Provision of free or affordable malaria treatment, especially for pregnant women and children under five, to reduce mortality and morbidity rates.
- **Community Engagement and Participation:** Local communities should be actively involved in malaria prevention initiatives, with trained health volunteers supporting surveillance, treatment, and education efforts.
- **Regular Surveillance and Research:** Continuous monitoring of malaria prevalence, drug resistance, and effectiveness of control measures should be conducted to adapt policies and interventions accordingly.
- **Government and NGO Collaboration:** Strengthen partnerships between the government, private sector, and non-governmental organizations to mobilize resources for malaria control programs in Zamfara State.
- **Incorporation of Traditional Medicine:** Investigate and integrate safe and effective traditional malaria treatment methods into mainstream healthcare to complement modern medical interventions.
- **Promotion of Seasonal Malaria Chemoprevention (SMC):** Expand the implementation of SMC

programs, especially during peak malaria transmission seasons, to protect children and high-risk groups.

- **Improved Water and Sanitation Infrastructure:** Invest in clean water supply and proper waste disposal systems to minimize conditions that promote mosquito breeding in communities.

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