DESCRIPTIVE ANALYSIS OF MALARIA IN CHILDREN UNDER-FIVE YEARS

(A CASE STUDY OF OKE-OSE, ARA, LAJOLO AND DAN-GIWA)

BY

KAREEM AFEEZ OLAMIDE

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CERTIFICATION

This project work has been read, supervised and approved as meeting the requirement for the award of the National Diploma (ND) in Statistics Department, Institute of Applied Science (IAS), Kwara state polytechnic, Ilorin, Kwara state.

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MISS. AJIBOYE R.A DATE
Project supervisor

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MRS. ELEPO T.A DATE
Head of Department

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EXTERNAL EXAMINER DATE

DEDICATION

This project is dedicated to Almighty Allah who made it possible for us to complete this course successfully, and my parent.

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All praise and adoration given to Almighty Allah for his guidance and for sparing our live up to this stage of our life.

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TABLE OF CONTENTS

ABSTRACT

Malaria remains a major public health challenge in Nigeria, particularly among children under five, who are the most vulnerable to the disease's effects. This study investigates the prevalent methods of malaria prevention adopted by caregivers and evaluates the demographic factors influencing these practices. A total of 300 respondents—comprising mothers, fathers, guardians, and others—were surveyed using a structured questionnaire. Descriptive statistical analysis was applied to examine patterns in the data. Findings reveal that **insecticide-treated nets (ITNs)** *(49.0%) and* **indoor residual spraying (IRS)** *(36.3%) are the most commonly used prevention strategies, reflecting a reliance on physical methods of mosquito control. A significant portion of respondents were* **female (57.0%)** *and within the* **20–30 age bracket (47.7%)***, showing the dominant role of young women in child healthcare. However, other strategies such as* **preventive medicine (13.0%)**, **environmental sanitation (9.7%)**, *and* **repellents (11.0%)** *were less utilized, indicating potential gaps in comprehensive prevention practices. The study underscores the importance of integrating educational outreach, increased distribution of ITNs, and community-driven sanitation efforts to enhance malaria prevention outcomes. It also recommends policy interventions to broaden participation beyond mothers and include male caregivers and the wider community in malaria control initiatives.*

Keywords: *Malaria prevention, insecticide-treated nets (ITNs), indoor residual spraying (IRS), child health, caregivers, gender roles, public health education, preventive medicine, environmental sanitation, Nigeria.*

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Malaria remains one of the most persistent and life-threatening diseases globally, particularly in sub-Saharan Africa. It is a parasitic disease transmitted by the bite of an infected female *Anopheles* mosquito. Among the most vulnerable populations to malaria are children under the age of five, due to their underdeveloped immune systems. Despite the global reduction in malaria prevalence through sustained efforts by the World Health Organization (WHO), the disease continues to take a heavy toll on young children in rural communities in Nigeria. Oke-Ose, Ara, Lajolo, and Dangiwa are typical examples of rural settlements where malaria is endemic, and healthcare access is often limited or delayed.

In Nigeria, malaria accounts for approximately 25% of infant mortality and 30% of child mortality. According to the National Malaria Elimination Programme (NMEP), Nigeria contributes a quarter of all malaria cases worldwide. Although various intervention strategies have been employed—including the distribution of insecticide-treated nets (ITNs), indoor residual spraying (IRS), and public education on environmental sanitation—malaria remains a major public health challenge. This challenge is more pronounced among rural dwellers where traditional practices, poor access to healthcare, and limited awareness about modern prevention methods remain widespread.

In communities such as Oke-Ose, Ara, Lajolo, and Dangiwa, malaria is not only a medical issue but also a socio-economic one. Parents and caregivers lose productive hours to the care of sick children, and household resources are drained in the purchase of drugs and treatments. For under-five children, repeated malaria infections can cause anemia, stunted growth, poor academic performance later in life, and, in severe cases, death.

Studies have shown that malaria prevalence in rural areas is exacerbated by several factors, including poor environmental conditions (e.g., stagnant water, poor drainage, and dense bush around residences), limited health infrastructure, and a lack of knowledge about effective malaria prevention. Cultural beliefs and reliance on traditional medicine also play a significant role in the persistence of the disease in these regions.

The government and non-governmental organizations have invested considerable resources into the fight against malaria through the provision of mosquito nets, spraying programs, and community health outreach initiatives. However, the effectiveness of these programs in rural settings depends largely on the awareness, perception, and willingness of community members to adopt these practices. Descriptive studies that focus on the attitudes and practices of caregivers—especially mothers and guardians—are essential for evaluating the impact of current malaria control strategies.

This study focuses on understanding how caregivers in the selected communities prevent and manage malaria in children under five years. It involves an analysis of the demographic characteristics of respondents, their knowledge about malaria, the common prevention methods adopted, and the perceived effectiveness of those methods. By analyzing this data descriptively, we gain insight into patterns that can inform policymakers and health practitioners in designing more effective and culturally appropriate malaria interventions.

The relevance of this study also lies in its contribution to community-based data, which is often lacking in Nigeria's health surveillance systems. Most malaria data in the country are collected from hospitals and clinics, ignoring cases managed at home or through traditional means. As such, the findings from this study can help bridge this gap by shedding light on how malaria is experienced and addressed at the grassroots level.

Furthermore, understanding the gender dynamics in malaria prevention is crucial. Women, especially mothers, play a vital role in home-based health care. Their knowledge, practices, and accessibility to health information significantly influence malaria outcomes in children. This

research evaluates the contributions of mothers, fathers, and guardians and examines how these roles affect malaria control practices.

In addition to exploring malaria prevention strategies, the study seeks to highlight any barriers to the adoption of recommended practices. These barriers may include economic constraints, cultural norms, poor access to healthcare facilities, and mistrust of modern medical interventions. By identifying these challenges, appropriate strategies can be proposed to improve health outcomes for children in the studied communities.

The findings from this descriptive analysis will provide valuable insights into the current state of malaria prevention among under-five children in Oke-Ose, Ara, Lajolo, and Dangiwa. They will also offer recommendations for future interventions, emphasizing locally adapted and sustainable strategies to reduce the burden of malaria.

1.2 Statement of the Problem

Despite numerous public health campaigns and interventions, malaria remains a leading cause of morbidity and mortality among children under five years in rural communities like Oke-Ose, Ara, Lajolo, and Dangiwa. There is limited data on caregivers' knowledge, practices, and prevention methods in these areas. This study aims to descriptively analyze the demographic characteristics, prevention strategies, and barriers to effective malaria control in these communities to inform improved health outcomes for children.

1.3 Aim and Objectives of the Study

Aim:

To conduct a descriptive analysis of malaria prevention and management practices among caregivers of children under five years in Oke-Ose, Ara, Lajolo, and Dangiwa.

Objectives:

1. To identify the relationship of respondents to the under-five children in the study area.
2. To analyze the demographic characteristics (age and gender) of respondents.
3. To examine the methods of malaria prevention used by caregivers.

4. To assess the preferred malaria prevention strategies for children under five.

1.4 Significance of the Study

This study is significant in several ways. First, it provides a localized and community-specific understanding of malaria prevention and management among under-five children in rural Nigerian settings. It offers critical insights into the practices and perceptions of caregivers, helping health authorities tailor interventions that are culturally appropriate and practically effective. Additionally, the study highlights areas where knowledge gaps exist and proposes strategies to bridge them. Finally, the findings can contribute to national malaria policy updates and help reduce under-five mortality rates associated with the disease.

1.5 Scope and Limitation of the Study

This study is confined to four rural communities—Oke-Ose, Ara, Lajolo, and Dangiwa—in Kwara State, Nigeria. It focuses on caregivers of children under five years and evaluates their malaria prevention and treatment practices. The research is limited to descriptive analysis and does not include clinical diagnosis or laboratory-confirmed malaria cases. Challenges such as respondent bias, limited literacy levels, and logistical constraints during data collection may also impact the comprehensiveness of the findings.

1.6 Definition of Terms

- **Malaria:** A life-threatening disease caused by parasites transmitted through the bites of infected female *Anopheles* mosquitoes.
- **Caregiver:** An individual (mother, father, guardian) who is responsible for the welfare and health of a child.
- **Under-five Children:** Children between the ages of 0 and 59 months.
- **Insecticide-Treated Nets (ITNs):** Bed nets treated with insecticides that kill mosquitoes upon contact, used to prevent malaria.
- **Indoor Residual Spraying (IRS):** The application of long-lasting insecticides on the walls and surfaces of homes to kill mosquitoes.

- **Descriptive Analysis:** A statistical method that summarizes and interprets data to highlight patterns and trends without making predictions or causal inferences.
- **Endemic:** A disease or condition regularly found among particular people or in a certain area.
- **Traditional Medicine:** Indigenous medical practices based on cultural beliefs, often involving herbs and spiritual components.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Malaria remains a significant public health issue globally, particularly in sub-Saharan Africa, where children under the age of five are most at risk. This chapter reviews existing literature to provide a foundational understanding of malaria transmission, the vulnerability of under-five children, preventive strategies, and community-based interventions. By examining studies conducted both in Nigeria and globally, this review highlights the patterns, challenges, and advancements in malaria prevention and control, especially in rural settings. The insights drawn from these studies will inform the current research and guide the interpretation of its findings.

2.2 Review of Related Literature

Global Burden of Malaria among Under-Five Children

According to the World Health Organization (2022), malaria remains a leading cause of death among children under five, particularly in Africa, where 96% of all malaria deaths occur. These deaths are largely preventable and treatable with timely access to healthcare, proper diagnosis, and preventive measures. In regions such as South Asia, Latin America, and Africa, under-five children suffer disproportionately from malaria due to their immature immune systems and environmental exposures.

Globally, concerted efforts through the Roll Back Malaria initiative and the WHO Global Technical Strategy have led to increased distribution of insecticide-treated nets (ITNs), expansion of rapid diagnostic tests (RDTs), and widespread use of artemisinin-based combination therapies (ACTs). However, these interventions are less effective in hard-to-reach communities where awareness is low, health infrastructure is lacking, and sociocultural practices impede health-seeking behaviors.

Research conducted by Bhatt et al. (2015) showed that the large-scale use of ITNs led to a significant reduction in malaria cases globally. Yet, while the number of global malaria deaths fell by over 50% between 2000 and 2015, the rate of progress has slowed in recent years, indicating the need for sustained efforts, especially in marginalized areas.

The impact of malaria on children under five extends beyond health outcomes to economic burdens on families and national healthcare systems. It leads to school absenteeism, stunted growth, and increased healthcare costs. Thus, the global literature underscores the urgent need for community-based strategies and targeted interventions that focus on under-five children and their caregivers to eliminate malaria as a public health threat.

Malaria Situation in Nigeria and Rural Communities

Nigeria accounts for about 27% of the global malaria burden, with under-five children being the most affected demographic (WHO, 2022). The Federal Ministry of Health has prioritized malaria control through various national strategies, including the National Malaria Strategic Plan (2021–2025). Despite these efforts, many rural communities in Nigeria still suffer from high infection rates due to environmental factors, poor access to health services, and low literacy levels.

Studies by Adebayo et al. (2016) revealed that rural communities often experience higher malaria prevalence than urban areas because of stagnant water, bushy environments, and poor waste disposal practices. In addition, health facilities in these areas are typically understaffed and poorly equipped, making timely diagnosis and treatment a challenge. Furthermore, the cultural reliance on traditional medicine in rural Nigeria contributes to delays in seeking modern medical care, resulting in complications or death in children.

An investigation by Okeke and Akinwale (2019) found that while many rural dwellers are aware of malaria symptoms, few understand the importance of preventive measures such as indoor residual spraying and the proper use of ITNs. Many nets are misused for fishing, gardening, or discarded due to discomfort or poor design. These behavioral issues highlight a critical gap in health education and community engagement.

In rural Nigeria, the role of community health workers (CHWs) and local health volunteers cannot be overemphasized. Their ability to deliver basic malaria education, distribute nets, and provide treatment makes them a vital asset in the fight against malaria. Hence, a combination of increased government funding, grassroots engagement, and infrastructural improvements is needed to reduce malaria prevalence among under-five children in rural Nigeria.

Gender Dynamics and the Role of Caregivers in Malaria Prevention

Caregivers, particularly mothers, play an essential role in malaria prevention and treatment for children under five. In most African settings, mothers are the primary decision-makers when it comes to child healthcare, including the use of mosquito nets, environmental cleanliness, and when to seek medical attention. According to the UNICEF (2021), maternal education is positively correlated with the effective use of ITNs and early treatment-seeking behavior.

Research by Oladipo et al. (2020) in Ekiti State, Nigeria, showed that mothers with secondary or higher education were more likely to use preventive measures such as ITNs and insect repellents. Conversely, women with little or no formal education often relied on traditional herbs or delayed visiting clinics due to financial constraints or cultural beliefs. This shows that improving women's access to education and health information directly influences child health outcomes.

Gender also affects access to resources. In many Nigerian communities, men control household finances, and women may require permission before seeking medical help for a sick child. This dependence can delay treatment and increase the risk of complications. A study by Onwujekwe et al. (2018) found that households where women had economic autonomy were more likely to adopt recommended malaria prevention practices.

Fathers and male caregivers, although less involved, also influence malaria outcomes. Their support in purchasing nets, approving clinic visits, and ensuring a clean environment can significantly improve malaria prevention. Gender-inclusive malaria campaigns that target both mothers and fathers are therefore more effective in achieving long-term results.

This review highlights the importance of empowering caregivers, especially mothers, through health education, community engagement, and policy reforms that address gender inequalities in healthcare access and decision-making.

Methods of Malaria Prevention: Effectiveness and Utilization

Several malaria prevention strategies are promoted globally and in Nigeria, including the use of insecticide-treated nets (ITNs), indoor residual spraying (IRS), environmental management, prophylactic drugs, and personal protection methods like repellents. The effectiveness of these methods varies depending on their accessibility, usage consistency, and the community's awareness level.

A meta-analysis by Lengeler (2004) confirmed that ITNs can reduce child mortality by 20% and lower malaria episodes by 50%. Despite this evidence, actual usage rates remain low in many parts of rural Nigeria due to issues such as discomfort from heat, poor ventilation, and ignorance of proper usage. Many households either fail to use nets regularly or misuse them altogether.

Indoor residual spraying (IRS) is another effective method, especially when properly timed before peak transmission seasons. However, the uptake of IRS in rural communities is limited due to cost, logistics, and the need for trained personnel. Repellents, though effective, are often unaffordable or unavailable to low-income households.

Traditional methods such as burning leaves or using herbs are still common in rural areas. While these practices provide some relief, they are not scientifically proven to prevent malaria and may foster a false sense of protection.

Environmental sanitation—such as removing stagnant water and clearing bushes—remains a sustainable and low-cost preventive measure. However, this method requires consistent community effort and awareness. Public health campaigns have succeeded in increasing environmental hygiene in some communities, but sustainability remains a concern.

Overall, the literature emphasizes that a combination of methods, alongside behavior change communication, is the most effective way to reduce malaria in under-five children. Community

sensitization and policy support are essential to improving the adoption and sustained use of malaria prevention methods.

Challenges to Malaria Control in Rural Settings

Malaria control efforts in rural communities face numerous challenges that hinder the successful implementation of prevention and treatment programs. These include poor infrastructure, limited access to healthcare, low literacy rates, cultural practices, and weak surveillance systems. These barriers collectively contribute to the high burden of malaria among under-five children in Nigeria's rural areas.

A study by Idowu et al. (2017) highlighted that many rural health facilities are poorly staffed and under-equipped, leading to delays in diagnosis and inadequate treatment. Furthermore, transportation challenges often prevent families from reaching clinics, especially during emergencies or at night. In some areas, caregivers must travel long distances to access basic healthcare services, making prompt treatment unlikely.

Cultural practices and beliefs also pose significant barriers. In several communities, malaria is perceived as a spiritual illness or a natural part of childhood. This perception leads caregivers to seek help from traditional healers rather than health professionals. Moreover, some caregivers lack trust in public health institutions due to previous negative experiences or misconceptions.

Funding and government support are often insufficient for continuous malaria interventions. Projects like IRS require sustained resources for training, equipment, and insecticides, which are not always readily available. In addition, political instability and poor policy implementation further hinder malaria control in these settings.

Lastly, there is a lack of effective monitoring and evaluation systems to track malaria cases and assess the impact of interventions in rural areas. This results in data gaps and limits the government’s ability to tailor interventions based on local needs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methods employed in conducting a descriptive analysis of malaria among children under five years in the selected communities of Oke-Ose, Ara, Lajolo, and Dangiwa. It discusses the procedures used in collecting, organizing, and analyzing data obtained from respondents. The methodology is structured to provide a clear understanding of the research design, data sources, sampling techniques, and statistical tools used. The primary aim is to summarize patterns and trends using graphical and numerical techniques to interpret the prevalence and prevention practices of malaria within the study area.

3.2 Statistical Techniques

To achieve the research objectives, descriptive statistical techniques were used. These techniques allowed for the summarization and presentation of data in a meaningful way, facilitating easy interpretation and drawing of conclusions regarding malaria prevention and control practices among caregivers.

i. Descriptive Statistics

Descriptive statistics were employed to organize and summarize the collected data. Frequency distributions and percentages were calculated to show how responses varied among different groups, such as gender, age categories, and relationship to the child. These statistics provided a foundational understanding of the dataset and were instrumental in identifying patterns and trends in the responses.

ii. Bar Chart

Bar charts were used to visually represent categorical variables, such as the number of respondents across age groups and the various malaria prevention methods used. The bar charts helped compare frequencies within each category, making it easier to observe the most and least common

responses. This form of visualization enhances clarity and supports quick decision-making based on visual trends.

iii. Pie Chart

Pie charts were employed to show proportional data, particularly in representing relationships of respondents to the children (e.g., mothers, fathers, guardians). This technique helped illustrate how each category contributed to the whole, offering a clear view of dominant respondent types in the study. Pie charts are especially effective for highlighting the largest or smallest groups within a single variable.

3.3 Source of Data

The data use in this research work is a primary data (Questionnaire), in which 300 questionnaire was administered within the case of study (Oke-Ose, Ara, Lajolo and Dan-Giwa).

3.4 Data Presentation

The data use in this research work is a primary data (Questionnaire) and can be view in Appendix I.

CHAPTER FOUR

DATA ANALYSIS

4.1 Introduction

This chapter presents the descriptive analysis of data collected from caregivers of children under five years in Oke-Ose, Ara, Lajolo, a nd Dangiwa. The focus is on understanding the demographic distribution of respondents and the different malaria prevention methods adopted within the study areas. Visual tools such as pie charts and bar charts are used to aid interpretation and enhance comprehension of the findings.

4.2 Data Analysis

Descriptive

Table 4.1: Relationship of respondent to children

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mother	118	39.3	39.3	39.3
	Father	96	32.0	32.0	71.3
	Guardian	57	19.0	19.0	90.3
	other(specify)	29	9.7	9.7	100.0
	Total	300	100.0	100.0	

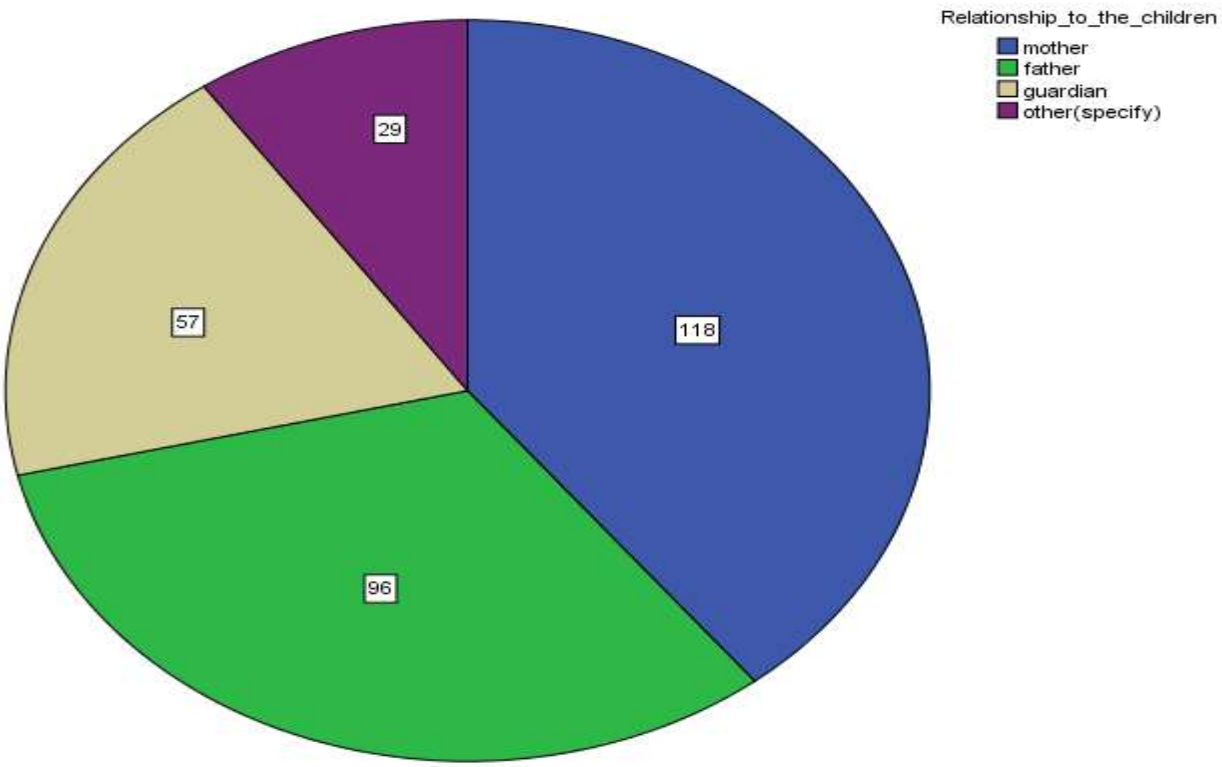

Fig 4.1: Relationship of respondent to children

Interpretation:

The pie chart depicts the distribution of respondents based on their relationship to the children involved in the study. The majority of the responses came from **mothers (118)**, accounting for **39.3%** of the total. **Fathers (96)** represented **32.0%**, **guardians (57)** made up **19.0%**, while **others** (those who specified a different relationship) accounted for **9.7%**. This suggests that primary caregivers, especially mothers and fathers, provided most of the information, indicating a strong parental involvement in malaria prevention awareness.

Table 4.2: Age of Respondent

Age_of_respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	143	47.7	47.7	47.7
	30-40	102	34.0	34.0	81.7
	40-above	55	18.3	18.3	100.0
	Total	300	100.0	100.0	

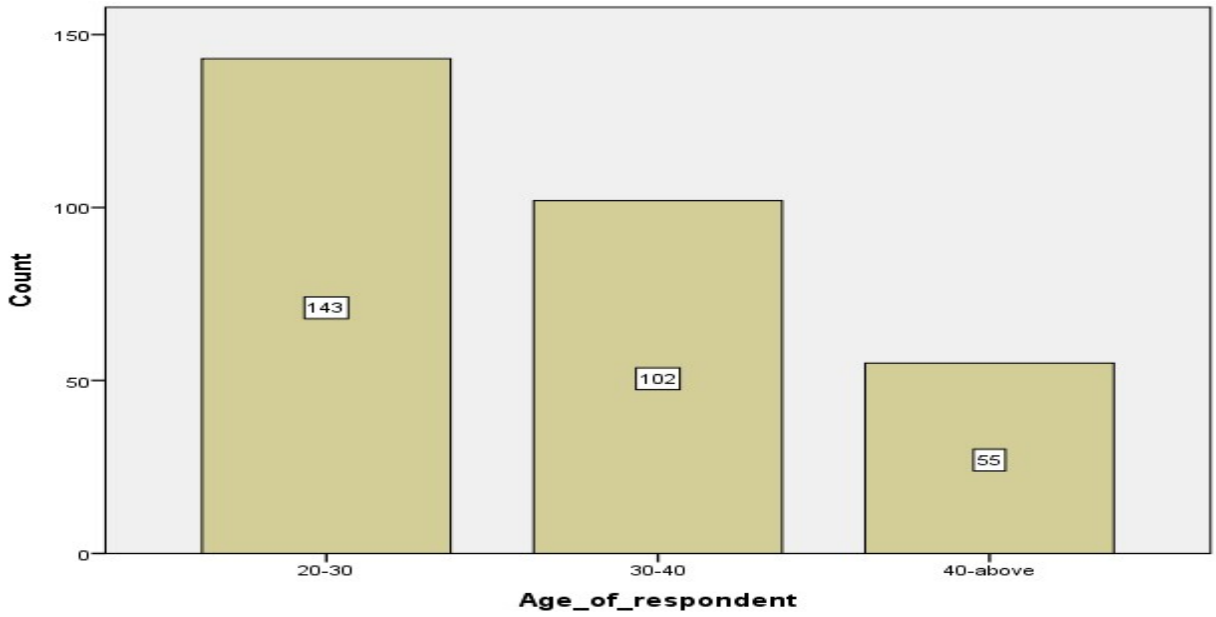

Fig 4.2: Age distribution of respondents

Interpretation:

The bar chart illustrates the age distribution of respondents. The largest group falls within the 20–30 years age bracket **(**143 respondents, 47.7%**),** followed by the 30–40 years category **(**102 respondents, 34.0%**),** and lastly those aged 40 and above **(**55 respondents, 18.3%**).** This shows that younger adults, likely active caregivers, are more involved in child healthcare matters in the study.

Table 4.3: Sex of respondent

Sex_of_respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	129	43.0	43.0	43.0
	female	171	57.0	57.0	100.0
	Total	300	100.0	100.0	

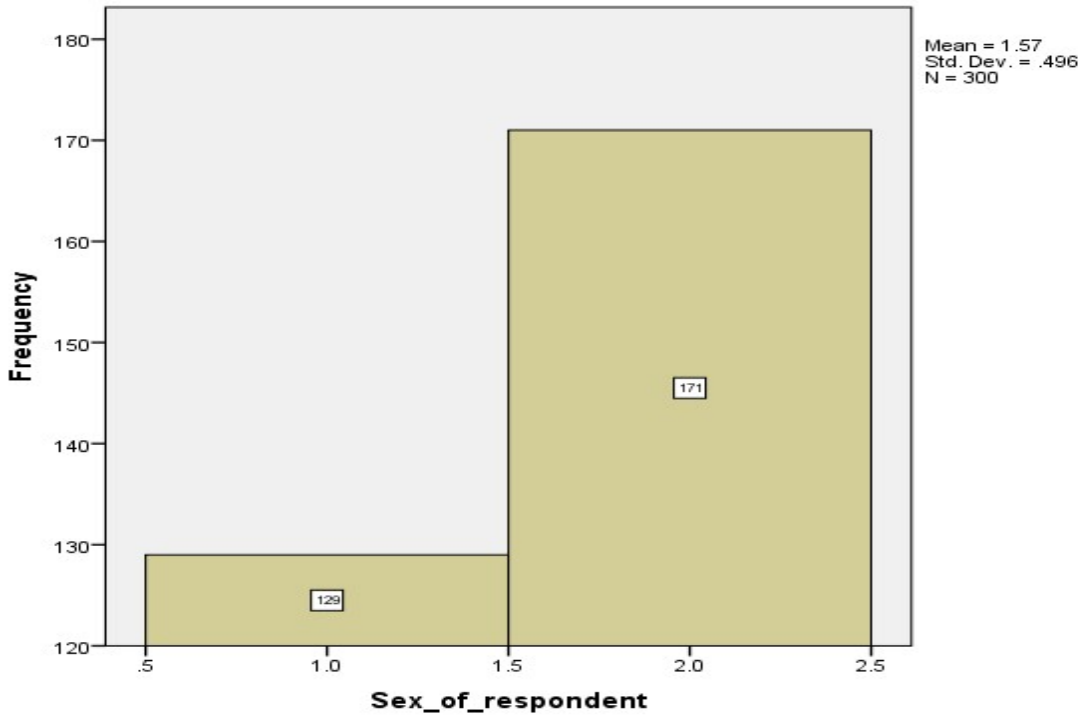

Fig 4.3 Sex of Respondent

Interpretation:

The histogram chart shows that a majority of respondents were female (171, 57.0%)**,** while male respondents were 129 (43.0%)**.** This gender distribution indicates a higher participation of women in child-related health discussions, which aligns with typical caregiving roles in many households.

Table 4.4 Methods of malaria prevention

What_are_the_common_ways_to_prevent_malaria

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sleeping under insecticide-treated nets	147	49.0	49.0	49.0
	indoor residual spraying(IRS)	66	22.0	22.0	71.0
	Environmental sanitation	29	9.7	9.7	80.7
	use of mosquito repellents	33	11.0	11.0	91.7
	taking preventive medicine	19	6.3	6.3	98.0
	others(specify)	6	2.0	2.0	100.0
	Total	300	100.0	100.0	

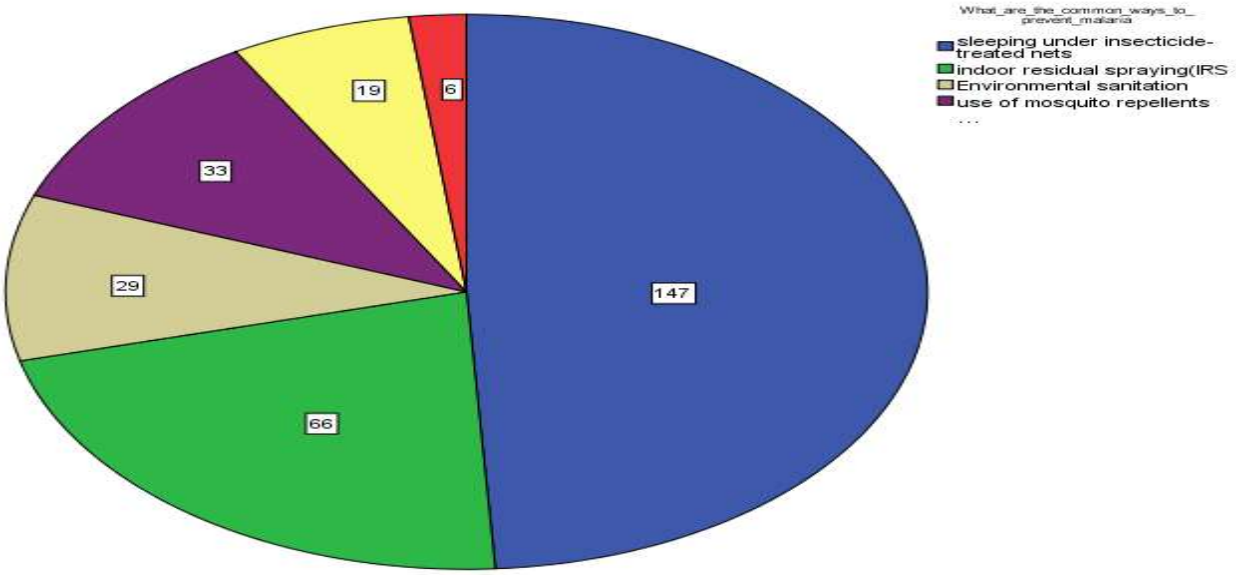

Fig 4.4: Methods of malaria prevention

Interpretation:

From the data, the most commonly reported malaria prevention method among respondents is sleeping under insecticide-treated nets (147 respondents, 49.0%)**.** This is followed by indoor residual spraying (66, 22.0%)**,** use of mosquito repellents (33, 11.0%)**,** and environmental sanitation (29, 9.7%). Less common approaches include taking preventive medicine (19, 6.3%) and other methods (6, 2.0%)**.** This highlights the prevalence of physical mosquito control measures in the community.

Table 4.5: Preferred prevention method for children

What_other_malaria_prevention_methods_do_you_currently_use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	preventing medicine	39	13.0	13.0	13.0
	ITN	84	28.0	28.0	41.0
	Preventing drug	68	22.7	22.7	63.7
	indoor spraying	109	36.3	36.3	100.0
	Total	300	100.0	100.0	

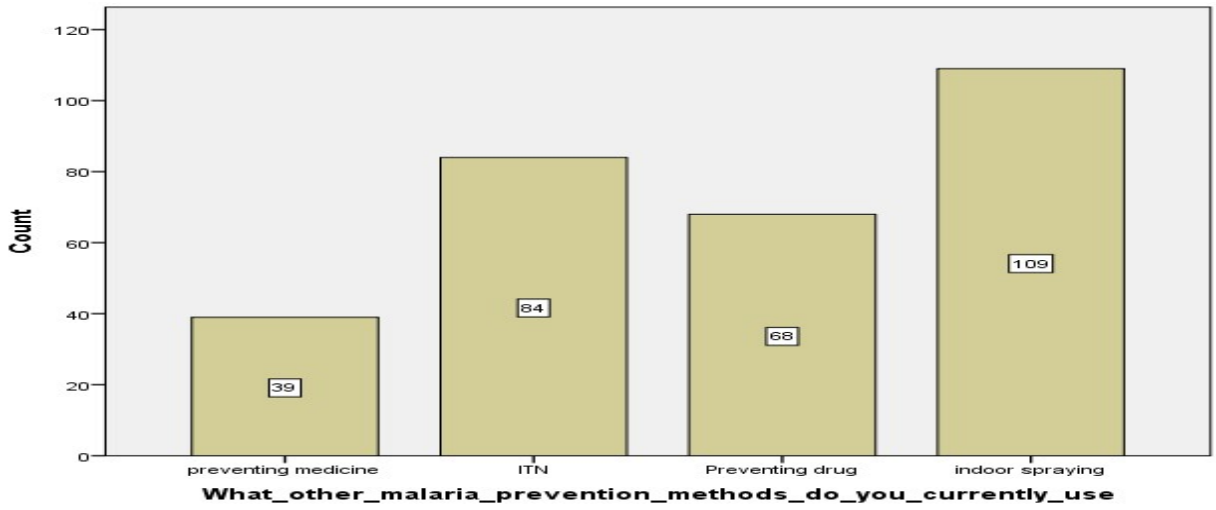

Fig 4.5: Preferred prevention method for children

Interpretation:

This chart examines preferred malaria prevention strategies specifically for children. The most preferred method is indoor spraying (109 respondents, 36.3%)**,** followed by insecticide-treated nets (ITN) (84, 28.0%)**,** preventing drugs (68, 22.7%)**, and** preventive medicine (39, 13.0%)**.** The trend emphasizes a preference for environmental and vector control methods over chemoprophylaxis in protecting children.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study investigated various aspects of malaria prevention and the demographic characteristics of respondents involved in managing the health of children. A total of 300 respondents were surveyed. The findings are summarized below:

Relationship to Children: Most respondents were mothers (39.3%), followed by fathers (32.0%), guardians (19.0%), and others (9.7%). This reflects that mothers are the primary caregivers and are most involved in malaria prevention activities.

Age Distribution: The 20–30 years age group represented the highest number of participants (47.7%), followed by 30–40 years (34.0%), and 40 and above (18.3%). This indicates that young adults play a major role in child healthcare.

Sex of Respondents: There were more female respondents (57.0%) than male (43.0%). This again supports the trend that women, particularly mothers, are more involved in child-related health issues.

Common Methods of Malaria Prevention: The most commonly reported method was sleeping under insecticide-treated nets (49.0%), followed by indoor residual spraying (22.0%), use of mosquito repellents (11.0%), environmental sanitation (9.7%), and taking preventive medicine (6.3%). A small number (2.0%) mentioned other methods.

Preferred Prevention Methods for Children: Respondents showed a preference for indoor spraying (36.3%), followed by ITNs (28.0%), preventive drugs (22.7%), and preventive medicine (13.0%). This shows a higher preference for physical barriers and spraying over medication.

5.2 Conclusion

The study concludes that while various malaria prevention methods are known and practiced, insecticide-treated nets and indoor spraying are the most widely adopted, particularly for protecting children. The data also revealed a high level of awareness among caregivers—particularly young mothers—about the importance of malaria prevention. However, the lesser use of preventive medicines and environmental sanitation suggests that more comprehensive prevention education is needed.

The involvement of both parents and guardians highlights a shared responsibility in managing children's health. Nevertheless, the higher proportion of female respondents may indicate that malaria prevention efforts still lean heavily on mothers, emphasizing the need for broader family and community participation.

5.3 Recommendations

Based on the findings of this study, the following recommendations are made:

1. **Enhance Distribution and Education on ITNs**: Government and health agencies should intensify efforts to distribute insecticide-treated nets and educate the public on their consistent and proper use.
2. **Promote Indoor Residual Spraying (IRS)**: Public health campaigns should encourage indoor spraying as a complementary method to nets, especially in rural and high-risk areas.
3. **Increase Awareness on Preventive Medication**: Although physical preventive methods are more popular, awareness of the benefits of preventive drugs and medicine should be improved, especially during peak malaria seasons.
4. **Community-Led Environmental Sanitation**: Efforts should be made to mobilize communities for regular environmental sanitation, as this plays a critical role in eliminating mosquito breeding sites.

5. **Inclusive Health Education**: Men and other caregivers (not just mothers) should be involved in malaria prevention programs through targeted health campaigns to ensure shared responsibility.
6. **Policy Integration**: The Ministry of Health should incorporate findings like these into their malaria eradication programs to develop **evidence-based strategies** that reflect actual community practices and preferences.
7. **Further Research**: Future studies should consider the effectiveness of each prevention method and evaluate the **impact of combined strategies** on malaria prevalence in children.

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