Uptake of Intermittent Preventive Treatment of Malaria in Pregnancy Among Antenatal Care Attendees in General Hospital, Oju. Benue State

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UPTAKE OF INTERMITTENT PREVENTIVE TREATMENT OF MALARIA IN PREGNANCY AMONG ANTENATAL CARE ATTENDEES IN GENERAL HOSPITAL, OJU. BENUE STATE

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ABSTRACT

Malaria in pregnancy poses a substantial public health burden in Nigeria, contributing significantly to maternal and foetal morbidity and mortality. This study aimed to assess the knowledge, attitudes, and uptake of Intermittent Preventive Treatment (IPTp) among pregnant women in Oju Local Government Area of Benue State, Nigeria. The study adopted a cross-sectional design involving 80 pregnant women selected through a simple random sampling technique. Data were collected using a structured questionnaire and analysed using descriptive and inferential statistical methods. The findings revealed that majority of respondents demonstrated adequate knowledge of IPTp ($\bar{x}$-3.4); including its importance, timing, and WHO-recommended dosage of three or more doses. Attitudes toward IPTp were generally positive, with majority of respondents expressing willingness to adhere to recommended practices ($\bar{x}$-2.7). However, uptake was suboptimal, as majority of respondents reported receiving at least three doses of IPTp under Directly Observed Therapy (DOT) during their current pregnancy ($\bar{x}$-2.0), falling short of the WHO target of 80% coverage. Identified barriers included shortages of healthcare providers ($\bar{x}$-1.6); insufficient education on IPTp ($\bar{x}$-2.1); financial constraints ($\bar{x}$-2.1); and lack of male partner involvement ($\bar{x}$-2.1). The study underscores the need for targeted health education campaigns, improved drug availability, enhanced healthcare provider capacity, and community-based interventions to address these challenges.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Malaria in pregnancy continues to be a significant public health challenge globally, particularly in sub-Saharan Africa, where it contributes to high maternal and infant morbidity and mortality rates. According to the World Health Organization (WHO), an estimated 11 million pregnant women in sub-Saharan Africa were infected with malaria in 2020, leading to nearly 200,000 stillbirths and over 800,000 cases of low birth weight (WHO, 2021).

Nigeria, bearing one of the highest malaria burdens worldwide, accounts for approximately 27% of malaria cases and 23% of malaria deaths globally, given the rural and semi-urban nature of many areas in Benue State, the uptake could be slightly lower. Estimates might range from 10% to 15%, depending on local factors such as accessibility to healthcare services and the availability of SP (WHO, 2022). Pregnant women are at an increased risk of severe malaria due to physiological changes that reduce immunity, making malaria prevention in pregnancy a critical public health priority. In Nigeria, the prevalence of malaria during pregnancy is alarmingly high, and the uptake of IPTp is below the recommended levels (National Malaria Elimination Programme [NMEP] et al, 2021). This disparity underscores the need for a comprehensive understanding of the factors that influence the knowledge, attitudes, and practices regarding IPTp among pregnant women.

The WHO recommends the use of Intermittent Preventive Treatment in pregnancy (IPTp) with Sulfadoxine-Pyrimethamine (SP) as a key strategy for preventing malaria in areas of moderate to high transmission. The global benchmark for IPTp uptake is based on a regimen of at least three (3) doses of SP, starting as early as possible in the second trimester, with subsequent doses administered at least one month apart until delivery (WHO, 2020). The

effectiveness of this regimen in reducing the incidence of malaria in pregnancy and improving birth outcomes is well-documented. Studies have shown that IPTp with SP can reduce the risk of low birth weight by 29% and severe maternal anaemia by 40% (Kayentao et al, 2022).

Despite these recommendations and the proven efficacy of IPTp, global uptake remains below the desired levels, particularly in sub-Saharan Africa. According to the WHO Malaria Report (2021), only 32% of pregnant women in 33 African countries received the recommended three or more doses of IPTp in 2020, far below the global target of 80% coverage (WHO, 2021). This gap in coverage is attributed to several factors, including limited access to antenatal care, lack of awareness among pregnant women, and inconsistent supply and distribution of SP. In Nigeria, the situation is particularly concerning, with IPTp coverage for three or more doses reported at only 17% in 2020 (National Malaria Control Programme [NMCP], 2021).

Several studies have identified a range of factors affecting intermittent preventive treatment in pregnancy (IPTp) uptake, including the level of awareness about malaria and intermittent preventive treatment in pregnancy, cultural beliefs, access to healthcare services, and the quality of antenatal care (ANC) services (Onoka, et al, 2019). Knowledge about intermittent preventive treatment in pregnancy is crucial as it significantly impacts the acceptance and utilization of the intervention. For instance, a study by Ibrahim, et al, 2(021), in Nigeria highlighted that limited knowledge about IPTp among pregnant women was a major barrier to its uptake.

Attitudes towards IPTp are also shaped by various socio-cultural and healthcare system-related factors. Positive attitudes are often associated with higher levels of education and awareness, as well as trust in the healthcare system (Ameh, et al, 2020). Conversely,

misconceptions about the safety and efficacy of SP, as well as negative experiences with healthcare providers can deter women from adhering to IPTp protocols (Okeke, et al, 2020).

The study aims to assess the knowledge, attitudes, and uptake of IPTp among antenatal care attendees in General Hospital, Oju, Benue State. By identifying the gaps and barriers in IPTp implementation, this research seeks to provide evidence-based recommendations to enhance the effectiveness of malaria prevention strategies in pregnancy, thereby improving maternal and neonatal health outcomes in the region.

1.2 Statement of the Problem

In Nigeria, malaria remains a significant health burden, particularly among pregnant women, for whom the consequences of infection can be severe. Malaria during pregnancy is associated with adverse health outcomes, including maternal anaemia, low birth weight, premature delivery, and, in severe cases, maternal and neonatal death (WHO, 2020). Recent data show that malaria in pregnancy accounts for approximately 32% of malaria cases in Nigeria (NMEP, et al, 2022), indicating a persistently high prevalence that calls for urgent intervention.

The World Health Organization (WHO) recommends a minimum of three doses of IPTp using Sulfadoxine-Pyrimethamine (SP) for pregnant women in malaria-endemic regions to reduce the risk of malaria. However, the uptake of IPTp in Nigeria has consistently fallen short of these recommendations. According to recent reports, only 17% of pregnant women in Nigeria received the recommended three doses of IPTp in 2021 (NMEP et al, 2021), reflecting a national shortfall. In rural and semi-urban areas of Benue State, where access to healthcare services is limited and educational campaigns about IPTp are less effective, the situation is particularly alarming (NMCP, 2021). Current estimates place IPTp uptake for

three or more doses in Benue State between 10% and 15%, with uptake in more remote areas, such as Oju Local Government Area, even lower, possibly below 10% (NMCP, 2021).

The researcher observed that there is scarcity of research report on the uptake of IPT at General Hospital, Oju. This study is therefore imperative to study uptake of IPT, particularly at General Hospital, Oju area in Benue State. By assessing the knowledge, attitudes, and uptake regarding IPTp among pregnant women in this region, the study aims to uncover the specific factors contributing to low IPTp coverage.

1.3 Aim and Objectives of the Study

1.3.1 Aim of the Study

The main aim of the study is to assess the uptake of Intermittent Preventive Treatment of malaria in pregnancy among antenatal care attendees in General Hospital, Oju, Benue State.

1.3.2 Objectives of the Study

1. To assess the level of knowledge of IPTp among pregnant women attending antenatal care in General Hospital, Oju.
2. To assess the attitudes of pregnant women towards IPTp in General Hospital, Oju.
3. To assess the level of uptake of IPTp among antenatal care attendees in General Hospital, Oju.
4. To identify the barriers affecting the uptake of IPTp as perceived by pregnant women in General Hospital, Oju.

1.4 Research Questions

1. What is the level of knowledge about Intermittent Preventive Treatment in pregnancy (IPTp) among pregnant women attending antenatal care in General Hospital, Oju, Benue State?

2. How is the attitude of pregnant women regarding IPTp in General Hospital, Oju, Benue State?
3. What is the level of uptake of IPTp among antenatal care attendees in General Hospital, Oju, Benue State?
4. What are the barriers affecting the uptake of IPTp as perceived by pregnant women in General Hospital, Oju, Benue State?

1.5 Research Hypothesis

H_0: There is no significant relationship between knowledge and uptake of Intermittent Preventive Treatment in pregnancy (IPTp) among antenatal care attendees at General Hospital Oju, Benue State.

H_1: There is significant relationship between knowledge and uptake of Intermittent Preventive Treatment in pregnancy (IPTp) among antenatal care attendees at General Hospital Oju, Benue State.

1.6 Significance of the Study

The findings of this study will help in identifying and addressing the gaps in knowledge, attitudes, and practices regarding IPTp. The study would increase awareness of intermittent preventive treatment of malaria in pregnancy. This, in turn, can lead to a significant reduction in the incidence of malaria during pregnancy, which is a leading cause of maternal anaemia, low birth weight, and perinatal mortality. For families, healthier pregnancies mean reduced medical expenses, fewer complications, and a higher likelihood of having healthy infants, which positively impacts the overall family dynamics and well-being. At a societal level, reducing malaria in pregnancy contributes to the broader public health goal of decreasing maternal and infant mortality rates, thus fostering a healthier and more productive community.

For the nursing profession, this study provides critical insights into the role of nurses in health education on adherence to IPTp among pregnant women. As frontline healthcare providers, nurses are pivotal in educating patients on IPT, administering and monitoring adherence to recommended doses by the Federal ministry of health. The findings from this research can help nurses better understand the barriers their patients face regarding IPTp uptake and equip them with the knowledge to address these barriers effectively. This study underscores the importance of continuous professional development and training for nurses, ensuring they are well-informed and capable of providing the highest standard of care. Additionally, it highlights the need for nurses to engage in public health advocacy, further establishing their role in promoting maternal and child health.

Furthermore, the study might provide information for hospital authorities at General Hospital, Oju, about challenges of current malaria prevention strategies in pregnancy. By identifying specific areas where IPTp uptake is low, the study will enable the hospital management to tailor their antenatal care services more effectively, improving patient outcomes. The findings might guide the development of targeted educational programs, resource allocation, and policy adjustments by stakeholders such as State ministry of health (SMoH), Federal ministry of health (FMoH).

In addition, this study provides valuable evidence needed to shape public health policies and programs aimed at reducing malaria in pregnancy. The research findings can inform the development of state-wide initiatives to increase IPTp uptake, improve healthcare provider training, and ensure the consistent availability of IPTp drugs. Additionally, the study can guide resource allocation and the implementation of community-based interventions designed to increase awareness and compliance with IPTp guidelines.

The research findings can serve as a reference for future studies, offering a foundation upon which other researchers can build. Additionally, this study opens new avenues for research,

particularly in exploring innovative strategies to improve IPTp uptake and evaluating their effectiveness in different contexts.

1.7 Scope of the Study

This study is focused on pregnant women attending antenatal care at General Hospital, Oju, Benue State. It aims to assess their knowledge, attitude, and uptake of Intermittent Preventive Treatment of malaria in pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP).

1.8 Operational Definition of Terms

1. **Intermittent Preventive Treatment in Pregnancy (IPTp):** In this research, it refers to the administration of Sulfadoxine-Pyrimethamine at scheduled intervals during pregnancy for malaria prevention regardless of whether the recipient is infected or not.
2. **Sulfadoxine-Pyrimethamine (SP):** In this research refers to an antimalarial drug combination used in intermittent preventive treatment in pregnancy to prevent malaria in pregnant women.
3. **Antenatal Care Attendees:** In this research refers to pregnant women attending General Hospital Oju during the period of this study.
4. **Knowledge:** In this research refers to the understanding of information related to intermittent preventive treatment in pregnancy and malaria prevention by antenatal care attendees in General Hospital Oju.
5. **Attitude:** In this research refers to the behaviour of pregnant women attending antenatal care in General Hospital Oju towards intermittent preventive treatment in pregnancy.
6. **Uptake:** In this research refers to the extent to which antenatal care attendees in General Hospital Oju receives and adhere to the intermittent preventive treatment in pregnancy use during their antenatal visits.

7. **Direct Observed Therapy (DOT):** In this research means swallowing of Sulfadoxine-Pyrimethamine (SP) in the presence of a healthcare provider.
8. **Barriers:** In this research, barriers refer to health facility barriers, health provider barriers, pregnant mothers' personal barriers, cultural and socioeconomic barriers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter deals with the concept of malaria, epidemiology of malaria, its causative organisms, modes of transmission, concept of malaria in pregnancy and the risks it poses during pregnancy, the concept of Intermittent Preventive Treatment (IPT) and associated barriers to its uptake. The chapter also covers the Generic Behavioural Model Theory, empirical review and summary of literature review.

2.1.1 Concept of Malaria

Malaria is a life-threatening disease caused by parasites of the genus *Plasmodium*, transmitted to humans through the bites of infected female Anopheles mosquitoes. The disease manifests with symptoms such as fever, chills, and flu-like illness. If not treated promptly, it can lead to severe complications and death, particularly in vulnerable populations like pregnant women and children (WHO, 2021).

2.1.2 Prevalence of Malaria (Epidemiology)

Malaria remains one of the most pressing public health challenges globally, particularly in sub-Saharan Africa, where it is endemic. According to the World Health Organization (2021), there were an estimated 241 million malaria cases worldwide in 2020, with Africa accounting for approximately 95% of these cases. Nigeria, being one of the highest burden countries, contributes significantly to this global burden, with around 27% of all malaria cases reported (Federal Ministry of Health [FMOH], 2021). The persistent prevalence of malaria is attributed to various factors, including climatic conditions conducive to mosquito breeding, inadequate healthcare infrastructure, and socio-economic challenges that hinder effective prevention and treatment measures (WHO, 2021)

In 2017, 216 million malaria cases and 445,000 malaria deaths globally. In 2018, estimated *219 million cases* of malaria in 90 countries and 435,000 Malaria deaths (WHO, 2020). In 2019, an estimated *228 million* cases of malaria occurred worldwide. Most malaria cases were in the (WHO) African Region (213 million or 93%). 19 countries in sub-Saharan Africa and India carried almost 85% of the global malaria burden. 6 countries accounted for more than half of all malaria cases globally: Nigeria (25%), the Democratic Republic of the Congo (12%), Uganda (5%), and Côte d'Ivoire, Mozambique and Niger (4% each) (WHO, 2020)

The epidemiology of malaria is influenced by multiple factors, including environmental and socio-economic conditions. Regions with high rainfall and warm temperatures provide ideal habitats for the Anopheles mosquitoes that transmit malaria. In Nigeria, the seasonal patterns of rainfall significantly impact malaria transmission dynamics, leading to peak incidence during the rainy season (WHO 2021). Furthermore, socio-economic factors such as poverty, limited access to healthcare, and low educational levels exacerbate the situation. Women and children, who are most vulnerable, often bear the brunt of malaria-related morbidity and mortality, highlighting the urgent need for targeted interventions to address these challenges.

2.1.3 Causative Organism

Malaria is caused by protozoan parasites of the genus *Plasmodium*, with five species known to infect humans: *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium malariae*, *Plasmodium ovale*, and *Plasmodium knowlesi*. Among these, *P. falciparum* is the most virulent and is responsible for the majority of severe malaria cases and deaths in Africa (WHO 2021). This parasite exhibits complex life cycles that include both human and mosquito hosts, with specific adaptations that allow it to thrive in various environments. The transmission cycle begins when an infected female Anopheles mosquito bites a human, introducing the sporozoites into the bloodstream, where they migrate to the liver and mature

into merozoites. 5 % of cases develop symptoms within one month (P. falciparum 9-14 days, P. vivax and P. ovale 12-18 days, P. malariae 18-40 days, P. knowlesi 9-12 days) (WHO, 2020).

The pathogenicity of *P. falciparum* is attributed to its ability to invade red blood cells and multiply rapidly, leading to severe anaemia and other complications. In pregnant women, this can result in placental malaria, characterized by the accumulation of infected red blood cells in the placenta (Desai, et al, 2017). This condition not only affects maternal health but also poses significant risks to foetal development, leading to low birth weight and increased neonatal mortality. The ability of *P. falciparum* to sequester itself in the placenta underscores the critical need for effective prevention strategies, particularly during pregnancy (WHO, 2021).

Research into the biology of *Plasmodium* has advanced our understanding of its life cycle and the mechanisms it employs to evade the immune system. This knowledge is essential for the development of new vaccines and treatment options. On-going studies aim to identify novel targets within the parasite's life cycle that can be exploited for therapeutic interventions. Furthermore, understanding the genetic diversity of *Plasmodium* strains circulating in specific regions can inform local malaria control efforts and help anticipate potential challenges related to drug resistance and treatment efficacy.

2.1.4 Mode of Transmission

Malaria transmission primarily occurs through the bites of infected female Anopheles mosquitoes (WHO, 2020). The life cycle of the malaria parasite begins when a mosquito bites an infected person, ingesting the gametocytes present in the blood. Inside the mosquito, the gametocytes develop into sporozoites, which migrate to the salivary glands. When the mosquito bites another human, it injects the sporozoites into the bloodstream, initiating the

infection. This vector-borne transmission is the most common mode of spreading malaria, making mosquito control a central focus of malaria prevention efforts (Nsimba et al, 2020).

In addition to vector-borne transmission, malaria can also be transmitted through blood transfusions, organ transplants, and congenital routes (from mother to child during pregnancy) (WHO, 2021). These alternative modes of transmission are particularly concerning in regions with high malaria prevalence, as they can complicate control measures. Congenital malaria, for instance, poses significant risks to pregnant women and their new-borns, highlighting the importance of timely diagnosis and treatment during antenatal care. Efforts to reduce transmission must therefore consider not only mosquito control but also the potential for non-vector transmission (Nsimba et al, 2020).

Understanding the modes of transmission is critical for designing effective prevention strategies. Community awareness programs that educate people about the importance of mosquito control measures, such as the use of insecticide-treated nets (ITNs) and indoor residual spraying (IRS), can significantly reduce malaria transmission rates (WHO, 2020).

2.1.5 Concept of Malaria in Pregnancy

Malaria in pregnancy represents a significant public health issue, particularly in malaria-endemic regions (WHO, 2021). Pregnant women are at an increased risk of malaria infection due to physiological changes that occur during pregnancy, such as alterations in the immune system. This increased susceptibility can lead to severe complications for both the mother and the foetus, including maternal anaemia, preterm delivery, and low birth weight (Mala et al, 2021). Understanding the concept of malaria in pregnancy requires an appreciation of both the biological and social factors that contribute to this heightened risk.

The presence of malaria during pregnancy is often asymptomatic, complicating diagnosis and treatment. Many women may not exhibit typical malaria symptoms, which can lead to delays

in seeking care. The consequences of untreated malaria can be severe, resulting in significant morbidity and mortality for both the mother and the child. This underscores the need for routine screening for malaria during antenatal visits, enabling early detection and treatment to mitigate adverse outcomes (Mala et al, 2021).

2.1.6 Risk Factors for Malaria in Pregnancy

The risk factors for malaria in pregnancy are multifaceted and can significantly influence a woman's likelihood of contracting malaria. Socioeconomic status is a critical determinant, as women from lower-income backgrounds often face barriers to accessing healthcare services, including preventive measures like IPTp (Chanda et al, 2020). Limited financial resources may hinder their ability to travel to health facilities, purchase insecticide-treated nets, or seek timely medical attention for malaria symptoms.

Women living in rural areas or regions with high malaria transmission rates are at a greater risk compared to those in urban settings. The environmental conditions that support mosquito breeding, such as stagnant water and humidity, are often more prevalent in rural areas. Furthermore, women in these regions may have less access to healthcare services and education about malaria prevention, increasing their susceptibility to the disease (WHO, 2020)

Cultural beliefs and practices also contribute to the risk of malaria in pregnancy. In some communities, traditional medicine may be preferred over conventional treatment, leading to delays in seeking appropriate care (Chanda et al, 2020).

Other identified risk factors are as follows; Failure to access ANC for intermittent preventive therapy IPT i.e. sulphadoxine Pyramithamine (SP), Improper use of the Insecticide Treated Net (ITNs), Lack of knowledge on the need to seek early intervention to prevent malaria,

Living in mosquitoes infested area such as riverside, swamps, Use of mosquito nets for other purposes (such as for vegetable gardening/protection, fishing, football net etc) (WHO, 2020).

2.1.7 Classification of Malaria in Pregnancy

Malaria in pregnancy can be classified into two main categories: uncomplicated and severe malaria (WHO, 2020). Uncomplicated malaria is characterized by mild symptoms such as fever, headache, and fatigue, which may resemble common viral infections. This form of malaria can often be treated effectively with antimalarial medications, but if left untreated, it may progress to more severe manifestations. Pregnant women with uncomplicated malaria may experience anaemia and other complications, which can adversely affect maternal and foetal health.

Severe malaria, on the other hand, involves life-threatening complications that require immediate medical intervention. This classification includes cases of cerebral malaria, severe anaemia, respiratory distress, and metabolic acidosis. Pregnant women are particularly vulnerable to severe malaria due to their compromised immune systems, and the consequences can be devastating. The presence of severe malaria during pregnancy increases the risk of maternal mortality, preterm delivery, and foetal complications such as low birth weight and stillbirth (Ezechi et al, 2020).

Understanding the classification of malaria in pregnancy is crucial for healthcare providers to implement appropriate treatment strategies. Early identification of both uncomplicated and severe cases allows for timely intervention and can significantly improve outcomes for mothers and their infants. Regular screening for malaria during antenatal visits is essential to detect cases early and provide the necessary care to mitigate the risks associated with malaria in pregnancy.

2.1.8 Signs and Symptoms of Malaria in Pregnancy

The signs and symptoms of malaria in pregnancy are similar to those in the general population but can manifest differently due to the physiological changes occurring during pregnancy (WHO, 2020). These signs and symptoms are classified into uncomplicated and severe signs and symptoms, and they are as follows;

Uncomplicated Malaria

- Fever
- Shivering/chills/rigors
- Headaches
- Muscle/joint pains
- Nausea/vomiting
- False labour pains
- Mild anaemia
- Bitter taste (Atser, 2021)

Severe Malaria

Signs of uncomplicated malaria PLUS one or more of the following:

- Dizziness
- Breathlessness/difficult breathing
- Sleepy/drowsy
- Confusion
- Coma
- Sometimes fits, jaundice,
- severe dehydration
- very dark urine

- Severe anaemia
- Pulmonary oedema (Atser, 2021)

However, many pregnant women may present with atypical symptoms or be asymptomatic, complicating diagnosis. The overlap of malaria symptoms with other common illnesses during pregnancy, such as flu or gastrointestinal disorders, can lead to misdiagnosis or delays in seeking treatment (WHO, 2020).

As malaria progresses, more severe symptoms may develop, including jaundice, respiratory distress, and neurological symptoms. Severe malaria can lead to complications such as anaemia, which is particularly concerning in pregnant women who are already at risk for iron deficiency. The presence of severe malaria during pregnancy can significantly impact maternal health, increasing the likelihood of complications such as preterm labour and low birth weight in infants (Mala et al, 2021).

2.1.9 Diagnosis of Malaria in Pregnancy

Accurate diagnosis of malaria in pregnancy is essential for timely treatment and management. The diagnosis typically involves clinical evaluation and laboratory testing. Healthcare providers must assess the patient's history, symptoms, and risk factors, especially in endemic areas. Due to the non-specific nature of malaria symptoms, a high index of suspicion is crucial, particularly among pregnant women who may present with mild or atypical symptoms (Ezechi et al, 2020).

Laboratory Diagnosis for Malaria in Pregnancy includes;

- Rapid Diagnostic Tests (RDTs).
- Prompt parasitological confirmation by microscopy recommended in all patients suspected of malaria before treatment.
- HB level to determine anaemia (FMOH, 2021).

The gold standard for malaria diagnosis is microscopy, which involves examining blood smears for the presence of *Plasmodium* parasites. However, this method requires trained personnel and appropriate laboratory facilities, which may not always be available in resource-limited settings. Rapid diagnostic tests (RDTs) have emerged as a valuable alternative, providing quicker results and enabling healthcare providers to initiate treatment promptly. RDTs are particularly useful in primary healthcare settings where laboratory capacity is limited (Nsimba et al, 2020).

Effective diagnosis of malaria in pregnancy is vital to ensure appropriate treatment and prevent severe complications. Healthcare systems must prioritize the availability of diagnostic tools and training for providers to enhance the accuracy of malaria detection. Additionally, integrating malaria screening into routine antenatal care can facilitate early diagnosis and treatment, ultimately improving health outcomes for pregnant women and their infants.

2.1.10 Pathophysiology of Malaria in Pregnancy

The pathophysiology of malaria in pregnancy is complex and involves interactions between the *Plasmodium* parasite, the host's immune response, and the unique physiological changes that occur during pregnancy. The infection primarily affects the placenta, where *P. falciparum* can sequester in the maternal blood, leading to placental malaria. This condition disrupts the placental blood flow and can result in maternal anaemia and foetal growth restriction (Nsimba et al, 2020).

The immune response during pregnancy is altered, with a shift towards a more tolerogenic state to protect the foetus. This change can reduce the effectiveness of the maternal immune system in combating malaria infections. As a result, pregnant women are at higher risk of developing severe malaria compared to non-pregnant individuals. The presence of the

parasite in the placenta can provoke inflammatory responses, further complicating the health of the mother and foetus (WHO, 2020).

Understanding the pathophysiology of malaria in pregnancy is crucial for developing targeted interventions. Research into the mechanisms of placental malaria and its effects on maternal and foetal health can inform the development of vaccines and new treatment protocols. Furthermore, knowledge of the immunological changes during pregnancy can guide healthcare providers in managing malaria cases more effectively, reducing the risk of severe complications.

2.1.11 Complications of Malaria in Pregnancy

Malaria during pregnancy is associated with several complications that can adversely affect both maternal and foetal health. Maternal anaemia is one of the most common consequences, resulting from the destruction of red blood cells by the malaria parasite. Anaemia can significantly impair a woman's physical well-being and increase the risk of severe morbidity and mortality during and after delivery. The impact of maternal anaemia extends beyond the individual, as it can contribute to poor pregnancy outcomes (Onoka, et al, 2019).

Foetal complications are equally concerning, with malaria linked to low birth weight, preterm delivery, and stillbirth. The effects of placental malaria can hinder proper foetal development due to reduced blood flow and nutrient transfer. In addition, infants born to mothers who had malaria during pregnancy may experience increased susceptibility to infections and other health challenges later in life. The long-term consequences of malaria in pregnancy highlight the need for effective prevention and treatment strategies to safeguard maternal and child health (WHO, 2020).

Overall, malaria in pregnancy can lead to severe complications, including:

- Maternal anaemia

- Increased risk of miscarriage
- Low birth weight
- Stillbirth
- Increased maternal mortality (Chanda et al, 2020).

These complications highlight the need for effective prevention and treatment strategies during pregnancy.

2.1.12 A 3-Pronged Approach to Prevention and Control of Malaria in Pregnancy

The WHO recommends a three-pronged approach for malaria prevention and control in pregnancy (WHO, 2020):

- **Insecticide-treated nets (ITNs)**: Providing pregnant women with ITNs helps reduce mosquito bites and prevent malaria infection.
- **Intermittent Preventive Treatment (IPTp)**: Administering IPTp with SP at scheduled antenatal visits is critical for preventing malaria during pregnancy.
- **Prompt diagnosis and treatment**: Ensuring access to timely diagnosis and effective treatment for pregnant women presenting with malaria symptoms.

A comprehensive approach to preventing and controlling malaria in pregnancy is crucial to mitigate its impact on maternal and foetal health (WHO, 2020). This three-pronged strategy includes the use of insecticide-treated bed nets (ITNs), Administration of intermittent preventive treatment against malaria in pregnancy (IPTp) with sulphadoxine-pyrimethamine (SP) and Prompt diagnosis and effective treatment of malaria cases and maternal anaemia. Preventive measures, such as the use of insecticide-treated nets (ITNs) and IPTp, are essential to reduce the risk of malaria infection during pregnancy.

Timely diagnosis and treatment are critical components of malaria control in pregnancy. Routine screening for malaria during antenatal visits can facilitate early detection, allowing

for prompt treatment and reducing the risk of complications. Healthcare systems must enhance laboratory capacity and access to rapid diagnostic tests to improve case identification. This ensures that pregnant women receive the necessary care to manage malaria effectively.

2.1.13 Intermittent Preventive Treatment (IPTp) of Malaria in Pregnancy

Intermittent Preventive Treatment in pregnancy (IPTp) is a strategy endorsed by the World Health Organization (WHO) to reduce the burden of malaria among pregnant women. The approach involves administering antimalarial drugs to pregnant women at specified intervals, regardless of whether they exhibit malaria symptoms. IPTp aims to prevent malaria infections and associated complications by ensuring that women receive treatment during critical periods of their pregnancy, particularly in malaria-endemic regions (WHO, 2020)

Research has shown that IPTp can significantly reduce the incidence of malaria in pregnancy, decrease maternal anaemia, and improve birth outcomes (Oguntunde, et al, 2018). However, despite the demonstrated benefits, the uptake of IPTp remains suboptimal in many areas, including Nigeria. Barriers to effective implementation include limited awareness among healthcare providers and pregnant women, logistical challenges in drug distribution, and sociocultural factors that influence health-seeking behaviour. Addressing these barriers is crucial to maximize the impact of IPTp as a preventive strategy (Mala et al, 2021).

To enhance the effectiveness of IPTp, it is essential to integrate this intervention into routine antenatal care services. Healthcare providers should be trained to educate pregnant women about the importance of IPTp and ensure its availability at healthcare facilities (Oladokun, et al, 2020). Additionally, community outreach programs can increase awareness and promote adherence to IPTp regimens. By prioritizing IPTp as a cornerstone of malaria prevention in

pregnancy, healthcare systems can significantly improve maternal and foetal health outcomes.

2.1.14 Direct Observed Therapy (DOT) of Intermittent Preventive Treatment (IPT)

Direct Observed Therapy (DOT) is an essential strategy for ensuring the effective administration of Intermittent Preventive Treatment (IPTp) in pregnant women. Under this approach, healthcare providers or trained community health workers observe the ingestion of antimalarial medications by pregnant women, ensuring adherence to the prescribed treatment regimen. The pregnant women should be made to swallow 3 tablets of SP under direct supervision of health worker (DOT) during ANC visit. DOT has been shown to improve treatment outcomes and is particularly beneficial in populations where non-adherence to medication is a significant concern (WHO, 2022)

Implementing DOT for IPTp can help mitigate challenges associated with poor adherence, such as forgetfulness or misconceptions about the need for treatment. The presence of a healthcare provider during medication intake fosters trust and can facilitate discussions about malaria prevention and treatment. Furthermore, DOT allows for immediate assessment of any adverse reactions, enabling prompt medical intervention if necessary. This approach not only enhances adherence to IPTp but also strengthens the overall healthcare relationship between providers and patients (Adebayo et al, 2019).

2.1.15 WHO 2016 ANC Model for Intermittent Preventive Treatment (IPT)

The World Health Organization's (WHO) 2016 Antenatal Care (ANC) Model emphasizes the integration of Intermittent Preventive Treatment (IPTp) as a key component of comprehensive maternal healthcare. The WHO model advocates for the provision of at least three doses of IPTp with sulfadoxine-pyrimethamine (SP) to pregnant women during their antenatal care visits, starting as early as possible in the second trimester. This approach is

designed to maximize the protective benefits of IPTp against malaria infections and associated complications. The model also emphasizes the need for training healthcare providers in the guidelines for IPTp implementation, ensuring that they can effectively communicate the benefits and address any concerns raised by pregnant women (WHO, 2020).

- ***First trimester***: Contact 1: up to 12 weeks: **No IPT**
- ***Second trimester*** (a contact should be made **early in the second trimester (13 to 16 weeks)** to administer SP as early as possible. **IPTp-SP dose 1)**
  - Contact 2: 20 weeks **(IPTp-SP dose 2)**
  - Contact 3: 26 weeks **(IPTp-SP dose 3)**
- ***Third trimester***
  - Contact 4: 30 weeks: **(IPTp-SP dose 4**)
  - Contact 5: 34 weeks: **(IPTp-SP dose 5)**
  - Contact 6: 36 weeks: (No SP administration if last dose was received at contact 5 in week 34)
  - Contact 7: 38 weeks **IPTp-SP dose 6** (if no dose was received at contact 6 in week 36)
  - Contact 8: 40 week: Return for delivery at 41 weeks if not given birth (WHO, 20216; Atser, 2021)

2.1.16 Knowledge of IPT by Mothers

Knowledge of Intermittent Preventive Treatment (IPTp) among pregnant women is critical for the successful uptake of this intervention. Studies have shown that many women in malaria-endemic regions have limited awareness of IPTp and its benefits. For example, a study conducted in Nigeria found that only 48.6% of pregnant women in rural communities in Ogun State had adequate knowledge of IPTp, with awareness closely linked to formal

education levels and access to antenatal care (Akinleye et al, 2019). In the same Ogun State, women who received antenatal care and were educated on IPTp by healthcare providers showed a higher likelihood of understanding its purpose and adhering to the prescribed regimen (Akinleye et al, 2019). This emphasizes the impact of healthcare education, which can be further enhanced through community outreach programs involving local leaders and health workers to address misconceptions and improve understanding of IPTp (Akinleye et al, 2019). Similarly, in a 2021 study in Plateau State, only 32% of women attending antenatal clinics knew the recommended regimen for IPTp, highlighting significant gaps in knowledge among pregnant women in malaria-prone areas (Adeniran et al, 2021).

Improving knowledge of IPTp among mothers requires a multi-faceted approach involving both healthcare education and community engagement. By increasing awareness and understanding of IPTp, healthcare systems can improve the uptake of this essential intervention, ultimately reducing the burden of malaria in pregnancy and enhancing maternal and foetal health outcomes (Okeke et al, 2020).

2.1.17 Attitude of Mothers towards Intermittent Preventive Treatment (IPT)

The attitude of mothers toward Intermittent Preventive Treatment (IPTp) significantly influences its uptake and effectiveness as a preventive measure against malaria during pregnancy. Positive attitudes, including a willingness to accept and adhere to IPTp recommendations, are crucial for effective malaria prevention. In a study conducted in Ibadan, Nigeria, 54% of pregnant women expressed a positive attitude toward IPTp, viewing it as essential for protecting their health and that of their unborn babies (Adebayo et al, 2019). However, in contrast, a recent study from rural areas in Enugu State found that only 40% of mothers were willing to receive IPTp, often due to fears about potential side effects or doubts about its effectiveness (Adeniran et al, 2020).

Mothers who believe in the effectiveness of IPTp are more likely to engage in health-seeking behaviours and follow prescribed regimens. Conversely, negative attitudes rooted in misconceptions or fears about IPTp, often exacerbated by past experiences with medication, significantly hinder uptake. For example, in the Enugu study, nearly 30% of mothers expressed reluctance to accept IPTp due to perceived risks to the foetus, which impacted their adherence rates (Adeniran et al, 2020). Addressing these misconceptions through community engagement and dialogue is essential to foster positive attitudes toward IPTp and improve uptake.

To encourage positive attitudes, healthcare systems must prioritize effective communication strategies that emphasize IPTp's benefits while addressing common concerns empathetically. Training healthcare providers to build trust and rapport with mothers and to respond to questions with sensitivity can enhance acceptance and adherence. Improving communication strategies, especially in community-based settings, can ultimately support greater uptake of IPTp for improved maternal and foetal health outcomes (Diala, 2020).

2.1.18 Uptake of Intermittent Preventive Treatment (IPT) by Mothers

The uptake of Intermittent Preventive Treatment (IPTp) among pregnant women remains a critical component of malaria prevention efforts in malaria-endemic regions. Despite its proven efficacy in reducing malaria-related morbidity and mortality, uptake remains suboptimal in several communities. For instance, in a 2020 study conducted in Akwa Ibom State, Nigeria, only 43% of pregnant women attending antenatal care (ANC) reported receiving the recommended doses of IPTp, highlighting significant gaps in coverage (Ezeigbo et al, 2019). Similarly, a recent survey in Northern Nigeria found that only 38% of women had received at least one dose of IPTp, with less than 20% completing the full regimen, despite regular ANC visits (Ibrahim et al, 2021).

2.1.19 Barriers Affecting the Uptake of IPT by Mothers

Barriers to the uptake of Intermittent Preventive Treatment (IPTp) among pregnant women are multi-dimensional and can significantly hinder malaria prevention efforts. Common barriers include limited awareness and understanding of IPTp, misconceptions about its effectiveness, and cultural beliefs that influence health-seeking behaviour. Many women in malaria-endemic regions may not receive accurate information about IPTp, leading to scepticism regarding its benefits and the necessity of receiving preventive treatment during pregnancy (Eze et al, 2019). Barriers to IPTp uptake are often linked to logistical challenges, such as limited availability of antimalarial medications at healthcare facilities, insufficient healthcare personnel, and long distances to clinics. Additionally, cultural beliefs and misconceptions about the safety and necessity of IPTp deter many women from following recommended treatment schedules. For instance, in the Northern Nigeria survey, 27% of women cited fear of side effects as a reason for low adherence, and 19% mentioned lack of trust in IPTp's effectiveness (Ogu et al, 2017).

Additionally, structural barriers such as inadequate healthcare infrastructure and limited access to antenatal care services further complicate the situation. In many rural areas, healthcare facilities may lack the necessary resources to provide IPTp consistently, including trained personnel and antimalarial medications. This logistical challenge can discourage women from seeking care and limit their opportunities to receive IPTp. Furthermore, socio-economic factors, such as poverty and lack of transportation, can exacerbate the difficulties faced by pregnant women in accessing healthcare services (Eze, et al, 2019).

To improve IPTp uptake, healthcare providers need to address both logistical and informational barriers. Strengthening community-based health education can raise awareness and trust in IPTp, while ensuring a consistent supply of antimalarial drugs at ANC clinics can make treatment more accessible. Through a combined effort to reduce barriers and build

awareness, healthcare systems can support increased IPTp uptake, contributing to healthier pregnancies and reduced malaria incidence among mothers and infants.

Addressing these barriers requires a coordinated approach that involves community engagement, education, and strengthening healthcare systems. Efforts to improve the knowledge and attitudes of pregnant women toward IPTp can significantly enhance uptake. Additionally, improving the availability of healthcare services and training providers to deliver accurate information can create a more supportive environment for pregnant women to access and adhere to IPTp. By overcoming these barriers, healthcare systems can improve malaria prevention efforts and protect the health of mothers and their infants.

2.2 Theoretical Framework: The Generic Behavioural Model Theory

The Generic Behavioural Model (GBM), often used in public health research, is a theoretical framework that helps explain and predict health behaviours by focusing on the influence of individual beliefs, social factors, and environmental contexts (Goodman, & Blumenthal. 2020). Originally developed by Andersen in 1968 to understand healthcare utilization, the model has been adapted and expanded over time to examine various health-related behaviours, including preventive health practices such as the uptake of Intermittent Preventive Treatment in pregnancy (IPTp). The Generic Behavioural Model posits that health behaviour is influenced by three primary components: predisposing factors, enabling factors, and need factors **(**Petkus et al, 2021):

Predisposing Factors: These include demographic characteristics (age, gender, education, marital status), social structure (cultural beliefs, societal norms), and health beliefs (knowledge, attitudes, perceptions about health and illness). Predisposing factors shape an individual's motivation to engage in certain health behaviours, such as seeking antenatal care or accepting IPTp.

Enabling Factors: These are the logistical aspects that facilitate or hinder health behaviour. They include the availability of healthcare services, accessibility (distance to facilities, cost of care), and social support (family, community influence). Enabling factors are crucial in determining whether a pregnant woman can access and utilize IPTp as part of her antenatal care.

Need Factors: These refer to the individual's perceived or actual need for healthcare. In the context of malaria in pregnancy, this might include the recognition of symptoms, understanding of malaria risks, and awareness of the benefits of IPTp. The more a woman perceives her vulnerability to malaria and the benefits of prevention, the more likely she is to engage in preventive behaviours.

2.2.1 Application of the Generic Behavioural Model to IPTp Uptake in this study

When applying the Generic Behavioural Model to the uptake of IPTp among pregnant women, the theory helps to analyse how these factors interact to influence a woman's decision to use IPTp. For instance:

Predisposing Factors: A woman's knowledge about malaria and IPTp (a predisposing factor) can significantly influence her decision to adhere to the IPTp regimen. Cultural beliefs about malaria and pregnancy might also impact her perception of the necessity and safety of IPTp, affecting her willingness to accept it.

Enabling Factors: Accessibility to healthcare services, the availability of Sulfadoxine-Pyrimethamine (SP) at health facilities, and the cost of antenatal services are enabling factors that can either facilitate or hinder IPTp uptake. For instance, if a pregnant woman lives far from a health facility or if the medication is not consistently available, she may not receive the recommended doses of IPTp.

Need Factors: If a pregnant woman perceives that she is at high risk of malaria or has experienced malaria in a previous pregnancy, her perceived need for IPTp is heightened, making her more likely to follow through with the treatment. Conversely, if she does not perceive malaria as a significant threat, she might not prioritize IPTp, regardless of its availability.

The Generic Behavioural Model provides a comprehensive framework for understanding the multi-dimensional factors that affect IPTp uptake. It underscores the importance of addressing not just the availability of services, but also the knowledge, beliefs, and perceptions of the target population. By addressing predisposing, enabling, and need factors, healthcare providers and policymakers can design more effective interventions to improve IPTp uptake.

For instance, educational campaigns could target the predisposing factors by improving knowledge and changing attitudes toward IPTp. Health system strengthening efforts could focus on enabling factors by ensuring consistent availability of SP and reducing barriers to accessing antenatal care. Finally, understanding and addressing the perceived need for IPTp among pregnant women can enhance their motivation to utilize the service.

The Generic Behavioural Model is highly relevant to nursing practice, particularly in maternal and child health. Nurses play a critical role in assessing and addressing the factors that influence health behaviour, including providing education, counselling, and support to pregnant women. By understanding the various components of the Generic behavioural model theory (GBM), nurses can tailor their care to better meet the needs of their patients, ensuring that more women receive and adhere to IPTp as part of their antenatal care.

Moreover, the model emphasizes the need for a holistic approach to healthcare delivery, where nurses consider the broader social and environmental factors that influence health behaviours. This approach is essential for improving health outcomes, particularly in settings

like Benue State, where cultural beliefs, healthcare access, and knowledge gaps significantly impact the effectiveness of health interventions like IPTp.

In conclusion, the Generic Behavioural Model offers a valuable lens through which to view and address the challenges of IPTp uptake among pregnant women, making it a critical tool for nurses and other healthcare providers working to combat malaria in pregnancy.

2.3 Empirical Review

A study was conducted by Akinleye et al, (2020) on the knowledge and utilization of intermittent preventive treatment for malaria among pregnant women attending antenatal clinics in primary health care centers in rural southwest, Nigeria. A cross-sectional study was carried out between July and August 2020 among 209 pregnant women selected by systematic random sampling from antenatal care attendees at primary health care in a rural Local Government Area of Ekiti State, Nigeria. Information on knowledge of IPT, delivery, adherence and acceptability was obtained using an interviewer administered questionnaire. Descriptive statistics such as means, range, proportions were used. Chi-square test was used to examine association between categorical variables. All analyses were performed at 5% level of significance. It was found that one hundred and nine of 209 (52.2%) respondents have heard about IPTp but only 26 (23.9%) were able to define it. Fifty seven (27.3%) reported to have received at least one dose of IPTp during the index pregnancy and all were among those who have heard of IPTp (52.3%). Twenty one of the 57 (36.8%) took the SP in the clinic. Only three of the twenty-one (14.3%) were supervised by a health worker. Twenty two of the 36 women (61.1%) who did not take their drugs in the clinic would have liked to do so if allowed to bring their own drinking cups. Almost half (43.9%) of those who had used IPTp during the index pregnancy expressed concern about possible adverse effect of SP on their pregnancies. Periodic shortages of SP in the clinics were also reported. It was concluded

that IPTp use among pregnant women was very low and there was poor adherence to the Directly Observed Therapy (DOT) scheme. Concerted effort should be made to increase awareness of IPTp among the public especially women of child bearing age. Health workers should also be trained and monitored to ensure adherence.

Another study was conducted by Arulogun and Okereke (2022) on the Knowledge and practices of intermittent preventive treatment of malaria in pregnancy among health workers in a southwest local government area of Nigeria. This cross-sectional study was therefore designed to assess the level of knowledge and practice of IPTp among health workers in Ibadan North Local Government Area (LGA) Nigeria. Consenting 208 health workers and purposively selected 122 pregnant women who accessed the antenatal services were recruited for survey and exit interview respectively. Quantitative data were analyzed using descriptive statistics and t-test while qualitative data was analysed by content analysis. Mean age of health workers was 27.0±7.6 years and overall mean knowledge score was 3.1±1.9 out of a maximum of 6.0 points. Only 24.5% health workers could adequately explain the concept of IPTp and 23.1% of health workers reportedly observed pregnant women take Sulphadoxine Pyrimethamine (SP) directly. Exit interview revealed that only 13.1% of the pregnant women reportedly were directly observed by the health workers while taking their SP. Knowledge was significantly associated with practice of IPTp ($p<0.05$). Health education strategies such as continuing education within the context of IPTp and supportive supervision of health workers are needed to improve compliance.

Another study was conducted by Mukala et al, (2024) on the knowledge, attitude and practices on intermittent preventive treatment in pregnant women with malaria. a total of 140 participants aged between 18 and 49 years and at approximately 16 weeks of gestation were enrolled in this study, which utilized a mixed qualitative-quantitative method. Before enrolment, malaria testing was conducted using microscopy, and participants were divided

into two cohorts: malaria-positive and malaria-negative. Close-ended and open-ended questionnaires were used. Qualitative-quantitative data analyses were performed. It was found out that a significant difference between the proportion of mothers in the negative and positive groups in terms of their knowledge about side effects ($p \leq 0.001$) and different doses ($p \leq 0.012$) of intermittent preventive treatment. The proportion of mothers who knew side effects and different doses was higher among the malaria-positive group as compared to malaria-negative group with 37(52.9%, n=70) versus 18(25.7%, n=70) and 14(20.0%, n=70) versus 4(5.7%, n=70) respectively. Additionally, there was also a significant difference in knowledge about intermittent preventive treatment before administration ($p \leq 0.003$) between the two groups. The study concluded that good knowledge, attitude and practices on intermittent preventive treatment (IPT) benefits, side effects, safety, doses and other prior information should be leveraged to empower pregnant women in malaria-endemic zones.

Another study was conducted by Asem et al, (2024) on Knowledge, and attitude of service user of intermittent preventive treatment of malaria in pregnancy using sulfadoxine-pyrimethamine in the Volta Region of Ghana. The study was a cross-sectional survey of two selected districts in the Volta Region of Ghana. The study participants were randomly selected from communities within Nkwanta North and North Tongu District. In all a total of 438 mothers who have delivered in the past 24 months were selected for the study. The women were interviewed using a structured questionnaire and the bivariate and multivariable logistic regression results presented in tables. It was found that the level of knowledge, and attitude were reported as 45.9% and 58.9% respectively. Knowledge of the service user is determined by the level of education of the women. The attitude of the service user is determined by making 4–7 visits during ANC, Gestational age at booking for ANC is 4–7 weeks, income level between 100 to 999, partner educational level above Middle/JHS/JSS, and age of a partner is above 40 years. The findings from the present studies highlighted

important factor such as number of antenatal visits that affect both knowledge of services and attitude to use IPTp-SP. Therefore, a community-based health promotion programmes to help to increase knowledge and improved attitude on timely and regular antenatal attendance to promote the benefit of IPTp-SP should be encouraged.

Another study was conducted by Berchie et al, (2024) on the Uptake and Effectiveness of Intermittent Preventive Treatment with Sulfadoxine-Pyrimethamine during Pregnancy in Africa. This scoping review aims to explore IPTp-SP uptake in African countries, identify influencing factors, and assess its effectiveness in preventing malaria and adverse outcomes in pregnancy. This scoping review follows Arksey and O'Malley's framework, employing the PRISMAScR guidelines for reporting. Searches were conducted in PubMed, Embase, Scopus, JSTOR, Web of Science, Google Scholar, and ProQuest, focusing on studies post-2000 published in the English language. The search produced 15,153 records, of which 104 full-text records were eligible and 101 papers were included in this review. The findings suggest varying IPTp-SP uptake rates, spanning from 5.3% to 98.9%, with their effectiveness supported by longitudinal studies, randomised controlledtrials (RCTs), cross-sectional surveys, and mixed-method studies. IPTp-SP demonstrates efficacy in reducing malaria during pregnancy, placental parasitaemia, and anaemia episodes, alongside improved birth outcomes. Common adverse effects of IPTp-SP include prematurity and low birth weight. Facilitators of IPTp-SP uptake include education and ANC attendance, while commonly reported barriers included inadequate knowledge and healthcare system challenges. The findings also suggest adverse effects such as prematurity, low birth weight, and maternal and perinatal mortality associated with IPTp-SP uptake. It is vital to strengthen antenatal care services by integrating comprehensive counselling on IPTp-SP and address healthcare system challenges. Community engagement, women's empowerment, and context-specific

interventions are necessary for promoting IPTp-SP uptake and improving maternal and neonatal health outcomes in Africa.

Another study was conducted by Okoli et al, (2021) on Decomposition of socioeconomic inequalities in the uptake of intermittent preventive treatment of malaria in pregnancy in Nigeria: evidence from Demographic Health Survey. The study re-analysed dataset of 12,294 women aged 15–49 years from 2018 Nigeria Demographic Health Survey (DHS). The normalized concentration index (Cn) and concentration curve was used to quantify and graphically present socioeconomic inequalities in the uptake of IPTp-SP among pregnant women in Nigeria. The Cn was decomposed to identify key factors contributing to the observed socioeconomic inequality in the uptake of adequate (≥ 3) IPTp-SP. The study showed a higher concentration of the adequate uptake of IPTp-SP among socioeconomically advantaged women (Cn = 0.062; 95% confidence interval [CI] 0.048 to 0.076) in Nigeria. There is a pro-rich inequality in the uptake of IPTp-SP in urban areas (Cn = 0.283; 95%CI 0.279 to 0.288). In contrast, a pro-poor inequality in the uptake of IPTp-SP was observed in rural areas (Cn = − 0.238; 95%CI − 0.242 to − 0.235). The result of the decomposition analysis indicated that geographic zone of residence and antenatal visits were the two main drivers for the concentration of the uptake of IPTp-SP among wealthier pregnant women in Nigeria. The study concluded that pro-rich inequalities in the uptake of IPTp-SP among pregnant women in Nigeria, particularly in urban areas, warrant further attention. Strategies to improve the uptake of IPTp-SP among women residing in socioeconomically disadvantaged geographic zones (North-East and North-West) and improving antenatal visits among the poor women may reduce pro-rich inequality in the uptake of IPTp-SP among pregnant women in Nigeria.

Another study was conducted by Balami et al, (2020) on Determinants of uptake of first dose of intermittent preventive treatment among pregnant women in a secondary health Centre in

Maiduguri, Nigeria. A cross-sectional research design was used, in which respondents were selected using a systematic random sampling method, and structured questionnaires were used to obtain information from them. Chi-squared test was used to determine factors associated with uptake of first IPTp dose, while a further multivariate logistic regression was performed to determine its predictors. It was found that Three hundred and eighty respondents answered the survey, whose ages ranged from 15 to 45 years, and 86.8% were multigravid. Sixty five% of them were aware of IPTp, and 34.7% believed that IPTp could be harmful to their pregnancies. Over a half of the respondents (52.9%) believed that taking all their IPTp medicines was very good for their pregnancies, while 45.0% felt that taking their IPTp medicines was very pleasant. Only two respondents (0.5%) stated that it was very untrue that their significant others thought that they should take all their IPTp medicines. Half of the respondents said it was very easy for them to take all their IPTp medicines even if they were experiencing mild discomforts while taking them. Less than a half (42.37%) had received their first dose of IPTp. In bivariate as well as multivariate analysis, only higher level of knowledge was significantly associated with uptake of first IPTp dose. Those with better knowledge of IPTp were about twice more likely to have taken their first dose of IPTp, compared to those with lower knowledge of IPTp (AOR = 1.85; 95% CI: 1.17–2.92). The study concluded that Knowledge of IPTp as well as its uptake was sub-optimal in this study. Since knowledge of IPTp significantly predicts uptake of the first dose of IPTp, there is the need to implement health education campaigns to raise the awareness of pregnant women and their families on the need to receive and comply with it.

Another study was conducted by Ogba et al, (2022) on Barriers and facilitators to access and uptake of intermittent preventive treatment. Using the Arksey and O'Malley framework and the cascade of care model, we conducted a scoping review to investigate barriers and facilitators of IPTp-SP access and uptake, including their influence on pregnant women's

health-seeking behaviour for the control of malaria in pregnancy in Nigeria. We searched seven scientific databases for papers published from 2005 to date. It was found out that poor provider knowledge of the IPTp-SP protocol and lack of essential commodities for sulphadoxine-pyrimethamine administration in clinics are significant barriers to IPTp-SP use. Staff shortages and poor remuneration of health care professionals are obstacles to IPTp-SP utilisation. It was concluded that to improve IPTp-SP access and uptake, the government should ensure a continuous supply to clinics and support the employment of additional health care professionals who should be well paid and trained on using the IPTp-SP protocol.

Another study was conducted by Kalu et al, (2023) on Factors associated with the uptake of Intermittent Preventive Treatment (IPTp-SP) for malaria in pregnancy. The study included 12,742 women aged 15 to 49 years with live births two years before or during the 2018 Nigeria Demographic Health Survey (NDHS) in the analysis. Descriptive analysis was carried out to determine the prevalence of IPTp-SP uptake. Multivariable logistic regression was used to establish the factors associated with receiving IPTp-SP during pregnancy, adjusting for possible confounding factors. Given the complex survey design, all analyses are adjusted for sampling weight, stratification, and clustering. The p-value of <0.05 was considered significant. In 2018, the prevalence of at least one dose of IPTp-SP was 63.6% (95% CI:62.0–65.1), and optimal doses of IPTp-SP were 16.8% (95% CI:15.8–17.8) during pregnancy. After the multivariable analysis, age group, region, frequency of ANC visits, belief in IPTp-SP effectiveness, and morbidity caused by malaria predicted the uptake of at least one IPTp-SP dose. Similar maternal characteristics, including household wealth index, spouse's educational level, and media exposure were significantly associated with taking optimal IPTp-SP doses. For instance, women in the wealthiest households whose husbands had secondary education predicted a fourfold increase in uptake of at least one IPTp-SP dose (aOR: 4.17; 95% CI:1.11–8.85). The study concluded that the low prevalence and regional

variations of IPTp-SP uptake in the study area imply that most pregnant women in Nigeria are at substantial risk of pregnancy-associated malaria. Therefore, stakeholders should explore context-specific strategies to improve the IPTp-SP coverage across the regions in Nigeria

Another study was conducted by Nyaaba et al, (2020) on A socio-ecological approach to understanding the factors influencing the uptake of intermittent preventive treatment of malaria in pregnancy (IPTp) in South-Western Nigeria. This study explored the factors for the poor uptake of IPTp and use of ITNs in lower socioeconomic communities in Nigeria. We conducted semi-structured interviews (SSI) and focus group discussions (FGD) with a total of 201 key stakeholders in six communities in Ogun State, South-Western Nigeria. Twelve SSIs were conducted with traditional birth attendants (TBAs), faith-based birth attendants and healthcare providers operating in public health facilities. Community leaders (7), pregnant women (30) and 20 caregivers were individually interviewed. Sixteen FGDs were conducted with multi- and first-time pregnant women grouped by location and pregnancy experiences. A thematic approach was used for data analysis. It was found that at the individual and social levels, there is a high general awareness of MiP, its consequences and ITNs but low awareness of IPTp, with type of antenatal care (ANC) provider being a key factor influencing access to IPTp. The choice of ANC provider, which facilitates access to IPTp and ITNs, is influenced by the experiences of women, relatives and friends, as well as the attitudes of ANC providers and community perceptions of the type of ANC providers. Concurrent use of multiple ANC providers and ANC providers' relationships further influence acceptability and coverage for IPTp and ITN use. At the health sector level, there is low awareness about preventive malarial strategies including IPTp among TBAs and faith-based birth attendants, in contrast to high IPTp awareness among public healthcare providers. The findings highlight several factors that influence the utilisation of IPTp services and call

for greater synergy and collaboration between the three groups of healthcare providers towards enhancing access to and acceptability of IPTp for improving maternal and child outcomes.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology employed in the study on the Uptake of Intermittent Preventive Treatment of Malaria in Pregnancy (IPTp) among antenatal care attendees in General Hospital, Oju, Benue State. It provides a detailed description of the research design, setting, population, sampling techniques, and procedures for data collection and analysis.

3.2 Research Design

This study adopted a descriptive cross-sectional survey design. A cross-sectional design allows for the collection of data at a single point in time from a sample representing the population, which is particularly suitable for assessing knowledge, attitudes, and practices related to IPTp uptake. The design facilitates the identification of relationships between the knowledge and attitudes of pregnant women and their uptake of IPTp.

3.3 Research Setting

Oju local government is located to the Southern part of Benue State, bounded in the North by her immediate neighbour, Obi local government area; Ebonyi State and Cross River State to the East by Vandeikya, Konshsha and Gwer and to the West by Ado Local government area. The local government has eleven council wards. The main topographical feature of Oju local government is the long range of highlands stretching from Oloko River in Amaka-Owo through Andibilla Hills towards Owokwu mountains to Udi Hills in Ebonyi State. Other features include the plain land stretching from Ukpa through Iyeche to Oboro/Oye at the Cross River state border. These areas form the major agricultural areas where food and cash crops are produced at an extensive scale. There are two major rivers namely the Oyongo

River in Iwokwu and Onuwu River in Oboro/Oye. Rain season starts in Oju mostly in April and lasts till October each year, though changes in weather affect the commencement and duration in some years. Crops such as yams, cassava, rice, maize, millet, groundnut, beniseed, guinea corn, soybeans etc. are produced in commercial quantity making farming the major means of livelihood. In addition, fishing, basking, carving, hunting, knitting and pottery are practiced at subsidiary levels.

The study was conducted in Oju General Hospital, a public health institution owned by the Benue state Government and established on in March, 1989. It is located in Ibilla Oju Local government area of Benue State. The hospital is situated on Hospital road behind Abeni house Ibilla, Oju LGA Benue state. The hospital is a place of work for medical, paramedical and non-medical staff of diverse areas of specialization, primarily concerned with the routine services of promoting health care, treatment and rehabilitation of patients. The hospital comprises about 6 wards, 60 beds and 23 nursing staffs. With an estimated montly patient inflow of about 100 patients. The hospital is supervised by the Benue state Hospital Management Board (HMB).

3.4 Study Population

The study population for this study consisted of one 100 pregnant women attending antenatal care (ANC) at General Hospital, Oju, during the study period. These women represent a diverse group in terms of age, socio-economic status, educational background, and knowledge of malaria prevention, providing a broad basis for analysing factors affecting IPTp uptake.

3.5.1 Sample Size Determination

Sample is the set people or items which constitute part of a given population. Due to large size of the target population, the researcher used the Taro Yamani formula to arrive at the sample population of the study.

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

n: describes the sample size.

N: describes total number of population of the area

e: describes maximum variability or margin of Error = 0.05.

1: describes the probability of the event occurring.

$$n = \frac{100}{1+100(0.05)^2} = \frac{100}{1+100(0.0025)}$$

n= 100 / (1+0.25) = 100 / 1.25 = 80.

3.5.2 Sampling Technique

A simple random sampling technique was employed to select the respondents for the study. This method ensures that every pregnant woman attending ANC at the hospital during the study period has an equal chance of being included in the sample. The participants were selected from the ANC register using a random selection system.

Inclusion Criteria:

- Pregnant women attending antenatal care at General Hospital, Oju.
- Women who have given informed consent to participate in the study.
- Women in second and third trimester of pregnancy.

Exclusion Criteria:

- Women who are not willing to participate.
- Pregnant women with severe medical conditions that could impede their participation.
- Women in first trimester of pregnancy.

3.6 Instrument for Data Collection

The primary instrument for data collection was a structured questionnaire designed to assess the knowledge, attitude, and uptake of IPTp among the respondents. The questionnaire consist of closed-ended questions, divided into sections that cover demographic information, knowledge of IPTp, attitudes toward malaria prevention, and uptake of IPTp during the current pregnancy. The various sections of the questionnaire include; Section A: Demographic Information, Section B: Knowledge of IPTp, Section C: Attitude toward IPTp, Section D: Assessment of mother's level of uptake of IPTp, Section E: Perceived barriers to IPTp uptake. The statements are in likert scale format: The options for responses are Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD).

3.6.1 Validity of Instrument

The validity of the questionnaire was established through content and face validity by the research supervisor, an expert in maternal and child-health nursing. The questionnaire was reviewed to ensure that the questions are appropriate, clear, and comprehensive enough to capture the necessary data.

3.6.2 Reliability of Instrument

A test-retest reliability format was used to assess the reliability of the instrument. Test-retest reliability is the degree to which test scores remain unchanged when measuring a stable individual characteristic on different occasions. Test-retest reliability is a measure of reliability obtained by administering the same test twice over a period of time to a group of individuals. The scores from Time 1 and Time 2 can then be correlated in order to evaluate the test for stability over time.

3.7 Method of Data Collection

A letter of introduction was obtained from the Head of Department, department of nursing, Benue state university, Makurdi. An ethical approval was obtained from the ethical committee, Hospital Management board, followed by the training of 2 research assistants and from the Research and Ethical committee, College of Health Sciences, Benue State University, Makurdi. Data was collected through self-administered questionnaires distributed to the selected pregnant women attending ANC at the General Hospital, Oju. For respondents with low literacy levels, trained research assistants assisted in filling out the questionnaire after interpretations. Data collection took place over a period of weeks whereby questionnaires are given on weekly basis during antenatal clinic days until desired numbers of respondents are obtained.

3.8 Method of Data Analysis

Data was analysed using Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics include frequencies, percentages, means and presentation of data in form of tables, bars and pie chart for easy comprehension, and test of hypothesis using Chi-square statistical tool. Frequency and percentage were used to summarise the socio-demographic data. While categorical data were presented in tables showing the mean descriptive statistics, with level of significance below 0.05. Chi squared test was performed to determine the association between IPTp uptake and the factors studied and mean scores below 2.0 were rejected. The entire presentation was done on the MS Word package.

3.9 Ethical Approval

The researcher also obtained a letter of ethical clearance from the Research and Ethical Committee, College of Health Sciences, Benue state university, Makurdi, with CHS REC assigned number: **CREC/UGP/150.**

3.10 Human and Ethics Consent Declaration

All information retrieved from respondents were kept secrets and confidential and all data collected are recorded accurately. Also Ethical issues were adhered to such e.g, confidentiality, anonymity, informed consent, beneficence and Non-maleficence and freedom of participation or withdrawal. Confidentiality of the respondents' identities was assured through administering the questionnaire individually, instead of serve list. A letter of introduction to respondents advising the respondents to collect printed copies of the questionnaire if they so wished. Human ethics and consent of participation was obtained

3.11 Funding Declaration

This research received no funding whatsoever for an external body or third party. It was solely self-funded all through.

3.12 Consent to Participate Declaration

Consent to participate was gotten from all 80 respondents and followed the format below;

I have read and understood the above information. I agree to voluntarily participate in this study.

Respondent's Signature: _____

Date: _____

CHAPTER FOUR

RESULT, DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents the result and data analysis of a study carried out to assess the uptake of Intermittent Preventive Treatment of malaria in pregnancy among antenatal care attendees in General Hospital, Oju, Benue State. Eighty (80) questionnaires were distributed to respondents and all eighty (80) questionnaires were correctly filled and retrieved, giving the return rate of 100%. Findings were represented in statistical tables, figures, and charts, and interpreted in percentages and mean. Data were computed and analysed using statistical package for social sciences (SPSS) version 26. The results were used in answering the research questions.

4.2 Data Presentation and Analysis

Tab. 4.1.1 Demographic Information of respondents (N=80)

Items	FREQUENCY	PERCENTAGE (%)
1. Age:		
Under 20	5	6%
20-29	36	45%
30-39	32	40%
40 & above	7	9%
2. Marital Status:		
Single	2	3%
Married	77	96%
Divorced	1	1%
Widowed	0	0%
Separated	0	0%
3. Level of Education:		
No formal education	8	10%
Primary education	26	33%

Secondary education	44	55%
Tertiary education	2	3%
4. Occupation:		
Unemployed	5	6%
Self-employed	6	8%
Civil servant	3	4%
Farmer	66	83%
5. Parity (No. of children):		
0	17	21%
1 to 2	29	36%
3 to 4	25	31%
5 & above	9	11%
6. Gestational Age (weeks):		
Below 12 weeks	14	18%
12-20 weeks	20	25%
21-28 weeks	18	23%
Above 28 weeks	28	35%
7. No. of ANC visits		
None	0	0%
1-2 visits	19	24%
3-4 visits	45	56%
more than 4 visits	16	20%

Table 4.1.1 above shows that 36 respondents (45%) were between the ages of 20-29 years of age, 32 respondents (40%) were between the ages of 30-39 years of age, 7 respondents (9%) were above the age of 39 years and 5 respondents (6%) were below 20 years. The table also shows that 77 respondents (96%) are married, while 2 respondents (3%) are single, 1 respondent (1%) is divorced. No respondent is a widow and none is separated. The table also shows that 44 respondents (55%) possess a secondary education, while 26 respondents (33%) possess primary education, 8 respondents (10%) possess no formal education and 2 respondents (3%) possess a tertiary education. The table also shows that 66 respondents

(83%) are farmers, while 6 respondents (8%) are self-employed, 5 respondents (6%) are unemployed and 3 respondents (4%) are civil servants. The table also shows that 29 respondents (36%) have between 1 to 2 children, 25 respondents (31%) have 3 to 4 children, 9 respondents (11%) have more than 4 children, while 17 respondents (21%) are primigravidas (i.e first pregnancy). The table also shows that 28 respondents (35%) are above 28 weeks gestational age, 20 respondents (25%) are between 12-20 weeks gestational age, 18 (23%) are between 21-28 weeks gestational age and 14 (18%) are below 12 weeks gestational age. Finally, the table shows that 45 (56%) of respondents made 3-4 antenatal clinic (ANC) visits, 19 (24%) made 1-2 ANC visits and 16 (20%) made more than 4 ANC visits.

4.1.2 Knowledge of Intermittent Preventive Treatment in Pregnancy

The options for responses are Strongly Agree (**SA**), Agree (**A**), Disagree (**D**), Strongly Disagree (**SD**). Remarks should be accepted if it is above 2.0, whereas it should be rejected if it is below 2.0.

Statement	SA	A	D	SD	$\bar{X}$
8. I have heard about IPTp in antenatal care.	60	15	4	1	3.7
9. IPTp is important for preventing malaria during pregnancy.	72	5	2	1	3.9
10. IPTp involves taking medication at specific intervals during pregnancy.	46	23	8	3	3.4
11. Sulfadoxine-pyrimethamine (SP) is the drug used for IPTp.	44	32	3	1	3.5
12. IPTp should be taken even if I am not showing symptoms of malaria.	23	15	16	26	2.4
13. IPTp can prevent maternal and foetal complications caused by malaria.	68	8	2	2	3.8
14. Pregnant women should commence IPTp uptake early second trimester of pregnancy	12	8	42	18	2.2

15. Pregnant women should take at least 3 doses of IPTp before delivery	32	28	15	5	3.1
16. Pregnant women can take up to 5-6 doses of IPT before delivery	39	25	11	5	3.2

Table 4.1.2 above shows that majority of the respondents strongly agree with statement 8, 9, 10, 11, 13, 14, 15 and 16, with an average mean of 3.7, 3.9, 3.5, 3.4, 3.8, 2.2, 3.1 and 3.2 respectively. i.e, I have heard about IPTp in antenatal care ($\overline{x}$-3.7); IPTp is important for preventing malaria during pregnancy ($\overline{x}$-3.9); IPTp involves taking medication at specific intervals during pregnancy ($\overline{x}$-3.4); Sulfadoxine-pyrimethamine (SP) is the drug used for IPTp ($\overline{x}$-3.5); IPTp can prevent maternal and foetal complications caused by malaria ($\overline{x}$-3.8); Pregnant women should commence IPTp uptake early second trimester of pregnancy ($\overline{x}$-2.2); Pregnant women should take at least 3 doses of IPTp before delivery ($\overline{x}$-3.1); Pregnant women can take up to 5-6 doses of IPT before delivery ($\overline{x}$-3.2). The table also shows that majority of respondents strongly disagree with statement 12 i.e, IPTp should be taken even if I am not showing symptoms of malaria ($\overline{x}$-2.4).

Answer to Research Question 1

What is the level of knowledge about Intermittent Preventive Treatment in pregnancy (IPTp) among pregnant women attending antenatal care in General Hospital, Oju, Benue State?

Findings from this study reveals that majority of respondents have adequate knowledge of IPTp ($\overline{x}$-3.4); its importance in preventing malaria in pregnancy ($\overline{x}$-3.9); approved drug for IPTp women ($\overline{x}$-3.5); gestational age for the commencement of IPTp ($\overline{x}$-2.2); and minimum does of IPTp recommended by WHO during pregnancy ($\overline{x}$-3.1).

4.1.3 Attitude towards Intermittent Preventive Treatment in Pregnancy

The options for responses are Strongly Agree (**SA**), Agree (**A**), Disagree (**D**), Strongly Disagree (**SD**). Remarks should be accepted if it is above 2.0, whereas it should be rejected if it is below 2.0.

Tab 4.1.3

Statement	SA	A	D	SD	$\overline{X}$
17. I do not attend antenatal care regularly to access care for pregnancy	12	16	32	20	2.3
18. I do not need to commence IPTp early during 2nd trimester of pregnancy	3	9	27	41	2.7
19. I do not need to take IPTp up to 3 times to prevent malaria complications	6	15	33	26	2.0
20. I do not take IPTp under direct observation of a health provider.	13	12	24	31	2.1

Table 4.1.3 above shows that majority of respondents disagree with statement 17 and 19. i.e. I do not attend antenatal care regularly to access care for pregnancy ($\overline{x}$-2.3); i do not need to take IPTp up to 3 times to prevent malaria complications ($\overline{x}$-2.0). It also shows that majority of respondents strongly disagree with statement 18 and 20, i.e. I do not need to commence IPTp early during 2nd trimester of pregnancy ($\overline{x}$-2.7); I do not take IPTp under direct observation of a health provider ($\overline{x}$-2.1)

Answer to Research Question 2

How is the attitude of pregnant women regarding IPTp in General Hospital, Oju, Benue State?

Findings from this study shows that the attitude of women regarding IPTp is good, and is largely dependent on their knowledge of IPTp ($\overline{x}$-3.4); personal motivation to prevent malaria complications in pregnancy all focused on reducing the incidence of malaria in pregnancy and improving birth outcomes for both mother and foetus ($\overline{x}$-2.2).

4.1.4 Assessment of mother's level of Uptake of IPTp

The options for responses are Strongly Agree (**SA**), Agree (**A**), Disagree (**D**), Strongly Disagree (**SD**). Remarks should be accepted if it is above 2.0, whereas it should be rejected if it is below 2.0.

Tab 4.1.4

Statement	SD	D	A	SA	$\overline{X}$
21. Number of doses of IPTp taken during previous pregnancies (primps are excluded)					
None	14	24	18	7	2.7
1 Dose	12	9	26	16	2.3
2 Doses	2	3	33	25	2.7
3 Doses	4	9	38	12	2.1
4 Doses	7	10	27	19	2.2
5 Doses	14	23	18	8	2.5
6 Doses	10	27	18	8	2.6
22. Number of doses of IPTp taken during this pregnancy					
None	14	28	14	10	2.7
1 Dose	1	8	43	14	2.1
2 Doses	10	13	28	15	2.3
3 Doses	2	13	33	18	2.0
4 Doses	7	11	27	21	2.1
5 Doses	8	29	22	7	2.6
6 Doses	3	34	19	10	2.5

Table 4.1.4 above shows that majority of respondents agree taking 1 dose of IPTp in previous pregnancies ($\overline{x}$-2.3); 2 doses of IPTp in previous pregnancies ($\overline{x}$-2.7); 3 doses of IPTp in previous pregnancies ($\overline{x}$-2.1); 4 doses of IPTp in previous pregnancies ($\overline{x}$-2.2). While

majority of respondents disagree taking no dose of IPTp in previous pregnancies ($\overline{x}$-2.7); 5 doses of IPTp in previous pregnancies ($\overline{x}$-2.5); 6 doses of IPTp in previous pregnancies ($\overline{x}$-2.6)

The table also shows that majority of respondents agree taking 1 dose of IPTp during current pregnancy ($\overline{x}$-2.1); 2 doses of IPTp during current pregnancy ($\overline{x}$-2.3); 3 doses of IPTp during current pregnancy ($\overline{x}$-2.0); 4 doses of IPTp during current pregnancy ($\overline{x}$-2.1). While majority of respondents disagree taking no dose of IPTp during current pregnancy ($\overline{x}$-2.7); 5 doses of IPTp during current pregnancy ($\overline{x}$-2.6); 6 doses of IPTp during current pregnancy ($\overline{x}$- 2.5).

Answer to Research Question 3

What is the level of uptake of IPTp among antenatal care attendees in General Hospital, Oju, Benue State?

Findings from this study shows that majority of respondents (49) took at least 3 doses of IPTp under direct observed therapy (DOT) during previous pregnancy (primi-gravidas were excluded here) ($\overline{x}$-2.1); while majority of respondents (50) have taken 3 doses or more of IPTp under direct observed therapy (DOT) during current pregnancy ($\overline{x}$-2.0). This result underscores the WHO global target of 80% coverage of IPTp.

4.1.5 Perceived Barriers to Uptake of Intermittent Preventive Treatment in Pregnancy

The options for responses are Strongly Agree (**SA**), Agree (**A**), Disagree (**D**), Strongly Disagree (**SD**). Remarks should be accepted if it is above 2.0, whereas it should be rejected if it is below 2.0.

Tab 4.1.5

ITEMS	SD	D	A	SA	$\overline{X}$
Health Facility Barriers					
Non-implementation of FMoH IPTp 3 doses policy in	24	36	8	12	2.9

the hospital					
Non-availability of IPTp in the hospital	16	43	16	5	2.9
Health Provider Factors					
Shortage of healthcare providers	1	8	30	41	1.6
Unskilled healthcare providers	28	20	18	14	2.8
Inadequate education by healthcare provider about IPTp	10	11	20	39	2.1
Poor attitude of healthcare providers towards pregnant women	20	16	23	21	2.4
Pregnant Women's Personal Barriers					
Experience of side effects	19	38	15	8	2.9
Failure to attend antenatal care	12	4	24	40	2.1
Non-involvement of male partners in supporting antenatal care	7	3	41	29	2.1
Cultural Factors					
Cultural restrictions to seek antenatal care	30	18	23	9	2.9
Socio-Economic Factors					
Non-affordability of cost of drug outside the hospital	3	7	52	18	2.1
Poverty/lack of finance to seek health care	6	5	57	12	2.1

Table 4.1.5 above shows that majority of respondents disagree with item 1a and 1b as perceived barriers to uptake of IPTp, i.e. Non-implementation of FMoH IPTp 3 doses policy in the hospital ($\overline{x}$-2.9); Non-availability of IPTp in the hospital ($\overline{x}$-2.8).

The table also shows that majority of respondents strongly agree with item 2a and 2c as perceived barriers to IPTp uptake i.e. Shortage of healthcare providers ($\overline{x}$-1.6); Inadequate education by healthcare provider about IPTp ($\overline{x}$-2.1). It also shows that majority of respondents strongly disagree with item 2b, i.e. unskilled healthcare providers ($\overline{x}$- 2.8). It also

shows that majority of respondents agree with item 2d, i.e. poor attitude of healthcare providers towards pregnant women ($\overline{x}$-2.4).

The table also shows that majority of respondents disagree with item 3a, i.e experience of side effects ($\overline{x}$-2.9); while majority of respondents strongly agree with item 3b, i.e. failure to attend antenatal care ($\overline{x}$-2.1). Also majority of respondents agree with item 3c, i.e. non-involvement of male partners in supporting antenatal care ($\overline{x}$-2.1)

The table also shows that majority of respondents strongly disagree with item 4a, i.e. cultural restrictions to seek antenatal care ($\overline{x}$-2.9)

Finally, the table also shows that majority of respondents agree with item 4a and 4b, i.e. non-affordability of cost of drug outside the hospital ($\overline{x}$-2.1); poverty/lack of finance to seek health care ($\overline{x}$- 2.1)

Answer to Research Question 4

What are the barriers affecting the uptake of IPTp as perceived by pregnant women in General Hospital, Oju, Benue State?

Findings from this study reveals that the barriers affecting IPTp uptake as perceived by pregnant women, this study exposes some barriers to include shortage of healthcare providers ($\overline{x}$-1.6); inadequate education by healthcare provider about IPTp ($\overline{x}$-2.1); poor attitude of healthcare providers towards pregnant women ($\overline{x}$-2.4); failure of pregnant women to attend antenatal care ($\overline{x}$-2.1); non-involvement of male partners in supporting antenatal care ($\overline{x}$-2.1); non-affordability of cost of drug outside the hospital and poverty/lack of finance to seek health care ($\overline{x}$-2.1).

4.4 Testing of the Hypothesis

H_0: There is no significant relationship between knowledge and uptake of Intermittent Preventive Treatment in pregnancy (IPTp) among antenatal care attendees at General Hospital Oju, Benue State.

H_1: There is significant relationship between knowledge and uptake of Intermittent Preventive Treatment in pregnancy (IPTp) among antenatal care attendees at General Hospital Oju, Benue State.

Question 9, 18 and 19 was used to test this hypothesis:

9. IPTp is important for preventing malaria during pregnancy.
18. I do not need to commence IPTp early during 2nd trimester of pregnancy
19. I do not need to take IPTp up to 3 times to prevent malaria complications

Tab 4.4.1 Contingency Table

S/N	Responses	Observed N				Row Total
9.	Strongly Agree	62	15	2	1	**80**
18.	Strongly disagree	3	9	27	41	**80**
18.	Disagree	6	15	33	26	**80**
	Column Total	**71**	**39**	**62**	**68**	**240**

Chi-square = $\underline{X^2\sum(fo\text{-}fe)^2}$

Fe

Where Fo- observed frequency (values)

Fe, expected frequency (values)

$$Fe = \frac{RT \times CT}{GT}$$

RT = Row Total, CT = Column Total

dF = Degree of Freedom = (RT-1) (CT-1)

dF – (R-1) (C -1)

df = (4-1) (3-1) = (3) X (2)

df = 6

X^2 df 6 at 0.05 significance = 12.59

Figure Chi table 12.59

Table 4.4.2: Showing calculation of Chi square

Fo	**F_e**	**F_O-F_e**	**$(F_O-F_e)^2$**	$\frac{(Fo - Fe)2}{Fe}$
62	23.7	38.3	1467	62.1
3	23.7	-20.7	428	18.1
6	23.7	-17.7	313	13.2
15	13	2	4	0.3
9	13	-4	16	1.2
15	13	2	4	0.3
2	20.7	-18.7	350	16.9
27	20.7	6.3	40	2.1
33	20.7	12.3	151	7.3
1	22.7	-21.7	471	20.7
41	22.7	18.3	335	14.8
26	22.7	3.3	11	0.5
				∑=157.1

X^2 Cal 157.1

Decision Rule: Accept H_0 if X^2 tab ≥ X^2 cal; otherwise reject.

X^2cal = 157.1 > X^2 tab = 12.59

Therefore, H_0 is **REJECTED**.

Conclusion: From the analysis above, the x^2 cal is greater than x^2 tab (157.1>12.59). This shows that there is a significant relationship between knowledge and uptake of Intermittent Preventive Treatment in pregnancy (IPTp) among antenatal care attendees at General Hospital Oju, Benue State.

Interpretation: This implies that improving the knowledge about IPTp among antenatal care attendees at General Hospital Oju, Benue state may lead to increase in the uptake of treatment.

CHAPTER FIVE

DICUSSION OF FINDINGS, SUMMARY AND CONCLUSSIONS

5.1 Introduction

This chapter deals with the discussion of findings, implication of findings to nursing practice, limitation of the study, summary of the study, conclusion, recommendations and suggestions for further studies.

5.2 Discussion of Findings

The research study was conducted through survey design method to assess the uptake of Intermittent Preventive Treatment of malaria in pregnancy among antenatal care attendees in General Hospital, Oju, Benue State.

The socio-demographic data in table 4.1.1 shows that majority of respondents 36 (45%) were between the ages of 20-29 years of age, the findings also disclosed that majority of respondents 77 (96%) are married, it also revealed that majority of respondents 44 (55%) possess a secondary education. The findings suggested that majority of respondents 66 (83%) are farmers, it also indicated that majority of respondents 29 (36%) have between 1 to 2 children, it also unveiled that majority of respondents 28 (35%) are above 28 weeks gestational age. Finally, the finding inferred that majority of respondents 45 (56%) made 3-4 antenatal clinic (ANC) visits.

This study revealed that majority of respondents have adequate knowledge of IPTp ($\overline{x}$-3.4); its importance in preventing malaria in pregnancy ($\overline{x}$-3.9); approved drug for IPTp women ($\overline{x}$-3.5); gestational age for the commencement of IPTp ($\overline{x}$-2.2); and minimum does of IPTp recommended by WHO during pregnancy ($\overline{x}$-3.1). The knowledge of respondents regarding the importance, efficacy and side effects of IPTp is essential as it shapes their attitude and level of uptake of IPTp, these findings align with key findings from a study conducted by

Akinleye et al, (2020) in South-west, Nigeria where it was found that 52.2% respondents have heard about IPTp but only 23.9% were able to define it. Furthermore, findings from another study conducted by Asem et al, (2024) in the Volta Region of Ghana. It was found that the level of knowledge was reported as 45.9%. Knowledge of the service user is determined by the level of education of the women. Thus, key findings from the studies highlighted above suggested that good knowledge, attitude and practices on intermittent preventive treatment (IPT) benefits, side effects, safety, doses and other prior information should be leveraged to empower pregnant women in malaria-endemic zones. The findings from this study also contrast key findings from another study conducted by Arulogun and Okereke (2022) in Southwest, Niegeria. The result stated that only 24.5% antenatal care attendees could adequately explain the concept of IPTp. Hence, it is pivotal to initiate avenues to increase the general awareness on IPTp.

Based on the findings, this study also revealed that women's attitude regarding IPTp is good and it largely depends on their knowledge of IPTp ($\overline{x}$-3.4); personal motivation to prevent malaria complications in pregnancy all focused on reducing the incidence of malaria in pregnancy and improving birth outcomes for both mother and foetus ($\overline{x}$-2.2). These findings align with key findings in a study conducted by Asem et al, (2024) which reveals attitude were reported as 45.9% and 58.9% respectively. The attitude of the service user is determined by making 4–7 visits during ANC, Gestational age at booking for ANC is 4–7 weeks, income level between 100 to 999, partner educational level, and age of a partner is above 40 years. The findings from the present studies highlighted important factor such as number of antenatal visits that affect attitude to use IPTp-SP. important factor such as number of antenatal visits that affect attitude to use IPTp-SP. Similarly, key findings in a study conducted by Mukala et al, (2024) in Western Kenya, it was concluded that a community-based health promotion programmes to help to increase knowledge and improved attitude on

timely and regular antenatal attendance to promote the benefit of IPTp-SP should be encouraged.

Based on the research findings on the level of uptake of IPTp among respondents, this study discloses that majority of respondents (49 pregnant women) took at least 3 doses of IPTp under direct observed therapy (DOT) during previous pregnancy (primi-gravidas were excluded here) ($\overline{x}$-2.1); while majority of respondents (50 pregnant women) have taken 3 doses or more of IPTp under direct observed therapy (DOT) during current pregnancy ($\overline{x}$-2.0). This result falls below WHO's global target of 80% coverage of IPTp. This finding aligns with key findings from a study conducted by Berchie et al, (2024) which aimed to explore IPTp-SP uptake in African countries, identify influencing factors, and assess its effectiveness in preventing malaria and adverse outcomes in pregnancy. The findings suggest varying IPTp-SP uptake rates, spanning from 5.3% to 98.9%. Similarly, findings from this study also align with a study conducted by Balami et al, (2020) in Maiduguri, North-Eastern Nigeria. In this study, it was found that less than a half (42.37%) had received their first dose of IPTp. In contrast, another study conducted by Akinleye et al, (2020) in South-west, Nigeria where it was found that 27.3% reported to have received at least one dose of IPTp during the index pregnancy and all were among those who have heard of IPTp (52.3%). 36.8% took the SP in the clinic. Only 14.3% were supervised by a health worker. 61.1% who did not take their drugs in the clinic would have liked to do so if allowed to bring their own drinking cups. Almost half (43.9%) of those who had used IPTp during the index pregnancy expressed concern about possible adverse effect of SP on their pregnancies. Periodic shortages of SP in the clinics were also reported. Similarly, findings from this study also aligns with another study conducted by

Based on the research findings on the barriers affecting IPTp uptake as perceived by pregnant women, this study exposes some barriers to include shortage of healthcare providers ($\overline{x}$-1.6);

inadequate education by healthcare provider about IPTp ($\overline{x}$-2.1); poor attitude of healthcare providers towards pregnant women ($\overline{x}$-2.4); failure of pregnant women to attend antenatal care ($\overline{x}$-2.1); non-involvement of male partners in supporting antenatal care ($\overline{x}$-2.1); non-affordability of cost of drug outside the hospital and poverty/lack of finance to seek health care ($\overline{x}$-2.1). This is in consonance with a study by Ogba et al, (2020) which reveals that poor provider knowledge of the IPTp-SP protocol and lack of essential commodities for sulphadoxine-pyrimethamine administration in clinics are significant barriers to IPTp-SP use. Staff shortages and poor remuneration of health care professionals are obstacles to IPTp-SP utilisation. Similarly, findings from this study also aligns with another study conducted by Kalu et al, (2023) on factors associated with the uptake of Intermittent Preventive Treatment (IPTp-SP) for malaria in pregnancy. It was found that factors such as age group, region, frequency of ANC visits, belief in IPTp-SP effectiveness, and morbidity caused by malaria predicted the uptake of at least one IPTp-SP dose. Similar maternal characteristics, including household wealth index, spouse's educational level, and media exposure were significantly associated with taking optimal IPTp-SP doses. Furthermore, findings also align with key findings in a study conducted by Nyaaba et al, (2020) in South-west, Nigeria. It was found that at the individual and social levels, there is a high general awareness of Malaria in pregnancy, its consequences and ITNs but low awareness of IPTp, with type of antenatal care (ANC) provider being a key factor influencing access to IPTp. The choice of ANC provider, which facilitates access to IPTp and ITNs, is influenced by the experiences of women, relatives and friends, as well as the attitudes of ANC providers and community perceptions of the type of ANC providers. In essence, it is therefore necessary to improve IPTp-SP access and uptake, the government should ensure a continuous supply to clinics and support the employment of additional health care professionals who should be well paid and trained on using the IPTp-SP protocol.

5.3 Implication of Findings to Nursing Practice

- **Enhancing Knowledge of IPTp**: The finding that most respondents have adequate knowledge of IPTp underscores the critical role of nurses in promoting malaria prevention during pregnancy. This highlights the need for continuous health education during antenatal care (ANC) visits to sustain and improve this knowledge. Nurses can design and implement structured educational programs to inform pregnant women about the benefits, efficacy, and safety of IPTp. By doing so, they contribute to achieving Sustainable Development Goal (SDG) 3, which aims to ensure healthy lives and promote well-being for all at all ages.
- **Improving Attitudes toward IPTp**: The study's findings reveal that women's attitudes toward IPTp are influenced by their knowledge and motivation. Nurses must adopt a patient-centered approach, addressing individual concerns and misconceptions to foster positive attitudes. Through empathetic communication and motivational interviewing, nurses can encourage pregnant women to embrace IPTp as an essential intervention. Furthermore, advocating for community-based health promotion programs will enable nurses to extend their influence beyond the clinic, fostering trust and understanding in malaria-endemic communities.
- **Addressing Suboptimal Uptake of IPTp**: Despite some improvement in IPTp uptake, the study highlights that the coverage remains below WHO's target of 80%. Nurses play a pivotal role in bridging this gap by reinforcing the importance of adhering to the three-dose regimen during ANC sessions. They should collaborate with policymakers and healthcare administrators to ensure the availability of essential resources, such as sulfadoxine-pyrimethamine, and the implementation of direct observed therapy (DOT). By doing so, nurses contribute to the global fight against malaria in pregnancy, aligning with SDG 3 targets.

- **Mitigating Barriers to IPTp Uptake**: The study identifies key barriers to IPTp uptake, such as shortages of healthcare providers, inadequate education, and financial constraints. These findings highlight the importance of task shifting and delegation, empowering nurses and community health workers to bridge gaps in care delivery. Nurses should advocate for gender-sensitive health policies that involve male partners in antenatal care, reduce financial barriers, and improve drug affordability. Additionally, nurses can lead advocacy efforts to improve working conditions, remuneration, and training for healthcare providers, ensuring sustainable and high-quality care delivery.
- **Policy Advocacy and Systems Strengthening**: Nurses, as frontline healthcare providers, are uniquely positioned to advocate for systemic improvements. The findings highlight the need for consistent drug supplies, enhanced staff capacity, and better healthcare infrastructure. Nurses should actively participate in policymaking and community mobilization to promote equitable access to healthcare services. By addressing these systemic barriers, nurses contribute to strengthening health systems and advancing SDG 10 (reducing inequalities) and SDG 5 (achieving gender equality).

5.4 Limitation of the Study

The limitation of the study is as follows:

- Some of respondent inclinations toward research are reluctant to co-operate with the researcher on first contact, but co-operated after being addressed by the nurse in charge.
- The researcher encounters many financial problems in the course of the study especially printing of questionnaire and transportation.

5.5 Summary of the Findings

This study explored the knowledge, attitude, uptake and barriers to Intermittent Preventive Treatment of malaria in pregnancy (IPTp) among pregnant women.

Findings revealed that majority of respondents have adequate knowledge of IPTp ($\overline{x}$-3.4); its importance in preventing malaria in pregnancy ($\overline{x}$-3.9); approved drug for IPTp women ($\overline{x}$-3.5); gestational age for the commencement of IPTp ($\overline{x}$-2.2); and minimum does of IPTp recommended by WHO during pregnancy ($\overline{x}$-3.1).

Findings from this study also reveal that the attitude of women regarding IPTp largely depends on their knowledge of IPTp ($\overline{x}$-3.4); personal motivation to prevent malaria complications in pregnancy all focused on reducing the incidence of malaria in pregnancy and improving birth outcomes for both mother and foetus ($\overline{x}$-2.2).

Findings from this study also discloses that majority of respondents (49) took at least 3 doses of IPTp under direct observed therapy (DOT) during previous pregnancy (primi-gravidas were excluded here) ($\overline{x}$-2.1); while majority of respondents (50) have taken 3 doses or more of IPTp under direct observed therapy (DOT) during current pregnancy ($\overline{x}$-2.0).

Findings from this study also reveal that the barriers affecting IPTp uptake as perceived by pregnant women, this study exposes some barriers to include shortage of healthcare providers ($\overline{x}$-1.6); inadequate education by healthcare provider about IPTp ($\overline{x}$-2.1); poor attitude of healthcare providers towards pregnant women ($\overline{x}$-2.4); failure of pregnant women to attend antenatal care ($\overline{x}$-2.1); non-involvement of male partners in supporting antenatal care ($\overline{x}$-2.1); non-affordability of cost of drug outside the hospital and poverty/lack of finance to seek health care ($\overline{x}$-2.1).

5.6 Conclusion

The knowledge of Intermittent Preventive Treatment of malaria in pregnancy (IPTp) among pregnant women was relatively high (86%), significant gaps still persist in its uptake, which remains below the World Health Organization's target of 80%.

The attitude of pregnant woman regarding IPTp is good and positive, thus, driven by knowledge and awareness, yet various barriers, such as inadequate healthcare provider support, financial constraints, and poor male partner involvement, hindered optimal utilization. These findings underscore the need for sustained efforts to improve maternal health outcomes and align with global initiatives, particularly the Sustainable Development Goals (SDG 3), aimed at ensuring healthy lives and promoting well-being for all.

The uptake of IPTp among pregnant women is below optimal given the fact that only 50 (62.5%) out of 80 pregnant women have taken 3 or more doses of IPTp during current pregnancy, thus, significant gaps still persist in its uptake, which remains below the World Health Organization's target of 80%.

However, barriers such as poor healthcare provider attitudes, shortages of trained staff, lack of male partner involvement, financial constraints, and inadequate education about IPTp were identified as obstacles to its effective utilization. These challenges underline the need for tailored interventions aimed at improving health education, strengthening healthcare systems, and fostering community engagement to enhance IPTp uptake.

Therefore, addressing these challenges through improved health education, healthcare system strengthening, and community involvement is critical for enhancing IPTp uptake.

5.7 Recommendations

Based on the findings of this study; the researcher recommends;

- Pregnant women should prioritize attending antenatal care (ANC) regularly and adhere to the prescribed Intermittent Preventive Treatment in pregnancy (IPTp) to reduce the risk of malaria-related complications. They should seek information from healthcare professionals regarding the benefits, dosage, and safety of IPTp and actively participate in community health awareness programs to enhance their understanding and confidence in

malaria prevention strategies. Additionally, they should advocate for male partner involvement to promote shared responsibility in maternal healthcare.

- Nurses and midwives should ensure consistent health education for pregnant women on the importance of IPTp during ANC visits, addressing misconceptions and barriers to uptake. They should implement patient-centered approaches to counselling, fostering trust and adherence to treatment. Furthermore, they should advocate for and practice the Directly Observed Therapy (DOT) strategy to improve compliance, while also collaborating with community health workers to extend outreach and education to hard-to-reach populations.
- Hospital authorities should ensure the consistent availability of Sulfadoxine-Pyrimethamine (SP) for IPTp, preventing stockouts that could hinder uptake. They should also support continuous professional training for nurses and midwives on malaria prevention protocols to enhance the quality of service delivery. Additionally, hospital management should enforce policies that promote respectful maternity care, ensuring that healthcare providers exhibit a positive attitude toward pregnant women, thereby increasing ANC attendance and IPTp uptake.
- The State Ministry of Health should strengthen malaria prevention programmes by integrating IPTp awareness campaigns into broader maternal and child health initiatives. They should enhance the distribution network of antimalarial drugs to ensure uninterrupted supply in healthcare facilities, particularly in rural and semi-urban areas. Furthermore, they should implement monitoring and evaluation mechanisms to track IPTp coverage rates, address gaps, and improve policy interventions.
- The State Government should allocate sufficient funding for malaria prevention initiatives, ensuring the sustainability of IPTp programs. They should also invest in capacity-building programs for healthcare providers, recruit additional skilled personnel

to address workforce shortages, and improve infrastructure in healthcare facilities to enhance ANC services. Additionally, they should partner with international organizations and non-governmental agencies to support community-based health interventions aimed at increasing awareness and uptake of IPTp.

5.8 Suggestions for Further Studies

Based on the findings of the study, the researcher suggests that further studies should be conducted in line with the following;

1. Uptake of IPT among antenatal care attendees in selected Primary Health Cares in Benue State.
2. Factors affecting the uptake of IPT among women attending Tertiary Health Institutions in Benue State.
3. Comparative analysis of IPT uptake among pregnant women in rural and urban communities in Benue State.

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APPENDIX A: QUESTIONNAIRE

Department of Nursing Sciences,

College of Health Sciences,

Benue State University,

Makurdi.

11th December, 2024

Dear Respondent,

LETTER OF INTRODUCTION

I am an undergraduate student of Benue State University, department of nursing sciences carrying out research to meet the requirement for the award of Bachelor's in Nursing Sciences (BNSc). Your responses will help us understand the level of Uptake of Intermittent Preventive Treatment of Malaria in Pregnancy (IPTp) among Antenatal Care Attendees in General Hospital, Oju, Benue State. Please answer the following questions based on your experience and knowledge. Your responses was kept confidential and used solely for research purposes.

Your participation in this study is voluntary, and you are free to decline or withdraw at any time without any negative consequences. The information you provide will be treated with strict confidentiality and used solely for academic purposes. Your responses will remain anonymous, and no identifying information will be linked to the data collected.

The questionnaire should take approximately 15–20 minutes to complete. There are no anticipated risks associated with participating in this study. By completing the questionnaire, you agree to participate in this research.

Thank you for your time and cooperation.

CONSENT STATEMENT

I have read and understood the above information. I agree to voluntarily participate in this study.

Respondent's Signature: _____

Date: _____

Yours sincerely,

SUNDAY EMMANUEL OCHE

QUESTIONNAIRE

Section A: Demographic Information

(For demographic questions, you can tick checkboxes where necessary.)

1. Age:(in years)		**Tick**
	Under 20	
	20-29	
	30-39	
	40 & above	
2. Marital Status:		
	Single	
	Married	
	Divorced	
	Widowed	
	Separated	
3. Level of Education:		
	No formal education	
	Primary education	
	Secondary education	
	Tertiary education	
4. Occupation:		
	Unemployed	
	Self-employed	
	Civil servant	
	Farmer	
5. Parity (No. of children):		
	0	
	1 to 2	
	3 to 4	
	5 & above	
6. Gestational Age (weeks):		
	Below 12 weeks	
	12-20 weeks	
	21-28 weeks	
	Above 28 weeks	
7. No. of ANC visits		
	None	
	1-2 visits	
	3-4 visits	
	more than 5 visits	

SECTION B & C: INSTRUCTION

Please tick (✓) appropriately to indicate your level of agreement with the following statements using the scale provided: The options for responses are **Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)**.

S/N	Statement	SA	A	D	SD
SECTION B: Knowledge of IPTp (Intermittent Preventive Treatment for Malaria in Pregnancy)					
1.	I have heard about IPTp in antenatal care.				
2.	IPTp involves taking medication at specific intervals during pregnancy.				
3.	Sulfadoxine-pyrimethamine (SP) is the drug used for IPTp.				
4.	IPTp should be taken even if I am not showing symptoms of malaria.				
5.	IPTp can prevent maternal and foetal complications caused by malaria.				
6.	IPTp starts from the second trimester				
7.	Pregnant women should commence IPTp uptake early second trimester of pregnancy				
8.	Pregnant women should take at least 3 doses of IPTp before delivery				
9.	Pregnant women can take up to 5-6 doses of IPT before delivery				
SECTION C: Attitude toward IPTp					
1.	I do not attend antenatal care regularly to access care for pregnancy				
2.	I do not need to commence IPTp early during 2nd trimester of pregnancy				
3.	I do not need to take IPTp up to 3 times to prevent malaria complications				
4.	I do not take IPTp under direct observation of a health provider.				

SECTION D: Assessment of mother's level of Uptake of IPTp

Please tick (✓) appropriately to indicate your level of agreement with the following statements regarding **IPTp uptake**: The options for responses are **Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)**.

Statement	SA	A	D	SD
Number of doses of IPTp taken during previous pregnancies (primps are excluded here)				
No dose				
1 dose				
2 doses				
3 doses				
4 doses				
5 doses				
6 doses				
Number of doses of IPTp taken during this pregnancy				
No dose				
1 dose				
2 doses				
3 doses				
4 doses				
5 doses				
6 doses				

SECTION E: Perceived Barriers to Uptake of IPTp

Please tick (✓) appropriately to indicate your level of agreement with the following statements regarding **barriers to IPTp uptake**: The options for responses are **Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)**.

S/N	Statement	SA	A	D	SD
1.	**Health Facility Barriers**				
	Non-implementation of FMoH IPTp 3 doses policy in the hospital				
	Non-availability of IPTp in the hospital				
2.	**HEALTH PROVIDER FACTORS**				
	Shortage of healthcare providers				
	Unskilled healthcare providers				
	Inadequate education by healthcare provider about IPTp				
	Poor attitude of healthcare providers towards pregnant women				
3.	**Pregnant Women's' Personal Barriers**				
	Experience of side effects				
	Failure to attend antenatal care				
	Non-involvement of male partners in supporting antenatal care				
4.	**Cultural Factors**				
	Cultural restrictions to seek antenatal care				
5.	**Socio-economic Factors**				
	Non-affordability of cost of drug outside the hospital				
	Poverty/lack of finance to seek health care				

Thank you for your response!