DETERMINANTS OF USE OF INTERMITTENT PREVENTIVE TREATMENT AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT THREE LEVELS OF CARE IN OYO STATE

BY

OLADOJA, OLUWADAMILOLA AYOMIDE

B.Tech. Biochemistry (Ogbomosho)

MATRIC NUMBER: 173228

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF EPIDEMIOLOGY AND MEDICAL STATISTICS

FACULTY OF PUBLIC HEALTH

COLLEGE OF MEDICINE

UNIVERSITY OF IBADAN, IBADAN

NIGERIA.

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH (MPH) IN FIELD EPIDEMIOLOGY

February, 2015

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CERTIFICATION

We certify that this project by Oladoja, Oluwadamilola Ayomide of the Department of Epidemiology and Medical Statistics, Faculty of Public Health, College of Medicine, University of Ibadan, was carried out under our guidance and supervision.

.....13/2015

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DEDICATION

To the one who has never failed me, God the father, God the son, God the Holy Spirit.

ACKNOWLEDGEMENT

I sincerely appreciate my supervisors, Dr.IkeoluwapoAjayiand Dr. B. O. Adedokun for their unflinching support, guidance and tutelage throughout the period this study was executed.

I deeply appreciate both the academic and non- academic staff of the department for their unquantifiable support throughout the period of this study.

I want to appreciate my parents for their immeasurable moral, material and financial contributions towards my MPH program and to my siblings Mr and Mrs Ayano, Mr and Mrs Oladoja for their constant support.

Finally, many thanks to my friends and colleagues – ToluwaniPopoola, AbiolaLawal and GboladeOgunsanya, for their support and assistance.

ABSTRACT

The World Health Organization recommends consistent use of insecticide treated net (ITN) and intermittent preventive treatment using Sulphadoxine-pyrimethamine (IPTp-SP) as the two important preventive measures against malaria in pregnancy for use in highly endemic regions. Despite the effectiveness and safety of IPTp- SP, and the adoption of a national IPTp policy the uptake of IPTp-SP has been consistently low in Nigeria, many pregnant women are still at risk of malaria in pregnancy (MIP) and its related negative pregnancy outcomes. The NDHS 2013 revealed that Oyo State has the poorest compliance in the south west region with a compliance rate of 3%. This study therefore aims at identifying and comparing the determinants of preventive use of SP among pregnant women attending antenatal clinics at the three levels of health care facilities in Oyo State, Nigeria.

This study is a cross sectional comparative survey among pregnant women attending antenatal care in tertiary, secondary as well as primary health care facilities in Oyo State. Four-hundred and seventy-four pregnant women attending antenatal clinics were interviewed; this comprises one hundred and fifty eight respondents at each of the three different facilities surveyed.Respondents were selected consecutively as they come in for antenatal care till the required number needed was reached.Data was collected using interviewer-administered questionnaire, three focus group discussions were held among eight pregnant women in each facility surveyed, the discussion was audio recorded. Information on socio-demographic characteristics, knowledge and perception on IPTp-Sp as well as use of IPTp-SP were obtained from the respondents. Descriptive statistics, Chi-square, Logistic regression were used to analyse quantitative data at 5% level of significance while content analysis was used for the qualitative data.

Mean age and mean gestational age of the pregnant women was 28.2±5.6 years (range- 18.0 and 45.0years) and 31.1±3.1 weeks (range- 28.0 and 41.0 weeks), respectively. Three hundred and ninety-one (82.5%) of the respondents usedIPTp while 17.5% did not use IPTp. Reasons given for non- use include, the drug not being offered or prescribed 34.9%, late/poor attendance to ANC 15.7%, "just don't want to use"18.1%,"being afraid of complications" 9.6%, " non- availability of the drug at the ANC" 9.6%, forgetfulness 9.6% and "the drug could cause weakness 2.4%. Non-

use ofIPTp was highest among the THC attendees with a percentage of 21.5% followed by the PHC attendees with 18.4%. About half 241(50.8%) had a poor perception on IPTp-SP and 42.6% had good knowledge on malaria and IPTp-SP. Poor knowledge about IPTp-SP(OR= 0.2, 95%CI=0.09-0.49)and regular keeping of ANC attendance (OR= 3.8, 95%CI=1.92-7.64) were found to be statistically significantly associated with IPTp-SP use.

The prevalence of non-use of IPTp-SP is lower than that reported in NDHS, 2013; the use of IPTp-SP among many pregnant women in this study is encouraging. However, for Oyo state to achieve the Roll Back Malaria target of 0% non-use, the providers practices must change positively and access as well as acceptability should be improved.

Keywords: Malaria in pregnancy, sulphadoxine-pyrimethamine,intermittent preventive treatment, antenatal clinics, insecticide treated net

Word count: 489.

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ACRONYMS

ACT	Artemisinin-based Combination Therapy
ANC	Antenatal Clinic
CQ	Chloroquine
DOT	Directly Observed Therapy.
FGD	Focus Group Discussion
FMOH	Federal Ministry of Health
IPT	Intermittent Preventive Treatment
IPTp-SP	Intermittent Preventive Treatment in Pregnancy using Sulphadoxine Pyrimethamine.
ITN	Insecticide Treated Net
MDG	Millennium Development Goal
MIP	Malaria in Pregnancy
NDHS	National Demographic and Health Survey
NMCP	National Malaria Control Program
PHC	Primary Health Care
RBM	Roll Back Malaria
SHC	Secondary Health Care
SP	Sulphadoxine-Pyrimethamine.
THC	Tertiary Health Care
WHO	World Health Organization.

CHAPTER ONE

INTRODUCTION

1.1 Background

Malaria is endemic in Nigeria and remains a public health threat in the country. About 90% of the world's malaria deaths are estimated to occur in the tropical Sahara Africa region, where the most dangerous specie, *plasmodium falciparum*, is the predominant parasite specie, transmitted by vectors, *Anopheles* mosquitoes, that are highly efficient, wide spread and difficult to control.(NDHS, 2013; WHO,2014). Children under five and pregnant women are the most vulnerable groups to illness and death from malaria infection (WHO, 2014).

Malaria is an immense public health problem with approximately 3.2 billion at risk and 1.2 billion at high risk. In 2013,198million cases of malaria were recorded globally leading to 584,000 deaths with 90% of this death in Africa (WHO, 2014). It is estimated that over 125 million women get pregnant in malaria endemic region of the world yearly and 30 million of these reside in sub-Sahara Africa (Dellicour, Tatem, Guerra, Snow and ter Kuile, 2010). Pregnant women are particularly vulnerable to malaria than their non-pregnant counterparts (Tylor, van Eijk, Hand, Mwandagalirwa, Messina,Tshefu, Atua, Emch, Muwonga, Meshnick and ter Kuile, 2011). In Ghana, approximately 36% asymptomatic malaria occurred among pregnant women (Yatich, Yi, Agbenyega, Turpin, Rayner, Stiles, Ellis, Funkhouser, Ehiri, Williams and Jolly, 2009) and up to 82.0% in other African countries (Bouyou-Akotet, lonete-Collard, Mabika-Manfoumbi, Kendjo, Matsiegui, Mavoungou and Kombila, 2003; Walker-Abbey, Djokam, Eno, Leke, Titanji, Fogako, Sama, Thuita, Beardslee, Snounou, Zhou and Taylor, 2005) suggesting that malaria in pregnancy could go undiagnosed. The consequences of malaria in pregnancy are grave, Pregnant women who carry the malaria parasite may be at risk of serious problems that could jeopardise their own health, compromise the health of the foetus, and increase the likelihood of adverse pregnancy outcomes such as: maternal anaemia, intra-uterine growth retardation, low birth weight, stillbirths, spontaneous abortions, and maternal mortality (Adams, Khamis and Elbashir,2005; Dafallah, EL-Agib, and Bushra, 2003).

The most cost effective interventions in health are those that are preventive. The two important preventive measures against malaria in pregnancy as recommended by

WHO (2004) to be use in highly endemic regions are the consistent use of insecticide treated nets (ITN) and intermittent preventive treatment. "This policy has been adopted by most countries in Africa, but implementation has been suboptimal" (Parikh and Rosenthal, 2010). In Nigeria, the national guideline for diagnosis and treatment of malaria (2011) recommends Sulfadoxine-pyrimethamine (SP) as the drug of choice for Intermittent Preventive Treatment in Pregnancy because of its proven safety in pregnancy and efficacy.

Intermittent preventive treatment in pregnancy using sulfadoxine- pyrimethamine (IPTp-SP) is defined as the use of at least two treatment dosages of sulfadoxine-pyrimethamine by pregnant women living in malaria endemic regions after the first trimester at the antenatal clinic regardless of their parasitemia status (WHO, 2004).IPTp-SP is offered through the focus antenatal care strategy. There are many brand names of SP available in Nigeria; Fansidar, Amalar, and Maloxine are some of the most common.

Following the above recommendation, Oyo state known to be holo-endemic for malaria has also adopted the policy of preventing malaria in pregnancy using at least two doses of sulfadoxine-pyrimethamine (SP) as intermittent preventive treatment (IPT) after the first trimester of pregnancy.In Africa, uptake of IPTp-SP has been reported to be relatively low compared to the Roll Back Malaria Initiatives' target of 100% ranging from 53% in Kenya (Gikandi, Noor, Gitonga, Ajanga and Snow, 2008) 34% in Cote d'ivoire (Vanga-Bosson, Coffie, Kanhon, Sloan, Kouakou, Eholie, Kone, Dabis, Menan and Ekouevi, 2011) 73% in Uganda (Sangare, Stergachis, Brentlinger, Richardson, Staedke, Kiwuwa and Weiss, 2010) 28.5% in Tanzania(Exavery, Mbaruku, Mbuyita, Makemba, Kinyonge and Kweka, 2014) 13.7%-35.4% in South East Nigeria (Onyebuchi, Lawani, Iyoke, Onoh and Okeke, 2012; Onoka, Hanson and Onwujekwe, 2012) and 18%-27.3% in south west Nigeria (Tongo, Orimadegun and Akinyinka, 2009; Akinleye, Falade and Ajayi, 2007). Low compliance to IPTp-SP could be due to personal reasons like non- acceptability, poor knowledge of IPTp-SP among pregnant women, late enrolments for antenatal care, irregular antenatal visits, poverty, forgetfulness, constrain of long waiting at the antenatal clinic, being afraid to take drugs during pregnancy and low level of education. There are also facility related factors like periodic shortage of IPTp drugs in the clinics, lack of portable

water or the non-acceptability of the drinking cups provided by the facility, staff shortage, heavy patient load, poor supervision of Directly Observed Therapy among others. (Onyebuchi et al., 2014; Akinleye et al., 2009; Vanga-Bosson et al., 2011; van Eijk, Hill, Alegana, Kirui, Gething, ter Kuile and Snow, 2011; Wilson, Ceesay, Obed, Adjei, Cyasi, Rodney, Ndjakani, Anderson, Lucch and Stile, 2011).

In Africa, previous studies on the utilization of intermittent preventive treatment for prevention of malaria in pregnancy are majorly community based survey where the target population are women of reproductive age, their spouse and front-line care givers (Diala, Pennas, Marin and Belay, 2013), focus has also been on women aged 15-49 who reported a pregnancy that had resulted in a delivery in the last 12 monthspreceding the survey (Sangare et al., 2010; Gikandi et al., 2008; Onoka et al., 2012), women with children aged less than two years and who had sought antenatal care (ANC) at least once during pregnancy (Exavery et al., 2014) or post-natal women who had delivered their baby within the preceding five months (Kiwuwa and Mufubenga, 2008). There have been hospital based studies in Nigeria that was carried out in the primary healthcare (Akinleye et al., 2009) as well as in teaching hospital (Onyebuchi et al., 2014). Also previous related studies have compared uptake of IPTp-SP in the tertiary and secondary health facilities (Tongo et al., 2009) as well as in the private and public facilities (Esu,Effa, Udoh, Oduwole, Odey, Chibuzor, Oyo-Ita and Meremikwu, 2013). However, there is a gap in literature in comparing the determinant of utilization of IPTp-SP across all the levels of health care that is Primary Health Care, Secondary Health Care and Tertiary Health Care. Therefore, there is need to assess the IPTp-SP uptake and its predictors across the three level of health care facility. This study aims at identifying and comparing the determinants of use of SP among pregnant women attending antenatal clinics at the three levels of care in Oyo State, Nigeria.

1.2 Problem Statement

Globally, an estimated 3.2 billion people are at risk of malaria and the estimated incidence of malaria is 198 million cases annually, with about 584,000 deaths (WHO, 2014). There were 97 countries and territories with on-going malaria transmission,

and 7 countries in the prevention of reintroduction phase, making a total of 104 countries and territories in which malaria is presently considered endemic (WHO, 2013). Sub-Saharan African populations living in highly endemic areas account for a majority of the global malaria burden, with pregnant women and infants being at a dispropottionately higher risk of infection than others. There are about 75,000–200,000 infant deaths yearly in Africa from malaria in pregnancy (Heggerhougen, Hackethal, Vivek, 2003). Malaria is transmitted throughout Nigeria with 97% of the population at risk (NSP, 2011). Malaria accounts for about 60% of outpatient visits and 30% of hospitalizations in Nigeria. It is a leading cause of mortality in children under five years of age and is responsible for an estimated 225,000 deaths annually. It also contributes to an estimated 11% of maternal mortality and 10% of low birth weight (NMCP, 2009)

According to Nigeria malaria indicator survey (MIS) 2010, the highest malaria prevalence zones were South West (50%), North Central (49%), and North West (48%), while the lowest prevalence zones were South East (28%), North East (31%), and South South (32%). Furthermore, ITN ownership was highest in the North East (63%) and lowest in the South West (20%).

In Zambia, research has shown that SP retain some efficacy in treating malaria in pregnancy despite the presence of resistance, and so may remain a viable option for IPT (Tan, Katalenich, Mace, Nambozi, Taylor, Meshnick, Wiegand, Chalwe, Filler, Kamuliwo and Craig, 2014). Despite this effectiveness, and the nearly universal adoption of a national IPTp policy among malaria endemic countries, its use remains relatively uncommon in sub-Saharan Africa (WHO, 2009).

National Demography and Health Survey (NDHS), 2013 showed that among pregnant women living in households that possess an ITN, 3 in 10 slept under an ITN the night before the survey. Twenty-three per cent of women who had their last birth in the two years preceding the survey received intermittent preventive treatment during their pregnancy; that is, they took two or more doses of sulphadoxine-pyrimethamine (SP)/Fansidar and received at least one dose during an antenatal care visit(NDHS, 2013). The uptake of IPTp-SP has been consistently low in Nigeria with an uptake rate of 20% in 2003, 18% in 2008 and 23% in 2013 (NDHS). This implies that over 70% of pregnant women are still at risk of malaria in pregnancy (MIP) and its related

negative pregnancy outcomes. NDHS 2013 revealed that Oyo State has the poorest compliance in the south west region with a compliance rate of 3%. That is the percentage of women age 15-49 in Oyo state with a live birth in the two years preceding the survey who, during the pregnancy preceding the last birth, took at least two doses of SP/Fansidar and received at least one dose during an ANC visit. This compliance rate is exceptionally low relative to the expected Roll back malaria initiative's (RBM) target of 100% coverage.

1.3Justification

The current World Health Organization (WHO) recommended standard of care for malaria in malaria-endemic regions are, intermittent preventive treatment of malaria in pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP), consistent use of Insecticide Treated Net and prompt malaria case management (WHO, 2009). The IPTp-SP has been shown to reduce malaria episodes, malaria-related anaemia, incidence of LBW by 42%, neonatal death by 38%, placental malaria by 65%, and antenatal parasitemia by 26% (Kayentao, Kodio, Newman, Maiga, Doumtabe, Ongoiba, Coulibaly, Keita, Maiga, Mungai, Parise and Doumbo, 2005); (Garner and Gulmezoglu, 2006). In addition, IPTp-SP is attractive because of its single-dose therapy, which lends itself to supervised administration and ensures compliance. Although this preventive strategy has been implemented in most health facilities in Oyo State, the uptake is low and there has been little assessment of factors responsible for its non-use. The national coverage of IPTp-SP in Nigeria is 20% in 2003, 18% in 2008 and 23% in 2013 (NDHS), indicating that over 70% of pregnant women are still at risk of malaria in pregnancy (MIP) and its related negative pregnancy outcomes. NDHS 2013 revealed that Oyo State has the poorest compliance in the south west region with a compliance rate of 3% meaning the percentage of women age 15-49 in Oyo state with a live birth in the two years preceding the survey who, during the pregnancy preceding the last birth, took at least two doses of SP/Fansidar and received at least one dose during an ANC visit. There have been previous comparative studies on uptake of IPTp-SP in the tertiary and secondary health facilities (Tongo et al., 2009) as well as in the private and public facilities (Esu et al., 2013) but there is a dearth in literature on studies comparing the determinant of utilization of IPTp-SP

across all the levels of health care that is Primary Health Care, Secondary Health Care and Tertiary Health Care.

Achieving the WHO's target of 100% IPTp coverage will go a long way in reducing maternal and neonatal mortality. This intervention is to be offered to all ANC attendees in every health facilities as part of their ANC services. Therefore there is need to intensify efforts in order to meet the Millennium Development Goals (MDG) 4,5,6 (Goal 4- To reduce child mortality, Goal 5- Improve maternal health and Goal 6- Combat HIV/AIDS, Malaria and Other Diseases.) as 2015, the targeted year, is here. It is therefore necessary to evaluate the quality of current practices in preventing malaria in pregnancy. Examining possible factors and barriers for the non-use of IPTp-SP despite its effectiveness in decreasing prevalence of maternal malaria and malaria-associated adverse outcomes is important in assessing the realization of the national malaria control targets of controlling malaria and adverse outcomes in pregnancy.

1.4 Aim of the Study

1.4.1 Broad Objective

To identify and compare the determinants of preventive use of SP among pregnant women attending antenatal clinics at the three levels of care in Oyo State, South-west Nigeria.

1.4.2 Specific Objectives

1. To assess the Knowledge and Perception of pregnant women on IPTp-SP.
2. To determine the prevalence of use/non-use of IPTp-SP among pregnant women attending antenatal
3. To compare the uptake rate among the three levels of health facilities in the state- PHC's, SHC's and the tertiary health care.
4. To determine the barriers to the administration of IPTp -SP in the health facility during antenatal care (ANC) visit.
5. To identify factors influencing the use of IPTp-SP

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CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of Malaria

Malaria is an infectious disease caused by the parasite of the genus *Plasmodium* which infects human blood. There are four main kinds of plasmodium parasites that cause malaria in humans. These are *plasmodium falciparum* (Pf), *Plasmodium vivax* (Pv), *Plasmodium malariae* (Pm) and *Plasmodium ovale* (Po). In Nigeria, 98% of malaria infections are due to *Pf.* This parasite causes the most deadly form of malaria, known as severe malaria. Other forms of malaria present in Nigeria include *P.ovale* and *P.malariae*, which play a minor role with the latter being quite common as a double infection in children (FMOH, 2010). Malaria is transmitted mostly by the bite of an infected female anopheles mosquito, which occurs mainly between dusk and dawn. There are at least 400 different species of this vector and the common species among the Anopheles complex are *Anopheles gambiae, Anopheles funestus, Anopheles arabiensis* and *Anopheles melas.* Malaria can also be transmitted by some other rare mechanisms like: congenitally-acquired disease, blood transfusion, sharing of contaminated needles, and organ transplantation (Owusu-Ofori, Betson and Parry, 2013). Malaria is endemic throughout most of the tropics, of the approximately three billion people living in 106 countries who are exposed, approximately 243 million will develop symptomatic malaria annually (WHO, 2008).

Malaria is characterized clinically by fever; other symptoms may include headache, chills, rigors, general weakness, vomiting, loss of appetite and profuse sweating. The clinical features of malaria vary from mild to severe. In areas of stable malaria transmission, such as Nigeria where the most common species is *Plasmodium falciparum*, most infections are asymptomatic and usually persist for long periods at low densities (FMOH,2011).

2.2 Burden of Malaria in Sub-Saharan and Nigeria

Malaria infection is significant in Africa where its fatality is a far greater problem than in most parts of the world. About 90% of the world's malaria deaths are

estimated to occur in tropical Africa south of the Sahara, where the majority of infections are caused by the most dangerous species, *Plasmodium falciparum*, which is predominantly transmitted by vectors that are highly efficient, widespread and difficult to control. Based on the data of the Africa Malaria report and other sources, WHO estimates, that the number of malaria deaths in young children in sub-Saharan Africa in 2000 was 803,000 (precision estimate 710,000-896,000) (Rowe, Steketee, Rowe, Snow, Korenromp, Schellenberg, Stein, Nahlen, Bryce and Black, 2004). It is generally agreed that malaria causes around 20% of all deaths in children Under 5 in Africa and that it is the most important cause of death in this group (WHO and UNICEF, 2003).

Nigeria bears up to 25% of the malaria disease burden in Africa, hence contributing significantly to the one million lives lost per year in the region, which mostly consists of children and pregnant women. Malaria in Nigeria is endemic and constitutes a major public health problem despite the curable nature of the disease. Malaria-related deaths account for up to 11% of maternal mortality. Additionally, they contribute up to 25% of infant mortality and 30% of under-5 mortality, resulting in about 300,000 childhood deaths annually. The disease overburdens the already-weakened health system: nearly 110 million clinical cases of malaria are diagnosed each year, and malaria contributes up to 60% of outpatient visits and 30% of admissions (FMOH, 2007). Malaria also exerts a huge social and economic burden on families, communities, and the country at large, causing an annual loss of about 132 billion Naira in payments for treatment, prevention as well as hours not worked (Jimoh, Sofola, Petu and Okorosobo, 2007).

Nigeria has an estimated 7.5 million pregnant women annually, almost all of whom are at risk of malaria in pregnancy (MIP). The burden of malaria during pregnancy is high with enormous health and economic impact on the country (NSP, 2011).

2.3 Vulnerable Groups for Malaria: Children and Pregnant Women

Children under five and pregnant women are the most vulnerable groups to illness and death from malaria infection in Nigeria (NDHS, 2013). Pregnant women have reduced immune response and therefore less effectively clear malaria infections

(Brennan, Beeson, Tadesse, Molyneux and Brown, 2005). Consequently, pregnant women are particularly vulnerable to malaria than non-pregnant women from the same area. The prevalence of malaria is higher during pregnancy compared with the non-pregnant state (Tylor et al., 2011). Susceptibility to infection and the severity of clinical manifestations are determined by the level of pre-pregnancy immunity, which in turn, depends largely on the intensity and stability of malaria transmission (Rijken, McGready and Boel, 2012). Malaria infection (peripheral or placental) is more frequent in primigravidae and secundigravidae than in multigravidae, howev multigravidae are also vulnerable to malaria because they have a higher incidence of clinical malaria during than before or after pregnancy (Brennan et al., 2005)

Based on WHO's fact sheet it has been established that pregnancy quadruples a woman's risk to malaria illness and doubles her risk of death. In Ghana, approximately 36% asymptomatic malaria occurred among pregnant women (Yatich et al., 2009) and up to 82.0% in other African countries (Bouyou-Akotet et al., 2003; Walker-Abbey et al., 2005).

2.4 Malaria in Pregnancy: Features, Complications, Management

Malaria in pregnancy remains a major public health problem in sub-Saharan Africa (Ndyomugyenyia, Tukesigab and Katamanywac, 2009). The physiological changes of pregnancy and the pathological changes due to malaria have a synergistic effect on the course of each other, thus making life difficult for the mother, the child and the treating physician (Breman, Alilio and Mills,2004). *Plasmodium falciparum* malaria infection in pregnancy especially among the primigravidae and secundigravidae, whether symptomatic or asymptomatic may contribute to as much as 15% of maternal anaemia, 70% of intrauterine growth retarded deliveries, 36% of preterm delivery and 30% of preventable low birth weight deliveries and postpartum morbidity (Arulogun and okereke, 2012). Maternal anaemia contributes significantly to maternal mortality causing an estimated 10,000 deaths per year (Marchesini and Crawley, 2004).

2.4.1 Features of Malaria in Pregnancy

Malaria in pregnancy is difficult to diagnose, especially in endemic countries. Often the disease is asymptomatic in mothers who are regularly exposed to malaria and do

(Brennan, Beeson, Tadesse, Molyneux and Brown, 2005). Consequently, pregnant women are particularly vulnerable to malaria than non-pregnant women from the same area. The prevalence of malaria is higher during pregnancy compared with the non-pregnant state (Tylor et al., 2011). Susceptibility to infection and the severity of clinical manifestations are determined by the level of pre-pregnancy immunity, which in turn, depends largely on the intensity and stability of malaria transmission (Rijken, McGready and Boel, 2012). Malaria infection (peripheral or placental) is more frequent in primigravidae and secundigravidae than in multigravidae, however, multigravidae are also vulnerable to malaria because they have a higher incidence of clinical malaria during than before or after pregnancy (Brennan et al., 2005)

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Malaria in pregnancy is difficult to diagnose, especially in endemic countries. Often the disease is asymptomatic in mothers who are regularly exposed to malaria and do

not show the characteristic symptoms that can be seen in non-pregnant persons. One of the reasons is that malaria parasites stays in the blood enriched and it's not found in the blood stream of the mother. This makes diagnosis very difficult since blood sample from the mother is used for microscopical examination. Diagnostic tests that make use of the antigens (specific particles of the parasite that are different from the human body, circulate in the bloodstream and are recognized by the human immune system) can be used as an alternative for diagnostics (Kattenberg, Ochondo, Boer, Schallig, Mens and Leeflag, 2011).

2.4.2 Complications of Malaria in Pregnancy

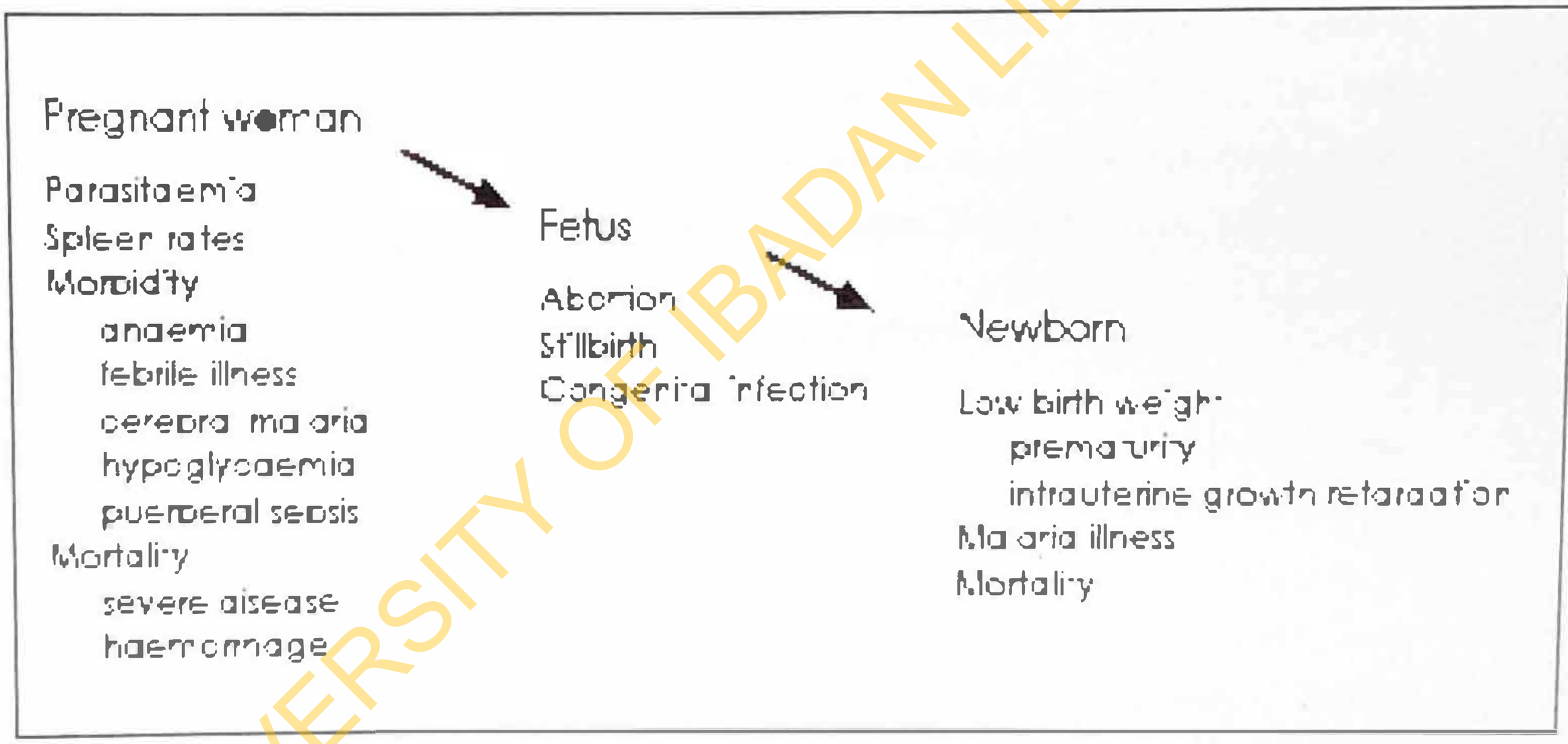

Fig.2.4 Adverse Consequences of Malaria in Pregnancy (WHO, 2004).

Malaria in Pregnancy and Congenital malaria

Malaria during pregnancy may result in foetal exposure to malaria if parasites are transmitted across the placenta and could result in congenital malaria. Trans placental transmission of *P. falciparum* has been well described, and the reported frequency of this event in babies born in malaria-exposed pregnancies was about 25% (Garner and Cochrene,2006). Thus, placental malaria is known to be a major determinant of

congenital malaria. Congenital malaria has been defined as the presence of asexual stages of *P. falciparum* in cord blood smear at delivery or in peripheral blood smear of the infant in the first seven days of life, irrespective of clinical symptoms (Uneke, 2007). Normally, symptoms occur 10 to 30 days postpartum; however, the disease may be seen in a day-old infant or appear after weeks to months (Behrman, Keliman and Jenson, 2004). Previously, in the sub-Saharan Africa regions clinical disease is rarely identified as a consequence of congenitally acquired malaria, (Logic and Mcgregor, 1970). Before it was unclear whether the presence of *P. falciparum* malaria parasites in umbilical cord blood is an indication of antenatal acquired infection or contamination with infected maternal blood at delivery but in a study in Kenya, it was unequivocally shown that malaria parasites identified in cord blood are acquired antenatal by trans-placental transmission of infected erythrocytes and primigravid and secundigravid women with placental malaria are at increased risk for congenital infection (Malhotra, Mungai, Muchiri, Kwiek, Meshnick and King, 2006). The high rate of trans-placental transmission of malaria appears to suggest the placental barrier is not very effective when infected with malaria parasites (Malhotra et al., 2006).

Malaria in Pregnancy and Low Birth Weight and Preterm Delivery

Presence of Malaria parasite in the placenta compromise the integrity of the placenta and obstruct the flow of nutrient and oxygen to the foetus, causing intrauterine growth retardation, one of the contributory factors to delivery of low birth weight baby(i.e., < 2.5kg). On the other hand, severe maternal anaemia caused by malaria can also lead to the delivery of a low birth weight baby (Menendez, Ordi and Ismail, 2000). Malaria-infected placentas frequently carry antibodies, cytokines, and macrophages, which are indicative of an active immune response, and this immune response may stimulate early labour (Guyatt and Snow, 2004).

Malaria in Pregnancy and Foetal anaemia

The prevalence of foetal anaemia, defined as cord haemoglobin level < 12.5g/dl, is reportedly very high in sub-Saharan Africa (Brabin, Stokes, Dumbaya and Owens, 2004). A higher prevalence of foetal anaemia occurred with increasing peripheral *P. falciparum* parasite density, and geometric mean placental parasite densities were higher in babies with foetal anaemia than in those without it (Brabin et al., 2004).

Malaria in Pregnancy and Perinatal mortality

Malaria infection during pregnancy has been cited as one of the contributors to neonatal mortality, mainly through low birth weight and maternal anaemia (Menendez et al., 2007). In the settings of high transmission, where levels of acquired immunity tend to be high, the *P. falciparum* infection is usually asymptomatic in pregnant women. However, parasites may be present in the placenta and contribute to maternal anaemia. Both maternal anaemia and placental parasitaemia can lead to low birth weight, which is a major contributor to child mortality (WHO, 2013). It has been noted that 6% of infant death are caused by low birth weight from malaria during pregnancy. This implies that approximately, 100,000 infant mortality are due to LBW cause by malaria in pregnancy yearly in malaria endemic regions (Guyatt and Snow, 2004). Since LBW is the single greatest risk factor for neonatal and infant mortality, its prevention through effective control of placental malaria cannot be overstated.

Effect of Malaria in Pregnancy and Maternal HIV infection-Mother-to-child-transmission of HIV

HIV infection has been linked with an increased prevalence and density of malaria in pregnancy (ter Kuile, Parise and Verhoeff, 2004). During pregnancy placental HIV-1 viral load is increased in women with placental malaria, especially those with high parasite densities (Mwapasa, Rogerson and Molyneux, 2004). It can be hypothesized that increased placental HIV-1 load, due to the presence of malaria parasites, might be associated with increased excretion of HIV-1 in the genital tract, thus increasing the risk of MTCT. Maternal immune responses to malaria may stimulate HIV viral replication in the placenta, thereby increasing the viral load thereby increasing the risk of MTCT (ter Kuile et al., 2004).

2.4.3 Management

Case management of malaria illness is an essential component of malaria prevention and control during pregnancy in all areas where pregnant women are at risk of

malaria. Pregnant women with symptomatic malaria are at higher risk of foetal loss, premature delivery and death, and thus urgently need to be treated. *Falciparum* malaria in pregnancy is a grave risk since uncomplicated malaria in pregnant women can progress rapidly with severe manifestations and complications. Treatment of malaria in pregnancy must aim at both clinical cure and complete elimination of all parasites since any level of parasitaemia is of consequence to both mother and foetus. The recommended drugs for both uncomplicated and severe malaria must, therefore, be highly efficacious and safe to both mother and foetus (WHO, 2004).

The recommended antimalarial drugs for treatment of uncomplicated malaria are cloroquine (CQ) in CQ-sensitive areas and sulfadoxine-pyrimethamine (SP) in areas with CQ resistance. Quinine is another alternative in areas where both CQ and SP are not effective, and it is the drug of choice for treatment of uncomplicated malaria in the first trimester of pregnancy and severe malaria. WHO recommends that the following drugs not be used during pregnancy: halofantrine, tetracycline, doxycycline and primaquine (WHO,2001).Sulfadoxine-pyrimethamine, mefloquine and artemisinin are, however, contraindicatedduring the first trimester of pregnancy (it should be noted that women rarely report to theantenatal services during the first trimester) (WHO, 2001; 2003). Where conditions allow intensive care monitoring, quinine may be used safely for the treatment of severe malaria in all stages of pregnancy. Intramuscular artemether is the drug of choice in the second and third trimesters.

In Nigeria, the national guideline for diagnoses and treatment of malaria, 2011 recommends that Quinine is safe for the treatment of malaria in all trimesters of pregnancy. In the second and third trimester ACTs can be used. However there should be proper monitoring and documentation in all cases. In the first trimester the safety of the ACTs has not been ascertained for a categorical recommendation on their use. However, should be used if it is the only effective antimalarial medicine available (FMOH, 2011).

2.5 Malaria Control Programmes Globally

In areas of high or moderate transmission, most malaria infections in pregnant women are asymptomatic and infected women do not present for treatment. In such areas, the

World Health Organization recommended a combination of interventions to prevent malaria in pregnancy; this includes insecticide-treated bed nets (ITNs), intermittent preventive treatment in pregnancy (IPTp) and effective case management and treatment (WHO, 2004).

2.6 Programmes That Have Been Carried Out to Reduce Malaria Prevalence among Pregnant Women

In the past, WHO recommended that pregnant women in malaria-endemic areas receive full antimalarial treatment on their first contact with antenatal service followed by weekly chemoprophylaxis (i.e. frequent, regular use of an antimalarial drug given at less than a therapeutic dose) (Behrman et al., 2004). The drug most commonly used for chemoprophylaxis has been CQ. The implementation of this policy has been limited by a number of factors, including spread of antimalarial drug resistance, particularly to CQ, poor compliance with a weekly regimen throughout pregnancy and adverse effects, especially pruritus associated with CQ.

In Africa more than 70% of women attend antenatal clinics at least once during pregnancy, and many attend at least twice (Guyatt and Snow, 2004). This represents a unique opportunity for prevention of malaria, along with other priority diseases affecting pregnant women, for this reason, the Malaria Programme of the Regional Office for Africa of WHO has targeted the antenatal clinic as the site for accelerating programme implementation of malaria prevention and control during pregnancy, therefore, in 2004 at the Abuja target a three pronged approach for reducing the burden of malaria among pregnant women was recommended (WHO, 2005). These interventions included use of insecticide treated bed nets (ITNs), intermittent preventive treatment with sulfadoxine pyrimethamine (IPT-SP), and effective case management.

2.6.1 Intermittent Preventive Treatment

All pregnant women in areas of stable malaria transmission should receive at least two doses of IPT after quickening. The World Health Organization (2004) recommends a schedule of four antenatal clinic visits, with three visits after quickening. The deliveries of IPT with each scheduled visit after quickening will

assure that a high proportion of women receive at least two doses. Federal Government of Nigeria through the Federal Ministry of Health demonstrated a strong political will and commitment in adopting IPTp with SP as the National strategy for malaria control in pregnancy (FMOH, 2005).The National malaria control program in its strategic plan 2009-2013, recommends two doses of IPT-SP during normal pregnancy; the first dose to be administered at quickening, which ensures that the woman is in the second trimester, and the second dose given at least one month from the first. A third dose is recommended for human immunodeficiency virus (HIV)-positive women. The use of drugs such as proguanil, pyrimethamine or chloroquine for chemoprophylaxis is no longer recommended because of the demonstrable resistance of malaria parasites to these drugs (NMCP, 2005; FMOH, 2005). IPT-SP doses should not be given more frequently than monthly.Currently, the most effective drug for IPT is sulfadoxine-pyrimethamine (SP) because of its safety for use during pregnancy, efficacy in reproductive-age women and feasibility for use in programmes as it can be delivered as a single-dose treatment under observation by the health worker.

After evidence based review in October, 2012 WHO updated the recommendations of IPTp-SP and the latest guidelines for IPTp-SP administration as culled from the WHO policy brief for the implementation of intermittent preventive treatment of malaria in pregnancy using sulfadoxine-pyrimethamine (IPTp-SP), 2014, states that;

(1) All possible efforts should be made to increase access to IPTp-SP in all areas with moderate to high malaria transmission1 in Africa, as part of antenatal care services. WHO recommends a schedule of at least four antenatal care visits during pregnancy.

(2) Starting as early as possible in the second trimester, IPTp-SP is recommended for all pregnant women at each scheduled antenatal care (ANC) visit until the time of delivery, provided that the doses are given at least one month apart. SP should not be given during the first trimester of pregnancy; however, the last dose of IPTp-SP can be administered up to the time of delivery without safety concerns

(3) IPTp-SP should ideally be administered as directly observed therapy (DOT) of three tablets sulfadoxine/pyrimethamine (each tablet containing 500 mg/25 mg SP) giving the total required dosage of 1500 mg/75 mg SP.

(4) SP can be given either on an empty stomach or with food.

(5) SP should not be administered to women receiving co-trimoxazole prophylaxis due to a higher risk of adverse events.

(6) WHO recommends the administration of folic acid at a dose of 0.4 mg daily; this dose may be safely used in conjunction with SP. Folic acid at a daily dose equal or above 5 mg should not be given together with SP as this counteracts its efficacy as an antimalarial.

(7) In some countries of sub-Saharan Africa, transmission of malaria has been reduced substantially due to the successful implementation of malaria control efforts. In the absence of data to help determine when to stop IPTp-SP, WHO recommends that countries continue to provide IPTp-SP until data to guide this decision-making is available.

(8) There is currently insufficient evidence to support a general recommendation for the use of IPTp-SP outside Africa.

2.6.2 Insecticide-Treated Nets

ITNs should be provided to pregnant women as early in pregnancy as possible. Their use should be encouraged for women throughout pregnancy and during the postpartum period. ITNs can be provided either through the antenatal clinic or other sources in the private and public sectors (WHO, 2014).

2.6.3 Effective Case Management of Malaria Illness and Anaemia

Effective case management of malaria illness for all pregnant women in malarious areas must be assured. Effective case management of malaria entails early diagnosis and prompt treatment of acute cases using effective anti-malaria drugs. The National malaria control program recommends the use of quinine for acute treatment of cases in the first trimester, and artemsinin-based combination therapy (ACT) for acute cases in the second and third trimesters (NMCP, 2005; FMOH, 2005). The ACT recommended in pregnancy is the Arthemeter/lumefantrine or Artemisinin/ amodiaquine combinations (NMCP, 2005; FMOH, 2005). Anti-malaria drugs such as

primaquine, halofantine, mefloquine, etc., are contraindicated in pregnancies and thus not recommended (Mokuolu, Okoro, Ayetoro and Adewara, 2007).

2.7 IPT Use in Pregnancy, Associated Factors

A study conducted in 2007, reported that there were about 32 million pregnancies in malaria-endemic areas in sub-Saharan Africa (Dellicour et al., 2010). Intermittent preventive therapy (IPT) was recommended by WHO as one of the key strategies for malaria prevention and control in pregnant women, especially those who live in malaria endemic areas. In these areas most of the residents have high immunity and therefore *P. falciparum* infection during pregnancy is generally not associated with acute symptoms, and therefore remains undetected and untreated. Therefore, IPT is the most effective way of reducing malaria associated complications such as anaemia and risk of delivering premature or low birth weight (LBW) babies in pregnant women (WHO, 2004).

Intermittent preventive treatment consists of a single dose of anti-malarial drug administered at least twice in pregnancy, typically during the second and third trimesters. This treatment also includes routine check-ups at antenatal clinics (ANC) irrespective of whether the mother is parasitemic or not. Sulfadoxine-pyrimethamine is the recommended drug for this treatment (Akinleye et al., 2009, Newman et al., 2003). Despite the effectiveness of IPTp- SP, and the nearly universal adoption of a national IPTp policy among malaria endemic countries, its use remains relatively uncommon in sub-Saharan Africa (WHO, 2009).

While IPT can best be obtained at these antenatal clinics, some pregnant women will not attend these clinics, or fail to return after their first appointment. This patient noncompliance tends to make the administration and monitoring of IPT regimens difficult for doctors and caregivers (Brabin, Stokes, Dumbaya and Owens, 2009; Hommerich, Oertzen, Bedu-Addo, Holmberg, Acquah, Eggelte, Bienzle, Mockenhaupt, 2007). In Africa, uptake of IPTp-SP has been reported to be relatively low in compare to the roll back malaria initiatives' target of 100% and WHO's target of 80%, ranging from 53% in Kenya (Gikandi et al., 2008), 34% in Cote d'ivoire (Vanga-Bosson et al., 2011), 73% in Uganda (Sangare et al., 2010), 28.5% in Tanzania(Exavery et al., 2014), 13.7%-35.4% in South East Nigeria (Onyebuch et al.,

2014; Onoka et al., 2012) and 18%-27.3% in south west Nigeria (Tongo et al., 2009; Akinleye et al., 2009). Factors that has been identified that contributes to low compliance to IPTp-SP are non- acceptability, poor knowledge of IPTp-SP among pregnant women, late enrolments for antenatal care, Irregular antenatal visits, poverty, forgetfulness, constrain of long waiting, being afraid to take drugs during pregnancy, low level of education (Onyebuchi et al., 2014; Akinleye et al., 2009; Vanga-Bosson, 2011; van Eijk et al., 2011; Wilson, 2011).

2.8 Barriers to IPTp Use

Research has suggests that the role of health workers in the prescription and administration of IPTp could be critical to patients' adherence to its use during pregnancy. In a study in south east Nigeria, 31% of women did not receive subsequent doses of IPTp following the initial dose because the medications were not prescribed (Onyebuchi, et al., 2014). Also, several health facility-related challenges were described to explain why IPTp was generally not administered using the recommended WHO model of Directly Observed Therapy. Under DOT, SP for IPTp should be taken in the antenatal clinic under the direct observation of the care provider to increase uptake. However, for reasons such as lack of staff, stock out of drugs, lack of portable water, non- acceptability of the drinking cups and heavy patient loads, health workers could not implement DOT (Onyebuchiet al., 2014; Akinleye et al., 2009; Vanga-Bosson, 2011; van Eijk et al., 2011;Wilson, 2011). These reasons are similar to those found in the studies in other African countries (Brentlinger, Dgedge, Correia, Rojas and Saute, 2007; Gikandi et al., 2008; Vanga-Bosson et al., 2011; Sangare et al., 2010; Exavery et al., 2014).

CHAPTER THREE

METHODOLOGY

3.1 Study Area

Oyo state is located in the southwest region of Nigeria. According to NDHS, 2013 Oyo state has the lowest IPTp-SP compliance rate out of the southwest state with a compliance rate of 3% which is very low compared to the WHO's target of 100%. Oyo State has a tropical climate, which favours the breeding of the vector carrying the Plasmodium parasite implicated in malaria transmission, thus predisposing this infectious disease to all age groups in the state, making the state malaria endemic. The state has a population of 5,591,589 persons comprising 2,809,840 males and 2,781,749 females, according to the 2006 census, and an estimated growing population rate of 3% per year, occupies a landmass of 27,249km^{2}and shares boundary with Ogun State, Kwara State, Osun State and Republic of Benin. The State is homogeneous comprising mainly the Yoruba ethnic group, the people are rich in culture and believe in strong kinship ties as a means of holding the society together; this is revealed in the extended family system. This, notwithstanding, there is a substantial number ofpeople from other part of the country who settle, live and trade in the state, mostly in the urban centres. Non-Nigerians from West Africa, Asian, European and American stocks can also be found in the state. It is a major commercial, industrial, and administrative centre.

Oyo state has 33 local government areas and it is divided into three senatorial districts of Oyo north, Oyo central and Oyo south. The state has a total of 1,551 health facilities, 3 Tertiary health facilities, 28 secondary health facilities, 630 primary health care facilities and rural health post as well as 887 registered Private owned health facilities. These cater for a total population of 5,591,589 people and cares for a female reproductive population of 2,781,749.

Ladoke Akintola University Teaching Hospital is a tertiary health care facility located in Ogbomosho north local government, Oyo north senatorial district; it is a referral centre that caters for the people of Oyo state as well as the neighbouring Kwara State. LAUTECH holds its antenatal clinic twice a week, every Tuesdays and Thursdays

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with averagely sixty pregnant women in attendance each day. Adeoyo Maternity Hospital is a secondary health care facility situated in Ibadan North local government, one of the urban local governments in Oyo state. Being a Maternity centre, it runs its antenatal clinic from Monday to Thursday reserving Wednesday for booking. Idi-Ogungun primary health centre also located in Ibadan north local government and very close to the sub-urban population, holds its antenatal clinics on Tuesdays and Thursdays. In all the health facilities the organization of antenatal care services are similar in design. Pregnant women on getting to the clinic write down their names at the record officers desk where their hospital files are extracted on a 'first- come- first-serve' bases, after which they sit at the waiting area, health talks on various health issues as well as malaria are given by the antenatal nurses after which pregnant women are called in to the examination room one by one for vital signs checks this includes checking of weight, BP, temperature, Palpation, etc. necessary drugs like ferrous, folic acid, tetanus toxoids, SP are given or prescribed and documented. IPTp-SP is given as DOT except for LAUTECH that do not practice DOT but rather prescribes it to pregnant women to buy and use at home. Pregnant women are then given another appointment date for antenatal care. Malaria test is only done at booking except the pregnant woman present with fever or the health care provider finds it necessary.

3.2 Study Design

A comparative cross-sectional study was used to assess the determinants of preventive use of sulfadoxine- pyrimethamine against malaria among pregnant women attending antenatal clinics across the three levels of health care in Oyo State.

3.3 Study Population

The study population are pregnantwomen attending the antenatal clinic in the three chosen health facilities in, Oyo state.

3.3.1 Inclusion Criteria

Pregnant women with 28 weeks and above gestational age.

3.3.2 Exclusion Criteria

Pregnant women presenting with any form of acute emergency.

3.4 Sample Size

Using the sample size formula for comparing two proportions, the prevalence of IPT use in Nigeria is 23% (NDHS, 2013) the sample size for a difference in proportion of 15% is 144. Adding non-response rate of 10% the minimum sample size is 158.

$$n = (Z_{\alpha/2}+Z_{\beta})^2 * (p_1 (1-p_1) + p_2 (1-p_2)) / (p_1-p_2)^2$$

$Z_{\alpha/2}$= 1.96

Z_{β}= 0.84

P1 = 0.23

P2= 0.38

Non- response rate of 10%

1/ (1-f) × n

f = 10%

n= minimum sample size (144)

This gives a minimum sample size of 158 respondents per each facility and a total minimum sample size of 474.

3.5 Sampling Techniques

Three study facilities that provided ANC services were purposively selected in the State: one tertiary facility, one secondary facility and one primary health facility. These were (i) the only state owned public tertiary health facility Ladoke Akintola University Teaching Hospital in Ogbomosho north local government area, (ii) a major maternity centre Adeoyo Maternity Hospital and (iii) Idi-Ogungun Primary Health Centre with both in Ibadan North local government area. These facilities were purposively selected because they were prominently known for providing antenatal care in the State.

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3.5.1 Quantitative Data

Four hundred and seventy four consenting pregnant women who attended the antenatal clinic of the chosen health facilities and met the inclusion criteria during the period of the survey wereenrolled for the study. Respondents were selected consecutively as they come in for antenatal care till the required number needed was reached.

3.5.2 Qualitative Data

A total of twenty eight consenting pregnant women were recruited using convenient sampling technique due to limited number of pregnant women attending ANC at the health facilities in their second and third trimester. Seven participants were selected at the THC, nine and eight participants at the SHC and PHC, respectively.

3.6 Data Collection Technique

3.6.1 Quantitative Data

An interviewer-administered questionnaire was used (Appendix I). The questionnaire was adapted from NDHS 2013 and modified, face validity was done to make sure it cover all the objectives purported to measure and to ensure relevancy. The questionnaire was pre-tested at Oniyanrin comprehensive Health centre, a primary health care facility in Ibadan North West Local Government Area of the state among 47 pregnant women. The results of the pretesting were used to rephrase ambiguous questions and improve the understanding of the questions concerned.The questionnaire was administered to pregnant women who attended the antenatal clinic in these health facilities by the investigator and two trained research assistance with an HND qualification. All the protocols that were used which include the consent forms and questionnaire was communicated to the consenting participants in the language best understood by them, to ensure holistic understanding of all the processes involved in this study. The questionnaire was translated into Yoruba Language (Appendix II) which is the predominant language in the study area, and back translated to English for accuracy; both the English and the Yoruba version were

available at the study site. The interview was conducted either in English language or Yoruba language depending on the choice of the respondent. Data was collected on:

- Social Demographic Information.
- Obstetric History and Accessibility to ANC
- Knowledge and awareness about malaria and IPT
- Perception of Pregnant women to IPT
- Use of IPT
- Activities during the administration of IPTp-SP at the antenatal clinics.

3.6.2 Qualitative Data

A qualitative method was also used. A focus group discussion (FGD) session was carried out at each of the three levels of health facility, each group comprised of pregnant women with gestational age above 28 weeks.The discussion lasted for about 45minutes – 1 hour. The following thematic areas were explored:

- Perceptions on susceptibility and seriousness of malaria in pregnancy
- Perceptions on use of IPTp-SP and other malaria preventive interventions
- Perceived barriers related to the use of malaria preventive interventions.

The FGD was carried out by the investigator and one research assistance who serve as the moderator using a prepared guide (Appendix III) containing probes based on the objectives of the study. The discussion was audio recorded and later transcribed for analysis.

3.7 Data Analysis

3.7.1 Quantitative Data

Quantitative data was entered and analysed with Statistical Package for Social Sciences (SPSS) version 20.Descriptive statistics was used to summarize the data,differences in proportions were compared using Chi square test. Bivariate analyses was done to determine the OR and 95%CI for use of IPTp-SP. Variables found associated with use of IPTp-SP was then subjected to logistic regression analysis to determine predictors of IPTp-SP use, p value wasconsidered significant if

less than 0.05. Questions about malaria in pregnancy and IPTp-SP were asked to determine the knowledge and perception of respondent on IPTp-SP. These werescored by assigning one (1) mark for each correct answer in response to the correct answer and totalled, the mean of the obtainable score was then found. Scores below the mean points were considered to reflect poor knowledge and perception.

3.7.2 Qualitative Data

The records of FGDs were transcribed and content analysis was used to categorize responses into domains representing common themes. Similarities and differences among the different data set was identified and noted. Presentation of the qualitative result was narrative with supporting quotations from the categorized responses.

3.8 Variables

3.8.1 Dependent Variable

IPTp-SP Use

3.8.2 Independent Variables

Maternal Age, Mother's Education, Parity, Distance to ANC Clinic, Socioeconomic Status, Level of health facility.

3.8.3 Variable Indicators/ Definitions

Adherence/ Compliance to IPTp-SP was defined as intake of at least two doses of SP during the antenatal period while uptake refers to intake of at least one dose of IPTp-SP (Onyebuchi et al,2014).

3.9 Ethical Consideration

Ethical approval was sought from and given by the Ethics ReviewCommittee of the Oyo State Ministry of Health. Permission was obtained from the heads of each facility used (Appendix IV).

3.9.1 Informed consent

Informed consent was sought from all participants;there was a consent form at the front page of the questionnaire which wasattested by all participants. (Appendix I)

3.9.2 Confidentiality of Data

Confidentiality was maintained. The questionnaire wasstripped of any form of identifier. Participants were not required to provide information about their names telephone numbers and/or address in the questionnaire, the questionnaire was identified with codes. Thus, the data cannot be linked to any of the participants in anyway. The data collected from respondents was only used for the purpose of this research and was safely kept from a third party.

3.9.3 Beneficence to Participants

No financial reward was given to any of the study participants. It is hoped that the study results and recommendations will enhance planning and implementations of strategies and interventions that will help in preventing malaria in pregnancy and its negative pregnancy outcomes.

3.9.4 Non-Maleficence to Participants

This study was not detrimental to the consenting participants in any way as no clinical assessment, invasive procedures, treatment or trial was involved.

3.9.5 Voluntariness

Participation in this study was totally voluntary and without any compulsion. Each participant was required to give their consent and also sign the informed consent form with the understanding that they have the right to decline or withdraw from the study at any time without this in any way affecting the quality of care that will be provided for them at the ANC.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of Respondents

A total of four-hundred and seventy-four pregnant women attending antenatal clinic were interviewed, one hundred and fifty eight respondents at three different facilities. The respondents were females with mean age of 28.2± 5.6 years (range- 18.0 and 45.0years) and mean gestational age of 31.1±3.1 weeks (range- 28.0 and 41.0 weeks). Most 429(90.5%) of the women were married with 60 of them (12.7%) from a polygamous family, that is their husband have more than one wife. About half (51.5%) of them were Muslims. Most 431(90.9%) of the respondents were of the Yoruba ethnic group followed by Igbo 28(5.9%). Only 24(5.1%) had no formal education and more than half 273(57.6%) of this women were engaged in a semi-skilled job (petty business, artisan) with 87(18.4%) earning above forty thousand naira per month. At the time of the interview 281(59.3%)have had one to two previous delivery followed by 106(22.4%) nulliparous who have had no deliverybefore. Majority 356 (75.1%) were multigravida, who had had two or more pregnancies at the time of the interview. (Table 4.1)

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of Respondents

A total of four-hundred and seventy-four pregnant women attending antenatal clinic were interviewed, one hundred and fifty eight respondents at three different facilities. The respondents were females with mean age of 28.2± 5.6 years (range- 18.0 and 45.0years) and mean gestational age of 31.1±3.1 weeks (range- 28.0 and 41.0 weeks). Most 429(90.5%) of the women were married with 60 of them (12.7%) from a polygamous family, that is their husband have more than one wife. About half (51.5%) of them were Muslims. Most 431(90.9%) of the respondents were of the Yoruba ethnic group followed by Igbo 28(5.9%). Only 24(5.1%) had no formal education and more than half 273(57.6%) of this women were engaged in a semi-skilled job (petty business, artisan) with 87(18.4%) earning above forty thousand naira per month. At the time of the interview 281(59.3%)have had one to two previous delivery followed by 106(22.4%) nulliparous who have had no deliverybefore. Majority 356 (75.1%) were multigravida, who had had two or more pregnancies at the time of the interview. (Table 4.1)

Table 4.1 Socio-demographic characteristics of respondents

Characteristics	PHC N=158 n (%)	SHC N=158 n(%)	THC N=158 n(%)	TOTAL N=474 N(%)	X^2	df	p-valu
AGE GROUP (YEARS)							
15-24	49 (31.0)	49(31.0)	41(25.9)	139(29.3)	3.62	4	0.460
25-34	90(57.0)	89(56.3)	88(55.7)	267(56.3)			
35 and above	19(12.0)	20(12.7)	29(18.4)	68(14.3)			
ETHNIC GROUP							
Yoruba	147(93.0)	145(91.8)	139(88.0)	431(90.9)	6.57	6	0.363
Igbo	5(3.2)	8(5.1)	15(9.5)	28(5.9)			
Hausa	4(2.5)	4(2.5)	3(1.9)	11(2.3)			
Others	2(1.3)	1(0.6)	1(0.6)	4(0.8)			
LEVEL OF EDUCATION							
No Formal Education	11(7.0)	8(5.1)	5(3.2)	24(5.1)	47.48	8	<0.001
Primary School	25(15.8)	22(13.9)	13(8.2)	60(12.7)			
Secondary School	92(58.2)	93(58.9)	61(38.6)	246(51.9)			
Higher Education	30 (19.0)	35(22.2)	79(50.0)	144(30.4)			
MARITAL STATUS							
Married	143(90.5)	141(89.2)	145(91.8)	429(90.5)	2.44	4	0.655
Single	13(8.2)	16(10.1)	10(6.3)	39(8.2)			
Separated/Divorced	2(1.3)	1(0.6)	3(1.9)	6(1.3)			
OCCUPATION							
House Wife	14(8.9)	13(8.2)	19(12.0)	46(9.4)	57.86	1	<0.001
Skilled/Professional	15(9.5)	21(13.3)	60(38.0)	96(20.3)		0	
Semiskilled/Artisan/Trader	108(68.4)	104(65.8)	61(38.6)	273(57.6)			
Unskilled	2(1.3)	5(3.2)	3(1.9)	10(2.1)			
Unemployed	19(12.0)	15(9.5)	15(9.5)	49(10.3)			
PARITY							
Null	34(21.5)	34(21.5)	38(24.1)	106(22.4)	16.92	6	0.010
1-2	94(59.5)	85(53.8)	102(64.6)	281(59.3)			
3-4	30(19.0)	34(21.5)	18(11.4)	82(17.3)			
5+	0(0.0)	5(3.2)	0(0.0)	5(1.1)			
TYPE OF FAMILY							
Monogamous	120(75.9)	124(78.5)	131(82.9)	375(79.1)	2.76	2	0.252
Polygamous	23(14.6)	17(10.7)	14(8.9)	54(11.4)			
INCOME							
< ₦20,000	95(60.1)	94(59.5)	56(35.4)	245(51.7)	77.72	6	<0.001
₦20,000-₦40,000	55(34.8)	47(29.7)	40(25.3)	142(30.0)			
₦41,000-₦100,000	6(3.8)	16(10.1)	40(25.3)	62(13.1)			
₦ 100,000	2(1.3)	1(0.6)	22(13.9)	25(5.3)			

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4.2 Use of IPTp-SP among Respondents.

Of the four hundred and seventy four respondents, (391) 82.5% use IPTp while (83)17.5% did not use IPTp. Reasons given for non- use include the drug not being offered or prescribed (29)34.9%, late/poor attendance to ANC 13(15.7%), "just don't want to use" 15(18.1%), being afraid of complications 8(9.6%), non- availability of the drug at the ANC 8(9.6%), forgetfulness 8(9.6%) and the drug could cause weakness 2(2.4%). (Table 4.2) Out of the 391 women who used IPTp, 26 (6.7%) did not use SP, the drug of choice for IPTp, while 76 (19.4%) don't know the name or composition of the drug they took (Fig. 4.2).

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Table 4.2Reasons for non-use of IPTp among respondent who did not use IPTp-SP

Reasons	**Number of women**	**Percentage**
It was not offered/prescribed	29	34.9
Just don't want to use	15	18.1
Late/ poor attendance to ANC	13	15.7
Non availability of the drug at the ANC	8	9.6
Forgetfulness	8	9.6
Being afraid of complication	8	9.6
The drug could cause weakness	2	2.4
Total	83	100

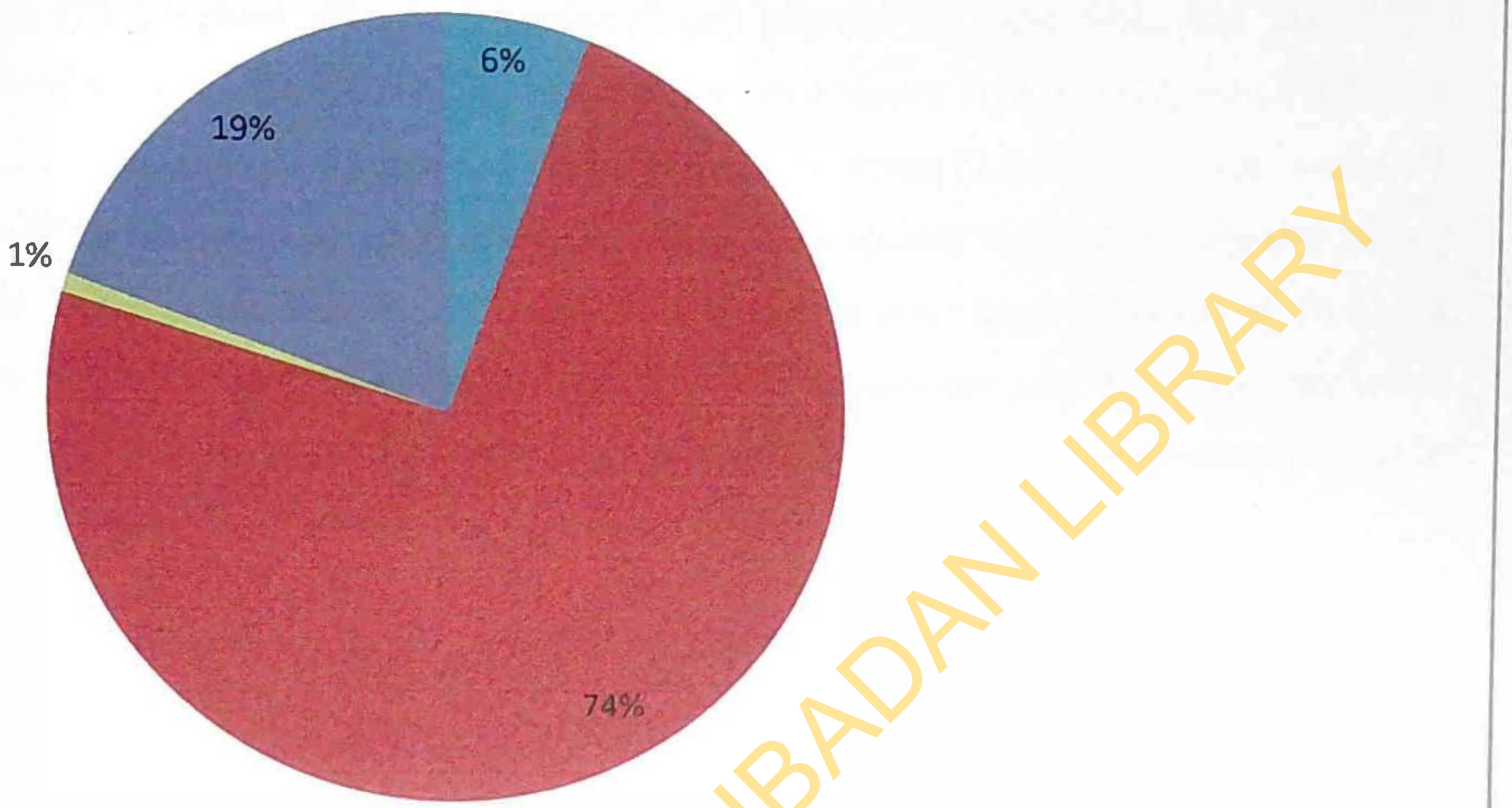

Fig 4.2: Drugs used for IPTp at the health facilities studied.

4.3 Comparison of the uptake of IPTp among the three levels of health care facilities in the state- Primary health care (PHC), Secondary health care (SHC) and Tertiary health care (THC).

Non-use of intermittent preventive therapy was highest among the THC attendees with a percentage of (34)21.5% followed by the PHC attendees where (29)18.4% of the 158 pregnant women interviewed did not use and the SHC had 20(12.7%) attendees who did not use, but this was not statistically significant (p=0.110) (Table 4.3.1). The reasons for non-use vary across the facilities (Table 4.3.2). Non-use of SP as IPTp among those who took a preventive drug against malaria was highest among the THC attendees having 57.7% of those who took other drugs followed by 30.8% at the SHC. More of those who took IPTp but don't know the drug they took was found among the SHC and PHC attendees with 47.4% and 39.5%, respectively. (Table 4.3.3)

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Table 4.3.1 Comparison of IPTp use by level of health care

IPT USE	PHC n (%)	SHC n (%)	THC n (%)	TOTAL n (%)	X^2	df	P-value
Yes	129(81.6)	138(87.3)	124(78.5)	391 (82.5)	4.41	2	0.110
No	29 (18.4)	20 (12.7)	34 (21.5)	83 (17.5)			

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No	29 (18.4)	20 (12.7)	34 (21.5)	83 (17.5)			

Table 4.3.2 Reasons for not taking IPTp within each level of health care facility

Reasons for non-use	PHC n (%)	SHC n (%)	THC n (%)	TOTAL N (%)
It was not offered/ prescribed	14(48.3)	9(45.0)	6(17.6)	29(34.9)
Just don't want to use	4(13.8)	5(25.0)	6(17.6)	15(18.1)
Late/poor attendance to ANC	6(20.7)	3(15.0)	4(11.8)	13(15.7)
The drug was not available at the ANC	1 (3.4)	0(0.0)	7(20.6)	8 (9.6)
Forgetfulness	2(6.9)	1(5.0)	5(14.7)	8(9.6)
Afraid of complication	2 (6.9)	2(10.0)	4 (11.8)	8 (9.6)
The drug could cause weakness	0 (0.0)	0 (0.0)	2 (5.9)	2 (2.4)
Total	29(100)	20(100)	34(100)	83(100)

Table 4.3.3 Comparison of drugs used by level of health care facility

DRUG USED	PHC n (%)	SHC n (%)	THC n (%)	TOTAL n (%)	X^2	df	P-value
Chloroquine	0(0.0)	2(66.2)	1(33.3)	3 (100)	24.90	6	<0.001
ACT	3 (13.0)	6 (26.1)	14 (60.9)	23 (100)			
Don't know	30(39.5)	36(47.4)	10(13.2)	76(100)			
SP	96(33.2)	94(32.5)	99(34.3)	289(100)			
Total	126(33.0)	138(35.3)	124(31.7)	391(100)			

4.4 Knowledge and Perception on IPTp-SP use among respondents

4.4.1 Knowledgeof IPTp-SP use among respondents

Table 4.4.1 shows the result of pregnant women's knowledge of cause, consequence, burden and prevention of malaria in pregnancy. Generally out of the 474 women interviewed 202 (42.6%) had good knowledge with majority being more knowledgeable about the cause and least knowledgeable about burden and consequences.

Table 4.4.1 Respondents' knowledge of causes of malaria by level of health care facility

Indicators	Correct Response	Those with correct response			
		PHC n(%)	SHC n(%)	THC n(%)	TOTAL n(%)
How is malaria transmitted	Mosquito bite	106(29.7)	113(31.7)	138(38.7)	357(75.3)
If sleeping under ITN encourages malaria transmission	No	118(35.8)	82(24.8)	130(69.9)	330(69.9)
If stagnant water around the house encourages malaria transmission	yes	130(33.0)	124(31.5)	140(35.5)	394(83.1)
If walking in the sun encourages malaria transmission	No	25(28.7)	32(36.8)	30(34.5)	87(18.4)
If ill ventilated and ill lighted houses encourages malaria transmission	No	43(30.3)	64(45.1)	35(24.6)	142(30.0)

Table 4.4.2 Respondents' Knowledge of burden and consequences of malaria in pregnancy by level of health care facility

Indicators	**Correct Response**	**Those with correct response**			
		PHC n(%)	SHC n(%)	THC n(%)	TOTAL n(%)
Do malaria affect all age group	Yes	119(32.3)	116(31.5)	133(36.1)	368(77.6)
Do pregnant women have malaria	Yes	136(33.5)	124(30.5)	146(36.0)	406(85.7)
Effect of MIP include Maternal anaemia	Yes	49(21.3)	69(30.0)	112(48.7)	230(48.5)
Effect of MIP include still birth	Yes	48(23.0)	73(34.9)	88(42.1)	209(44.1)
Effect of MIP include Maternal death	Yes	43(24.6)	66(37.7)	66(37.7)	175(36.9)
Effect of MIP include LBW of baby	Yes	39(22.4)	56(32.2)	79(45.4)	174(36.7)
Effect of MIP include abortion	Yes	33(19.9)	53(31.9)	80(48.2)	166(35.0)

Table 4.4.3 Respondent's Knowledge of prevention of malaria in pregnancy by level of health care facility.

Indicators	**Correct Response**	**Number with correct response**			
		PHC n(%)	SHC n(%)	THC n(%)	TOTAL n(%)
Have you heard about drugs used to prevent malaria during pregnancy	yes	91(31.2)	97(33.2)	104(35.6)	292(61.6)
Is Chloroquine the drug of choice for IPT	No	76(41.1)	67(32.2)	42(22.7)	185(39.0)
Is Fansidar the drug of choice for IPT	yes	12(10.3)	23(19.8)	81(69.8)	116(24.5)
Is Phensic the drug of choice for IPT	no	84(40.6)	68(32.9)	55(26.6)	207(43.7)
Is Amalar the drug of choice for IPT	yes	15(14.0)	47(43.9)	45(42.1)	107(22.6)
Is Maloxine the drug of choice for IPT	yes	5(8.5)	15(25.4)	39(66.1)	59(12.4)
Is Coartem the drug of choice for IPT	no	87(45.5)	68(35.6)	36(18.8)	191(40.3)
Is Lunartem the drug of choice for IPT	no	85(44.0)	70(36.3)	38(19.7)	193(40.7)
A dose of IPT contains how many tablet	3	103(36.4)	112(39.6)	68(24.0)	283(59.7)
IPTp can be used in first trimester	no	38(22.6)	70(41.7)	60(35.7)	168(35.4)
IPTp can be used in second trimester	yes	60(27.8)	74(34.3)	82(38.0)	216(45.6)
IPTp can be used in third trimester	yes	60(33.1)	71(39.2)	50(27.6)	181(38.2)

4.4.2 Perception of IPTp-SP use among Respondents.

The perception of respondent was measured using a likert scale (Table 4.4.4). Proportion of women with poor perception to IPTp-SP was highest among the tertiary antenatal attendees 106(44%) followed by the SHC attendees 69(28.6%). Generally, about half 241(50.8%) had poor perception of the preventive use of antimalarial drug during pregnancy (Table 4.4.5).

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Table 4.4.4 Perception of respondents on IPTp-SP use

Variables	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	Total N(%)
Is it necessary to take antimalarial drugs for the prevention of malaria during pregnancy	157(33.1)	218(46.0)	86(18.1)	7(1.5)	6(1.3)	474(100)
The antimalarial drug given at the ANC (IPTp-SP) for the prevention of malaria is truly effective for prevention of malaria in pregnancy	121(25.5)	244(51.5)	92(19.4)	1(2.3)	6(1.3)	474(100)
The antimalarial drug given at the ANC (IPTp-SP) for the prevention of malaria is safe for the pregnant woman	140(29.5)	217(45.8)	94(19.8)	23(4.9)	0(0.0)	474(100)
The antimalarial drug given at the ANC (IPTp-SP) for the prevention of malaria is safe for the unborn baby	118(24.9)	228(48.1)	103(21.7)	21(4.4)	4(0.8)	474(100)
The antimalarial drug given at the ANC (IPTp-SP) for the prevention of malaria could cause complications for the pregnant woman	36(7.6)	68(14.3)	173(36.5)	178(37.6)	19(4.0)	474(100)

Table 4.4.5 Respondents' knowledge and perception score

Categorized score		PHC n(%)	SHC n(%)	THC n(%)	TOTAL N(%)	X^2	df	p-value
Knowledge of causes of malaria								
Poor	<3/5	64(36.4)	67(38.1)	45(25.6)	176(37.1)	7.72	2	0.021*
Good	≥3/5	94(31.5)	91(30.5)	113(37.9)	298(62.9)			
Knowledge of Burden and consequences								
Poor	<4/7	108(43.5)	83(33.5)	57(23.0)	248(52.3)	33.00	2	<0.001*
Good	≥4/7	50(22.1)	75(33.2)	101(44.7)	226(47.7)			
Knowledge of prevention								
Poor	<5/12	73(35.1)	56(26.9)	79(38.0)	208(43.9)	7.32	2	0.026*
Good	≥5/12	85(32.0)	102(38.3)	79(29.7	266(56.1)			
Overall Knowledge of Malaria and IPTp								
Poor	<12/23	102(37.5)	86(31.6)	84(30.9)	272(57.4)	5.04	2	0.081
Good	≥12/23	56(27.7)	72(35.6)	74(36.6)	202(42.6)			
Overall score of perception of pregnant women to IPTp								
Poor	<19/25	66(27.4)	69(28.6)	106(44.0)	241(50.8)	25.14	2	<0.001*
Good	≥19/23	92(39.5)	89(38.2)	52(22.3)	233(49.2)			

*significant at 5% level of significance

4.5 Barriers to the administration of IPTp-SP as DOT in the ANC

Out of the 391 women who took IPTp 167 (42.7%) did not take it as directly observed therapy (DOT). Reasons for not taking the drug as DOT, include, not being required to do so (38.9), non-availability of the drug at ANC (31.7%), being told to have a meal first (12.0%) amongst others. (Table 4.5)

Table 4.5 **Reasons for not using IPTp as Directly Observed Therapy.**

Reasons	Frequency	Percentage
I was not required to do so	65	38.9
The drug was not available	53	31.7
I was told to have my meal first	20	12.0
Healthcare provider says I should take it home	18	10.8
Lack of clean water	7	4.2
Others	4	2.4
Total	167	100

4.6 Factors associated with use of IPTp.

4.6.1 Associations between demographic variables and IPTp use among Respondents.

The association between IPTp use and selected socio-demographic variables is shown in Table 4.6.1. Ethnic group, religion, occupation and type of family were statistically significantly associated with use. About 34.9% of other ethnic groups (Hausa and Ibo) did not use IPT compared to 15.8% of the Yoruba ethnic group (p=0.02). Compared to 12.2% of Christians, 22.5% of Muslims did not use IPT (p=0.03). More than a quarter (33.2) of pregnant women from polygamous family did not use IPTp compared to those from monogamous family (15.2%). p=0.01.

Table 4.6.1 Associations between demographic variables and IPTp use among respondents

Variables	IPTp use			X^2	df	P-value
	Yes	No	Total			
AGE (YEARS)						
15-24	113(81.3)	26(18.7)	139	1.03	2	0.595
25-34	219(82.0)	48(18.0)	267			
35 and above	59(86.8)	9(13.2)	68			
Ethnic group						
Yoruba	363(82.2)	68(15.8)	431	9.88	1	0.002*
Others	28(65.1)	15(34.9)	43			
Education						
No formal Education	17(70.8)	7(29.2)	24	2.59	3	0.459
Primary school	51(82.0)	9(15.0)	60			
Secondary school	203(82.5)	43(17.5)	246			
Higher Education	120(83.3)	24(16.7)	144			
Religion						
Christianity	202(87.8)	28(12.2)	230	8.81	1	0.003*
Islam	189(77.5)	55(22.5)	244			
Marital status						
Married	355(82.8)	74(17.2)	429	0.21	1	0.644
Unmarried/Separated	36(80.0)	9(20.0)	45			
Occupation						
House wife	31(67.4)	15(32.6)	46	8.99	3	0.029*
Skilled/Professional	80(83.3)	16(16.7)	96			
Unskilled/semi-skilled	241(85.2)	42(14.8)	283			
Unemployed	39(79.6)	10(20.4)	49			
Income						
≤ ₦40,000	316(81.7)	71(18.3)	387	1.02	1	0.313
> ₦40,000	75(86.2)	12(13.8)	87			
Type of family						
Monogamous	351(84.8)	63(15.2)	414	11.9	1	0.001*
Polygamous	40(66.7)	20(33.2)	60			

*significant at 5% level of significance

4.6.2 Association between Obstetric history and IPTp use among respondents

Only gestational age was found to be statistically significant (Table 4.6.2). Only 11.8% of women with higher gestational age of 36 weeks and above did not use IPTp compared with 22.1% and 14.5% of women between 28-31 weeks and 32-35 weeks, respectively(Table 4.6.2).

Table 4.6.2 Associations between Obstetric History and IPTp use among Respondents

Variables	IPTp use			X^2	df	p-value
	Yes	No	Total			
Present Gestational age						
28-31 weeks	173(77.9)	49(22.1)	222	6.30	2	0.043*
32-35 weeks	136(85.5)	23(14.5)	159			
36 weeks and above	82(88.2)	11(11.8)	93			
Gravida						
Primigravida	94(79.7)	24(20.3)	118	0.87	1	0.351
Multi gravida	297(83.4)	59(16.6)	356			
Parity						
Null	83(78.3)	23(21.7)	106	7.50	3	0.057
One	146(85.9)	24(14.1)	170			
Two	85(76.6)	26(23.4)	111			
≥Three	77(88.5)	10(11.5)	87			

*significant at 5% level of significance

Table 4.6.2 Associations between Obstetric History and IPTp use among Respondents

Variables	IPTp use			X^2	df	p-value
	Yes	No	Total			
Present Gestational age						
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Multi gravida	297(83.4)	59(16.6)	356			
Parity						
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One	146(85.9)	24(14.1)	170			
Two	85(76.6)	26(23.4)	111			
≥Three	77(88.5)	10(11.5)	87			

*significant at 5% level of significance

4.6.3 Association between ANC attendance and IPTp use among Respondents.

Over a third (37.9) of those who did not always keep ANC appointments did not use IPTp compared to 14.2% of those who always keep appointment and this difference was statistically significant (p=<0.001). Table 4.6.3

Table 4.6.3 Associations between ANC attendance and IPTp use among respondents

Variables	IPTp use			X^2	df	P-value
	Yes	No	Total			
Health facility						
PHC	129(81.6)	29(18.4)	158	4.41	2	0.110
SHC	138(87.3)	20(12.7)	158			
THC	124(78.5)	34(21.5)	158			
Do you always Keep appointments						
Yes	350(85.5)	58(14.2)	408	22.0	1	<0.001
No	41(62.1)	25(37.9)	66			

4.6.4 Association between knowledge and perception on IPTp and IPTp use among respondents.

Only knowledge on IPTp and its perception were found to be statistically significant. The result shows that 27(10.2%) of those who had good knowledge about IPTp did not use the drug compared to 56(26.9%) of those who had poor knowledge (p=0.00). Furthermore, 32(13.7%) of those who had good perception of IPTp did not use at least one preventive dose of antimalarial during the index pregnancy compared to 51(21.2%) of those who had poor perception (p=0.03). Table 4.6.4

Table 4.6.4 Association between knowledge and perception to IPTp and IPTp use among respondents.

Variables	IPTp use			X^2	df	P-value
	Yes	No	Total			
Knowledge of causes of malaria						
Poor	149(84.7)	27(15.3)	176	0.91	1	0.339
Good	242(81.2)	56(18.8)	298			
Knowledge of Burden and consequences of malaria						
Poor	205(82.7)	43(17.3)	248	0.11	1	0.918
Good	186(82.3)	40(17.7)	226			
Knowledge of prevention and IPTp						
Poor	152(73.1)	56(26.9)	208	22.7	1	<0.001*
Good	239(89.8)	27(10.2)	266			
General Knowledge on malaria and IPT						
Poor	218(80.1)	54(19.9)	272	2.42	1	0.119
Good	173(85.6)	29(14.4)	202			
Perception on IPTp						
Poor	190(78.8)	51(21.2)	241	4.53	1	0.033*
Good	201(86.3)	32(13.7)	233			

*significant at 5% level of significance

4.6.5 Logistic regression analysis of factors associated with IPTp use among respondents.

Among variables that were found to affect occurrence of IPTp non-use among pregnant women attending antenatal care, significant predictors include ethnic group, religion, gestational age, keeping of ANC appointments, knowledge about IPTp and general knowledge about malaria. Pregnant women from other ethnic group (Hausa and Ibo) were almost four times the odds of not using IPTp than the yorubas (OR= 3.9, 95%CI= 1.69-8.93). Also Muslims were 2.5 times odds of not using IPT during pregnancy than Christians (OR= 2.5, 95%CI=1.37-4.51). Pregnant women who were within 32-35 weeks and 36weeks and above gestational age was 2 times and over 3 times, respectively, the odds of using IPTp (OR= 0.5, 95%CI=0.23-0.88) and (OR= 0.3, 95%CI=0.14-0.74) (Table 4.8). Women who do not always keep their antenatal appointment were almost four times likely not to use IPTp than women who always keep appointments (OR= 3.8, 95%CI=1.92-7.64). Pregnant women with good knowledge about malaria prevention especially IPTp were five times odd of using IPTp than women who had poor knowledge (OR= 0.2, 95%CI=0.09-0.49). however the result shows that women with good knowledge about malaria were over two times the odds of not using IPT in pregnancy than those who did not have good knowledge about malaria (OR= 2.4, 95%CI=1.08-5.55). Table 4.6.5

Table 4.6.5 Logistic regression analysis of factors associated with IPTp use among respondents.

Variables	OR	95% Confidence interval Lower	Upper	P-value
Ethnic group				
Yoruba (ref)	1			
Others	3.9	1.69	8.93	0.001
Religion				
Christianity (ref)	1			
Islam	2.5	1.37	4.51	0.003
Occupation				
House wife (ref)	1			
Skilled/professional	1.2	0.43	3.50	0.700
Semi-skilled/unskilled	0.9	0.39	2.32	0.902
Unemployed	1.9	0.59	6.03	0.288
Type of family				
Monogamous (ref)	1			
Polygamous	1.8	0.84	3.66	0.133
Present Gestational age				
28-31 weeks (ref)	1			
32-35 weeks	0.5	0.23	0.88	0.020
36 weeks and above	0.3	0.15	0.74	0.007
Parity				
Null (ref)	1			
One	0.5	0.25	1.02	0.057
Two	0.5	0.25	1.17	0.118
Three and above	0.3	0.12	0.80	0.016
Health facility				
PHC (ref)	1			
SHC	0.8	0.41	1.63	0.563
THC	1.3	0.68	2.56	0.412
Keeping appointments				
Yes (ref)	1			
No	3.8	1.92	7.64	0.000
Knowledge of malaria prevention				
Poor knowledge (ref)	1			
Good Knowledge	0.2	0.09	0.49	0.000
General knowledge of malaria				
Poor knowledge (ref)	1			
Good knowledge	2.4	1.08	5.55	0.033
Perception on IPT				
Poor perception (ref)	1			
Good perception	0.7	0.39	1.18	0.167

4.7 Qualitative Analysis

4.7.1 Demographic characteristics of the Focus Group Discussion Participants

The focus group discussion was conducted among 28 pregnant women at three different facilities with 8 participants at the primary health care facility, 9 and 7 participants at the secondary and tertiary health care facility, respectively. All the focus group discussion participants (N = 28) were women with mean age 30.4± 4.4 years (range- 23.0 - 39.0 years), currently married, had at least a primary education and had mean gestational age 32.4± 3.8 weeks (range- 28.0 - 40.0 weeks). (Table 4.7.1).

Table 4.7.1 **Demographic Characteristics of FGD participants.**

Characteristics	PHC n (%)	SHC n (%)	THC n (%)	TOTALN=28 n(%)
Age Group (Years)				
21-30	4(50.0)	5(55.6)	5(71.4)	14(58.3)
31-40	4(50.0)	4(44.4)	2(28.2)	10(41.7)
Ethnic Group				
Yoruba	8(100)	9(100)	5(71.4)	22(91.7)
Ibo	0(0.0)	0(0.0)	2(28.6)	2(8.3)
Religion				
Christianity	3(37.5)	5(55.6)	3(42.9)	11(45.8)
Islam	5(62.5)	4(44.4)	4(57.1)	13(54.2)
Level of Education				
Secondary	6(75.0)	5(55.6)	3(42.9)	14(58.3)
Higher Education	2(25.0)	4(44.4)	4(57.1)	10(41.7)
Occupation				
House wife	1(12.5)	0(0)	2(28.6)	3(12.5)
Self-employed	7(87.5)	7(77.8)	3(42.9)	17(70.8)
Employed	0(0)	2(22.2)	0(0)	2(8.3)
Unemployed	0(0)	0(0)	2(28.6)	2(8.3)
Present Gestational Age				
28-31weeks	3(37.5)	1(11.1)	4(57.1)	8(33.3)
32-35 weeks	3(37.5)	4(44.4)	2(28.6)	9(37.5)
≥36weeks	2(25.0)	4(44.4)	1(14.3)	7(29.2)
Parity				
Null	0(0)	2(22.2)	1(14.3)	3(12.5)
One	1(12.5)	3(33.3)	1(14.3)	5(20.8)
Two	3(37.5)	2(22.2)	3(42.9)	8(33.3)
Three	4(50.0)	2(22.2)	2(28.2)	8(33.3)

4.7.2 Perceptions of malaria and prevention methods

Focus Group Discussion participants were asked what causes malaria and how it is transmitted, in all the three facilities, most participants referred to mosquito bites for transmission and cited appropriate signs and symptoms, such as headache, fever, body weakness, and dehydration. More frequently, participants connected the presence of mosquitoes to unclean or dirty environment; a woman at the SHC said "when there are dirty gutters in our surroundings and there is water there, mosquitoes can breed inside or if the environment is not neat mosquitoes can also inhabit there and bite people". However, a few mentioned some causes that are untrue for malaria. For example, a woman at the PHC said "when a person is eating and houseflies' perches on the food, or one lives in a dirty environment, it can cause malaria."

In all the three facilities participants could name one or two proven malaria prevention methods such as use of LLINs, at both the tertiary and secondary facilities, participants cited insecticide spray. Other methods such as keeping the surrounding and food clean as well as avoiding exposure to sun were also mentioned. At the PHC, nutritious food, water and the use of Glucose D was said to prevent malaria.

A woman at the THC said "a pregnant woman should not be frequently exposed to mosquito bite, doors should be kept closed and insecticide should be sprayed in the house but this should not be too much so that it won't cause catarrh and cold" while at the PHC another said "ways to prevent malaria so that one will not be infected is by clean surroundings, if the surroundings are clean and there is no gutter or dirty toilets that mosquitoes can hide in, mosquito will not have chance to bite us and our food should be very clean"

At Adeoyo hospital (SHC) a woman said "nutritious food is also part of the methods that we can use to prevent malaria in pregnancy. And if a pregnant woman takes water very well it can prevent malaria and a pregnant woman should not walk or work in the sun so that she won't come down with malaria"

Another also said that "other method that I know that we can use to protect ourselves during pregnancy is by drinking Glucose D very well and all the time so that we will pass the malaria parasite out with urine by this the malaria will not be in the body with the foetus."

Preterm birth, giving birth to low birth weight baby and death were the consequences of malaria mentioned. At the THC a woman said "malaria in pregnancy causes weakness for the pregnant woman and then it can cause preterm birth or low birth weight baby if it is severe and it's not cured." And at the PHC a woman said "malaria is a bad disease that should not infect people because it destroys the blood cells very fast, and if it does the person might not survive it."

4.7.3 Knowledge about IPTp-SP.

Almost all the participant got to know about IPT at the antenatal clinic, to support this is the quote "We were told in the hospital for the first time" and another source of information about IPT was media, a woman in the PHC said "I have heard about it on the radio in a health talk program". Except at the THC, most respondents did not know the name of the recommended drug of choice for IPT, they could only describe it and they correctly identified SP as the drug of choice when shown different brands of antimalarial drugs. A woman said "I don't know the name but I have used it before", at the PHC -"they (*nurses)* will just tell us that it's a malaria drug, they will take it out of its pack; we don't know its name at all". Pregnant women in relaying what they were told by health workers said "When the pregnancy is five month, the pregnant woman can use the drug for the first time, after that time the two remaining dose will be taken for an interval of four weeks apart, but they (the nurses) said when the pregnancy is up to seven or eight month, the pregnant woman cannot take the drug again."

"I know that when the pregnancy is up to 6 months, that is when IPT is used and I also know that it is used in threes, I don't really understand it but I just know that it is used at the sixth month of pregnancy" said a woman at the THC.

4.7.4 Determinants of Non- use of IPTp

When asked why some pregnant women do not use the IPTp drug, reasons given include poor antenatal attendance, because they are not sick, being afraid to take drugs and because the drug causes weakness.At the THC a woman mentioned that "the drug has side effects, some people when they use the drug, it weakens them and so that is the reason why pregnant women don't use the drug. And it goes well with some other people". Another woman said: "Like me, I don't want to use it because am

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usually afraid of taking drugs". Other reasons why mentioned why pregnant women did not use IPTp are quoted below-

"Some people do say that "what kind of drug is this, when there is nothing wrong with me, am not using it".

"Any pregnant woman who didn't start antenatal clinic visits early may not use this drug at all or may use it and not complete it till she put to bed; this is just as if she didn't use it at all because if she doesn't complete it, it won't work"

"we will be happy if the government can extends this IPT program to delivery centres because like I use to interview my neighbours who are pregnant but uses mission centres if they use IPT in which most of them tell me they don't know anything about it whereas most pregnant women uses mission and they don't use this drug neither are drugs prescribed for them, which is dangerous"

"Like me, I don't like using it because when I use it, it will stay in my throat the drug won't go down quickly; the fear that the tablets are big is there"

One other vital reason why pregnant women don't use IPT especially at the SHC was failure of health care workers to offer the drug to some pregnant women, even though they booked at the clinic early enough to have taken it. A woman said "I don't think so; because my gestational age at booking was 4 months and they did not tell me anything about it neither did they ask me to use the drug." Another woman corroborated this and said "I also booked when my pregnancy was 4 month old and they (nurses) didn't tell me about the drug at all"

"The reason why I didn't use it was that when I came to register at the antenatal here, they did not tell me about it, they just asked me to go to laboratory for malaria test in which the result indicated that I don't have malaria at all"

Poor or irregular attendance was the major factor that prevents the use of the second dose after using the first. For example a woman in SHC said "I have not taken the drug again because when they told me to come for ANC I didn't come". Some pregnant women also believed that when there pregnancy is above seven to eight months they cannot use the drug again, a woman in SHC said that "Am above 7 and 8

months gestational age presently, so I can't use the IPT drug again according to the instructions the nurses gave us."

4.7.5 Implementation of Policy on IPTp-SP Use

Out of the three facilities, only Lautech Teaching Hospital Ogbomosho was mentioned as not administering the drug as DOT, when asked where they take the drug a woman answered "it is at home; even if you bought it in the hospital you take it home"

Respondents agreed that administration of the drug as DOT will help compliance. A woman at the PHC said that "We don't usually want to use it that is why the nurses administer the drug to us by themselves at the clinic. They will tell us to go and buy water and we should swallow the drug in their presence."

"it is very okay to take the drug in the hospital as DOT, most of the people when given drugs like that to take home they will go and throw it away and so they will not use it, later they will come back to the clinic with complaint"

Other factors identified by pregnant women to improve compliance were encouragement and enlightenment. A woman mentioned that "Health workers should enlighten us and let us know whether there is any negative effect as in side effect of taking the drug or not."

A woman at the THC said "The nurses should keep telling us, they should encourage us to use it. Some people when they use the drug they are supposed to take paracetamol with it so that it will not have any side effect and some people will use fansidar alone and will not use paracetamol with it. They should tell us and let us know that there won't be any problem if we use the drug."

Another woman said "What I know is that if one should attend the antenatal clinic regularly, the person will know about this drug and will use it appropriately because the nurses taking care of us use to stress it to us all the time."

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

The study compared the uptake of intermittent preventive treatment of malaria in pregnancy among pregnant women attending antenatal clinics at the three level of care in Oyo State and identifies factors that determine its non-use. The study assessed pregnant women's knowledge and perception on malaria in pregnancy and IPTp. Barriers to the administration of IPTp in the health facilities were also explored. The prevalence of use and non-use of IPTp was82.5% and 17.5% respectively, barriers to non-use of the drug include facility- based barriers such as; health care provide do not offer the drug to pregnant women and non- availability of the drug at the ANC. There are individual- based barrier like, being afraid of complications, late/poor attendance to ANC, forgetfulness and pregnant women who just don't want to use it. There are also drug-based barrier like the drug causing weakness. Key factors like poor knowledge about IPTp-SP and irregular attendance at ANC were found to be statistically significantly associated with non-use of IPTp-SP.

5.1.1 Use of IPTp-SP among pregnant women attending antenatal

This study shows 82.5% use intermittent preventive treatment of malaria in pregnancy (IPTp) while 17.5% did not. In other parts of the country prevalence of IPTp non-use has been found to be higher than the one reported in this study.Recently in south east Nigeria the rate of non-use was reported to be 27.9% (Onyebuchi et al., 2014), but in cross river state a slightly lower rate (13.7%) was reported (Esu et al., 2013). This suggests a disparity in the uptake of IPT of malaria in pregnancy across the country. Previous studies in Nigeria have reported higher prevalence of non-use of IPTp among antenatal attendees, as high as 81.6% and 72.7% non-use rate has been reported in Ibadan and Ekiti south- west Nigeria respectively (Tongo et al., 2009; Akinleye et al., 2009). The high disparity between these 2009 studies and the present study may be due to policy implementation considering the wide difference in the year of study; this suggests that IPTp policy may have been well implemented in between the years. In other sub-Saharan African countries, prevalence of non-use

varies from as low as 5% in Senegal (Olliaro, Delenne, Cisse, Badiane, Olliaro, Vaillant and Brasseur, 2008), 6.5% in Burkina Faso (Sirima, Cotte, Konate, Moran, Asamao, Bougouma, Ouedraogo, Parise and Newman, 2006), 15.9% in Gabon (Bouyou-Akotet et al., 2013) to as high as 39% in Juba (Napoleon etal. 2009) and 21-27.9% in Tanzania (Gross et al., 2011; Exavery et al., 2014). This study however, finds out that out of the 82.5% who took IPTp, 74% correctly took SP in index pregnancy, the recommended drug of choice for IPTp, ACT and Chloroquine are the other drugs used as chemoprophylaxis during pregnancy. This finding shows that ACT and Chloroquine, contrary to the recommended drug of choice for IPTp which is SP, are stillbeing used as chemoprophylaxis to prevent malaria among pregnant women, this corroborates previous findings (Arulogun and Okereke, 2012).Non- use rate was higher among the THC attendees followed by PHC attendees and it was least among the SHC antenatal attendees, this could be because IPTp-SP was only prescribed at the THC, the drug was not used as DOT unlike the other two facilities that practised DOT. However, this finding contradicts Tongo's (2009) study that compared uptake among the tertiary and secondary antenatal attendees and found non-use rate to be higher among the secondary than the tertiary antenatal attendees.

Barriers to use of IPTp-SP can be classified as facility based, individual based, and drug based. Among women in this study, the predominant barrier predicting non- use of a preventive dose of SP during pregnancy was that they were not offered IPTp during an ANC visit, the FGD revealed that even women who attended ANC early enough in their pregnancy and were qualified to take the drug missed out because it was not offered. This finding concurs with earlier studies (Anders, Marchant, Chambo, Mapunda and Reyburn, 2008; Sangare et al., 2010), but it is however unclear why healthcare workers offered IPTp-SP to some women and failed to offer to others. Previous studies indicates that even healthcare providers doubt the safety of many antimalarial drug including SP during pregnancy (Mubyazi and Bloch, 2014; Ribera, Hausmann-muela, D'Alessandro and Grietens, 2007) and this could be a reason why the drug is not being offered to pregnant women. Furthermore, confusion among health care workers regarding the timing of doses and/or the number of doses has been reported in several studies, and may also be the underlying reason a dose of SP was not offered during a qualifying visit (Brentlinger et al., 2007;Mubyazi et al., 2008; Ouma, van Eijk, Hamel, Sikuku and Odhiambo, 2007). Only about a tenth

reported non-availability of the drug at the ANC as a barrier and this is similar to 5.6% reported in Uganda (Sangare et al., 2010). The individual based factors for non-use of IPTp-SP in this study include late or poor attendance at ANC, forgetfulness, and pregnant women that don't just want to use the drug. These identified factors are similar to previous studies findings. (Onyebuchi et al., 2014; Akinleye et al., 2009; Vanga-Bosson et al., 2011; van Eijk et al., 2011; Wilson, 2011). The interview as well as the FGD found that pregnant women complained of the drug causing weakness and this poses a barrier to use of the drug.Earlier studies also shows that Women who had had personal experience of the side effects of SP were also deterred from taking IPTp-SP (Smith et al., 2010; Donkor et al., 2011; Mutagonda et al., 2012) and this finding is consistent with the view of some respondents in this study.

5.1.2 Knowledge and perception of pregnant women on malaria and IPTp-SP.

The results of this study show that a higher proportion of women who attend the tertiary facility have good knowledge of causes, burden and consequences of malaria than women who attend primary and secondary facilities. This might be due to their higher educational status as majority of the women attending tertiary facility attained tertiary level of education. In contrast to this, higher proportions of mothers who had ANC at tertiary health facility had poorer knowledge of the prevention strategies (IPTp-SP) compared with secondary and primary facility. A similar finding has been reported in a comparative study between THC and SHC in Ibadan (Tongo et al., 2009). This poor knowledge about IPTp-SP might explain why THC antenatal care attendees also have the poorest perception of the drug compared with others. This may possibly be associated with poorer quality and content of health education and promotion activities at the tertiary health facility (Tongo et al., 2009). There is therefore a need for improvement of implementation process of health education and promotion intervention at all levels of health care in Nigeria in order to achieve optimum health

Overall, majority of the parturients had poor knowledge about malaria and IPTp-SP, likewise more than half had poor perception of IPTp-SP a result similar to findings in previous studies in Nigeria (Akinleye et al., 2009; Tongo et al., 2009) as well as in other African countries (Nganda et al., 2004; Gross et al., 2011). These findings

emphasize the need to raise awareness and increase knowledge about IPTp particularly among pregnant women and those of childbearing age.

5.1.3 Barriers in the Adherence to Directly Observed Therapy

In this study out of those who took IPTp, 42.7% did not take it as DOT contrary to the guidelines for IPT administration.The major reason being that they were not required to do so, this is a barrier on the part of the healthcare workers and may be as a result of staff patient overload (Onyebuchi et al., 2014). Another barrier to administration of DOT is non-availability of the drug at the ANC due to periodic stock- out or in situations where pregnant women have to buy the drug elsewhere such as in the case of the THC facility. DOT was also not practised due to lack of potable water and health care providers had to ask some pregnant women to take the drug at home. The findings of the quantitative interview corroborate those of the focus group discussion and similar reports of poor experience of DOT elsewhere (Akinleye et al., 2009; Onoka, 2012). This study found from the FGD that pregnant women don't usually want to take the drug, but taking it as DOT ensures compliance, therefore administration of SP as DOT in accordance with the IPTp guideline is very important in order to achieve optimal uptake. The new WHO guideline for IPT, revised in January, 2014 now stipulates that SP can be given on empty stomach or with food, making administration of DOT feasible. Health workers therefore, need to be trained and re-trained in order to achieve proper administration of IPTp.

5.1.4 Factors associated with non-use of IPTp-SP

This study found that not keeping ANC attendance is statistically significantly associated with non-use of IPTp. This is in line with studies in Nigeria as well as other African countries(Akinleye et al., 2009; Tongo et al., 2009; Vanga-Bosson, 2011; van Eijket al., 2011). Commitments to family, employment, and childcare were barriers to ANC attendance earlier in pregnancy, resulting in women receiving no or incomplete doses of IPTp (Mutagonda et al., 2012). Women often delayed going to an ANC until the pregnancy was advanced (Diala et al.,2012) because their husbands did not give them money for transport (Mbonye, Neema and Magnussen, 2006),

presenting a shorter window of opportunity to receive two doses of IPTp. In Nigeria, women reported needing their husbands' support or consent before attending an ANC or before taking any drugs (Iliyasu, Gadija, Galadanci, Abubakar, and Baba, 2012; Diala et al., 2012), thus underscoring the role of men in adherence to health interventions by their spouse (Onoka et al, 2012)

Similarly as in other studies (Akinleye et al., 2009; Tongo et al., 2009) this study also found knowledge on IPTp-SP to be associated with its uptake. Those who have good knowledge about IPTp-SP are more likely to use the preventive dose of SP during pregnancy but this contradicts a study in Uganda (Sangare et al., 2010) which found that compliance was common among women who are less knowledgeable about the safety of SP in pregnancy. Many of the barriers to receipt of IPTp reported by women related to their lack of knowledge about IPTp. For example, women were unaware of the benefits of IPTp (Gross et al., 2011; Onoka et al., 2012) or the preventive value of SP (Mbonye et a., 12006), why SP was being given (Diala et al., 2012), and the number of doses, timing, and dose of SP required (Illiyasu et al.,2012; Diala et al., 2012; Mubyzi et al.,2005). There was also confusion over what drugs were safe to take during pregnancy (Illiyasu et al.,2012), leading some women to reject all medication or to fear the perceived side effects of SP (Illiyasu et al., 2012,Mubyzi et al.,2005).

5.1.5 Limitations

One limitation of this study is that it recruited primarily from among women who were already accessing services, and so does not adequately capture barriers for women who may not be attending ANC. However, the primary interest of the study was to learn more about the MIP care that women receive, which can be best accomplished by speaking to women who are already accessing care. The issues preventing women from accessing ANC may be very different from those preventing ANC patients from receiving IPTp

Due to self- reporting and social desirable response bias, women who know IPTp is desirable and recommended may be relatively more likely to falsely report taking SP for prevention when they did not. Additionally, we did not have information on

medical contraindications to SP, such as history of sulfa drug allergies, or daily use of cotrimoxazole for the prevention of HIV-associated infections. Furthermore, suspected malaria in this area is treated presumptively; despite information which suggests relatively few cases which present with malaria-like symptoms actually have clinical malaria. If a large proportion of the women misclassified their reason for using SP, then our measure of IPTp could be biased in either direction.

Recall bias could also be a limitation as some may not remember or may not be clear about the drug being referred to. However, the use of visual aids during interviews was to reduce recall bias. The visual aids included samples of most common formulations of SP available in the area.

5.2 Conclusion

Although the prevalence of non-use of intermittent preventive treatment of malaria in pregnancy is lower than that reported in NDHS,2013 suggesting improvement in policy implementation, Oyo state is yet to meet up with the roll back malaria target of 0% non-use among antenatal clinic attendees. This implies that even among those exposed to antenatal care during pregnancy 17.5% are still at risk of malaria in pregnancy and its negative outcomes.

The major reason for non- use of IPTp-SP was because it was not prescribed/ offered. Health care providers still miss opportunities of giving a dose of SP for the prevention of malaria among pregnant women that attends antennal clinics. Provider attitude to and practices in the delivery of preventive measures against malaria must change in order to achieve the much desired elimination of malaria in this area. The very grave consequences of malaria among pregnant women and the associated adverse neonatal outcomes demands more pragmatic ways of improving access to, and acceptability of, malaria preventive measures in this area.

Facilities where IPTp-SP wasadministered as DOT have higher uptake rate than facility where DOT is not observed. Barrier to the administration of SP as DOT need to be eliminated at all the facilities to improve uptake.

Determinants of IPTp-SP use among pregnant women attending ANC include knowledge, perception as well as regular attendance to the clinic. Improving the

knowledge and perception of pregnant women about the safety and efficacy of SP in pregnancy will increase uptake.

5.3 Recommendations.

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

1. Health care providers should give health talks to pregnant women and enlighten them about IPTp-SP, its uses, timing, drug of choice as well as safety and efficacy. This will improve pregnant women's knowledge and perception to IPTp-SP.
2. Pregnant women should be encouraged to keep ANC appointments religiously. Also, practices that will encourage ANC regular attendance, such as focus antenatal care (FANC) should be put in place to ensure that pregnant women attend and regularly.
3. Administration of IPTp-SP increases uptake therefore, it should be ensured that the recommended drug of choice is given as DOT at all ANC facilities. Evaluation of health care provider's practices regarding administration of IPTp is needed to measure the extent of the problem and develop targeted interventions at improving access to IPTp-SP during ANC visits.

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APPENDIXI

INTERMITTENT PREVENTIVE THERAPY (IPT) USE AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINICS IN OYO STATE.

Dear Respondents,

My name is OLADOJA Oluwadamilola. I am currently a post graduate student of the department of Epidemiology and Medical Statistics, Faculty of Public Health, University of Ibadan. I am undertaking a study to investigate the 'determinants of non-use of intermittent preventive treatment (iptp-sp) among pregnant women attending antenatal care at three levels of care in Oyo state'. This is a health survey questionnaire and information provided will be used for the research purpose only. All information would be treated confidentially. Participation is voluntary and refusal to participate will not in any way affect the quality of care that will be provided. Please indicate your interest to participate by signing below.

Please kindly ensure that you answer all questions truthfully.

Thanks for your cooperation.

Respondent's signature/ thumbprint: ..... Date: .....

ANC Clinic: ..... Serial no: .....

For Official Use Only (Please do not Fill)

Health Facility: Primary [ ] Secondary [ ] Tertiary [ ]

SECTION A: Socio-demographic characteristics

1. Age .....

2. Ethnic group (a) Yoruba (b) Ibo (c) Hausa

(d) Others (Please Specify)

3. Level of Education. (a) Didn't go to school (b) Primary only (c) Secondary only (d) Higher Institution (e) others (please specify).....

4. Religion (a) Christianity (b) Islam (c) Traditional (d) Others (Please Specify).....

5. Marital Status (a) Single (b) Married (c) Divorced (d) Separated (e) Widowed

6. Occupation? (a) House wife (b) Skilled/ Professional (c) Semi-skilled/Artisan/Trader (d) Unskilled (e) Studying (f) others (please specify).....

7. How much do you earn per month? (a) ₦20,000 (b) ₦20,000-₦40,000 (c) ₦41,000-₦60,00 (d) ₦61,000- ₦100,000 (e) ₦101,000-₦200,000 (f) >₦200,000

8. Type of family? (a) Monogamous (b) polygamous.

SECTION B: Obstetric History and Accessibility to ANC

9. What is the gestational age of your current pregnancy? *(In weeks)*.....

10. How many deliveries have you ever had? .....

11. How many pregnancies have you ever had? .....

12. Distance from your house to the ANC clinic? (a) < 2km (b) 2km- 5km (c) 5km- 10km (d) >10km

13. Cost of transportation to and from ANC Clinic? (a) ₦100 (b) ₦100- 200 (c) ₦200

SECTION C: Knowledge and Awareness of pregnant women towards Malaria in pregnancy and Intermittent Preventive Therapy (IPT). *(Please tick as appropriate)*

14. How is malaria transmitted? (a) Mosquito bites (b) house flies (c) termites (d) cockroaches (e) Don't know

15. The following encourages malaria transmission?

(i) Sleeping under insecticide treated net (a) Yes (b) No (c) Don't know

(ii) Stagnant water around the house (a) Yes (b) No (c) Don't know

(iii) Walking in the sun (a) Yes (b) No (c) Don't know

(iv) Ill ventilated and Ill-lighted houses (a) Yes (b) No (c) Don't know

16. Malaria affects all age groups? (a) Yes (b) No (c) Don't know

17. Do pregnant women have malaria? (a) Yes (b) No (c) Don't know

18. Effects of malaria in pregnancy include

(i) Mother's low blood (Anaemia) (a) Yes (b) No (c) Don't know

(ii) Still birth (a) Yes (b) No (c) Don't know

(iii) Mother's death (a) Yes (b) No (c) Don't know

(iv) Low birth weight of baby (a) Yes (b) No (c) Don't know

(v) Abortion (a) Yes (b) No (c) Don't know

19. Have you heard about drugs used to prevent malaria during pregnancy (IPT)?

(a) Yes (b) No

20. If yes to question 19, from where did you hear about these drugs? (a) Friends (b) Husband (c) Radio or Television (d) Hospital posters (e) Antenatal Clinic (f) others, please specify.....

21. What Drug is recommended to keep you from getting malaria during pregnancy?

(i) Chloroquine (a) Yes (b) No (c) Don't know

(ii) Fansidar (a) Yes (b) No (c) Don't know

(iii) Phensic (a) Yes (b) No (c) Don't know

(iv) Amalar (a) Yes (b) No (c) Don't know

15. The following encourages malaria transmission?

(i) Sleeping under insecticide treated net (a) Yes (b) No (c) Don't know

(ii) Stagnant water around the house (a) Yes (b) No (c) Don't know

(iii) Walking in the sun (a) Yes (b) No (c) Don't know

(iv) Ill ventilated and Ill-lighted houses (a) Yes (b) No (c) Don't know

16. Malaria affects all age groups? (a) Yes (b) No (c) Don't know

17. Do pregnant women have malaria? (a) Yes (b) No (c) Don't know

18. Effects of malaria in pregnancy include

(i) Mother's low blood (Anaemia) (a) Yes (b) No (c) Don't know

(ii) Still birth (a) Yes (b) No (c) Don't know

(iii) Mother's death (a) Yes (b) No (c) Don't know

(iv) Low birth weight of baby (a) Yes (b) No (c) Don't know

(v) Abortion (a) Yes (b) No (c) Don't know

19. Have you heard about drugs used to prevent malaria during pregnancy (IPT)?

(a) Yes (b) No

20. If yes to question 19, from where did you hear about these drugs? (a) Friends (b) Husband (c) Radio or Television (d) Hospital posters (e) Antenatal Clinic (f) others, please specify.....

21. What Drug is recommended to keep you from getting malaria during pregnancy?

(i) Chloroquine (a) Yes (b) No (c) Don't know

(ii) Fansidar (a) Yes (b) No (c) Don't know

(iii) Phensic (a) Yes (b) No (c) Don't know

(iv) Amalar (a) Yes (b) No (c) Don't know

15. The following encourages malaria transmission?

(i) Sleeping under insecticide treated net (a) Yes (b) No (c) Don't know

(ii) Stagnant water around the house (a) Yes (b) No (c) Don't know

(iii) Walking in the sun (a) Yes (b) No (c) Don't know

(iv) Ill ventilated and Ill-lighted houses (a) Yes (b) No (c) Don't know

16. Malaria affects all age groups? (a) Yes (b) No (c) Don't know

17. Do pregnant women have malaria? (a) Yes (b) No (c) Don't know

18. Effects of malaria in pregnancy include

(i) Mother's low blood (Anaemia) (a) Yes (b) No (c) Don't know

(ii) Still birth (a) Yes (b) No (c) Don't know

(iii) Mother's death (a) Yes (b) No (c) Don't know

(iv) Low birth weight of baby (a) Yes (b) No (c) Don't know

(v) Abortion (a) Yes (b) No (c) Don't know

19. Have you heard about drugs used to prevent malaria during pregnancy (IPT)?

(a) Yes (b) No

20. If yes to question 19, from where did you hear about these drugs? (a) Friends (b) Husband (c) Radio or Television (d) Hospital posters (e) Antenatal Clinic (f) others, please specify.....

21. What Drug is recommended to keep you from getting malaria during pregnancy?

(i) Chloroquine (a) Yes (b) No (c) Don't know

(ii) Fansidar (a) Yes (b) No (c) Don't know

(iii) Phensic (a) Yes (b) No (c) Don't know

(iv) Amalar (a) Yes (b) No (c) Don't know

(v) Maloxine (a) Yes (b) No (c) Don't know

(vi) Coartem (a) Yes (b) No (c) Don't know

(vii) Lunartem (a) Yes (b) No (c) Don't know

22. A dose of the antimalarial drug for IPT contains how many tablets?

(a) 1 tablet (b) 2 tablets (c) 3 tablets (d) 4 tablets (e) 5 tablets (f) I don't know

23. When can you use the antimalarial drug that keeps you from getting malaria during pregnancy (IPT)?

(i) 1st- 3rd months (a) Yes (b) No (c) Don't know

(ii) 4th- 6th months (a) Yes (b) No (c) Don't know

(iii) 7nd -9th month (a) Yes (b) No (c) Don't know

SECTION D: Antenatal use by pregnant women

24. Is this your first time of coming to ANC Clinic during this current pregnancy?
(a) Yes (b) No

25. How old was your pregnancy when you started ANC? (a) 1-3 months (b) 4-6 months (c) 7-9 months.

26. How many ANC visits have you had? .....

27. Do you always keep your appointments? (a) Yes (b) No

28. If No to question 27, why? (a) Distance to ANC clinic (b) Transportation fare (c) Work (d) others (please specify).....

SECTION E: Perception of pregnant women to Intermittent Preventive Therapy (IPT)

29.*(Please tick as appropriate)*

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
i	It is necessary to take antimalarial drugs for the prevention of malaria during pregnancy					
ii	The antimalarial drug given at the ANC (IPTp-SP) is truly effective for the prevention of malaria in pregnancy					
ii i	The antimalarial drug given at the ANC for the prevention of malaria is safe for the pregnant woman					
iv	The antimalarial drug given at the ANC for the prevention of is safe for the unborn baby					
v	The antimalarial drug given at the ANC for the prevention of malaria could cause complications for the pregnant women					

SECTION F: Use of Intermittent Preventive Therapy (IPT) in the index pregnancy

30. Since you have been coming to this ANC has IPT drug ever been prescribed or given to you? (a) Yes (b) No (c) Don't know

31. During this your current pregnancy, were you given or did you buy any drug to keep you from getting malaria? (a) Yes (b) No (c) Don't know

32. The drug to keep you from getting malaria was (a) Prescribed but not given (b) prescribed and given in the clinic (c) prescribed and sold

SECTION E: Perception of pregnant women to Intermittent Preventive Therapy (IPT)

29.*(Please tick as appropriate)*

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
i	It is necessary to take antimalarial drugs for the prevention of malaria during pregnancy					
ii	The antimalarial drug given at the ANC (IPTp-SP) is truly effective for the prevention of malaria in pregnancy					
ii i	The antimalarial drug given at the ANC for the prevention of malaria is safe for the pregnant woman					
iv	The antimalarial drug given at the ANC for the prevention of is safe for the unborn baby					
v	The antimalarial drug given at the ANC for the prevention of malaria could cause complications for the pregnant women					

SECTION F: Use of Intermittent Preventive Therapy (IPT) in the index pregnancy

30. Since you have been coming to this ANC has IPT drug ever been prescribed or given to you? (a) Yes (b) No (c) Don't know

31. During this your current pregnancy, were you given or did you buy any drug to keep you from getting malaria? (a) Yes (b) No (c) Don't know

32. The drug to keep you from getting malaria was (a) Prescribed but not given (b) prescribed and given in the clinic (c) prescribed and sold

(d) Not prescribed at all.

33. Did you use the drug (a) Yes (b) No

34. What drug did you take? (a) Coartem/ Lunatem /ACT

(b) Fansidar / Maloxine/ Amalar/SP (c) Chloroquine

(d) I don't know (e) Others (please specify).....

(If type of drug is not determined show typical antimalarial drug to respondent)

35. If no to question 33, what is the reason for non-use of the drug?

(a) Afraid of complication in pregnancy (b) The drug was not available at the ANC

(c) Cost of the drug (d) The drug could cause weakness

(e) Forgetfulness (f) Late/poor attendance to ANC

(g) Just don't want to use (h) It was not offered/prescribed

(i) I don't know the importance of the drug (j) Others (please specify).....

.....

.....

.....

.....

.....

36. What do you do when the antimalarial drugs are not available at the health facility? (a) I buy at the medical store/pharmacy (b) I go to another health facility (c) I don't do anything (e) other options, (please specify).....

If Yes to Questions 33 please answer questions 37-42 (Otherwise thank you very much for your time; you may return the questionnaire),

37. How many tablets of the drug did you receive? (a) 1 tablet (b) 2 tablets (c) 3 tablet (d) 4 tablets (e) 5 tablets

38. How many did you use? (a) 1 tablet (b) 2 tablets (c) 3 tablet (d) 4 tablets (e) 5 tablets

39. How much did you pay for the drug if it was sold to you? .....

40. Did you swallow the drug in front of a health care provider? (a) Yes (b) No

41. If No, where did you use it? (a) Home (b) In the Clinic (c) Outside the clinic

42. What was the reason of not swallowing the drug in front of health care provider?

(a) I was not required to do so (b) Lack of clean water (c) I was told to have my meal first (d) The drug was not available (e) Health care provider says I should take it home (f) Other, (please specify).....

Thank you for your time

APPENDIXII

LILO OOGUN LATI DENA AISAN IBA NINU OYUN LAARIN AWON ALABOYUN TO O N LO FUN ITOJU ATI AYEWO OYUN NI ILE IWOSAN NI IPINLE OYO.

Si Olukopa,

Oruko mi ni OLADOJA Oluwadamilola. Lowolowo, mo je akeko eka ti on ri si ilera awujo ti ile iwe giga Fasiti Ibadan. Mo n se iwadi lori awon ohun ti o n fa ailo oogun idena aisan iba ninu oyun larin awon alaboyun ti on lo fun itoju ati ayewo oyun ni ilewosan ni ipinle Oyo. Eleyi ni akojopo ibeere fun iforowanilenuwo, gbogbo ohun ti e ba so yio wa fun lilo iwadi yi nikan. Gbogbo idahun yin ko ni lu sita rara. Gbigba lati kopa je ipinu re, ai kopa ninu eto yi ko ni paki di'na itoju re. jowo fowo si iwe yi ti o ba nifesi lati kopa.

Ejowo e dahun awon ibeere wonyi pelu Otito inu ati Ododo.

Eseun pupo fun ifowosowopo.

Ifowosiwe Olukopa/ Tite ika: ..... Ojo: .....

Ile iwosan itoju oyun: .....Nomba: .....

ABALA A: (Iwa ati ise isedale olu kuluku)

1. Omo Odun melo ni o? .....
2. Eya re . (a) Yoruba (b) Ibo (c) Hausa (d) Eya miran (jowo s'alaye).....
3. Iye iwe kika (a) Mi o lo ile iwe rara (b) Ilewe alakobere nikan (c) Ilewe girama nikan (d) Ile eko giga agba (e) Omiran (jowo s'alaye).....
4. Esin (a) Kristiani (b) Musulumi (c) Elesin abalaye (d) Omiran (jowo s'alaye)
5. Ipo re ninu eto igbeyawo (a) Mi o ti fe oko (b) mo ni oko (c) Emi ati oko mi ti ko ara wa sile (d) Emi ati oko mi ko gbe papo. (e) Opo
6. Ise ti o n se? (a) Iyawo Ile (b) Onise adani (c) Osise labe elomiran

APPENDIXII

LILO OOGUN LATI DENA AISAN IBA NINU OYUN LAARIN AWON ALABOYUN TO O N LO FUN ITOJU ATI AYEWO OYUN NI ILE IWOSAN NI IPINLE OYO.

Si Olukopa,

Oruko mi ni OLADOJA Oluwadamilola. Lowolowo, mo je akeko eka ti on ri si ilera awujo ti ile iwe giga Fasiti Ibadan. Mo n se iwadi lori awon ohun ti o n fa ailo oogun idena aisan iba ninu oyun larin awon alaboyun ti on lo fun itoju ati ayewo oyun ni ilewosan ni ipinle Oyo. Eleyi ni akojopo ibeere fun iforowanilenuwo, gbogbo ohun ti e ba so yio wa fun lilo iwadi yi nikan. Gbogbo idahun yin ko ni lu sita rara. Gbigba lati kopa je ipinu re, ai kopa ninu eto yi ko ni paki di'na itoju re. jowo fowo si iwe yi ti o ba nifesi lati kopa.

Ejowo e dahun awon ibeere wonyi pelu Otito inu ati Ododo.

Eseun pupo fun ifowosowopo.

Ifowosiwe Olukopa/ Tite ika: .....Ojo: .....

Ile iwosan itoju oyun: .....Nomba: .....

ABALA A: (Iwa ati ise isedale olu kuluku)

1. Omo Odun melo ni o? .....
2. Eya re . (a) Yoruba (b) Ibo (c) Hausa (d) Eya miran (jowo s'alaye).....
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   (c) Ilewe girama nikan (d) Ile eko giga agba (e) Omiran (jowo s'alaye).....
4. Esin (a) Kristiani (b) Musulumi (c) Elesin abalaye
   (d) Omiran (jowo s'alaye)
5. Ipo re ninu eto igbeyawo (a) Mi o ti fe oko (b) mo ni oko
   (c) Emi ati oko mi ti ko ara wa sile (d) Emi ati oko mi ko gbe papo.
   (e) Opo
6. Ise ti o n se? (a) Iyawo Ile (b) Onise adani (c) Osise labe elomiran

(d) Akeko (e) Omiran (jowo s'alaye).....

7. Elo lon ri ni idi ise re losu? ? (a) ₦20,000 (b) ₦20,000-₦40,000
(c) ₦41,000-₦60,00 (d) ₦61,000- ₦100,000 (e) ₦101,000-₦200,000
(f)>₦200,000

8. Irufe Idile wo ni o ni? (a) Ile Oni iyawo kan (b) Ile oni iyawo pupo.

ABALAB (Alaye nipa Oyun re ati Anfani si itoju ninu oyun)

9. Osu melo ni oyun re bayi? .....

10. Omo melo lo ti bi tele? .....

11. Oyun melo lo ti ni ri? .....

12. Bawo ni ibugbe re se jina to si ile iwosan ti o tin gba itoju oyun re?

(a) < 2km (b) 2km- 5km (c) 5km- 10km (d) >10km

13. Elo ni owo oko alo ati abo re lati ile re si ile itoju re?

(a) ₦100 (b) ₦100- 200 (c) ₦200

ABALA D (Imo ati isesi alaboyun si aisan iba ninu oyun ati ogun lilo lati dena aisan iba ninu oyun IPT)

14. Bawo ni aisan iba se n de ara eniyan (a)Lati ara ki Efon je eniyan

(b) Esinsin (c) Ikan (d) Aayan (e) Mi o mo

15. Nje awon nnkan wonyin ran kiko aisan iba lowo?

(a) Sisun si abe aapo efon Oloogun 1. Beeni 2. beeko 3. Mi o mo

(b) Adagun omi layika ile 1. Beeni 2. Beeko 3. Mi o mo

(c) Ki a ma rin ninu Orun 1. Beeni 2. Beeko 3. Mi o mo

(d) Ile ti ategun ati imole ko wole dada 1. Beeni 2. Beeko 3. Mi o mo

16. Nje gbogbo tomode tagba ni aisan iba le se? 1. Beeni 2. Beeko 3. Mi o mo

17. Nje awon alaboyun le ni aisan iba? 1. Beeni 2. Beeko 3. Mi o mo

18. Ayorisi aisan iba lara alaboyun ma n fa

(i) Aito eje lara alaboyun/ iya omo 1. Beeni 2. Beeko 3. Mi o mo

(ii) Bibi oku omo 1. Beeni 2. Beeko 3. Mi o mo

(d) Akeko (e) Omiran (jowo s'alaye).....

7. Elo lon ri ni idi ise re losu? ? (a) ₦20,000 (b) ₦20,000-₦40,000
(c) ₦41,000-₦60,00 (d) ₦61,000- ₦100,000 (e) ₦101,000-₦200,000

(f)>₦200,000

8. Irufe Idile wo ni o ni? (a) Ile Oni iyawo kan (b) Ile oni iyawo pupo.

ABALAB (Alaye nipa Oyun re ati Anfani si itoju ninu oyun)

9. Osu melo ni oyun re bayi? .....

10. Omo melo lo ti bi tele? .....

11. Oyun melo lo ti ni ri? .....

12. Bawo ni ibugbe re se jina to si ile iwosan ti o tin gba itoju oyun re?

(a) < 2km (b) 2km- 5km (c) 5km- 10km (d) >10km

13. Elo ni owo oko alo ati abo re lati ile re si ile itoju re?

(a) ₦100 (b) ₦100- 200 (c) ₦200

ABALA D (Imo ati isesi alaboyun si aisan iba ninu oyun ati ogun lilo lati dena aisan iba ninu oyun IPT)

14. Bawo ni aisan iba se n de ara eniyan (a)Lati ara ki Efon je eniyan

(b) Esinsin (c) Ikan (d) Aayan (e) Mi o mo

15. Nje awon nnkan wonyin ran kiko aisan iba lowo?

(a) Sisun si abe aapo efon Oloogun 1. Beeni 2. beeko 3. Mi o mo

(b) Adagun omi layika ile 1. Beeni 2. Beeko 3. Mi o mo

(c) Ki a ma rin ninu Orun 1. Beeni 2. Beeko 3. Mi o mo

(d) Ile ti ategun ati imole ko wole dada 1. Beeni 2. Beeko 3. Mi o mo

16. Nje gbogbo tomode tagba ni aisan iba le se? 1. Beeni 2. Beeko 3. Mi o mo

17. Nje awon alaboyun le ni aisan iba? 1. Beeni 2. Beeko 3. Mi o mo

18. Ayorisi aisan iba lara alaboyun ma n fa

(i) Aito eje lara alaboyun/ iya omo 1. Beeni 2. Beeko 3. Mi o mo

(ii) Bibi oku omo 1. Beeni 2. Beeko 3. Mi o mo

(iii) Iku alaboyun 1. Beeni 2. Beeko 3. Mi o mo

(iv) Omo ti iwon re kere nigba ti a bi 1. Beeni 2. Beeko 3. Mi o mo

(v) Oyun bibaje lara obirin 1. Beeni 2. Beeko 3. Mi o mo

19. Nje o ti gbo nipa ogun lilo ninu oyun fun idena iba (IPT)? 1. Beeni 2. Beeko

20. Nibo ni o ti gbo nipa oogun lilo fun idena iba ninu oyun? Lati odo

(a) Ore (b) Oko (c) Ero mohunmaworan tabi ero asoromagbesi

(d) Iwe atejade ni ile iwosan (e) Ilewosan itoju oyu (f) Ibomiran, jowo s'alaye.....

21. Iru oogu wo ni a le lo fun idena iba ninu oyun ?

(i) Chloroquine 1. Beeni 2. Beeko 3. Mi o mo

(ii) Fansidar 1. Beeni 2. Beeko 3. Mi o mo

(iii) Phensic 1. Beeni 2. Beeko 3. Mi o mo

(iv) Amalar 1. Beeni 2. Beeko 3. Mi o mo

(v) Maloxine 1. Beeni 2. Beeko 3. Mi o mo

(vi) Coartem 1. Beeni 2. Beeko 3. Mi o mo

(vii) Lunartem 1. Beeni 2. Beeko 3. Mi o mo

22. Tabuleti oogun idena iba ninu oyun melo la le lo lekan soso?

1. Tabuleti kan 2. Tabuleti meji 3. Tabuleti meta 4.Tabuleti merin 5. Tabuleti marun

23. Igba won i alaboyun le lo oogun idena iba ninu oyun?

(i) Osu kini si eketa 1. Beeni 2. Beeko 3. Mi o mo

(ii) Osu kerin si ekefs 1. Beeni 2. Beeko 3. Mi o mo

(iii) Osu keje si ikesan 1. Beeni 2. Beeko 3. Mi o mo

ABALA E (Ilo ile iwosan alaboyun)

24. Se igbayi ni igba akoko ti o was i ile itoju alaboyun ninu oyun

1. Beeni 2. Beeko

25. Osu melon i oyun re nigba ti o wa bere? (a) Osu kini si iketa

(b) Osu kerin si ikefa (c) Osu keje si Ikesan

26 Emelo ni o ti wa.....

27. Se o ma n wa ni gbogbo igba ti won ba da fun o pe ki o wa?

1. Beeni 2. Beeko

28. Ti o ba je beeko, kini idi re? (a) Ona Ilewosan jin (b) Owo oko si Ilewosan (c) Ise re

SECTION E: Erogba awon alaboyun si Ogun lilo lati dena aisan iba ninu oyun (IPT)

29.*(jowo se itoka)*

		Mo fara mo gidigidi	Mo fara mo	Mi o ni ipinu	Mi o fara mo	Mi o fara mo rara
i	O se pataki lati lo oogun fun idena iba ninu oyun					
ii	Ogun fun idena aisan iba ti won ma n fun alaboyun ni ile iwosan itoju oyun ma n sise					
iii	Ogun fun idena aisan iba ti won ma n fun alaboyun ni ile iwosan itoju oyun ko le fa ewu fun alaboyun					
iv	Ogun fun idena aisan iba ti won ma n fun alaboyun ni ile iwosan itoju oyun ko le fa ewu fun omo inu					
v	Ogun fun idena aisan iba ti won ma n fun alaboyun ni ile iwosan itoju oyun le fa wahala fun alaboyun					

ABALA E (Lilo Ogun idena iba ninu oyun)

30. Lati igba ti o tin wa sile itoju alaboyun yi, se o ti gba oogun idena iba ninu oyun ? 1. Beeni 2. Beeko 3. Mi o mo.

31. Ninu oyun ti oni lowolowo, nje o ti gba tabi ra oogun idena iba ninu oyun ?
1. Beeni 2. Beeko 3. Mi o mo.

32. Ogun lati dena aisan iba niun oyun je eyi ti (a) won ko sugbon won ko fun o(b)won ko, won si fun o ni ile iwosan (c) won ko, won si taa fun o

(d)won ko ko fun o rara.

33. Nje o lo ogun na

1. Beeni 2. Beek

34. Irufe ogun wo ni o lo? (a) Coartem/ Lunatem /ACT (b) Fansidar / Maloxine/ Amalar /SP (c) Chloroquine (d) Mi o mo (e) Omiran(jowo sálaye)..... *(Fi iru ogun han Olukopa)*

35. Ti o ba je beeko fun ibeere 33, kini idi re ti o ko fi lo?

(a) Iberu ewu ti o le jejade

(b) Ogun na ko sin i ilewosa itoju oyun

(c) Owo ogun na

(d) Ogun na le fa ki o ma re eniyan

(e) Mo gbabge

(f) Ogun na ko wulo

(g) Mi o kan fe lo ogun na

(h) Mi o nife si ogun na

(i) Mi o mo pataki ogun na

(j) Omiran (jowo sálaye).....

.....

.....

.....

.....

.....

.....

.....

36. Ki ni o ma n se ti ogun ti a fin dena aisan iba ninu oyun ko bas i ni ile iwosan? (a) Ma ra ni ile itaja ogun (b) Ma lo si ile iwosan miran (c) Mi o ni se nkankan (e) Omiran (salaye).....

Bi idahun re ba je beeni si ibeere 33 dahun awon ibeere 37-47 (ti ki ba se be O le da iwe Ibeere pada , E se pupo)

37. Tabuleti melo ni won fun o? 1. Tabuleti kan 2. Tabuleti meji 3. Tabuleti meta 4.Tabuleti merin 5. Tabuleti marun

38. Tabuleti melo ni o lo? 1. Tabuleti kan 2. Tabuleti meji 3. Tabuleti meta 4.Tabuleti merin 5. Tabuleti marun

39. Elo ni o san fun ogun na, ti o ba je pe o ran i?.....

40. Igba ti o lo se awon eleto ilera ba o foju si ? 1. Beeni 2. Beeko

41. Ti o ba je beeko, Nibo ni o ti lo? 1. Ile 2.Ninu ile wosan 3.Lode ile iwosan

42. Kini idi re ti o ko fi lo ogun yii ni oju awon eleto ilera? (a) won ko so fun mi pe kin lo ni oju won (b) ko si omi mimu (c) won ni kin jeun na (d) Ogun na ko si ni ile iwosan (e)idi miran (jowo salaye).....

Ese pupo fun asiko yin

APPENDIX III

DETERMINANTS OF USE OF INTERMITTENT PREVENTIVE TREATMENT (IPTP-SP) AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT THREE LEVELS OF CARE IN OYO STATE

FOCUS GROUP DISCUSSSION GUIDE

Consent

The purpose of this study is to know about determinants of use of intermittent preventive treatment (iptp-sp) among pregnant women attending antenatal care. Information you give us is completely confidential and your name will not be associated with anything you say in the focus group discussion. We would also like to record this discussion so that we can correctly capture the thoughts and ideas we hear from this group. You may refuse to answer any question and or withdraw from the discussion at any time.

Please check the boxes below for each participant that agrees to be part of the focus group.

Participants ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Questions

1. What malaria?

   Probes: Transmission/causes, symptoms, prevention, treatment?

2. What is malaria in pregnancy?

   Probes: Susceptibility, consequences, prevention, treatment?

3. Is prevention better than cure/ treatment?

4. Preventive interventions of malaria in pregnancy?

   Probes: IPT, ITN.

5. What is IPT?

   Probes: Drug of choice for IPT, dosage, time of administration

6. Sources of information about IPT

   Probes: ANC, friends, relative, mass media.

7. Use of IPT in pregnancy?

   Probes: Knowledge, attitude, perception, safety, efficacy, side effects

8. Have you ever used IPT?

   Probes: where, when, how, Drug of choice, dosage, DOT

9. If no, why not?

   Probes: fear of side effect, not being offered, forgetfulness, cost, just don't want to use.

10. Do you consider IPT beneficial and necessary?

11. If no, what are the reasons

12. Perceived barriers to use of IPT

    Probes: side effect, availability, acceptability, cost.

13. Will you accept IPT if offered?

14. If yes, why will you accept?

    Probes: previous experience,

15. If no, why won't you accept?

    Probes: previous experience, side effect

16. Other means of preventing malaria in pregnancy

    Probes: ITN, herbs

THANK YOU FOR YOUR TIME.

TELEGRAMS.....

TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. .....

All communications should be addressed to

the Honorable Commissioner quoting

Our Ref. No. AD 13/ 479/ 1186

November, 2014

The Principal Investigator,
Department of Epidemiology and Medical Statistics,
Faculty of Public Health,
University of Ibadan,
Ibadan.

Attention: Oladoja Oluwadamilola

Ethical Approval for the Implementation of your Research Proposal in Oyo State

In response of your letter requesting for Renewal of your Research Proposal tittled: "Determinants of Non-Use of Intermittent Preventive Treatment (IPTP-SP) among Pregnant Women attending Antenatal Care at Three levels of Care in Oyo State."

2. The committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey to you the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

4. Wishing you all the best.

Signature & Date

Sola Akande (Dr)
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee