UTILIZATION OF INTERMITTENT PREVENTIVE TREATMENT FOR MALARIA BY WOMEN ATTENDING ANTENATAL CLINICS IN PRIMARY HEALTH CARE CENTRES IN OGBOMOSO, OYO STATE NIGERIA

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ABSTRACT

Intermittent preventive treatment (IPT) is a key component of malaria control strategy in Nigeria and sulfadoxine-pyrimethamine (SP) is the drug of choice. IPT with SP has been shown to reduce the risk of maternal anemia, placental parasitaemia and low birth weight. The 2013 Nigeria Demographic and Health Survey revealed that 10.5% of pregnant women took at least two doses of SP in the southwestern zone, with the least proportion (3.0%) from Oyo State. Despite the evidence of the effectiveness of IPT strategy using SP in reducing the adverse effects of malaria during pregnancy the uptake and coverage in the southwestern zone of Nigeria is low. Thus this study assessed the utilization of IPT among pregnant women attending primary healthcare centres in Ogbomoso, Oyo State and identified factors influencing uptake.

This was a cross-sectional survey conducted between March and April 2015 among 450 pregnant women selected from six primary health care centers using multistage sampling technique. Four hundred and thirty pregnant women were however interviewed using a pre-tested, semi-structured questionnaire to obtain data on socio-demographic characteristics, obstetric history, knowledge on IPT, attitude towards IPT use and utilization of IPT. Six focus group for the pregnant women (FGD), six key informant interviews (KII) for the healthcare workers and observation checklist were carried out. Data was summarized using frequencies, means and proportions. Chi square was used to compare proportions for categorical variables. Multivariate analysis using binary logistic regression was used to determine the predictors of IPT use and level of statistical significance was set at p value <0.05.

Mean age of respondents was 27.2 years ±5.5SD. Mean gestational age was 29.5 weeks ±5.4SD. Three hundred and twenty (80.0%) took SP, out of which 122 (38.0%) took 2 doses and 111

(34.7%) took the drug under observation in the health facility. One hundred and twenty two (41.5%) with 2-4 antenatal care (ANC) visits had good utilization, 133 (45.7%) with good knowledge on IPT significantly had good IPT utilization and those with positive attitude 99 (42.1%) significantly had good IPT utilization. Also 62 (44.3%) skilled employees and 138 (50.0%) who took the first SP dose during the second trimester significantly had good utilization. Determinants of IPT utilization were; more than one ANC visit (aOR=5.64; CI: 1.19-26.63), knowledge on IPT (aOR=0.53; CI: 0.40-0.71), attitude towards IPT (aOR=2.11; CI: 1.52-2.93), occupation (aOR=1.37; CI: 1.08-1.73) and gestational age (aOR=11.57; CI: 5.66-23.67). The FGD revealed that IPT drugs were also taken at home.

Utilization of IPT in the study was low due to late ANC booking despite good knowledge and positive attitude to intermittent preventive treatment. Also there was non-adherence to the practice of DOT scheme at most of the health facilities. Early registration for antenatal care and adherence to the practice of DOT scheme are recommended to improve utilization of intermittent preventive treatment during pregnancy.

Keywords: IPT, sulphadoxine-pyrimethamine, malaria in pregnancy and utilization.

Word count: 467

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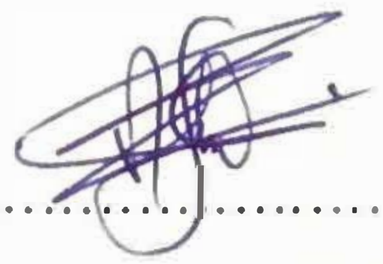
Finally to my precious wife and adorable daughters, thank you for the all-round support and encouragement.

DEDICATION

This work is dedicated to Almighty God, the giver of life and my ever present help. My source of inspiration and strength, the Alpha and Omega of my life.

CERTIFICATION BY SUPERVISOR

I certify that I supervised this research work, titled **"Utilization of Intermittent Preventive Treatment for Malaria by Women Attending Antenatal Services in Primary Health Care Centres in Ogbomoso, Oyo State, Nigeria"** which was carried out and completed by Dr ADEWOLE Adefisoye Oluwaseun in the Department of Epidemiology and Medical Statistics, Faculty of Public Health, University of Ibadan, Nigeria.



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ABBREVIATIONS

ANC	-	ANTENATAL CARE
DOT		DIRECTLY OBSERVED THERAPY
FGD	-	FOCUS GROUP DISCUSSION
IPT	-	INTERMITTENT PREVENTIVE TREATMENT
ITN	-	INSECTICIDE TREATED NETS
KII	-	KEY INFORMANT INTERVIEW
LBW	-	LOW BIRTH WEIGHT
MiP	-	MALARIA INFECTION IN PREGNANCY
NDHS	-	NATIONAL DEMOGRAPHIC AND HEALTH SURVEY
PHC	-	PRIMARY HEALTHCARE CENTRE
RBM	-	ROLL BACK MALARIA
SPSS	-	STATISTICAL PACKAGE FOR SOCIAL SCIENCES
SP	-	SULPHADOXINE PYRIMETHAMINE
WHO	-	WORLD HEALTH ORGANIZATION

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CHAPTER ONE

INTRODUCTION

1.1 Background Information

Malaria is a major public health problem, with the largest population at risk in sub-Saharan Africa(WHO, 2002). It is caused by the parasite of the genus *Plasmodium* which is usually transmitted by the bite of an infected female anopheles mosquito. *Plasmodium falciparum* is the commonest species in Africa, and it accounts for up to 98% of the cases in Nigeria. Other species include *P. malariae*, *P. ovale*, and *P. Vivax*(FMOH, 2005). At least 300 million people become acutely ill with malaria each year, and more than a million die from the infection(WHO, 2002). Over 80% of malaria deaths occur in Africa(WHO, 2004). Malaria costs Africa an estimated 12 billion US dollars in lost production yearly(WHO, 2004). Malaria is endemic in Nigeria with stable transmission all year round. High temperature, humidity, and rainfall are some of the factors that enhance mosquito breeding and malaria transmission(FMOH, 2005). Some of the major *Anopheles* species that transmit malaria in Nigeria are *An. arabiensis*, *An. brochieri*, *An. coustani*, *An. flavicosta*, *An. funestus*, and *An. gambiae*(FMOH, 2005).

Prevention of malaria in pregnancy is a major public health challenge and a priority for the Roll Back Malaria (RBM) Partnership. In high transmission areas including Nigeria, the RBM partnership recommends the World Health Organization (WHO) three pronged approach for reducing the burden of malaria among pregnant women(FMOH, 2005; WHO, 2004; Omo Aghoja et al, Aghoja, 2008) . These are effective case management of malaria infection, use of insecticide treated nets (ITN) and intermittent preventive treatment (IPT) in areas of stable transmission. WHO recommends that 80% of all pregnant women living in areas of high transmission should receive at least 2 doses of IPT during

pregnancy(WHO, 2005). In line with this recommendation, approach to prevention of malaria in pregnancy changed since the early 2000's, moving from a weekly or bimonthly chemoprophylaxis to intermittent preventive treatment (IPT) and insecticide-treated bed nets (ITNs)(WHO, 2004). Nigeria adopted the IPT strategy in 2005(FMOH, 2005; Okonofua, 2004). IPT consists of administration of curative dose of an efficacious anti-malarial drug at least twice during the second and third trimesters of pregnancy during routinely scheduled antenatal clinic visits regardless of whether the woman is infected or not(Falade et al., 2007; Peter et al, 2007; Sirima et al., 2006) . The drug is administered under supervision during antenatal care visits. Sulfadoxine-pyrimethamine (SP) is the drug currently recommended for the IPT strategy(Okonofua, 2004; WHO, 2004). It has a good safety profile and remains a good option for IPT in endemic areas in Africa(Godfrey Mubyazi et al, 2005 ; Okonofua, 2004). The current National Malaria Treatment Guideline and Policy in Nigeria recommends SP as first line agent for IPT(FMOH, 2005; Omo Aghoja et al., 2008). Also, the Federal Ministry of Health in Nigeria in its National Strategic Plan for the control of malaria in 2001 recommended early case management, two doses of SP during the second trimester and early in the third trimester of pregnancy against the adverse consequences of malaria in pregnancy. A third dose is recommended for pregnant women who are HIV positive(FMOH, 2001). This recommendation was a shift in treatment policy from the use of chloroquine for the treatment of uncomplicated malaria as result of the high level of resistance of *Plasmodium falciparum* to choloroquine, as demonstrated by several drug efficacy studies carried out in many African and Asian countries(Shah et al., 2011; Wellems & Plowe, 2001). In accordance with the current national guidelines, SP is given free of charge to pregnant women attending antenatal care clinics services in public health facilities and faith-based facilities, using the strategy of directly observed therapy (DOT).

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IPT with SP has been shown to reduce the risk of maternal anemia, placental parasitaemia and low birth weight(Challis et al., 2004; WHO, 2001) . In a study carried out in Ibadan, southwest Nigeria, IPT-SP was found to be highly effective in preventing maternal and placental malaria among parturient women as well as in improving pregnancy outcomes such as delivery of bigger babies and lower prevalence of pre-term deliveries and maternal anaemia(Falade et al., 2007). In Nigeria, antenatal clinics are an important entry point to target the pregnant women as 60–70% of women attend antenatal clinic at least once during any pregnancy(Godfrey Mubyazi et al., 2005; FMOH, 2005) . SP as the drug of choice for IPT (IPT-SP) is attractive because its single dose therapy lends itself for supervised administration in the antenatal clinic thus ensuring compliance(FMOH, 2005). According to Malaria Indicator Survey (MIS), 2010, 13% of pregnant women took 2+ doses of SP at least one during an ANC visit. The 2013 Nigeria Demographic and Health Survey reported that only 15% of pregnant women had taken the recommended two doses of SP during pregnancy. (FMOH, 2013).

1.2 Problem Statement

Malaria is a threat both to pregnant women and their foetus, with about 200,000 newborn deaths each year as a result of malaria in pregnancy(Steketee, Nahlen, Parise, & Menendez, 2001). Malaria infection in pregnancy substantially increases the risk of miscarriage, stillbirth and low birth weight(Shane, 2001; Steketee et al., 2001). Pregnant women are especially susceptible to the disease in areas of stable transmission. In these areas, malaria is estimated to affect 30 million pregnancies annually(WHO, 2010). The transient depression of immunity to allow for development of the fetus is one of the reasons adduced for the increased susceptibility of pregnant women to malaria(Meeusen, Bischof, & Lee, 2001). It is estimated that 18% of severe anemia in pregnancy is secondary to malaria(Steketee et al.,

2001). In Sub-Saharan Africa alone an estimated 200,000 to 500,000 pregnant women develop severe anaemia(Steketee et al., 2001).

Malaria in pregnancy causes up to 10,000 maternal deaths each year and contributes to high rates of maternal morbidity including fever and severe anemia, especially in first time mothers(Ekejindu, Udigwe, & Chijoke, 2006; Savage, Msyamboza, Gies, & Alessandro, 2007). It is also a cause of low birth weight and placental parasitaemia(Falade et al., 2007; WHO, 2001) . Between 75,000 to 200,000 infant deaths annually are attributable to malaria infection in pregnancy(Steketee et al., 2001; WHO, 2004). A study in Zambia estimated that malaria may contribute to 3–5% of maternal anemia, 8–14% of low birth weight (LBW) and 3–8% of infant mortality(Steketee et al., 2001). The harmful impact of malaria is most apparent in the first and second pregnancies of most pregnant women living in areas of relatively stable transmission(Marchesini & Crawley, 2004).

Based on the 2013 NDHS there is limited coverage and utilization of IPT services in Nigeria(FMOH, 2013) , only 15% of pregnant women received IPTp during ANC and less than 10% of pregnant women received two or more doses of SP. Oyo State annual malaria operational plan report(SMOH, 2014) found that only 27.3% of pregnant women in the state had access to 2 doses of SP. This may lead to adverse pregnancy outcomes.

1.3 Rationale

At the time of delivery, approximately one in four women show evidence of placental infection with a large fraction of malaria infection remaining undetected and untreated(Desai et al., 2007). The health consequences of malaria infection during pregnancy are large: malaria-induced low birth weight is estimated to account for up to 360,000 infant deaths every year(Murphy & Breman, 2001); overall,

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11.4% of neonatal deaths and 5.7% of infant deaths in malaria-endemic areas of Africa are estimated to be caused by malaria in pregnancy(Guyatt & Snow, 2001) . But despite these observations pregnancy-related malaria remains a major cause of adverse pregnancy outcomes and effective access to malaria prevention in pregnancy remains limited in the country. Although there have been many previous studies on malaria morbidity and mortality in pregnant women and their babies, reports are scanty on the actual practice of IPT in particular. There is paucity of information on whether the pregnant women actually use the drugs in the manner recommended by the WHO.

The IPT strategy has been established in many health facilities in Nigeria. However, it is estimated that less than five percent of pregnant women have access to effective malaria interventions; this is worse in the rural areas. A survey carried out in four African countries showed that less than 20% of women use a prophylactic regimen close to the World Health Organization (WHO) recommendations. As a result of this poor access, malaria remains one of the most important causes of maternal and childhood morbidity in sub-Saharan Africa(Marchesini & Crawley, 2004). A study on knowledge and utilization of IPT among pregnant women attending antenatal clinics in primary health care centers in rural southwest, Nigeria, showed that only 27.3% had received a dose of SP during the index pregnancy. The probable reason for the low uptake is the low level of awareness and poor knowledge of IPT by the pregnant women(Akinleye, Falade, & Ajayi, 2009). According to Malaria Indicator Survey (MIS), 2010, 13% of pregnant women took 2+ doses of SP at least one during an ANC visit. The 2013 Nigeria Demographic and Health Survey reported that only 15% of pregnant women had taken the recommended two doses of SP during pregnancy(FMOH, 2013). Successful deployment of IPT is dependent on the utilization rates of antenatal care (ANC) services amongst pregnant women. Attendance at ANC is high in most sub-Saharan African countries(WHO, 2004), but up to 25% of pregnant women pay the first visit in the 3rd trimester(WHO&UNICEF, 2003). This may affect the impact of ANC and IPT related services as

delivery of the second dose of SP is substantially reduced and envisaged protection for mother and foetus is lost(Hill & Kazembe, 2006). A woman that attends ANC needs to do so at appropriate times for delivery of IPT, which is best given when the growth of the foetus is occurring at its highest velocity (16th - 24th week) as this helps to reduce placental parasitaemia, foetal growth reduction and the resultant low birth weight(Marchant et al., 2011). Whether a woman starts early or late, each visit should count so that opportunities created by her attendance to ANC are not missed for the delivery of relevant interventions. However, studies have shown that missed opportunities abound and constitute a challenge for IPT delivery(Anders et al, 2008; Sangare et al., 2010). Due to knowledge gap between awareness, access and utilization of IPT the need to carry out the study.

The 2013 Nigeria Demographic and Health Survey (NDHS) reported that only 15% of pregnant women had taken the recommended three doses of SP during pregnancy. For the southwestern region, 10.5% and 4.3% of pregnant women had 2 doses and at least 3 doses of SP. In Oyo State, 3.0% and 1.9% of pregnant women took 2 doses and at least 3 doses of SP(FMOH, 2013). Considering the reduced level of access and utilization of IPT in Oyo State, hence the need to identify factors influencing the uptake of sulphadoxine-pyrimethamine.

1.4 Research Questions

1. What is the knowledge level of pregnant women about the use of IPT?

2. What is the attitude of pregnant women towards the use of IPT?

3. What is the level of utilization of IPT amongst pregnant women?

4. What are the factors that influence IPT utilization among pregnant women?

1.5 General and Specific Objectives

1.5.1 General Objective

To determine factors associated with utilization of IPT among women attending primary health centers for antenatal services in Ogbomoso, Oyo State.

1.5.2 Specific Objectives

1. To assess the knowledge of pregnant women attending primary health centers on the use of IPT.
2. To assess the attitude of pregnant women towards the use of IPT.
3. To determine the level of utilization of IPT by pregnant women attending ANC services at primary health centers.
4. To identify factors influencing utilization of IPT by pregnant women.

CHAPTER TWO

LITERATURE REVIEW

2.1 Knowledge of Pregnant Women concerning IPT in Pregnancy

Knowledge, attitude and perception about a disease quite often play a significant role in the healthcare-seeking behavior of individuals and communities as a whole. People would seek a particular service/product depending on the knowledge they have acquired about the service, their attitude towards the service and how they perceive the service to be. A qualitative study conducted in North Eastern Tanzania on the knowledge, attitudes and practices of ANC staff and pregnant women found out that, knowledge of malaria risks during pregnancy was high among pregnant women although some women did not associate coma and convulsions with malaria. Again, ANC staffs were generally aware of SP as the recommended drug for IPTp although some nurses and the majority of pregnant women expressed concern about the use of SP during pregnancy. Study participants suggested that, intensified sensitization of pregnant women about the benefits of IPTp was an important approach for improving IPTp compliance. The study therefore concluded that, the successful implementation of the IPTp strategy in that country depended on the proper planning of, and support to, the training of health staff and sustained sensitization of pregnant women at health facility and community levels about the benefits of IPTp for the women and their unborn babies(Godfrey Mubyazi et al., 2005).

Another study which was conducted in Korogwe District in Tanzania whose aim was to assess the knowledge, attitudes and practices of health managers, ANC service providers and pregnant women in relation to malaria control with emphasis on IPTp services reported that majority of respondents linked low compliance with IPTp to poor acceptance of SP because of perceived association of SP with side effects(Godfrey Mubyazi et al., 2005). It was also reported that pregnant women threw away drugs after

leaving the clinic because of their belief and fear of the Steven-Johnson Syndrome, which was referred to as 'the burning of the skin'. It was further argued that some women believed that taking SP during pregnancy could cause abortion, whilst others decided to take smaller dosage than what is recommended.

A study done in one of the districts in Ghana found that all of the staff interviewed knew of when to start IPTp, reason for the timing of IPTp and the number of doses (frequency) of SP to be given during pregnancy. Only 18 (60.0%) knew when to stop giving SP. The level of knowledge of the side effects of SP was low as only 11 (36.7%) knew of all the common side effects of SP to be expected. Also, only 17 (56.7%) knew of all the important contraindications to giving SP during pregnancy(G. Antwi, 2010).

A study conducted in two health facilities in rural Nigeria(Ehijie, Enato, Okhamfe, & Okpere, 2007) showed that 23.9% of the pregnant women who have heard about IPTp were able to give a good definition of IPTp, furthermore only 52.3% had received at least one dose of SP during their pregnancy and 40% were afraid of taking the drug during pregnancy(Ehijie et al., 2007). This shows that pregnant women's knowledge on the IPT subject is an issue that needs to be addressed to increase coverage. In order to ensure that pregnant women get the right information on IPT, health care workers need to have proper knowledge such that they transfer that knowledge to the target group appropriately. Knowledge of pregnant women concerning IPTp was also found to be very low as demonstrated from a study conducted in a rural town in Western Nigeria, 40.4% of the study population practiced IPTp for malaria prevention during the current pregnancy with only 14.6% taking the second dose as recommended(Amoran, Ariba, & Iyaniwura, 2012).

2.2 Attitude of Pregnant Women to the use of IPT in Pregnancy

In the survey carried out in 17 districts by MOH/WHO/UNICEF(Mufubenga, 2001) the prevalence of malaria in pregnancy ranged between 15-55.4% among ANC attendees while the prevalence of severe anemia during pregnancy was 18%. In the same survey, of 2316 pregnancy records examined at health units, malaria related pregnancy outcomes observed included; still births (3.4%) with incidence highest in northern and central Uganda; abortion (4.2%) with incidence highest in western and central Uganda; and low birth weight < 2.5 kg (12.3%) with incidence highest in northern Uganda (22.4%) and among teenagers.

Generally there is low level of knowledge regarding malaria in pregnancy with the levels much lower among men. However, a study by Mangeni and Mufubenga(Mangeni, 2003; Mufubenga & Kiwuwa, 2004; Mufubenga, 2001) reveals that a good number of pregnant women and mothers studied perceived that fever during pregnancy was dangerous although some incorrectly believed that fever during pregnancy was a normal thing and nothing should be done about it. These studies further reveal that most of the women studied had heard about preventive treatment of malaria during pregnancy, however many of them did not have a practical experience with it. Despite low levels of knowledge and use of IPT, most of the respondents perceived IPT to be useful in preventing malaria and recommended that IPT distribution should go hand in hand with provision of ITNs to pregnant mothers(Mangeni, 2003).

Mangeni(Mangeni, 2003) in a qualitative study about IPT and ITN use in pregnancy in Busia district reports that respondents observed that malaria related problems in pregnancy include miscarriages, malaise, anemia, back and joint pains, labor complications, maternal and child death. Among focus group participants, low birth rate was seldom mentioned as a result of malaria in pregnancy, as was knowledge of the implications of low birth weight babies.

Some mothers have a negative opinion of treatment of malaria during pregnancy. A survey conducted in 17 districts of Uganda indicates that 30% of the women studied had a strong belief that fever is part and parcel of pregnancy, and that some anti malarial drugs are very dangerous to the foetus(Mufubenga, 2001). Mangeni(Mangeni, 2003) has also reported the same observation as one of the attitudes of community members towards IPT services in Busia district. A later study in Mubende district by Mufubenga(Mufubenga & Kiwuwa, 2004) has also indicated that a good number of women studied considered IPT as a good measure to prevent malaria during pregnancy, treat a sick fetus or treat unsuspecting mother. However some considered SP to be very strong and likely to cause miscarriage, kill the mother or make her very weak. Such mothers thought that it was not wise to take SP for malaria in pregnancy control.

2.3 Utilization of IPT among Pregnant Women

The policy for malaria control and prevention during pregnancy in areas of stable transmission is that, all pregnant women should receive at least two doses of SP after quickening. The WHO recommends a schedule of four ANC visits with three after quickening. The delivery of IPTp with each scheduled visit after quickening will ensure that a high proportion of women receive at least two doses. Current scientific evidence suggests that at least two doses of SP are required to achieve optimal benefit in most women. There is no evidence however, that a third dose of IPTp causes any risk, that more than three IPTp doses during pregnancy offers additional benefit or that receiving three or more doses of IPTp with SP will result in an increased risk of adverse drug reactions. In Malawi, where IPTp with SP has been the policy since 1993, a recent survey conducted showed that maximum benefit of IPTp can be gained by receiving two or more doses of SP. The survey further revealed that even a single dose was beneficial. Women receiving SP during pregnancy had significantly lower rates of placental infection

(reduced from 32% to 23%) and low birth weight babies (a reduction from 23% to 10%). SP during pregnancy also reduced the rates of maternal anemia(Rogerson, Mwapasa, & Meshnic, 2000).

Another study in Kenya also showed that, out of 1,498 women who delivered between June 1999 and June 2000, 23.7 percent, 43.4 percent and 32.9 percent received less than two, one or no dose of SP, respectively. Late first ANC attendance was the most important factor contributing to incomplete IPTp; 45 percent of the women started attending ANC in the third trimester. The study concluded that education of pregnant women and ANC staff to increase earlier attendance for ANC has the potential to substantially increase the proportion of women receiving at least two doses of IPTp with SP(Van Eijk et al., 2004) .

A study in Malawi did not associate use of SP with maternal side-effects or perinatal complications. The results indicated that multiple doses of SP taken during pregnancy would lead to a highly significant reduction in the incidence of low birth weight in infants born to primi-gravidae, even if the women have HIV infections. This reduction is observable even when parasite prevalence at delivery is high because of re-infections in late pregnancy; reduction in parasite prevalence earlier in pregnancy as the result of SP treatment, leads to improved fetal growth(Verhoeff et al., 1998).

In an analysis of national survey in Africa in 2007, low coverage with intermittent preventive treatment and insecticide-treated nets was found to contrast with high antenatal-clinic attendance, an estimated 25% of 25·6 million pregnant women received at least one dose of treatment and 19·8 million (77%) visited an antenatal clinic (31 countries). It was also found that estimated coverage was lowest in areas of high-intensity transmission of malaria. This finding suggests that there are missed opportunities when women attended clinics but are not given intermittent preventive treatment (or insecticide-treated nets). Factors identified to influence coverage include unclear messages about intermittent preventive

treatment in pregnancy, especially about timing of the doses, Sulfadoxine–Pyrimethamine (SP) stockouts, limited understanding of intermittent preventive treatment, late enrolment or irregular antenatal clinic visits, and nurse underachievement(Akinleye et al., 2009).

The 2010 TDHS showed that the Percentage of last births in the 2 years preceding the survey for which the mother got at least one dose of SP/Fansidar during an antenatal visit was 63.9 for urban areas and 58.9 for rural areas, while the Percentage of last births in the 2 years preceding the survey for which the mother got complete intermittent preventive treatment (IPT) during an antenatal visit was 29.6 in urban areas and 24.8 in rural areas(TDHS, 2010).

In a study conducted in Kibaha district in Tanzania, about a third (40.0%) of the mothers did not receive SP for IPT because of unavailability. Of those receiving, about a third (40.0%) did not swallow the tablets at the clinic because of empty stomach and sharing of water cup(Tarimo, 2007). Another study conducted in Kilombero valley showed that among all women eligible for IPTp, 79% received a first dose of IPTp and 27% were given a second dose. Although pregnant women initiated ANC attendance late, their timing was in line with the national guidelines recommending IPTp delivery between 20-24 weeks and 28-32 weeks of gestation. Only 15% of the women delayed to the extent of being too late to be eligible for a first dose of IPTp. Less than 1% of women started ANC attendance after 32 weeks of gestation(Gross et al., 2011). It has been observed that good access to ANC does not warrant high uptake of IPTp-SP, since quality of care delivery factors, health care workers' knowledge and motivations, and target population's knowledge, attitudes towards IPTp and practices remain important(Mubyazi et al., 2008). With all these findings from different studies and their recommendations, one would expect to see a remarkable change in IPT uptake over the past ten years. However this has not been observed, it is very possible that there are other underlying factors that need

to be addressed or it could be that the efforts that are in place for IPT implementation need to be strengthened.

2.4 Factors Influencing Utilization of IPT among Pregnant Women

The utilization of IPT services is a function of systemic or service-related and, user-related factors. These multiple of factors either facilitate or impede the utilization of IPT services by pregnant women.

2.4.1 Socio-demographic factors of pregnant women

Socio-demographic factors are individual factors that tend to influence behavior and choice of action in relation to a perceived problem. In this study, individual factors such as the age, gravidity, parity, marital status, educational level and occupation have been considered. Society frowns upon pregnancies outside marriage and hence teenagers especially have difficulty accessing ANCs when they get pregnant (personal observation). The level of formal education also tends to increase the level of general knowledge and hence may positively influence health care seeking behavior.

A study done in rural Western Kenya by Ouma et al(Ouma et al., 2007), identified being single and a lower level of education as factors associated with low IPTp coverage. Again research from Kenya has showed that uptake of IPTp-SP increased with higher levels of formal education(Eijla, Ayisi, & Kuile, 2002). On the contrary, a study done in Tanzania by Marchant et al(Marchant et al., 2008), showed no evidence of any individual factors being associated with second dose coverage beyond living in an urban area. Age, marital status, educational level of the woman and household socio-economic status were all not associated with second dose coverage of SP.

2.4.2 Gestational age at First ANC visit

Since IPT can only be given at monthly intervals during pregnancy and should be given only after 16weeks and not after 36wks gestation to the pregnant woman according to the IPTp policy in Ghana, a delay in starting to take SP will reduce the number of times a woman can receive IPT during pregnancy. The timing of IPTp is directly tied to when a pregnant woman starts her ANC visits. The median week of pregnancy at which the first ante-natal visit occurred was found to be 20 weeks (quartiles 16–24, n = 394) by Olliaro et al(Olliaro et al., 2008), in a study they conducted in rural Senegal where 95% received at least one dose and 70% two doses of SP.

Late first ANC attendance has been found to contribute to incomplete IPTp(Van Eijk et al., 2004). A study conducted in Kisumu, Kenya showed that 45% of the women started attending ANC in the third trimester and that 23.7%, 43.4% and 32.9% received > or =2, 1 or no dose of SP, respectively. Education of pregnant women and ANC staff on the need to increase earlier attendance for ANC has the potential to substantially increase the proportion of women receiving at least two doses of IPT with SP. Reasons that may be given for late attendance include having had no problems during the pregnancy and therefore no need to visit the clinic(Anders et al., 2008; Tobin-West & Asuquo, 2013) ; a long distance to travel from home to the clinic; inability to leave farm work to travel into town; and the pregnant woman thinking that she is earlier on in gestation than she actually is(Anders et al., 2008). It may also well be that a number of pregnant women will attend the ANC before 16 weeks gestation when they cannot be given SP at that first visit and do not return for their first dose SP at the recommended time(Mubyazi et al., 2008). Probably these women are asked to wait for their next ANC visit before they are given SP or to come back at 16 weeks to start IPTp but they may not comply with the advice. In this study by Anders et al(Anders et al., 2008), almost half (48%) of all respondents had

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attended ANC at or before four months of gestation, however 86% of these early attendees did not receive IPTp on their first visit.

Primigravid respondents are more likely than multigravid women to attend ANC early(Anders et al., 2008). First time pregnant women may be anxious about the sudden changes in their physiology because of the developing fetus and hence will attend the hospital earlier than one who has had the experience before and understands what is going on.

2.4.3 Level of knowledge of pregnant women in IPTp

The level of knowledge that the pregnant woman has about IPTp will inform her on whether to regularly attend the ANC to receive SP or not and this will affect the uptake of IPTp. Their best and most practicable source of this knowledge is at the ANC where health workers are supposed to educate them. In a study to identify client-related, health worker related and health-related factors that affect adherence to IPT in Kampala, only 21% of the pregnant women interviewed had been told about the use of drugs to prevent malaria, 31.5% knew the recommended drug used in prevention of malaria in pregnancy and only 4.5% knew the recommended doses of SP to be taken. Over 95% of the pregnant women reported no health education was given to them at the ANC concerning IPT. It is no wonder that it was found out that the coverage of IPT1 and IPT2 as at 2008 stands at 61% and 31.5% respectively(Nankwanga & Gorette, 2008). Health education at the ANCs concerning IPTp is a must if the level of knowledge of pregnant women about IPTp is to increase to appreciable levels and thus help improve upon its uptake. An interesting phenomenon was realized in Tanzania by Nganda et al(Nganda, 2004), where knowledge of malaria by pregnant women was found to influence the use of ITNs but not IPT. It was realized that attendance at health education sessions at the MCH clinic was the only determining factor for IPTp-SP use. This stresses the fact that it is very crucial that health education sessions at the clinics for the pregnant women are intensified and the pregnant women be encouraged to

attend these sessions. There should also be innovative ways of repeating the health education topics during the whole period of the ANC so that everyone who attends gets to hear the messages no matter the time of their attending the clinic.

The level of knowledge of the effects that malaria can have on the mother and baby was found to be poor in a group of pregnant women who attended ANC at two health facilities in the Edo State of Nigeria. This will definitely inform their choice of adhering to IPTp. If malaria is perceived as a common health problem by pregnant women, their practice of IPTp would also be poor(Enato, Okhamafe, & Okpere, 2007).

The knowledge of the timing for IPTp by the pregnant woman also influences her decision to patronize the ANC and receive SP. In East Africa, 90.1% of the women interviewed were aware that SP was the drug for IPT and 77.2% held the perception that IPT with SP has health benefits; however, 70.0% were not aware of the timing for IPT. This caused incomplete administration of SP(Tarimo, 2007).

2.4.4 Practice of DOT for IPTp at health facilities

Administering SP under direct observation by health workers is a way of ensuring that SP is taken by the pregnant woman. Once this event is recorded, it serves a means of monitoring the number of doses and the timing of the administration of SP which are all important in IPTp. Knowledge of health workers on the importance of IPT may not always translate into practice. In Uganda, IPT for prevention of Malaria in pregnancy, coverage one and two are still low standing at 61%, 38% respectively. A study done by Mubyazi et al(Mubyazi et al., 2005) revealed that only 34.4% of pregnant women studied took SP under observation by a health worker. Health workers knew the importance of IPT but practice as directly observed therapy was poor. Some pregnant women testified that sometimes ANC staff allowed them to swallow SP tablets at home. Health worker's compliance to DOT in the facilities may be questionable especially if there is the lack of commitment to do so. Personal preferences by the

pregnant women may also affect the practice of DOT. In Tanzania, a study conducted by Tarimo(Tarimo, 2007) showed that about a third (40.0%) of those receiving SP at the ANC did not swallow the tablets at the clinic because of empty stomachs and sharing of water cups. Since the WHO recommendation of measurement of IPT is based on the number of doses SP being taken by the pregnant women that are observed by a health worker, giving SP to women without observing them take it does not count.

Studies conducted amongst healthcare providers at the southwestern and southeastern part of Nigeria(Arulogun & Okereke, 2012)(Nneka, Maxwell, & Nze, 2014) revealed poor knowledge and compliance of intermittent preventive treatment of malaria in pregnancy in the former while there was good knowledge concerning malaria prevention and control with however poor practice pattern most especially with regards to chemotherapy.

2.4.5 Health service factors influencing IPTp implementation

2.4.5.1 Availability of SP and clean, safe water for DOT at the ANC

The quality of services at health facilities is also a key factor influencing the IPTp uptake. For instance, a study conducted by Olliaro et al(Olliaro et al., 2008) reports that most public health facilities in Ghana (94.1%) provided IPTp services. However, up to 27% of the facilities had experienced SP stock-outs over the preceding six months period, which significantly undermined the delivery of IPTp services. On the same note, Mubyazi(Mubyazi et al., 2005) as well as Tarimo(Tarimo, 2007) found that recurrent SP stock-outs, inconsistent supply of clean drinking water and inadequacy of clean cups were some of the facility factors influencing the IPTp uptake.

The coverage of IPTp is reduced in the face of drug stock outs as evidenced by a study conducted in Tanzania where 40% of women interviewed had not received SP because of SP unavailability(Tarimo, 2007).

Inconsistency in the supply of clean and safe drinking water for the administration of the SP is another factor that affects the practice of DOT(Nńeka et al., 2014). Health workers' compliance with the direct observed therapy in administering SP for IPTp becomes questionable in the face of shortage of clean water and cups at ANC clinics(Mubyazi et al., 2005). Thus IPTp coverage declines when there is no water in the ANCs for the pregnant women to swallow SP under DOT.

2.4.5.2 Level of knowledge of health workers and training in IPTp

A qualitative study conducted in the Gambia showed that women relied on health workers to provide safe drugs at the correct time(Brabin, Stokes, Dumbaya, & Owens, 2009). Without good training and close supervision of health care workers, there is the risk that the pregnant women will be treated incorrectly. Training of health care workers periodically on IPTp may help to equip them with the necessary knowledge and skills needed for the implementation of the program. It may also remind them of the importance of IPTp as well as help to refresh their minds on the policy which stresses on the timing of the administration of SP. It may also motivate the workers to implement IPTp thus helping to improve the overall coverage of the programme. The successful implementation of the IPTp strategy thus depends on the proper planning of, and support to, the training of the health staff.

A study done in rural western Kenya to assess the effect of health care worker training on the use of IPT for malaria in pregnancy, by Ouma et al(Ouma et al., 2007) showed an increase in coverage from 19% in 2002 to 61% in 2005 for IPT1 and from 7% to 17% for IPT2 after health care workers were retrained on IPTp in 2003.

In Uganda, IPT for prevention of malaria in pregnancy coverage one and two was found to be low standing at 61%, 38% respectively. A survey conducted in three health centers in Kampala showed that guidelines on malaria in pregnancy were not referred to and only 1.6% of health workers were trained in the last six months(Nankwanga & Gorette, 2008).

2.4.5.3 Staff attitude

Results from investigations on a smaller-scale in sub-Saharan Africa have indicated a combination of factors including health worker behavior as possible explanations for low recorded coverage of IPTp. Poor health worker practices have been identified among others as operational challenges in delivering IPTp(Hill & Kazembe, 2006). Also, the negative attitudes of healthcare workers, especially toward pregnant women who report late for prenatal care has been identified in Ghana as a contribution to low IPT2 and IPT3(FMOH, 2008). This may not always be the case. In the Ejisu-Juabeng district, a study among nursing mothers revealed that the warm attitude of the midwives encouraged them to return for repeat ANC visits. The clinical staff were said to be patient and tolerant with them(Smith et al., 2010). Furthermore, Hill and Kazembe(Hill & Kazembe, 2006) report that negative attitudes towards late ANC attendees discouraged subsequent visits for IPTp services.

2.4.5.4 Monitoring and Supervision of IPTp programme

The outcome of monitoring and supervision is to ensure that all logistics as well as human resources needed for the implementation of the IPTp program at the facility level are available. Any deficiencies noted are worked on urgently so as to ensure a continuation of the program. In Zambia, where high coverage of IPTp second dose has been achieved and sustained within existing health systems, an analysis of enabling factors highlights co-ordinate support to the routine clinic system and training to antenatal care workers as key enabling factors(Steketee et al., 2008). Support may be in the form of provision of all needed logistics for IPTp at the appropriate time as well as on the job trainings that are done during monitoring visits.

2.5 Conceptual framework on Intermittent Preventive Treatment in Pregnancy

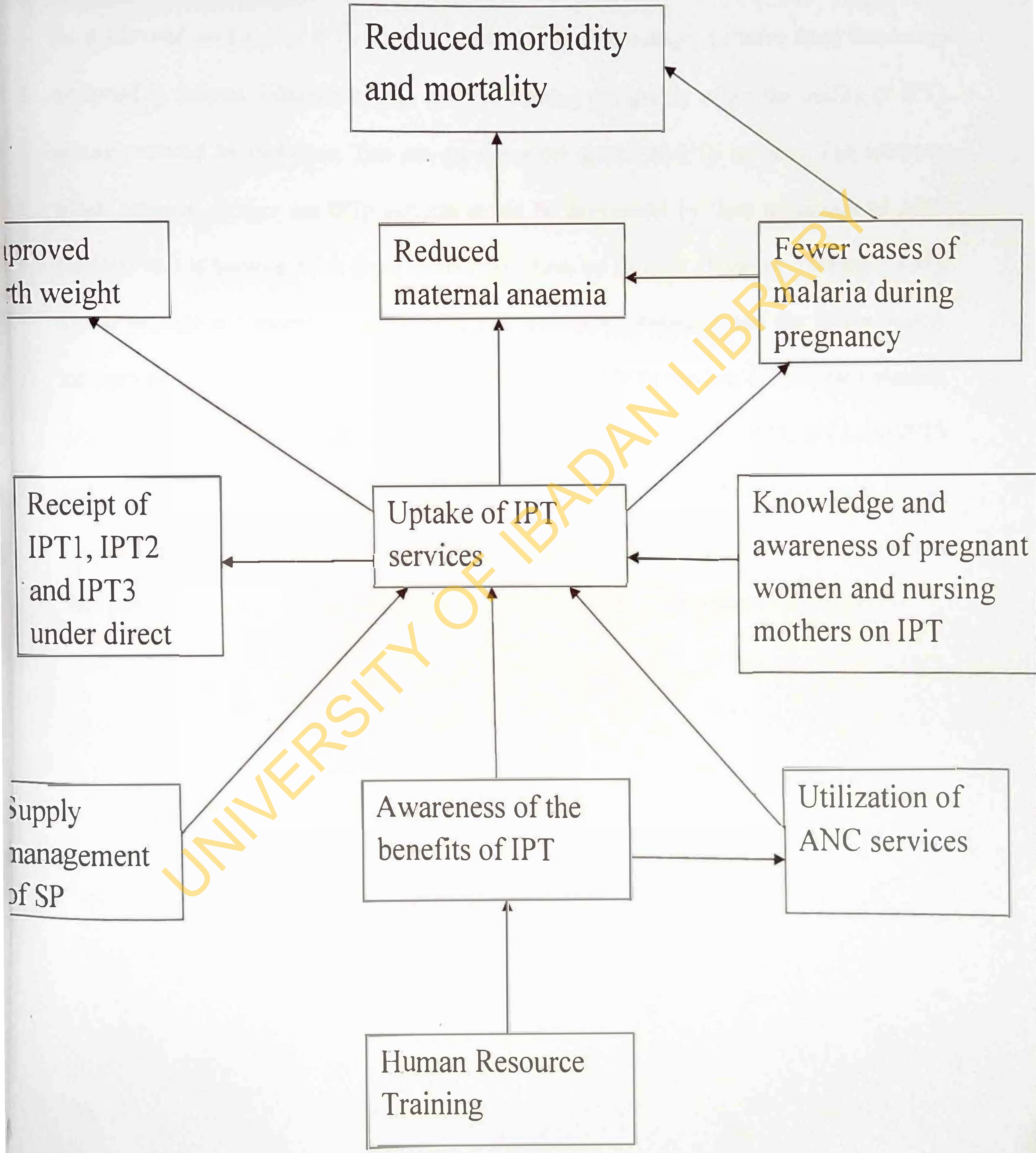

Figure2.5.1: Factors influencing the uptake and coverage of IPTp services

The figure above is a conceptual framework that illustrates the major factors which influences the uptake and coverage of IPTp services(Antwi, 2010). The linkages between these factors are explained as follows: Effective human resource training can greatly affect the quality of IPTp service provided by midwives. This can determine the uptake of IPTp services. The extent to which pregnant women use IPTp services would be determined by their utilization of ANC services. This is because SP is given at the ANC clinic by Directly Observed Therapy (DOT). The knowledge and awareness of the effects of malaria in pregnancy and the proper supply management of SP also has an influence on the uptake of IPTp services by pregnant women. Also the uptake of IPTp services would therefore lead to the receipt of IPT1, IPT2 and IPT3 under DOT, which would also impact positively on the number of malaria cases during pregnancy leading to reduction in maternal anaemia and low birth weight in infants. This would then positively affect morbidity and mortality in pregnant women and infants(Antwi, 2010).

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CHAPTER THREE

METHODOLOGY

3.1 Study Area

The study area was Ogbomoso in Oyo State, located in the south western part of Nigeria. The estimated total population of the town was 804673 inhabitants in 2013 based on the 2006 census (Federal Republic of Nigeria Official Gazette, 2009). It is located on latitude 8° 07'N and longitude 4° 15"E with a mean annual rainfall of 1247mm and a relative humidity of 75% and 95%. It is situated about 600m above sea level with a mean annual temperature of about 26.2°C. The vegetation is a derived savannah region. Ogbomoso has the Tropical wet and dry climate as it falls in the transition zone between the rain forest and the savannah. The region experiences a fairly high uniform temperature, moderate to heavy seasonal rainfall. The relative humidity is within the range 75 – 95 % (Ameen&Ajayi, 2013; World Heritage Encyclopedia, 2016). Public water supplies to the town are from Asa and Ogbomoso Ikoyi-Ile water supply schemes, which are presently undergoing rehabilitation and expansion (Ogun Oshun River Basin Development Authority, 2013). Private sources of water supply include wells and bore holes. Social amenities in Ogbomoso include market places, recreation centres, event centres, stadium, town hall, hotels and good road networks. There is a progressive increase in the population density in Ogbomoso due to the rapid urbanization attributed to establishment of tertiary institutions like Ladoke Akintola University of Technology and School of Nursing and Midwifery, Baptist Medical Centre. Other educational Institutions in Ogbomoso include public and private secondary schools, a private College of Education (Best Legacy college of Education), various continuous education centres and Baptist Theological Seminary (World Heritage Encyclopedia, 2016). Also

there are private health facilities in addition to the existing public health facilities in the town. There are two radio stations namely Parrot FM and Ajilete FM and a television station, NTA Ogbomoso. Ogbomoso has five local government areas namely Ogbomoso north, Ogbomoso south, Surulere, Ogo-Oluwa and Orire respectively with each having 10wards. Ogbomoso north has an estimated total population of 243,400 persons with women of child bearing age constituting 53,548(SMOEPB, 2014). There are two tertiary health facilities and twelve primary health facilities within the 10 political wards. Ogbomoso south has an estimated total population of 122,863 persons with women of child bearing age constituting 27,029. There are one secondary health facility and 13 primary health facilities within the 10 political wards. Surulere has an estimated total population of 173,894 persons with women of child bearing age constituting 38,257. Ogo-Oluwa has an estimated total population of 79,802 persons with women of child bearing age constituting 17,556. Orire has an estimated total population of 83,232 with women of child bearing age constituting 18,311(SMOEPB, 2014).

Five PHCs each, making a total of 10 PHCs provides ANC in Ogbomoso north and south LGAs. Antenatal clinics are held once a week in all the health facilities and managed by a matron. The IPT drugs are supplied by the Oyo State Government to all the health facilities.

3.2 Study design

A cross sectional study design between March-April 2015 was employed among pregnant women attending primary health care centres in Ogbomoso, Oyo State.

3.3 Study population

The study populations were pregnant women attending antenatal care at the primary health centers providing antenatal care services in the study LGAs.

3.3.1 Inclusion criteria

Women included in the study were:

All consenting pregnant women 20 weeks-36 weeks of gestation who attended antenatal clinic in the selected PHCs in Ogbomoso.

3.3.2 Exclusion criteria

Women excluded from the study were:

1) Pregnant women who were ill
2) Newly registered pregnant women attending ANC

3.4 Sample size determination

The minimum sample size required for the study was calculated using the formula for single proportions. The study was powered to increase sample size.

$$N = \frac{(Z\alpha + Z\beta)^2 pq}{d^2}$$

Where *N* is the sample size,

Z_{α} is the standard normal deviate, set at 1.96 (for 95% confidence level),

$Z\beta$ is the standard normal deviate, set at 0.84 (for 80% power)

d is the desired degree of precision (taken as 0.05)

p, is the estimate of the proportion of pregnant women who took 2+ doses of SP during an ANC visit were 15%(FMOH, 2013)

q, is 1-p which is 1-0.15=0.85

$N= (2.80)^2 \times 0.15 \times 0.85/(0.05)^2=400$

The calculated **minimum sample size was 400**. However 10% of the minimum sample size was added to make about 444 (required sample size=N/1-f where f is 10%; 400/1-0.1= 444) in order to adjust for non-response and missed data. However, 430 questionnaires were administered.

3.5 Sampling technique

The multistage sampling technique was used.

Stage 1: From the 5LGAs that make up Ogbomoso town (Ogbomoso north, Ogbomoso south, Surulere, Ogo-Oluwa and Orire), two LGAs (Ogbomoso north and Ogbomoso south) were selected using simple random sampling (SRS) by balloting.

Stage 2: Each LGA has 10 wards from which 5 wards were selected each by SRS using balloting technique (Ogbomoso north: Sabo/Taara, Okelerin, Aguodo/Masifa, Isale Ora/ Saja and Jagun. Ogbomoso south: Arowomole, Akata, Alapata, Isoko and Lagbedu).

Stage 3: The list of the PHCs in the selected wards was obtained for each LGA. From the selected five wards in each LGA. A proportional allocation was used to determine the number of PHCs to be chosen from the selected five wards in each LGA. Two and four PHCs respectively were then selected using simple random sampling by balloting giving a total of 6 PHCs. (PHC Oja-Igbo, PHC Okelerin, PHC Katangua, PHC Ahoyaya, PHC Idi-Oro and PHC Kajola).

Stage 4: The average monthly attendance at the antenatal clinics from the selected PHCs was obtained from the health officer in charge. PHC Oja-Igbo: 200, PHC Okelerin: 145, PHC Katangua: 46, PHC Ahoyaya: 16, PHC Idi-Oro: 22 and PHC Kajola: 30. A proportional allocation was used to determine the number of pregnant women to be interviewed in the selected PHCs which were 196,142,45,16,22 and 29 respectively. Systematic random sampling technique was then used to select eligible respondents until the desired sample size for each PHC was achieved.

3.6 Operational definitions(Antwi, 2010)

- **Intermittent preventive treatment of malaria in pregnancy (IPTp)**
  - is the administration of anti-malarial drugs in treatment doses at predefined intervals to clear a presumed burden of malaria parasites
- **IPT 1**
  - the percentage number of respondents who received at least one dose of SP during their most recent pregnancy
- **IPT 2**
  - the percentage number of respondents who received at least two doses of SP during their most recent pregnancy

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- **IPT 2**
  - the percentage number of respondents who received at least two doses of SP during their most recent pregnancy

- **IPT 3**

  – the percentage ~~number~~ of respondents who received three doses of SP during their most recent pregnancy

- **DOT**

  – the direct observation of a pregnant woman by qualified health staff as she swallows sulphadoxine-pyrimethamine (SP) at the antenatal clinic.

Appropriate and inappropriate SP doses in the context of my study are defined as follows:

- **Good utilization of IPT/ Appropriate SP doses**

  – when a pregnant woman takes 2 doses of SP during pregnancy

- **Poor utilization of IPT/ Inappropriate SP doses**

  – when a pregnant woman takes less than 2 doses of SP during pregnancy

3.7 Study instruments

The instruments for data collection were a semi structured questionnaire (Appendices 1 and 2) and Focus Group Discussion Guide (Appendices 3 and 4) for pregnant women, key informant interview (Appendix 5) for ANC health workers and ANC observation checklist (Appendix 6).

The questionnaire had the following sections: Socio-demographic characteristics of respondents, Obstetric History, Knowledge of IPTp, Respondents attitude towards IPTp, Utilization of IPTp and Antenatal record information.

3.7.1 Pre-testing of research instrument

The questionnaire was pre-tested among twenty pregnant women attending the antenatal clinic in PHC Jabata, Ogo-Oluwa Local Government Area Ogbomoso, Oyo State. Afterwards, the questionnaire was modified to include variables that were initially absent and found to be important.

3.8 Data collection methods

3.8.1 Quantitative data collection

Quantitative data collection from first week of March to first week of April 2015 was with the use of a pre-tested, semi-structured interviewer-administered questionnaire. The questionnaire was adapted from a previous study on knowledge and utilization of intermittent preventive treatment for malaria among pregnant women attending antenatal clinics in primary health care centers in rural southwest, Nigeria(Akinleye et al., 2009). The questionnaire was written in English language and was translated to Yoruba and back translated to English. This was done in order to retain the original meaning of the questions and also for interviewers to interpret the questions uniformly without losing the message. Ten research assistants were recruited and trained to help in the administration of the questionnaires. The research assistants were resident doctors in the Department of Community Medicine, Ladoke Akintola University of Technology (LAUTECH) Teaching Hospital, Ogbomoso. The research assistants had two days training. They were taken through the questionnaire and the training lasted an average of two hours daily. The questionnaires in English and Yoruba languages are in Appendices 1 and 2. Also qualitative data collections were done using focus group discussions and key informant interviews guides for the

pregnant women and healthcare providers to collect information on factors associated with utilization of IPTp. (Appendices 3-5).

3.8.2 Qualitative data collection

Six (6) focus group discussions done on the second week of April 2015 among pregnant women were conducted at the antenatal clinic of PHC Oja-Igbo, PHC Okelerin, PHC Katangua, PHC Ahoyaya, PHC Idi-Oro and PHC Kajola. Each group comprises of eight respondents from each of the selected PHCs, and each of the sessions lasted for 45 to 60 minutes. The sessions were moderated by the researcher using the FGD guide and the research assistants were trained as recorders for the FGD. The FGDs were recorded on tape and notes were also taken by the recorders. The FGD guide in English and Yoruba languages are included in Appendices 3 and 4.

Also six key informant interviews (KIIs) done on the third week of April 2015 were conducted with the matron in charge at the antenatal clinics of PHC Oja-Igbo, PHC Okelerin, PHC Katangua, PHC Ahoyaya, PHC Idi-Oro and PHC Kajola . Questions such as what intermittent preventive treatment meant, national policy on IPTp, DOT scheme in IPTp and factors influencing the utilization of intermittent preventive treatment in the health facilities were asked based on the KII guide (Appendix 5) and responses were recorded on tape and notes were also taken by the recorders. Furthermore, six check lists for ante-natal clinic unit observation done on the last week of April 2015 were administered at the selected primary health care centres to obtain information on IPTp activities carried out at the selected PHCs and other information on intermittent preventive treatment as stated in the checklist. (Appendix 6)

3.9 Data management

3.9.1 Measurement of variables

Variables used in the study include:

Dependent variables: Utilization of IPT, Knowledge on IPT, Attitude to IPT

Independent variables: Age, Educational level, Occupation, Income, Parity, Marital status

3.9.2 Statistical analyses

Data entry and cleaning was done using Statistical Package for Social Sciences (SPSS) version 16 software. Data was summarized using frequencies, means and proportions. Chi-square test was done to compare proportions of categorical variables. Binary logistic regression was done to identify good predictors of knowledge on IPT, attitude towards IPT and IPT utilization amongst the pregnant women. Level of statistical significance was set at $p < 0.05$.

Knowledge on IPT was categorized into 2: good and poor. Correct responses of questions were scored 1 point, while incorrect response were scored zero. The maximum and minimum scores possible for knowledge on IPT were 6 and 0, while the mean score was 3.7±1.4. Respondents who scored below 4 were regarded as having poor knowledge while those who scored up to or above 4 were regarded as having good knowledge.

Attitude towards IPT use in pregnancy were scored on a 3 point Likert scale of agree, indifferent and disagree respectively. For the questions about attitude that had agree, indifferent, and disagree, the responses were scored 3,2 and 1 in that order for a positive attitude and 1,2 and 3 for a negative attitude. The maximum and minimum scores possible for attitude towards IPT were 33 and 14, while the mean score was 26.3±3.6.

3.9 Data management

3.9.1 Measurement of variables

Variables used in the study include:

Dependent variables: Utilization of IPT, Knowledge on IPT, Attitude to IPT

Independent variables: Age, Educational level, Occupation, Income, Parity, Marital status

3.9.2 Statistical analyses

Data entry and cleaning was done using Statistical Package for Social Sciences (SPSS) version 16 software. Data was summarized using frequencies, means and proportions. Chi-square test was done to compare proportions of categorical variables. Binary logistic regression was done to identify good predictors of knowledge on IPT, attitude towards IPT and IPT utilization amongst the pregnant women. Level of statistical significance was set at $p < 0.05$.

Knowledge on IPT was categorized into 2: good and poor. Correct responses of questions were scored 1 point, while incorrect response were scored zero. The maximum and minimum scores possible for knowledge on IPT were 6 and 0, while the mean score was 3.7±1.4. Respondents who scored below 4 were regarded as having poor knowledge while those who scored up to or above 4 were regarded as having good knowledge.

Attitude towards IPT use in pregnancy were scored on a 3 point Likert scale of agree, indifferent and disagree respectively. For the questions about attitude that had agree, indifferent, and disagree, the responses were scored 3,2 and 1 in that order for a positive attitude and 1,2 and 3 for a negative attitude. The maximum and minimum scores possible for attitude towards IPT were 33 and 14, while the mean score was 26.3±3 .6.

Respondents who score below the mean were regarded as having negative attitude while those who score up to or above the mean were regarded as having positive attitude.

Utilization of IPT was scored based on appropriateness of SP doses with respect to the gestational age (time of booking). Those that took two doses of SP between second trimester and early part of third trimester were said to have appropriate dose while those that took less than two doses of SP between second trimester and early part of third trimester were said to have inappropriate dose.

Qualitative data analysis: Recordings at focus group discussions were transcribed verbatim and analyzed using themes and detailed content analysis.

3.10 Ethical considerations

Ethical Approval: Approval for the study was obtained from LAUTECH Teaching Hospital Ogbomoso Ethics Review Committee (Appendix 7).

Consent: Written informed consent was taken from individual respondent before administering questionnaire and verbal consent before the focus group discussions and key informant interview (Appendix 8).

Confidentiality: Questionnaires were numbered with codes to maintain confidentiality. They were assured that their responses will be kept confidential. Information on the system was password-protected and accessible to the researcher only.

Beneficence: Participants were educated on the importance of intermittent preventive treatment during pregnancy after the data collection (both questionnaire administration and FGD). Opportunity was given to participants to ask questions and their questions were addressed.

Right to withdrawal: Participants had the right to withdraw from the study at any point in time she chooses.

CHAPTER FOUR

RESULTS

A total number of 430 questionnaires were administered during the study. Four hundred questionnaires were returned properly filled and four hundred questionnaires were analyzed, giving a response rate of 93%.

SECTION 4.1 Socio-demographic characteristics of respondents

Table 4.1.1 shows the socio-demographic characteristics of respondents. Two hundred and forty four (61.0%) respondents were in the age group 20-29 years with mean age 27.2 years±5.5SD. Majority [383 (95.8%)] were married and 353 (88.3%) were Yorubas; 231 (57.8%) were Christians and 196 (49.0%) had secondary education. The occupation of respondents 140 (35.0%) were artisans. Majority (70.2%) of respondents had a monthly income of less than eighteen thousand naira. Three hundred and eighty (95.0%) of respondents spent fifty naira and above as transport fare to and fro ANC clinic.

Table4.1.1: Socio-demographic Characteristics of Respondents

Variable	Frequency (N=400)	Percentage (%)
Age (in years)		
< 20	24	6.0
20-29	244	61.0
≥30	132	33.0
Mean age	27.2±5.5	
Marital status		
Single	17	4.2
Married	383	95.8
Educational status		
No formal education	23	5.8
Primary education	36	9.0
Secondary education	196	49.0
Tertiary education	145	36.2
Religion		
Christianity	231	57.8
Islam	165	41.2
Traditional	4	1.0
Occupation		
Unemployed	111	27.8
Unskilled	88	22.0
Skilled	140	35.0
Professional	61	15.2
Ethnicity		
Yoruba	353	88.3
Ibo	17	4.2
Hausa	6	1.5
Others	24	6.0
Income (in naira)		
< 18,000	281	70.2
18,000 and above	119	29.8
Transport fare (in naira)		
<50	20	5.0
50 and above	380	95.0

*Others were Egede, Tangita, Sonba and Togolese.

SECTION 4.2: Obstetric History of Respondents

Table 4.2.1 shows the obstetric history of respondents. One hundred and thirty one (32.8%) of the respondents were between 20-26 weeks of gestation while 269 (67.2%) were 27 weeks and above. One hundred and fifty seven (39.2%) had experienced two or more child birth while 111 (27.8%) has had a single birth experience. The distribution of respondents by gravidity shows that 244 (61.0%) had 2-4 previous pregnancies while 24 (6.0%) were multigravida. Majority of the respondents (52.8%) booked during their second trimester, one hundred and five (26.2%) and 84 (21.0%) at the first and third trimesters respectively. Two hundred and ninety four (73.5%) respondents had 2-4 clinic visits while 48 (12.0%) had a single clinic visit.

Table4.2.1: Respondents obstetric information

Variables	Frequency (N)	Percentage (%)
Gestational age (in weeks)		
20-26	131	32.8
≥27	269	67.2
Parity		
0	132	33.0
1	111	27.8
≥2	157	39.2
Gravidity		
1	132	33.0
2-4	244	61.0
≥5	24	6.0
Booking period		
1st trimester	105	26.2
2nd trimester	211	52.8
3rd trimester	84	21.0
ANC visit		
1	48	12.0
2-4	294	73.5
>4	58	14.5

SECTION4.3 Knowledge of IPTp

Table 4.3.1 shows respondents' knowledge on intermittent preventive treatment. Two hundred and sixty nine (67.2%) of them knew the meaning of intermittent preventive treatment. Majority [291 (72.8%)] also knew the recommended gestational months for intermittent preventive treatment use and [275 (68.7%)] knew fansidar as the drug recommended for intermittent preventive treatment.

Table4.3.1: Respondents' knowledge on intermittent preventive treatment

Variables	Frequency (N=400)	Percentage (%)
Meaning of the concept of IPT		
Correct	269	67.2
Incorrect	131	32.8
Drug used for IPT		
Fansidar	275	68.7
Chloroquine	12	3.0
Phensic	4	1.0
Don't know	109	27.3
Recommended months for IPT use		
Correct	291	72.8
Incorrect	109	27.2

Table4.3.2: Respondents' knowledge on intermittent preventive treatment

Variables	Frequency	Percentage (%)
Function of the IPT drug (N=335)		
Prevents mother and baby from malaria	312	93.1
Gives a lot of blood	12	3.6
Cleanses blood of diseases	11	3.3
Recipient of IPT (N=400)		
Pregnant women	346	86.5
All women	40	10.0
Elderly	14	3.5

Figure 4.3.1 shows sources of information on intermittent preventive treatment. Majority of the respondents 338 (96%) knew about intermittent preventive treatment from the ante natal clinic while, 9 (3%) heard about it from radio and television.

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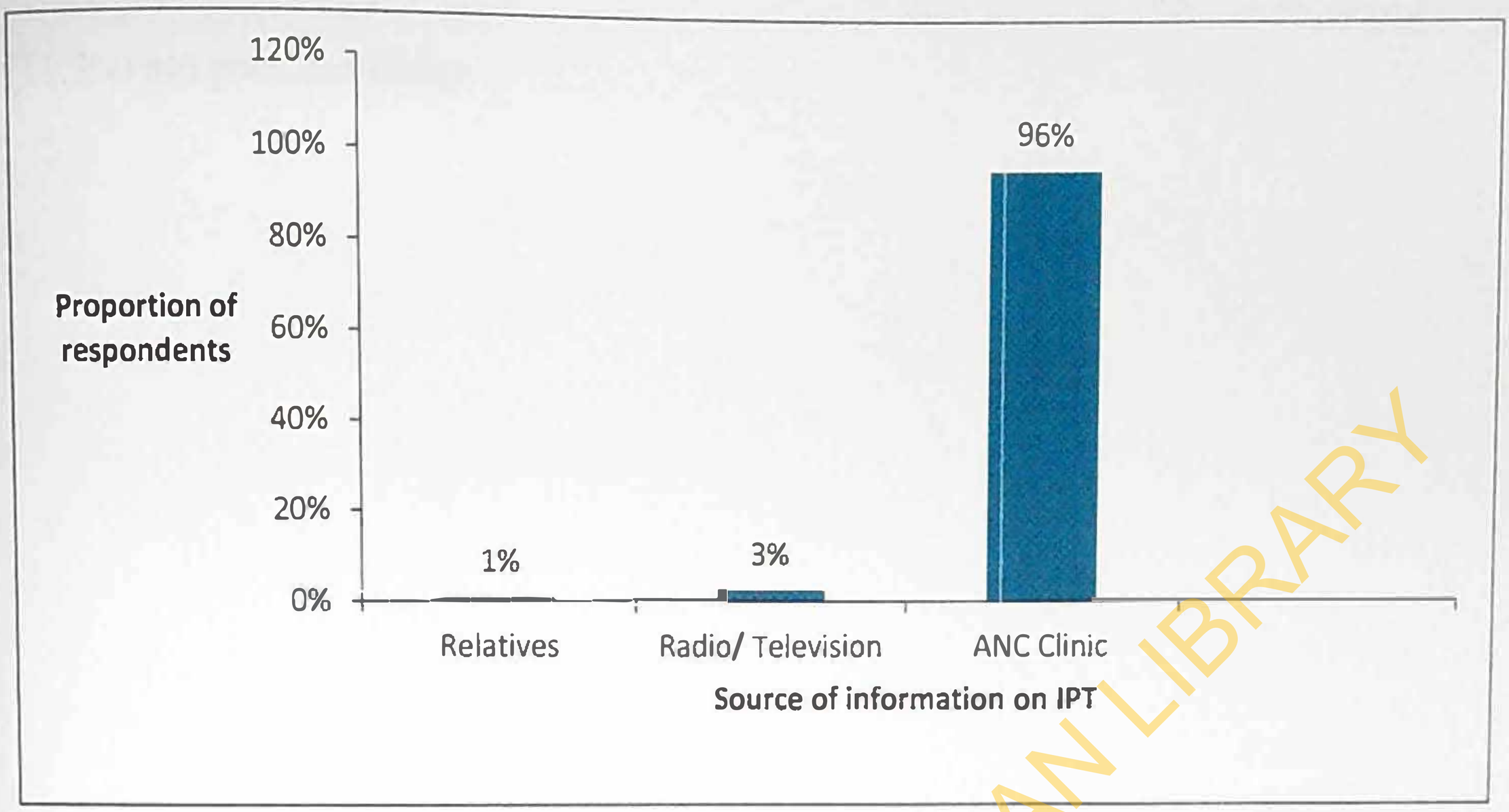

Figure4.3.1: Source of information on intermittent preventive treatment (n=350)

Table 4.3.3 shows respondents' knowledge score about intermittent preventive treatment and it showed 291 (72.8%) of respondents had good knowledge, 62 (15.5%) had fair knowledge and 47 (11.7%) had poor knowledge.

Table4.3.3: Categorized Knowledge of Respondents on Intermittent Preventive Treatment

Variables	Frequency (N=400)	Percentage (%)
Categorized knowledge on IPT		
Good	291	72.8
Fair	62	15.5
Poor	47	11.7

Table 4.4.1 shows respondents' responses to some questions which reflected their attitudes towards intermittent preventive treatment. Three hundred and fifty six (89.0%) agreed that IPT should be used for the prevention of malaria during pregnancy, 27 (6.8%) were indifferent and 17 (4.2%) disagreed. When told fansidar should be used during each pregnancy, 298 (74.5%) agreed, 47 (11.8%) were indifferent and 55 (13.7%) disagreed. Two hundred and thirty seven (59.2%) agreed that fansidar should be used at the clinic, 48 (12.0%) were indifferent and 115 (28.8%) disagreed. Concerning safety of fansidar for use during pregnancy, 125 (31.2%) agreed that fansidar is unsafe for use during pregnancy, 44 (11.0%) were indifferent and 231 (57.8%) disagreed.

SECTION4.4 Clients attitude towards IPTp

Table4.4.1: Attitude of respondents towards Intermittent Preventive Treatment

Variables	Scale of Response		
	Agree	Indifferent	Disagree
	N (%)	N (%)	N (%)
I can use IPT for malaria prevention	356 (89.0)	27 (6.8)	17 (4.2)
It is unsafe for a pregnant woman to use fansidar for the prevention of malaria	125 (31.2)	44 (11.0)	231 (57.8)
A pregnant woman should take fansidar during each pregnancy	298 (74.5)	47 (11.8)	55 (13.7)
A pregnant woman should always take fansidar under the supervision of a healthcare worker	237 (59.3)	48 (12.0)	115 (28.7)
It is better that pregnant women should not use fansidar because of its side effects	64 (16.0)	45 (11.2)	291 (72.8)

Table 4.4.2 shows the categorized attitude of respondents. Two hundred and thirty five (58.8%) were found to have positive attitude while 165 (41.2%) had negative attitude to intermittent preventive treatment practices.

Table4.4.2: Categorized Attitude of Respondents towards Intermittent Preventive Treatment

Variables	Frequency (N=400)	Percentage (%)
Categorized attitude towards IPT		
Positive	235	58.8
Negative	165	41.2
Mean attitude score	26.3±3.6	

Table 4.5.1 shows respondents' utilization of intermittent preventive treatment. Three hundred and twenty (80.0%) respondents used IPT drugs, while 80 (20.0%) did not. Two hundred and fifty nine (80.9%) used 3 tablets of fansidar, 111 (34.7%) took their drugs directly under the observation of the healthcare worker at the health facility while 32 (10.0%) did not. Two hundred and seventy six (69.0%) respondents took the first dose of SP during the second trimester, 45 (11.2%) during the third trimester and 79 (19.8%) during the first trimester. Thirty five (10.8%) did not take SP due to the fear of complication during pregnancy while 290 (89.2%) took SP.

SECTION4.5 Utilization of IPTp

Table4.5.1: Respondents' utilization of Intermittent Preventive Treatment

Variables	Frequency (N)	Percentage (%)
Use of IPT drugs (N=400)		
Yes	320	80.0
No	80	20.0
Number of fansidar tablets used (N=320)		
3 tablets	259	80.9
< 3 tablets	61	19.1
Location of drug use (N=320)		
Home	177	55.3
Clinic under observation	111	34.7
Clinic without observation	32	10.0
Gestational age 1st dose SP taken		
1st trimester	79	19.8
2nd trimester	276	69.0
3rd trimester	45	11.2
Reason for non-use of SP (N= 325)		
Fear of complication during pregnancy		
Yes	35	10.8
No	290	89.2

Figure 4.5.1 shows the number of doses of SP taken by respondents. One hundred and fifty two (38.0%) took 2 doses of SP, 168 (42.0%) took a dose and 80 (20.0%) yet to take any.

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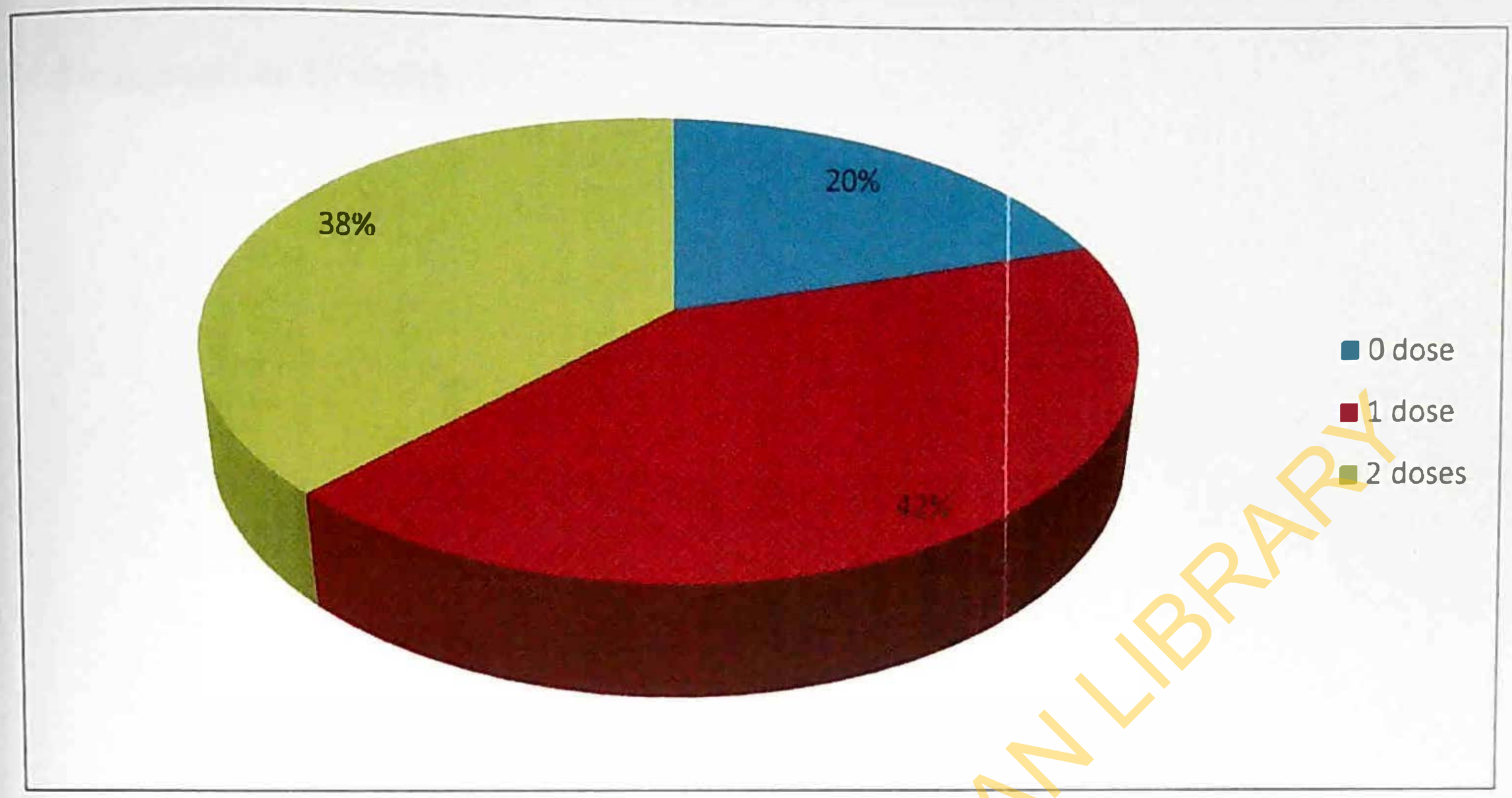

Figure 4.5.1: Respondents doses of SP used (n=400)

Table 4.5.2 shows respondents' utilization score about intermittent preventive treatment and it showed 152 (38.0%) of respondents had appropriate SP doses, while the remaining 248 (62.0%) had inappropriate SP doses.

Table4.5.2: Categorized Utilization of Respondents about Intermittent Preventive Treatment

Variables	Frequency (N=400)	Percentage (%)
SP doses based on gestational age		
Appropriate	152	38.0
Inappropriate	248	62.0

SECTION4.6 Bivariate Analysis

The association between respondents' gestational age and ANC visit is shown in Table 4.6.1 below. Respondents with gestational age of 27 weeks and above, 209 (77.7%) significantly ($p<0.001$) had 2-4 ANC visits than those with gestational age of 26 weeks or less, 85 (64.9%).

SECTION4.6 Bivariate Analysis

The association between respondents' gestational age and ANC visit is shown in Table 4.6.1 below. Respondents with gestational age of 27 weeks and above, 209 (77.7%) significantly ($p<0.001$) had 2-4 ANC visits than those with gestational age of 26 weeks or less, 85 (64.9%).

Table 4.6.1: Association between respondents' gestational age and ANC visit

Variables	ANC visit				$\chi 2$	df	p value
	1 N (%)	2-4 N (%)	>4 N (%)	Total N (%)			
Gestational age (in weeks)							
≤26	35(26.7)	85 (64.9)	11 (8.4)	131(100.0)	42.1	2	<0.001*
≥27	13(4.8)	209(77.7).	47(17.5)	269(100.0)			

*Statistically significant

The association between some of the respondents' demographic characteristics and their knowledge about intermittent preventive treatment is shown in Table 4.6.2 below. Respondents with parity two or more, 126 (80.3%) significantly (p=0.02) had good knowledge than those that were nulliparous, 86 (65.2%) and uniparous, 79 (71.2%). Furthermore respondents with 2-4 ANC visits, 229 (77.9%) significantly (p<0.001) had good knowledge than those with a single visit, 20 (41.7%) and those with more than 4 ANC visits, 42 (72.4%). Also respondents with gestational age of 27 weeks and above, 210 (78.1%) significantly (p<0.001) had good knowledge than those with gestational age between 20-26 weeks, 81 (61.8%). There were no significant differences in the association of respondents' age, educational status, marital status and their knowledge on intermittent preventive treatment.

Table4.5.2: Association between selected variables of Respondents and their Knowledge

Variables	Knowledge category			χ2	Df	p value
	Good N (%)	Poor N (%)	Total N (%)			
Age (in years)						
< 20	17 (70.8)	7(29.2)	24 (100.0)			
20-29	175 (71.7)	69 (28.3)	244 (100.0)	0.5	2	0.77
≥30	99 (75.0)	33 (25.0)	132 (100.0)			
Educational status						
No formal education	16 (69.6)	7 (30.4)	23(100.0)			
Formal education	275 (72.9)	102 (27.1)	377(100.0)	0.1	1	0.72
Marital status						
Single	10 (58.8)	7 (41.2)	17 (100.0)	-	-	0.26
Married	281 (73.4)	102 (26.6)	383 (100.0)			
Parity						
0	86 (65.2)	46 (34.8)	132 (100.0)	8.4	2	0.02*
1	79 (71.2)	32 (28.8)	111 (100.0)			
≥2	126 (80.3)	31 (19.7)	157 (100.0)			
ANC visit						
1	20(41.7)	28 (58.3)	48 (100.0)	27.3	2	<0.001*
2-4	229 (77.9)	65 (22.1)	294 (100.0)			
>4	42(72.4)	16 (27.6)	58 (100.0)			
Gestational age (in weeks)						
20-26	81 (61.8)	50 (38.2)	131 (100.0)	11.7	1	<0.001*
≥27	210 (78.1)	59 (21.9)	269 (100.0)			

*Statistically significant

The association between some of the respondents' demographic characteristics and their attitude towards intermittent preventive treatment is shown in Table 4.6.3 below. More respondents between the ages of 20-29 years, 148 (60.7%) significantly (p=0.03) had positive attitude than the other age group of less than 20 years, 19 (79.2%) and those that were 30 years and above, 68 (51.5%). Furthermore respondents with 2-4 ANC visits, 188 (63.9%) significantly (p<0.001) had positive attitude than those with a single visit, 20 (41.7%) and those with more than 4 ANC visits, 31 (53.4%). Also skilled employees, 82 (58.6%) significantly (p=0.02) had positive attitude than those that were unemployed 62 (55.9%), unskilled 63 (71.6%) and professional 28 (45.9%). There were also no significant differences in the association of respondents' educational status as well as parity and their attitude towards intermittent preventive treatment.

Table4.6.3: Association between the Socio-demographic Characteristics and Attitude of Respondents towards Intermittent Preventive Treatment

Variables	Attitude Category			χ^2	Df	p value
	Positive N (%)	Negative N (%)	Total N (%)			
Age (in years)						
< 20	19 (79.2)	5 (20.8)	24(100.0)			
20-29	148 (60.7)	96 (39.3)	244(100.0)	7.3	2	0.03*
≥30	68 (51.5)	64 (48.5)	132(100.0)			
Educational status						
No formal education	15 (65.2)	8 (34.8)	23(100.0)			
Formal education	220 (58.4)	157 (41.6)	377(100.0)	0.4	1	0.52
Parity						
0	75 (56.8)	57 (43.2)	132(100.0)	0.5	2	0.78
1	68 (61.3)	43 (38.7)	111(100.0)			
≥2	92 (58.6)	65 (41.4)	157(100.0)			
Occupation						
Unemployed	62 (55.9)	49 (44.1)	111(100.0)	10.5	3	0.02*
Unskilled	63 (71.6)	25 (28.4)	88(100.0)			
Skilled	82 (58.6)	58 (41.4)	140(100.0)			
Professional	28 (45.9)	33 (54.1)	61(100.0)			
ANC visit						
1	20(41.7)	28 (58.3)	48(100.0)	12.6	2	<0.001*
2-4	188 (63.9)	106 (36.1)	294(100.0)			
>4	31 (53.4)	27 (46.6)	58(100.0)			

*Statistically significant

The association between respondents' demographic characteristics and utilization of intermittent preventive treatment is shown in Table 4.6.4 below. More respondents that were skilled employees (44.3%) significantly (p=0.01) had appropriate SP doses than those that were unemployed 30 (27.0%), unskilled employees 39 (44.3%) and professionals 21 (34.4%) . There was no significant differences in the association of respondents' age, educational status, ethnicity and parity with their utilization of intermittent preventive treatment.

Table4.6.4: Association between Utilization of Intermittent Preventive Treatment and Socio-demographic Characteristics of Respondents

Variables	SP doses based on gestational age			χ2	Df	p value
	Appropriate N (%)	Inappropriate N (%)	Total N (%)			
Age (in years)						
< 20	6 (25.0)	18 (75.0)	24(100.0)			
20-29	92 (37.7)	152 (62.3)	244(100.0)	2.2	2	0.33
≥30	54 (40.9)	78(59.1)	132(100.0)			
Educational status						
No formal education	6 (26.1)	17 (73.9)	23(100.0)			
Formal education	146 (38.7)	231(61.3)	377(100.0)	1.5	1	0.23
Parity						
0	41 (31.1)	91 (68.9)	132(100.0)	4.1	2	0.13
1	47 (42.3)	64 (57.7)	111(100.0)			
≥2	64 (40.8)	93 (59.2)	157(100.0)			
Occupation						
Unemployed	30 (27.0)	81 (73.0)	111(100.0)	9.8	3	0.02*
Unskilled	39 (44.3)	49 (55.7)	88(100.0)			
Skilled	62 (44.3)	78 (55.7)	140(100.0)			
Professional	21 (34.4)	40 (65.6)	61(100.0)			
Ethnicity						
Non-Yorubas	19 (40.4)	28 (59.6)	47(100.0)	0.1	1	0.72
Yorubas	133(37.7)	220 (62.3)	353(100.0)			

*Statistically significant

The association between some of the respondents' selected variables and their utilization of intermittent preventive treatment is shown in Table 4.6.5 below. Respondents with 2-4 ANC visits, 122 (41.5%) significantly ($p<0.01$) had appropriate SP doses than those with a single visit, 2 (4.2%) and those with more than 4 ANC visits, 28 (48.3%). Also respondents who took their first dose of SP during their second trimester, 138 (50.0%) significantly ($p<0.01$) had appropriate SP doses than those who took their first SP dose during the third trimester, 14 (31.1%).

The association between some of the respondents' selected variables and their utilization of intermittent preventive treatment is shown in Table 4.6.5 below. Respondents with 2-4 ANC visits, 122 (41.5%) significantly ($p<0.01$) had appropriate SP doses than those with a single visit, 2 (4.2%) and those with more than 4 ANC visits, 28 (48.3%). Also respondents who took their first dose of SP during their second trimester, 138 (50.0%) significantly ($p<0.01$) had appropriate SP doses than those who took their first SP dose during the third trimester, 14 (31.1%).

Table 4.6.5: Association between Utilization of Intermittent Preventive Treatment and Selected Variables

Variables	SP doses based on gestational age			χ2	Df	p value
	Appropriate N (%)	Inappropriate N (%)	Total N (%)			
ANC attendance						
Yes	151(38.0)	246 (62.0)	397(100.0)			
No	1 (33.3)	2 (66.7)	3(100.0)	0.0	1	0.87
Number of ANC visits						
1	2 (4.2)	46 (95.8)	48 (100.0)	27.4	1	<0.01*
2-4	122 (41.5)	172(58.5)	294(100.0)			
>4	28 (48.3)	30 (51.7)	58(100.0)			
Gestational age 1st SP dose taken						
1st trimester	0 (0.0)	79 (100.0)	79 (100.0)	66.2	2	<0.01*
2nd trimester	138 (50.0)	138 (50.0)	276(100.0)			
3rd trimester	14 (31.1)	31 (68.9)	45(100.0)			

*Statistically significant

The table below also shows the association between respondents' knowledge on IPT, attitude towards IPT and their IPT utilization. Respondents with good knowledge on IPT 133 (45.7%) significantly ($p<0.001$) had appropriate SP doses than those with poor knowledge 19 (17.4%). Also those with positive attitude 99 (42.1%) significantly ($p=0.04$) had appropriate SP doses than those with negative attitude 53 (32.1%).

Table4.6.6: Association between Respondents Knowledge, Attitude and Utilization of Intermittent Preventive Treatment

Variables	SP doses based on gestational age			χ2	Df	p value
	Appropriate N (%)	Inappropriate N (%)	Total N (%)			
Knowledge on IPT						
Good	133 (45.7)	158 (54.3)	291(100.0)			
Poor	19 (17.4)	90 (82.6)	109(100.0)	61.0	1	< 0.001*
Attitude towards IPT						
Positive	99 (42.1)	136 (57.9)	235(100.0)	4.1	1	0.04*
Negative	53 (32.1)	112 (67.9)	165(100.0)			

*Statistically significant

In Table 4.7.1 below, logistic regression analysis was done to show the predictor of respondents having good knowledge about intermittent preventive treatment. The odds of those that were nulliparous having good knowledge about intermittent preventive treatment were 0.54 times less than those with parity between one to five (aOR 0.54; CI 0.36-0.81). Furthermore the odds of those with more than one ANC visit having good knowledge about intermittent preventive treatment was 3.16 times more than those with more than one ANC visit (aOR 3.16; CI 1.60-6.26). Also the odds of those with gestational age of 27 weeks and above having good knowledge about intermittent preventive treatment were 0.57 times less than those with gestational age between 20-26 weeks (aOR 0.57; CI 0.37-0.88).

SECTION4.7 Multivariate analysis

Table4.7.1: Predictor of having Good Knowledge about Intermittent Preventive Treatment

Variable	Odds Ratio(aOR)	95% Confidence Interval	
		Lower	Upper
Parity			
1-5 (Ref)	1.00	-	-
0	0.54	0.36	0.81
ANC visits			
Once (Ref)	1.00	-	-
Two times or more	3.16	1.60	6.26
Gestational age (in weeks)			
20-26 (Ref)	1.00	-	-
≥27	0.57	0.37	0.88

In table 4.7.2 below, logistic regression analysis was done to show the predictor of respondents having positive attitude towards intermittent preventive treatment. The odds of those in the age group 20 years and above having positive attitude towards intermittent preventive treatment was 1.35 times more than those in the age group less than 20 years (aOR 1.35; CI 1.10-1.66). Furthermore the odds of those with single ANC visit having positive attitude about intermittent preventive treatment was 0.43 times less than those with more than one ANC visit (aOR 0.43; CI 0.24-0.80). Also the odds of those that were unemployed having positive attitude about intermittent preventive treatment was 1.64 times more than those that were employed (aOR 1.64; CI 1.28-2.09).

Table4.7.2: Predictor of having Positive Attitude towards Intermittent Preventive Treatment

Variable	Odds Ratio(aOR)	95% Confidence Interval	
		Lower	Upper
Age group (years)			
<20 (Ref)	1.00	-	-
≥20	1.35	1.10	1.66
ANC visits			
Two times or more (Ref)	1.00	-	-
Once	0.43	0.24	0.80
Occupation			
Employed (Ref)	1.00	-	-
Unemployed	1.64	1.28	2.09

Table 4.7.3 shows the predictors of having good utilization of intermittent preventive treatment. The odds of respondents with more than one ANC visit having good utilization of intermittent preventive treatment was 5.64 times more than those with a single ANC visit (aOR 5.64; CI 1.19-26.63). Respondents with poor knowledge were also found to be 0.53 times less likely to have good utilization of intermittent preventive treatment than those with good knowledge (aOR 0.53; CI 0.40-0.71). Those with positive attitude were 2.11 times more likely to have good utilization of intermittent preventive treatment than those with negative attitude (aOR 2.11; CI 1.52-2.93). Respondents that were unemployed were 1.37 times more likely to have good utilization of intermittent preventive treatment than those that were employed (aOR 1.37; CI 1.08-1.73). Also respondents with gestational age between 20-26 weeks were 11.57 times more likely to have good utilization of intermittent preventive treatment than those with gestational age of 27 weeks and above (aOR 11.57; CI 5.66-23.67).

Table4.7.3: Predictors of having Good Utilization of Intermittent Preventive Treatment

Variable	Odds Ratio(aOR)	95% Confidence Interval	
		Lower	Upper
ANC visits			
Once (Ref)	1.00	-	-
Two times or more	5.64	1.19	26.63
Knowledge on IPT			
Good (Ref)	1.00	-	-
Poor	0.53	0.40	0.71
Attitude towards IPT			
Negative (Ref)	1.00	-	-
Positive	2.11	1.52	2.93
Occupation			
Employed (Ref)	1.00	-	-
Unemployed	1.37	1.08	1.73
Gestational age (in weeks)			
≥27 (Ref)	1.00	-	-
20-26	11.57	5.66	23.67

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Occupation			
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Unemployed	1.37	1.08	1.73
Gestational age (in weeks)			
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Occupation			
Employed (Ref)	1.00	-	-
Unemployed	1.37	1.08	1.73
Gestational age (in weeks)			
≥27 (Ref)	1.00	-	-
20-26	11.57	5.66	23.67

SECTION4.8: REPORT OF FOCUS GROUP DISCUSSION WITH WOMEN ATTENDING ANTENATAL CLINICS IN PRIMARY HEALTH CARE CENTRES IN OGBOMOSO, OYO STATE

A focus group discussion (FGD) was held in each of the six (6) selected PHCs. Participants for each group were women attending antenatal clinics.

4.8.1 ANC Booking Period

In response to questions on when do women usually start ANC, majority of the respondents mentioned late first trimester to early second trimester (3-4 months) . Only a few mentioned the latter part of second trimester (6 months) and close to delivery. One of the discussants said: *"Pregnant women start coming to the clinic early in pregnancy by 3 months so as to receive good care"* **(FGD Oja-Igbo)**. However another discussant said pregnant women start pregnancy care close to the time when they are to deliver.

4.8.2 Malaria fever treatment for pregnant women

In response to a question on what are the treatments given to pregnant women with malaria fever, some of the respondents said they do not know the treatment given for malaria fever. However, one of the discussants said: *"The individual will come to the clinic, blood test will be done and injection and tablets given"***(FGD Kajola)**.

4.8.3 Drugs used by pregnant women for malaria fever treatment

When asked drugs pregnant women use to treat malaria fever, majority of the respondents said they don't know the name of the drugs used. One of the discussants responded by saying: *"The drug given to pregnant women is inside a case and three in number"***(PHC Katangua)**. Another

discussant said: *"The drug we were told in the clinic for malaria treatment is three tablets in number"*(**PHC Idi-Oro**).

4.8.4 How the antimalarial drugs are used

When asked how they use antimalarial drugs, some of the respondents said they use the three tablets given to them at the clinic all at once. However, one of the discussants said in addition to the tablets given at the clinic, injection was also given.

4.8.5 Concept about Intermittent Preventive Treatment

Regarding the understanding of respondents about intermittent preventive treatment, a discussant in the pregnant women FGD described intermittent preventive treatment as:

"A form of treatment given to pregnant women to prevent the occurrence of malaria fever"(**PHC Kajola**). Another discussant said: *"Fansidar, as we were being told during our clinic visit is the recommended medicine for the prevention of malaria during pregnancy"*(**PHC Katangua**).

4.8.6 Benefits of IPT drugs during pregnancy

Concerning benefits of taking the drug used for IPT during pregnancy, some of the discussants said they were told in the clinic the work the drug does but they have forgotten. One of the discussant said: *"It makes the brain of the child to be sharp and also makes the child not to fall sick"*(**PHC Okelerin**).

4.8.7 Complications of IPT drugs to a pregnant woman or the unborn baby

Majority of the respondents said the drug does not cause any problem to the mother or the unborn baby. One of the discussant said: *"the issue of the drug causing problem is a personal thing, i might not have any problem using the drug while another person might have"* **(PHC Ahoyaya).**

4.8.8 Reasons for non completion of recommended IPT dose

In response to reasons why pregnant women do not complete the recommended IPT doses, majority of the respondents said some perceive that having used one dose there is no point using the other. Other discussants said it depends on how convenient taking those drugs was.

4.8.9 Cultural beliefs concerning the use of IPT

Majority of the respondents said there were no cultural beliefs concerning the use of IPT drugs. That those that strongly believe in cultural values won't come to the clinic but to traditional homes.

4.8.10 Availability of the drugs at the health facility

Regarding availability of the IPT drugs at the health facility, majority of the respondents said the drugs are not readily available. This was further corroborated by another FGD discussant:

"The medicines are not usually available at the clinic. The last time I came to clinic I was not given the medicine that prevents against malaria, it was written out for me to go and buy and then use at home" **(PHC Oja-Igbo).**

4.8.11 Location for use of IPT drugs

In response to the location where drugs for IPT are used, majority of the respondents said they used the drugs given unto them at their home. One of the discussants of the pregnant women FGD supported the practice of using the drugs outside the health facility:

"After being given the fansidar at the clinic, I keep the medicine and use when I get back home. This is because there is no provision of potable water supply at the health facility" **(PHC Kajola).**

Another pregnant woman said:

"I prefer to use my medicine at home because it is when I get back home that I eat and then take my medicine" **(PHC Okelerin).**

Table 4.8: Participant responses on thematic areas during FGD in the selected health facilities

Themes	Responses	Oja-Igbo	Kajola	Katangua	Idi-Oro	Okelerin	Ahoyaya
ANC booking period	1st trimester	-	++	+	-	-	-
	2nd trimester	++++	+++	+++	++++	+++	++++
	3rd trimester	-	-	+	-	+	-
Drugs used by pregnant women for malaria fever treatment	Does not know the name	++++	++++	++++	++++	++++	++++
Concept about IPT	Treatment to prevent malaria during pregnancy	+	++	++	+	+	++
Benefits of IPT drugs	Prevent illness in the child	-	++	+	++	-	+
	Couldn't remember	++++	+++	+++	++	++++	+++
Complications of IPT drugs	No harm to the mother and baby	+++	+++	+++	+++	+++	+++
Reasons for non completion of IPT dose	No need for a second dose of SP	+++	+++	+++	+++	+++	+++
	Convenience of drug use	+	++	+	+	++	+

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ANC booking period	1st trimester	-	++	+	-	-	-
	2nd trimester	++++	+++	+++	++++	+++	++++
	3rd trimester	-	-	+	-	+	-
Drugs used by pregnant women for malaria fever treatment	Does not know the name	++++	++++	++++	++++	++++	++++
Concept about IPT	Treatment to prevent malaria during pregnancy	+	++	++	+	+	++
Benefits of IPT drugs	Prevent illness in the child	-	++	+	++	-	+
	Couldn't remember	+++	+++	+++	++	++++	+++
Complications of IPT drugs	No harm to the mother and baby	+++	+++	+++	+++	+++	+++
Reasons for non completion of IPT dose	No need for a second dose of SP	+++	+++	+++	+++	+++	+++
	Convenience of drug use	+	++	+	+	++	+

Cultural beliefs on the use of IPT	No cultural beliefs	++++	++++	++++	++++	++++	++++
Availability of IPT drugs at health facility	Not readily available	+++	+++	+++	+++	+++	+++

Key: -- = None; + =Few (<25%); ++ = Some (50%); +++ =Majority (>75%); ++++All (100%)

SECTION 4.9: REPORT OF KEY INFORMANT INTERVIEW GUIDE ON HEALTH SYSTEM FACTORS ASSOCIATED WITH THE UTILIZATION OF IPTp BY PREGNANT ATTENDING ANTENATAL CLINICS IN PRIMARY HEALTH CARE CENTRES IN OGBOMOSO, OYO STATE.

A key informant interview (KII) was held in each of the selected PHCs. The matron in charge/ health officer in charge of the selected six antenatal clinics was interviewed.

4.9.1 Understanding on Intermittent Preventive Treatment

"Intermittent preventive treatment in pregnancy (IPTp) is a form of treatment given to pregnant women after 20 weeks of gestation to prevent malaria in pregnancy. It can also be defined as the type of treatment given to pregnant women after quickening so as to prevent the occurrence of malaria during pregnancy".....**KII PHC Oja-Igbo.**

"IPT is a prophylaxis given to pregnant women to prevent malaria fever".....**KII PHC Kajola.**

4.9.2 National policy on IPTp

Concerning the National Policy on IPTp use by pregnant women, one of the matrons in charge of the health facilities stated:

"The national policy states that pregnant with gestational age of 16 weeks and above are to use at least two doses of sulphadoxine-pyrimethamine (SP) for the prevention of malaria fever. Also the practice of directly observed therapy of IPT in which a pregnant woman takes the SP in the presence of the healthcare worker at the clinic should be observed".....**KII PHC Katangua.**

Another matron in charge of a facility responded:

''Based on the national policy guideline, at least 2 doses of sulphadoxine-pyrimethamine (SP) is used, presently it is now 3 doses..... **KII PHC Okelerin.**

4.9.3 Health facility adherence to National IPTp policy

All the selected health facilities adhere to the national policy on IPTp. *"After 20 weeks, between 20-24 weeks of gestation the first dose is given, then a month after the second dose and later another month after the third dose''*.....**KII PHC Ahoyaya.**

"The national policy on IPTp states sulphadoxine- pyrimethamine should be given to pregnant women from 16 weeks of pregnancy and above. Also directly observed therapy (DOT) should be practiced at the clinic".....**KII PHC Idi-Oro.**

4.9.4 DOT scheme in IPTp

As regards the DOT scheme under IPTp programme, a matron in charge of a facility responded:

''DOT scheme simply put is Directly Observed Therapy. It means the administration of SP to an eligible pregnant woman in the presence of a healthcare worker at the clinic during antenatal visit''.....**KII PHC Oja-Igbo.**

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4.9.5 Challenges to DOT scheme

Majority of the pregnant women prefer to take their drugs at home. Reasons given were not taking their drugs on empty stomach, feeling that they will vomit the drugs and so on.

4.9.6 Availability of IPT drugs

Sulphadoxine-pyrimethamine is the recommended drug for intermittent preventive treatment. All the health facilities use SP which according to the national policy supposes to be free. Majority of the health facilities visited has regular supply of SP from the Malaria Action Programme (MAP) in Oyo State. However, KII report from PHC Katangua revealed that SP drugs are sold for a token of fifty naira because the facility is yet to be supplied by the government.

4.9.7 In-service training for ANC staff

In response to having in-service training for ANC staff on malaria or IPT programme, majority of the health facilities conducts an average of two to three in a year organized by the Malaria Action Programme.

4.10 Result from ANC check list

In all the selected PHCs, it was observed that health talk included intermittent preventive treatment (IPTp) of malaria in pregnancy. IPTp national protocol and training manual present. Sulphadoxine-pyrimethamine (SP) and potable water were available in most of the PHCs. Directly observed treatment (DOT) scheme was not practiced in some of the health facilities.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 DISCUSSION

The World Health Organization (WHO) currently recommends a package of interventions for controlling malaria during pregnancy in areas with stable transmission of *Plasmodium falciparum*, which includes the use of insecticide treated nets (ITNs), the administration during pregnancy of at least 2 doses of intermittent preventive treatment (IPTp) with sulfadoxine-pyrimethamine (SP) after quickening and effective case management of malaria (FMOH, 2005; Omo Aghoja et al., 2008). Malaria infection during pregnancy is a major public health problem, with substantial risks for the mother, her fetus and the neonate(WHO, 2012; WHO, 2004). The WHO currently recommends that each pregnant woman should receive IPTp-SP at each ANC visit after quickening, which in practice leads to two or three doses during the course of the pregnancy(WHO, 2004). This recommendation is based on reports of beneficial effects of IPTp-SP in preventing maternal malaria and improving pregnancy outcome in studies conducted in Africa(Asa et al, 2008; Gies et al, 2009; Rogerson, Chaluluka, et al., 2000; van Ejik et al., 2005). This policy has been adopted by most countries in Africa,in which Nigeria is inclusive (FMOH, 2005; Omo Aghoja et al., 2008).

Overall, respondents' knowledge of intermittent preventive treatment and attitude towards IPT from the study was good. However, respondents' utilization of intermittent preventive treatment was poor. Four out of ten respondents used at least two doses of SP (the drug recommended by the policy for IPTp) for preventive treatment of malaria. Findings from this study are similar to a study conducted among pregnant women attending antenatal clinic in southwestern part of

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Nigeria (Idowu, Mafiana, & Dapo, 2006; Lamina, 2004). However, it is unlike findings of Onyebuchi et al in South East Nigeria(Onyebuchi, 2014) and Brentlinger et al in Mozambique(Brentlinger, Dgedge, & Correia, 2007) were 64.6% and 74.0%, respectively received at least two doses of SP in pregnancy. Also findings from this study was higher than prevalence that was reported in the National community survey 2013 Nigeria Demographic and Health Survey(FMOH, 2013). The poor utilization of IPTp among pregnant women in this study suggests that the women were not benefiting from the IPTp policy aimed at reducing the level of maternal and neonatal mortality associated with malaria in pregnancy. Despite the number of ANC visits among respondents from the study, poor utilization of IPT was also observed, which could be due to non availability of sulphadoxine-pyrimethamine during the clinic visits as supported by findings from the focus group discussions. Also the non-adherence of health care workers to the practice of directly observed treatment of IPT drugs at the health facilities could also have accounted for the poor utilization. Compliance with the recommendation that IPTp drug should be given under supervision in the clinic was very low in this study. Only three out of ten respondents who received IPTp used SP in the clinic and were supervised by a health worker at the time of ingestion, giving a directly observed therapy compliance rate of 34.7% which however, is higher than the compliance rate of DOT in a study conducted among pregnant women in the southwestern region of Nigeria(Akinleye et al., 2009).

Socio-demographic characteristics of the study population

The health facilities were easily accessible to the pregnant women; many of them could get to the clinic within ten minutes by walking or by use of public transport. In addition transport fare was also minimal. The provision of a functional PHC in every health district by the LGA is

commendable as the easy accessibility is expected to impact positively on the health of the community and be an encouragement for utilization of primary health centre for antenatal care.

Obstetric information of study respondents

The mean gestational age of respondents as at the first time they visited the clinic was 29.5 weeks±5.4SD. More than a fifth of the respondents' first ANC visit was in the first trimester of gestation, more than half did so in the second trimester while another fifth registered in the third trimester. This ANC visit similar to a study in northern Nigeria where 63% registered for ANC in their 2nd trimester(Mbonye, Neema, & Magnussen, 2006). When proportion of early first attendance was considered, the finding was similar to that of a study in Tanzania which found about half of the women to have first attended ANC during or before the fourth month of gestation(Anders et al., 2008). This late booking for ANC has implications for uptake of IPTp. When pregnant women register late, they are unlikely to take the recommended two doses of SP. Late first ANC attendance has been identified as an important factor contributing to incomplete IPT use(Greenwood et al., 1994). The decision for IPTp to be administered during ANC was informed by the expectation that pregnant women will attend clinic frequently enough to allow for two doses of SP for IPTp(Launiala & Honkasolo, 2007). Although ANC attendance is high in most countries with IPTp policy (median, 2.0–4.8 ANC visits per woman)(Launiala & Honkasolo, 2007), it has not been sufficient to ensure a high IPTp coverage. To reduce maternal morbidity and mortality and better health for the baby, focused ANC package advocates for the timely and appropriate care during pregnancy and timely attendance at ANC clinics is a key factor for the effective delivery of IPTp services(Mubyazi et al., 2005). However, inadequate/ irregular attendance has been noted in some sub-Sahara African countries. In Tanzania, only 40% of pregnant women deliver at health facilities although some records show a high antenatal

clinic attendance rate(Mubyazi et al., 2005). One study in Kenya found the late timing of the first dose of SP corresponding with late registration at ANC clinics among pregnant women. Another study from the same country found that despite high awareness about the IPTp strategy, only 5% of pregnant women had received two or more doses of SP as preventive treatment and only 14% of the women received at least one dose (Guyatt et al., 2004). Similarly findings were reported from Malawi whereby less than 40% of the 391 pregnant women surveyed in Blantyre district received the full dose regimen of SP for IPTp(Mubyazi et al., 2005). In two cross-sectional studies funded by the World Health Organization in Muheza district, Tanzania and Mpwapwa district in Central Tanzania, low compliance with the use of SP was partly attributed to health care providers' and users' fear of side effects of SP and their inadequate knowledge of the correct dose(Mubyazi et al., 2005).

Knowledge on intermittent preventive treatment during pregnancy

The study showed that generally knowledge on IPT was good among pregnant women however, IPT utilization was low. This can be attributed to late ANC registration among respondents despite their good knowledge on IPT. Findings from this study was similar to a study conducted in Senegal,(Olliaro et al., 2008) reported that the timing of IPTp directly linked to the onset of ANC visits. On the same note, (Van Eijk et al., 2004) found that delayed attendance of ANC contributed to non-completion of IPTp doses.

Correct knowledge about SP use during pregnancy was adequate; this could be due to high awareness of SP during pregnancy. Two-third of the respondents understood the concept of intermittent preventive treatment and also the recommended drug. The main source of information about intermittent preventive treatment was from the antenatal clinic. This is good

because antenatal care platforms should provide access to a wide range of pregnancy friendly interventions which include health education by healthcare workers about preventive measures against malaria fever during pregnancy. Also findings from the key informant interviews conducted in the selected health facilities showed that included in the routine ante natal clinic visit are health talk on prevention of malaria during pregnancy and the administration of sulphadoxine- pyrimethamine (SP) to eligible clients.

Association between parity of respondents and level of knowledge on IPT was statistically significant. Eight out of ten respondents with parity status of more than two had good knowledge about IPT during pregnancy as compared to about 6 out of 10 respondents that were nulliparous. This finding not unexpected as parity increases, knowledge about IPT during pregnancy also increases because with increase parity there is improved knowledge on IPT which ultimately could improve IPT utilization.

Furthermore, association between ANC visits and level of knowledge on IPT was statistically significant. Seven out of ten respondents with 2-4 ANC visits had good knowledge about IPT during pregnancy as compared to about 4 out of 10 respondents that had one ANC visit. This is expected because with increase ANC visit there will be an expected improvement in knowledge on IPT with a resultant improvement in IPT utilization. Also association between respondents' gestational age and level of knowledge on IPT was statistically significant. Seven out of ten respondents with gestational age of 27 weeks and above had good knowledge about IPT during pregnancy as compared to 6 out of 10 respondents that were between 20-26 weeks. This shows that with increase gestational age there is more awareness of IPT which could also influence utilization.

Respondent's parity, ANC visits and gestational age were predictors of knowledge about IPT at multivariate analysis. This also confirms that with increase in parity, ANC visits and gestational age there is a corresponding increase in knowledge about IPT during pregnancy in terms of its advantages both to the mother and the baby yet unborn.

Clients' attitude towards intermittent preventive treatment during pregnancy

Most respondents agreed that intermittent preventive treatment is used for malaria prevention during pregnancy which was in agreement with another study conducted in Tanzania(Mubyazi et al., 2005). This finding might be because of the good level of IPT awareness which was mostly through the health care provider. In addition to this, more than half of the respondents disagreed that fansidar was unsafe for pregnant women. However, some pregnant women from a Tanzanian study agreed that sulphadoxine-pyrimethamine was unsafe for use during pregnancy because of their belief and fear of the Steven-Johnson Syndrome, which was referred to as '*the burning of the skin*', it was openly asserted that some women threw away the SP tablets after leaving the dispensary(Mubyazi et al., 2005). At Kwamsisi village, in Tanzania other concerns were non-specific. One woman indicated: "*I do not like SP because it makes me feel bad*". It was further argued that some women believed SP taken during pregnancy could cause abortion, whilst others decided to take smaller dosage than what is recommended(Mubyazi et al., 2005). Other participants in the FGD said that SP does not lower body temperature and that it causes one's (especially children's) body to weaken.

The use of fansidar during each pregnancy was agreed upon by 7 out of 10 respondents this shows that the pregnant women were aware that the use of IPT was pregnancy specific and that protection the use of SP confers on one pregnancy cannot be sustained for another pregnancy. This also brings to bear the need for continuing sensitization and awareness of pregnant women

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by healthcare workers about the importance of intermittent preventive treatment during each pregnancy.

Six out of ten respondents agreed that fansidar should be used at the clinic; however majority of respondents in the health centres visited did not practiced directly observed treatment (DOT) using SP in the presence of the healthcare worker. This finding was further corroborated by the FGD done at the selected health facilities were some of the discussants said; *'' they give us the drugs at the health facility and we take them at home''*. The practice of DOT should be encouraged in order to ascertain compliance and authenticity of drug usage. Findings from this study was however in contrast to FGD report of women in Tabora village, Tanzania(Mubyazi et al., 2005); "*Some women hesitate even to take the drugs at clinics. Some of them (and these are the majority) take them but either hide them and throw them later in the bush on their way home* or *when they reach home*". The observation that pregnant women occasionally throw away their SP tablets after leaving the ANC clinics justifies the need for measures to improve the implementation of the DOT approach for IPTp.

Many respondents disagreed with the statement that fansidar should not be used due to its side effects; sensitization and awareness creation by health workers can be responsible for this opinion. This is commendable and worthy of note which should be sustained. However, concern among users about perceived side effects of using SP during pregnancy has also been reported from a study in Kenya where 216 women of reproductive age in Kisumu District were interviewed(Ndyomugenyi, Neema, & Magnussen, 1998). This study observed that 96% of the respondents perceived malaria to be a problem during pregnancy and 74% believed that anti-malarial drugs taken during pregnancy would be harmful to the pregnant woman and her unborn child. The massive concern expressed about the use of SP calls for intensified health education

about the documented effects and side effects of SP and the possible consequences of avoiding this.

Association between socio-demographic factors of respondents and attitude towards intermittent preventive treatment showed that there was statistically significant difference between age with respondents' occupation and attitude towards intermittent preventive treatment. Six out of ten respondents with age group 20-29 years had positive attitude towards IPT during pregnancy as compared to about 3 out of 10 respondents that had negative attitude. This finding was expected because the information on IPT obtained from the antenatal clinic has a way of positively influencing their attitude to the practice of IPT during pregnancy. Furthermore, seven out of ten respondents who were unskilled employees had positive attitude towards IPT during pregnancy as compared to 2 out of 10 respondents that had negative attitude. Also antenatal visits and attitude towards IPT was found to be statistically significant which shows that the more the clinic visits, the more likely they will develop a positive attitude towards IPT thereby improving its utilization.

Respondents' age, ANC visits and Occupation were also found to be predictors of attitude towards IPT at multivariate analysis. Those that were twenty years and above were 1.4 times more likely to be a good predictor of attitude towards IPT as compared to the reference age group < 20 years (OR 1.35; CI 1.10-1.66). Also those with one ANC visit were 0.4 times less likely to be a good predictor of attitude towards IPT as compared to those with more than one visit (OR 0.43; CI 0.24-0.80).

Utilization of intermittent preventive treatment during pregnancy

Four-fifth of the respondents used sulphadoxine-pyrimethamine (SP) as IPT drugs as compared to one-fifth of them that didn't. More than three quarter of the respondents that used SP took the recommended number of tablets while less than a quarter didn't. This shows that the recommended number of SP tablets was given at the health facilities however utilization varies on individual level. Six out of ten respondents took their IPT drugs at home while 4 out of 10 took theirs at the clinic. IPT utilization could not be guaranteed for those that took their drugs at home. About 3 out of 10 respondents adhered to the practice of DOT during the administration of their IPT drugs, this shows non-adherence to the practice of DOT scheme at the health facilities. Findings about IPT utilization from this study could be said to low considering those that took at least two doses of SP.

Factors influencing the utilization of intermittent preventive treatment during pregnancy

From this study include cost and availability of drugs and location of use. Findings from the FGD among pregnant women and KII among the healthcare workers revealed that some of the health facilities initially when they started were selling IPT drugs at a subsidized rate of between 50-100naira because then there was no supply of the drugs from the State Government. This they said initially affected the utilization of IPT amongst the pregnant women. Similar to this FGD report is a study conducted in Senegal(Olliaro et al., 2008) in which most public health facilities provided IPTp services. However, up to 27% of the facilities had experienced SP stock-outs over the preceding six months period, which significantly undermined the delivery of IPTp services. On the same note, other studies in Tanzania(Mubyazi et al., 2005; Tarimo, 2007) found that recurrent SP stock-outs, inconsistent supply of clean drinking water and inadequacy of clean cups were some of the facility factors influencing the IPTp uptake.

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Location of use as one of the factors influencing IPT utilization from the study is quite disturbing because a greater number of pregnant women took their drugs home for use. Even though DOT is being practiced in the selected PHCs visited, this could still be said to be inadequate. Healthcare workers should as much as possible adhere to the practice of DOT during IPT administration. This guarantees the utilization which in turn helps to assess the effectiveness of IPT even after delivery. Findings from this study are in contrast to a study conducted at Bosomtwe district, Ghana(Antwi, 2010) where staff commitment to DOT was very high which reflected in the practice of DOT at the ANCs where 99 % of the respondents admitted to swallowing the SP they received in the ANC. These findings are very encouraging and are likely contributory factors to the high IPT coverage in the district.

Association between socio-demographic factors of respondents and utilization of intermittent preventive treatment showed that there was statistically significant difference between number of ANC visits, occupation, gestational age of respondents, knowledge on IPT and attitude towards IPT with utilization of intermittent preventive treatment. Four out of ten respondents with 2-4 ANC visits had good utilization of IPT as compared to those with a single visit. This could be due to the fact that revisit during antenatal care increases the chances of taking the recommended SP doses. Also respondents' occupation and utilization of IPT was also found to be statistically significant, majority of the employed respondents had good utilization of IPT. This could be due to the fact that the employed were able to meet the financial obligations of antenatal registration which in turn influenced their IPT utilization as compared to their unemployed counterparts. Respondents' ANC visit, occupation, gestational age, knowledge on IPT and attitude towards IPT were also found to be predictors of IPT utilization at multivariate analysis. Those that had more than one ANC visits were more likely to be good predictors of IPT utilization as compared

to those with a single visit (OR 5.64; CI 1.19-26.63). Furthermore, respondents with poor knowledge on IPT were less likely to be a good predictor of IPT utilization as compared to those with good knowledge (OR 0.53; CI 0.40-0.71). Respondents with positive attitude towards IPT were more likely to be a good predictor of IPT utilization as compared to those with negative attitude (OR 2.11; CI 1.52-2.93). Respondents that were unemployed were more likely to be a good predictor of IPT utilization as compared to those that were employed (OR 1.37; CI 1.08-1.73). Also respondents with gestational age of 20-26 weeks were more likely to be a good predictor of IPT utilization as compared to those that were 27 weeks and above.

Study limitation

The study however has the following limitation:

Interviews and discussions were conducted at the heath facilities. This however caused information bias due to fear of disclosed information reaching the health care providers. This was however minimized by interviewing the pregnant women in a private area where information given was confidential. Also the use of qualitative data collection focus group discussion (FGD) allowed for more sensitive information to be collected.

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5.2 CONCLUSION

This study showed that respondents had good knowledge on intermittent preventive treatment which was as a result of the information obtained from the antenatal clinic. Majority of the respondents also knew that SP is safe during pregnancy with resultant benefits for the mother and her unborn baby. The implication of the good knowledge of IPT among respondents in the study area is that there is high level of awareness about IPT most especially in the primary healthcare centres rendering antenatal care services.

Also, most of the respondents had positive attitude towards IPT utilization which could have been influenced by their knowledge on IPT. Continuous sensitization and awareness creation on the importance of IPT at antenatal clinics help influence respondents attitude towards IPT utilization.

Furthermore, there was however low level of IPT utilization among study respondents based on the recommended full doses of SP which was as a result of late ANC booking among study respondents. Majority of the respondents registered for antenatal care late in the second trimester which contributed to non-completion of the required SP doses. Also DOT practice for IPT was not adhered to in all the health facilities used for the study. Drugs were mostly taken at home. Factors identified to influence IPT utilization were number of ANC visits, occupation and gestational age of respondents, knowledge on IPT and attitude towards IPT. Respondents with more than one ANC visit had good knowledge and attitude towards IPT utilization with a corresponding good IPT utilization. Those that were employed due to the fact that they were able to meet up with the financial obligations of antenatal care had good IPT utilization. Respondents with gestational age of 20-26 weeks had good IPT utilization than those who were 27 weeks and

above. This finding was as a result of high awareness about IPT among those that registered early for antenatal care as compared to those with late booking.

Good knowledge and positive attitude towards IPT was responsible for utilization of IPT among study respondents.

The implication of the outcome of low IPT utilization due to late ANC registration and non-adherence to the practice of DOT scheme on the study area is that more awareness and sensitization needed to be done on early registration for antenatal care and the practice of DOT by pregnant women at the health facilities. Concerning the national policy guideline on intermittent preventive treatment, the study outcome showed that pregnant women did not receive IPT in line with the national treatment guidelines.

5.3 RECOMMENDATIONS

In view of the findings from this study, the following recommendations are hereby made;

5.3.1 To the healthcare workers

1. Sensitization and awareness creation among pregnant women about the need for the practice of DOT scheme at the health facility.
2. Strict adherence to the practice of DOT scheme at the health facilities so as to improve the utilization of IPT.

5.3.2 To pregnant women

1. Early booking during antenatal care to improve utilization of intermittent preventive treatment.

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APPENDICES

APPENDIX 1

QUESTIONNAIRE ON FACTORS ASSOCIATED WITH UTILIZATION OF INTERMITTENT PREVENTIVE TREATMENT FOR MALARIA AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINICS IN PRIMARY HEALTH CARE CENTRES IN OGBOMOSO, OYO STATE.

Dear Respondents,

This is a health survey questionnaire to study factors associated with Intermittent Preventive Treatment (IPT) utilization among pregnant women. All information would be treated confidentially. Refusal to participate will not in any way affect the quality of care that will be provided.

Please kindly ensure that you answer all questions truthfully.

Thanks for your cooperation.

Date: _____ ANC Clinic: _____

Serial no: _____

SECTION A (Socio-demographic characteristics of respondents).

1. Age (as at last birthday in years) _____

2. Ethnic group. (1) Yoruba (2) Ibo (3) Hausa (4) Others (Please Specify)

3. Highest level of Education. (1) Didn't go to school/ No formal education (2) Primary education only (3) Secondary education only (4) Tertiary education (5)Postgraduate (6) Others e.g. Koranic School.

4. Religion (1) Christianity (2) Islam (3) Traditional (4) Others (Please Specify)

5. Marital Status (1) Single (2) Married (3) Divorced (4) Separated (5) Co-habiting (6) Widowed

6. Occupation (1) Student (2) Unemployed (3) Unskilled (4) Skilled (5) Professional

7. How much do you earn per month? _____

(Accessibility to ANC)

8. How many minutes will it take you to get to the ANC Clinic from your house by taking a taxi or by walking? _____ (pls specify answer)

9. Cost of transportation to and from ANC Clinic? _____

SECTION B (Obstetric History)

10. What is your present gestational age?/ No of weeks gestation (Confirm the age of pregnancy from the MCH card) _____

11. How many deliveries have you ever had? _____

12. How many pregnancies have you ever had? _____

13. No of live births: _____

14. Do you have an ANC card? (Ask respondent to show the ANC card if available) (1)Yes (2) No

15. Do you attend antenatal clinic (ANC) regularly as it is expected of you? (1)Yes (2) No (3) Don't know

16. After how many months pregnancy did you start ANC? No. of months ( ) Don't know( )

17. How many times have you attended ANC? [Verify from ANC card] Once ( ) Twice ( ) Thrice ( ) Four or more times ( )

18. Check haemoglobin level of pregnant women [from ANC card]

At registration (specify date) g/dl _____

Most recent/last (specify date) g/dl _____

SECTION C Knowledge of IPTp

19. Have you heard about Intermittent Preventive Therapy (IPT)? 1. Yes 2. No

20. From where did you hear about IPT? _____

(a) Friends (b) Husband (c) Radio or Television (d) ANC Clinic (e) others, (please specify)

_____

21. Do you know intermittent preventive therapy (IPT)? 1. Yes 2. No

If yes, what is IPT? _____

22. What drug is recommended for IPT use?

1. Chloroquine
2. Fansidar
3. Phensic
4. Amalar
5. Malareich

23. Do you know what the tablets are for? Yes ( ) No ( )
24. If yes, what are the tablets for? (choose one best option)
1. To make me gain weight ( ) 2. To make my baby and I strong and healthy ( )
3. To prevent me from getting malaria ( ) 4. To give me a lot of blood ( )
5. To cleanse my blood of diseases ( ) 6. other, (pls specify) _____

25. Intermittent Preventive Therapy can be given to? (choose one best option)

1. Men

2. Pregnant Women

3. Aged People

4. Infant

26. How many tablets of IPT drug is being used at once as a dose?

(1) 1 tablet (2) 2 tablets (3) 3 tablets (4) 4 tablets (5) 5 tablets

27. When is IPT doses recommended to be used during pregnancy?

(1) 1st- 3rd months (2) 4th- 6th months (3) 7th- 9th months (4) 2nd- 4th months

28. Who are those not suppose to use IPT? _____

SECTION D: Respondents attitude towards IPTp

		Agree	Disagree	Indifferent
29	I can use IPT drug prescribed for the prevention of malaria during pregnancy			
30	It is unsafe for a pregnant woman to use fansidar for the prevention of malaria			
31	As a pregnant woman I believe should always use fansidar during each pregnancy			
32	I believe i should always take fansidar as an IPT drug at the clinic as a pregnant woman			
33	I can use at least 2 doses of fansidar all through pregnancy			

34	It is better that pregnant women should not use fansidar because of its side effects			
35	I believe fansidar is effective in preventing malaria fever during pregnancy			
36	I prefer to take at home fansidar given to me at the clinic			
37	I believe fansidar can be combined with other malaria prevention measures			
38	I will never recommend taking IPT at a clinic were the antenatal staff have unfriendly attitude			
39	I believe IPT can protect the unborn baby from complications of malaria fever			

SECTION E: Utilization IPTp

40. Since your coming to this ANC center have you received IPT drug?
1. Yes 2. No 3. Don't know

41. How many tablets were you being given? _____

42. How many did you use? _____

43. Where did you use it? 1. Home 2.In the Clinic 3.Outside the clinic

44. How much did you pay for the drug? _____

45. When you used it, were you being supervised? 1. Yes 2. No

If yes, who supervised you? _____

46. Did you use the clinic cups provided for use? 1. Yes 2. No

47. Do you like taking the drugs in the clinic? 1. Yes 2. No

48. Is there any time you didn't take the drugs given to you in the clinic?
1. Yes 2. No

49. Is there any time you were afraid of any complication during pregnancy and so didn't use the drug? 1. Yes 2. No

34	It is better that pregnant women should not use fansidar because of its side effects			
35	I believe fansidar is effective in preventing malaria fever during pregnancy			
36	I prefer to take at home fansidar given to me at the clinic			
37	I believe fansidar can be combined with other malaria prevention measures			
38	I will never recommend taking IPT at a clinic were the antenatal staff have unfriendly attitude			
39	I believe IPT can protect the unborn baby from complications of malaria fever			

SECTION E: Utilization IPTp

40. Since your coming to this ANC center have you received IPT drug?
1. Yes 2. No 3. Don't know

41. How many tablets were you being given? _____

42. How many did you use? _____

43. Where did you use it? 1. Home 2.In the Clinic 3.Outside the clinic

44. How much did you pay for the drug? _____

45. When you used it, were you being supervised? 1. Yes 2. No

If yes, who supervised you? _____

46. Did you use the clinic cups provided for use? 1. Yes 2. No

47. Do you like taking the drugs in the clinic? 1. Yes 2. No

48. Is there any time you didn't take the drugs given to you in the clinic?
1. Yes 2. No

49. Is there any time you were afraid of any complication during pregnancy and so didn't use the drug? 1. Yes 2. No

50. Is there any time you used IPT during pregnancy and still had malaria?
1. Yes 2. No

51. If Yes, which of your pregnancies? _____

52. How many doses did you take?

(1)1 dose (2) 2 doses (3) 3 doses (4) 4 dose (5) 5 doses

53. When did you take your first dose? _____

54. For each dose, how many tablets did you use? _____

55. After using IPT, was there any side effect? 1. Yes 2. No

If yes, Please specify _____

56. Any other recommendation for the prevention of malaria during pregnancy _____

57. What would you suggest to improve IPT use in the clinics _____

SECTION F: ANTENATAL RECORD INFORMATION

58. Total number of visits including this one ( )
59. Gestation (weeks) recorded at first visit ( )
60. Number of doses SP recorded (given) ( )
61. SP administration

Dose of SP (please tick)	Date of visit	Gestational age at which it was given
1st		
2nd		
3rd		

THANK YOU FOR YOUR TIME

APPENDIX 2

IWE IBEERE LORI AWON OHUN TI O NISE PELU AMULO ITOJU EKANKAN TO N SISE IDENA (IPT) FUN ARUN IBA LAARIN AWON ALABOYUN TO N LO ILE AYEWO ALABOYUN NI AWON ILE IWOSAN ABAMODE NI OGBOMOSO, IPILE OYO.

Oludahun Owon,

Eyi ni iwe ibeere lori ilera lati se agbeyewo awon ohun ti o nise pelu amulo itoju ekankan to n sise idena (IPT) laarin awon alaboyun. Gbogbo idahun yin ni yi o je asiri. Aikopa ninu eto yii koni dena itoju to yekoro ti e n gba ni ona kona.

Jowo, ri daju wipe o dahun gbogbo ibere ni ododo.

Ese fun ifowosowopo yin.

Ojo: _____ Ile ayewo/itoju alaboyun (ANC Clinic):_____

Serial nomba: _____

Ipele kini ( )

1. Ojo ori (ni ojo-ibi re to keyin): _____

2. Eya. (i) Yoruba (ii) Igbo (iii) Hausa (iv) Omiran (Jowo, so eyi ti o je)_____

3. Ipele eko to gaju (i) Mi o lo ile-iwe (ii) Iwe alakobere nikan (iii) Eko girama nikan (iv) Eko giga

(v) Eko ipele giga keji/iketa (vi) Omiran e.g. Ile keu.

4. Esin (i) Igbagbo (ii) Musulumi (iii) Abalaye (iv) Omiran (Jowo, so eyi to je) _____

5. Ipo igbeyawo (i) Mi o ti se igbeyawo (ii) Mo ti se igbeyawo (iii) Mo ti ko oko mi sile (iv) Mi o gbe pelu oko mi (v)Mo n gbe pelu orekunrin mi (vi) Opo

6. Ise sise (i) Akeeko (ii) Alainiselowo (iii) Alainimo ise (iv) onimo ise (v) Alamodaju

7. Elo ni e n gba/pa ni osu? _____

(Sisunmo si Ile Ayewo/Itoju Alaboyun)

8. Iseju melo lo gba o de Ile Ayewo/Itoju Alaboyun lati ile e re bi o ba wo oko tabi ti o fie se rin.

_____ (Jowo, so eyi to je)

9. Owo oko lilo ati bibo lati Ile Ayewo/Itoju Alaboyun. _____

IPELE KEJI (Itan nipa omo bibi)

10. Oyun yin ti to ose melo bayi? (se aridaju eyi lati inu kaadi MCH re) _____

11. Emeelo lo ti bimo? _____

12. Oyun melo lo ti ni? _____

13. Omo melo lo bi ti o ye? _____

14. Se o ni kaadi eto ayewo/itoju alaboyun (ANC) (so fun oludahun ki o fi kaadi han o ti o ba wa)

(i) Beeni (ii) Beeko

15. Se o ma n lo Ile Ayewo/Itoju alaboyun deede bi o se ye? (i) Beeni (ii) Beeko (iii) Mi o mo

16. Bi osu melo ni oyun re nigbati o bere Eto Ayewo/Itoju Alaboyun? Iye osu ( ) Mi o mo ( )

17. Igba melo ni o ti lo fun Eto Ayewo/Itoju Alaboyun? (Ye kaadi oludahun wo fun aridaju).
Ekan ( )

Emeji ( ) Emeta ( ) Emerin tabi ju be lo ( )

18. Ye haemoglobin level alaboyun wo (lati inu kaadi re)

Ni akoko iforukosile (so ojo pato) g/dl _____

Eyi to sunmo ju/eyi to keyin (so ojo pato) g/dl _____

IPELE KETA (Imo nipa Itoju Ekankan to n sise Idena (IPT))

19. Se o ti gbo nipa Itoju Ekankan to n sise Idena (IPT)? (i) Beeni (ii) Beeko

20. Nibo ni o ti gbo nipa Itoju Ekankan to n sise Idena (IPT)? _____

(a) Ore (b) Oko (c) Asoromagbesi tabi Amohunmaworan (d) Ile Ayewo/itoju Alaboyun (e) Omiran (Jowo, so eyi to je).

8. Iseju melo lo gba o de Ile Ayewo/Itoju Alaboyun lati ile e re bi o ba wo oko tabi ti o fie se rin.

_____ (Jowo, so eyi to je)

9. Owo oko lilo ati bibo lati Ile Ayewo/Itoju Alaboyun. _____

IPELE KEJI (Itan nipa omo bibi)

10. Oyun yin ti to ose melo bayi? (se aridaju eyi lati inu kaadi MCH re) _____

11. Emeelo lo ti bimo? _____

12. Oyun melo lo ti ni? _____

13. Omo melo lo bi ti o ye? _____

14. Se o ni kaadi eto ayewo/itoju alaboyun (ANC) (so fun oludahun ki o fi kaadi han o ti o ba wa)

(i) Beeni (ii) Beeko

15. Se o ma n lo Ile Ayewo/Itoju alaboyun deede bi o se ye? (i) Beeni (ii) Beeko (iii) Mi o mo

16. Bi osu melo ni oyun re nigbati o bere Eto Ayewo/Itoju Alaboyun? Iye osu ( ) Mi o mo ( )

17. Igba melo ni o ti lo fun Eto Ayewo/Itoju Alaboyun? (Ye kaadi oludahun wo fun aridaju).
Ekan ( )

Emeji ( ) Emeta ( ) Emerin tabi ju be lo ( )

18. Ye haemoglobin level alaboyun wo (lati inu kaadi re)

Ni akoko iforukosile (so ojo pato) g/dl _____

Eyi to sunmo ju/eyi to keyin (so ojo pato) g/dl _____

IPELE KETA (Imo nipa Itoju Ekankan to n sise Idena (IPT))

19. Se o ti gbo nipa Itoju Ekankan to n sise Idena (IPT)? (i) Beeni (ii) Beeko

20. Nibo ni o ti gbo nipa Itoju Ekankan to n sise Idena (IPT)? _____

(a) Ore (b) Oko (c) Asoromagbesi tabi Amohunmaworan (d) Ile Ayewo/itoju Alaboyun (e) Omiran (Jowo, so eyi to je).

21. Se o mo Itoju Ekankan to n sise Idena (IPT)? (i) Beeni (ii) Beeko

To ba je beeni, kini Itoju Ekankan to n sise Idena (IPT)?_____

22. Ogun wo ni a gba ni amoran fun Itojù Ekankan to n sise Idena (IPT)?

1. Chloroquini

2. Fansida

3. Phensik

4. Amalar

5. Malarichi

23. Se o mo ohun ti koro ogun na wa fun? Beeni ( ) Beeko ( )

24. To ba je beeni, kini awon koro ogun na wa fun? (mu eyi to dara julo)

1. Lati mu mi sanra si ( ) 2. Lati je ki omo mi ni okun , ki o si wa ni ilera ( )

3. Lati ma je ki n ni arun iba ( ) 4. Lati fun mi ni eje pupo ( )

5. Lati fo aisan mo kuro ninu eje mi ( ) 6. Omiran (Jowo, so eyi to je)_____

25. Awon wo ni a le fun ni Itoju Ekankan to n sise Idena (IPT)? (So eyi to dara julo)

1. Awon Okunrin

2. Awon Alaboyun

3. Awon Arugbo

4. Awon Omo owo

26. Koro ogun Itoju Ekankan to n sise Idena (IPT) melo ni a n lo ni ekan?

1. Koro eyokan 2. Koro meji 3. Koro meta 4. Koro merin 5. Koro marun

27. Igbawo ni a n gbani ni amoran lati lo awon ogun Itoju Ekankan to n sise Idena (IPT) ninu oyun?

1. Osu kini si osu keta 2. Osu kerin si osu kefa 3. Osu keje si osu kesan 4. Osu keji si osu kerin

28. Awon wo ni ko ye ki won lo ogun Itoju Ekankan to n sise Idena (IPT)?_____

IPELE KERIN: Iha ti Oludahun ko si Itoju Ekankan to n sise Idena (IPT)

		Mo faramo	Mi o faramo	Eyikeyi
29	Mo le lo ogun Itoju Ekankan to n sise Idena (IPT) ti a gba mi ni imoran lati lo fun idena arun iba ninu oyun.			
30	O lewu fun alaboyun lati lo Fansidar fun idena arun iba.			
31	Gege bi alaboyun, mo gbagbo pe o ye ki n ma lo Fansidar ni gbogbo igba ti n ba wa ninu oyun.			
32	Mo gbagbo pe o ye ki n ma lo Fansidar ni gbogbo igba gege bi ogun Itoju Ekankan to n sise Idena (IPT) ni ile iwosan gege bi alaboyun.			
33	Mo le lo okereju iwon meji fansidar ni gbogbo akoko iloyun.			
34	O san ki awon alaboyun ma se lo Fansidar nitori awon ipalara re.			
35	Mo gbagbo pe Fansidar n sise dada fun idena arun iba ninu oyun.			

36	O pe mi ki n lo Fansidar ti a fun mi ni ile iwosan ni ile.			
37	Mo gbagbo pe a le lo Fansidar pelu awon ohun idena iba omiran.			
38.	Mi o ni lailai gba ni ni imoran lati lo ogun Itoju Ekankan to n sise Idena (IPT) ni ile itoju ti awon osise ayewo alaboyun kanra/ni iwa ti ko fa ni mora.			
39.	Mo gbagbo pe ogun Itoju Ekankan to n sise Idena (IPT) le dabobo oyun inu lowo awon ewu to le jeyo lati arun iba.			

IPELE KARUN: Ilo Itoju Ekankan to n sise Idena (IPT)

40. Lati igba ti o ti n wa si Ile Ayewo/Itoju Alaboyun yi, se o ti gba ogun Itoju Ekankan to n sise Idena (IPT)?

1. Beeni 2. Beeko 3. Mi o mo.

41. koro melo ni won fun o? _____

42. Melo ni o lo? _____

43. Nibo ni o ti lo? 1. Ile re 2. Ninu Ile Itoju 3. Ita Ile Itoju

44. Elo ni o san fun ogun na? _____

45. Nigba ti o lo, se a moju to o? 1. Beeni 2. Beeko

To ba je beeni, tani o moju to o?

46. Se o lo awon ife/koopu ile itoju ti a pese fun lilo? 1. Beeni 2. Beeko

47. Se o feran lati ma lo awon ogun na ni ile itoju? 1. Beeni 2. Beeko

48. Se igba kankan wa ti o ko lo awon ogun ti a fun o ninu ile itoju? 1. Beeni 2. Beeko

36	O pe mi ki n lo Fansidar ti a fun mi ni ile iwosan ni ile.			
37	Mo gbagbo pe a le lo Fansidar pelu awon ohun idena iba omiran.			
38.	Mi o ni lailai gba ni ni imoran lati lo ogun Itoju Ekankan to n sise Idena (IPT) ni ile itoju ti awon osise ayewo alaboyun kanra/ni iwa ti ko fa ni mora.			
39.	Mo gbagbo pe ogun Itoju Ekankan to n sise Idena (IPT) le dabobo oyun inu lowo awon ewu to le jeyo lati arun iba.			

IPELE KARUN: Ilo Itoju Ekankan to n sise Idena (IPT)

40. Lati igba ti o ti n wa si Ile Ayewo/Itoju Alaboyun yi, se o ti gba ogun Itoju Ekankan to n sise Idena (IPT)?

1. Beeni 2. Beeko 3. Mi o mo.

41. koro melo ni won fun o? _____

42. Melo ni o lo? _____

43. Nibo ni o ti lo? 1. Ile re 2. Ninu Ile Itoju 3. Ita Ile Itoju

44. Elo ni o san fun ogun na? _____

45. Nigba ti o lo, se a moju to o? 1. Beeni 2. Beeko

To ba je beeni, tani o moju to o?

46. Se o lo awon ife/koopu ile itoju ti a pese fun lilo? 1. Beeni 2. Beeko

47. Se o feran lati ma lo awon ogun na ni ile itoju? 1. Beeni 2. Beeko

48. Se igba kankan wa ti o ko lo awon ogun ti a fun o ninu ile itoju? 1. Beeni 2. Beeko

49. Se igba kankan wa ti o ni iberu ewu ti o n jeyo ninu oyun ti o si tori re ma lo ogun na?

1.Beeni 2. Beeko

50. Se igba Kankan wa ti o lo ogun Itoju Ekankan to n sise Idena (IPT) ninu oyun ti o sit u ni arun iba?

1. Beeni 2. Beeko

51. To ba je beeni, ewo ninu awon oyun re? _____

52. Odinwon ogun melo ni o lo?

1. Odinwon eyokan 2. Odinwon meji 3. Odinwon meta 4. Odinwon merin 5. Odinwon marun

53. Igbawo ni o lo odinwon akoko? _____

54. Fun odinwon kookan, koro melo ni o lo? _____

55. Leyin ti o lo ogun Itoju Ekankan to n sise Idena (IPT), se o ni ipalara Kankan? 1. Beeni 2. Beeko

Ti o ba je beeni, jowo, so eyi to je _____

56. Amoran wo lotu wa fun idena arun iba ninu oyun? _____

57. Kini o le da ni aba lati mu lilo ogun Itoju Ekankan to n sise Idena (IPT) ni ile itoju gboro si?

IPELE KEFA: IMO LORI AKOSILE AYEWO ALABOYUN

58. Oye akoko abewo ni apapo pelu eleyi ( )

59. Ose oyun ti o wa ni akosile ni abewo akoko ( )

60. Oye odinwon SP ti o wa ni akosile (ti a fun won) ( )

61. Fifunni SP

Odinwon SP (Jowo fala)	Ojo Abewo	Ose oyun ni igba ti a fun won ni SP
Akoko		
Ekeji		
Eketa		

APPENDIX 3

FOCUS GROUP DISCUSSION GUIDE ON HEALTH SYSTEM FACTORS ASSOCIATED WITH THE UTILIZATION OF IPTp BY PREGNANT ATTENDING ANTENATAL CLINICS IN PRIMARY HEALTH CARE CENTRES IN OGBOMOSO, OYO STATE.

This is a focus group discussion guide on health system factors associated with the utilization of IPTp by pregnant women attending antenatal clinics in primary health care centers in Ogbomoso, Oyo State.

1) Arrival and welcome of discussants
2) Self introduction
3) Introduction of topic and explanation on the rationale for the study
4) Question guides
   I. When do women usually start ANC?
   II. What are the treatments given to pregnant women with malaria fever?
   III. What are the drugs pregnant women use to treat malaria?
   IV. How do they use their drugs?
   V. What are the benefits (if any) of taking the drug used for IPT during pregnancy?
   VI. Have you heard or experienced any problems caused by the use of these drugs to the pregnant woman or the unborn baby?
   VII. What are some of the reasons why pregnant women do not complete the recommended doses?
   VIII. What are cultural beliefs in your community concerning the use of drug for IPT?
   IX. Are the drugs for IPTp readily available in the health facility?
   X. At which location do you take the drugs for IPTp?
   XI. What are your suggestions for pregnant women to use the recommended dose of IPT?
5) Appreciation and departure

APPENDIX 3

FOCUS GROUP DISCUSSION GUIDE ON HEALTH SYSTEM FACTORS ASSOCIATED WITH THE UTILIZATION OF IPTp BY PREGNANT ATTENDING ANTENATAL CLINICS IN PRIMARY HEALTH CARE CENTRES IN OGBOMOSO, OYO STATE.

This is a focus group discussion guide on health system factors associated with the utilization of IPTp by pregnant women attending antenatal clinics in primary health care centers in Ogbomoso, Oyo State.

1) Arrival and welcome of discussants
2) Self introduction
3) Introduction of topic and explanation on the rationale for the study
4) Question guides
   I. When do women usually start ANC?
   II. What are the treatments given to pregnant women with malaria fever?
   III. What are the drugs pregnant women use to treat malaria?
   IV. How do they use their drugs?
   V. What are the benefits (if any) of taking the drug used for IPT during pregnancy?
   VI. Have you heard or experienced any problems caused by the use of these drugs to the pregnant woman or the unborn baby?
   VII. What are some of the reasons why pregnant women do not complete the recommended doses?
   VIII. What are cultural beliefs in your community concerning the use of drug for IPT?
   IX. Are the drugs for IPTp readily available in the health facility?
   X. At which location do you take the drugs for IPTp?
   XI. What are your suggestions for pregnant women to use the recommended dose of IPT?
5) Appreciation and departure

APPENDIX 4

ITONA FUN AWON OLUKOPA NINU IFOROWERO LORI AWON OHUN ETO ILERA TI O NISE PELU BI AWON ALABOYUN TI O N LO ILE AYEWO ALABOYUN NI AWON ILE IWOSAN ALABODE TI O WA NI OGBOMOSO NI IPINLE OYO SE N LO OGUN ITOJU EKANKAN TO N SISE IDENA (IPTp).

Eyi ni itona fun awon olukopa ninu iforowero lori awon ohun eto ilera ti o nise pelu bi awon alaboyun ti o n lo ile ayewo alaboyun ni awon ile iwosan alabode ti owa ni Ogbomoso ni ipinle Oyo se nlo ogun Itoju Ekankan to n sise Idena (IPTp).

1) Dide ati ikini awon olujiroro.

2) Mo mi n mo o awon olukopa.

3) Ifihan akori ati alaye lori idi ti asese iwadi yii.

4) Itona fun ibeere

i) igbawo ni awon obirin ma n bere eto ayewo/itoju alaboyun?

ii) kini awon itoju ti won n fun awon alaboyun ti o ni arun iba?

iii) Awon ogun wo ni awon alaboyun n fi n toju arun iba?

iv) Bawo ni won se ma n lo awon ogun won?

v) Kini awon anfani (to ba wa) lilo ogun ti owa fun ogun Itoju Ekankan to n sise Idena (IPTp) ninu oyun?

vi) Se o ti gbo tabi ni iriri nipa isoro ti lilo awon ogun yii n fa fun alaboyun tabi oyun inu.

vii) kini awon idi ti awon alaboyun ose ki n fi pari iwon ogun ti a gba won ni imoran lati lo?

viii) Awon asa wo ni e gbagbo ni ilu yin ti o nise pelu ilo ogun Itoju Ekankan to n sise Idena (IPTp)?

ix) Se awon ogun Itoju Ekankan to n sise Idena (IPTp) wa ni arowoto ni ile iwosan alabode?

x) Nibo ni o ti n lo awon ogun to wa fun Itoju Ekankan to n sise Idena (IPTp)?

xi) Awon aba wo loni fun awon alaboyun nipa lilo iwon ogun Itoju Ekankan to n sise Idena (IPTp) ti a gba won ni amoran lati lo?

5) Idupe ati ilo

APPENDIX 4

ITONA FUN AWON OLUKOPA NINU IFOROWERO LORI AWON OHUN ETO ILERA TI O NISE PELU BI AWON ALABOYUN TI O N LO ILE AYEWO ALABOYUN NI AWON ILE IWOSAN ALABODE TI O WA NI OGBOMOSO NI IPINLE OYO SE N LO OGUN ITOJU EKANKAN TO N SISE IDENA (IPTp).

Eyi ni itona fun awon olukopa ninu iforowero lori awon ohun eto ilera ti o nise pelu bi awon alaboyun ti o n lo ile ayewo alaboyun ni àwon ile iwosan alabode ti owa ni Ogbomoso ni ipinle Oyo se nlo ogun Itoju Ekankan to n sise Idena (IPTp).

1) Dide ati ikini awon olujiroro.

2) Mo mi n mo o awon olukopa.

3) Ifihan akori ati alaye lori idi ti asese iwadi yii.

4) Itona fun ibeere

i) igbawo ni awon obirin ma n bere eto ayewo/itoju alaboyun?

ii) kini awon itoju ti won n fun awon alaboyun ti o ni arun iba?

iii) Awon ogun wo ni awon alaboyun n fi n toju arun iba?

iv) Bawo ni won se ma n lo awọn ogun won?

v) Kini awon anfani (to ba wa) lilo ogun ti owa fun ogun Itoju Ekankan to n sise Idena (IPTp) ninu oyun?

vi) Se o ti gbo tabi ni iriri nipa isoro ti lilo awon ogun yii n fa fun alaboyun tabi oyun inu.

vii) kini awon idi ti awon alaboyun ose ki n fi pari iwon ogun ti a gba won ni imoran lati lo?

viii) Awon asa wo ni e gbagbo ni ilu yin ti o nise pelu ilo ogun Itoju Ekankan to n sise Idena (IPTp)?

ix) Se awon ogun Itoju Ekankan to n sise Idena (IPTp) wa ni arowoto ni ile iwosan alabode?

x) Nibo ni o ti n lo awon ogun to wa fun Itoju Ekankan to n sise Idena (IPTp)?

xi) Awon aba wo loni fun awon alaboyun nipa lilo iwon ogun Itoju Ekankan to n sise Idena (IPTp) ti a gba won ni amoran lati lo?

5) Idupe ati ilo

APPENDIX 5

KEY INFORMANT INTERVIEW GUIDE ON HEALTH SYSTEM FACTORS ASSOCIATED WITH THE UTILIZATION OF IPTp BY PREGNANT ATTENDING ANTENATAL CLINICS IN PRIMARY HEALTH CARE CENTRES IN OGBOMOSO, OYO STATE.

This is a key ~~informant~~ interview guide on health system factors associated with the utilization of IPTp by pregnant attending antenatal clinics in primary health care centers in Ogbomoso, Oyo State.

1) Arrival and welcoming of discussant
2) Introduction of self
3) Introduction of project topic and briefly explaining the rationale for the study
4) Question guides
   - I. What do you understand by the term intermittent preventive treatment in pregnancy (IPTp)?
   - II. What is the National policy on IPTp use by pregnant women?
   - III. Does your health facility follow the National guideline in the practice of IPTp
   - IV. How do you know? How do they do so?
   - V. Which drug is used and what is the dosage regimen?
   - VI. What do you understand by DOT scheme in IPTp?
   - VII. Do you practice DOT scheme in your health facility?
   - VIII. Do health workers adhere to the DOT scheme?
   - IX. What are the challenges with doing so?
   - X. Are the drugs for IPTp readily available in your health facility?
   - XI. Do you have a potable source of water supply at your health facility for drinking purpose?
   - XII. Do you have in-service training for ANC staff on malaria or IPT programme?
   - XIII. Do you have enough staff for ANC and delivery of IPTp?
   - XIV. How is demand for ANC services at your health facility?
   - XV. What are other health systems factors influencing the uptake of IPTp in your health facility?
5) Appreciation and departure

APPENDIX 6

CHECK LIST FOR ANTE-NATAL CLINIC UNIT OBSERVATION

Date: .....

Name of facility .....

LGA..... (Please tick where appropriately)

	YES	NO
Health education program drawn for the quarter includes malaria in pregnancy		
Health education program to pregnant women drawn for the quarter includes IPTp		
Health talk given at ANC on day of visit		
Health talk given that day included malaria in pregnancy		
Health talk given that day included IPTp		
Presence of request forms for ANC medicines including SP		
Presence of posters of IPTp/MIP on the wall		
Presence of ANC Report Book for daily summaries		
Presence of ANC Monthly Data returns form		
Is ledger(s) books/tally cards employed for keeping records or monitoring the stock - level of the drugs (SP)?		
Is data collection forms completely filled (inspect)?		
Are patients' records for the programme maintained (available) at the facility?		

Is the data collected analyzed?(inspect)		
Is the facility collecting data for self evaluation of the IPT programme (inspect)?		
SP given is recorded in ANC report book for daily summaries		
SP given is recorded in ANC cards of clients		
SP available at ANC		
Practice of DOT observed		
Presence of Adverse Effects forms for SP		
Presence of free, clean, safe water for DOT		
Presence of safe, clean water for sale for DOT		
Availability of IPTp National protocol		
Availability of IPTp training manual		

Any additional observations made:

.....

.....

Is the data collected analyzed?(inspect)		
Is the facility collecting data for self evaluation of the IPT programme (inspect)?		
SP given is recorded in ANC report book for daily summaries		
SP given is recorded in ANC cards of clients		
SP available at ANC		
Practice of DOT observed		
Presence of Adverse Effects forms for SP		
Presence of free, clean, safe water for DOT		
Presence of safe, clean water for sale for DOT		
Availability of IPTp National protocol		
Availability of IPTp training manual		

Any additional observations made: .....

.....

.....

Is the data collected analyzed?(inspect)		
Is the facility collecting data for self evaluation of the IPT programme (inspect)?		
SP given is recorded in ANC report book for daily summaries		
SP given is recorded in ANC cards of clients		
SP available at ANC		
Practice of DOT observed		
Presence of Adverse Effects forms for SP		
Presence of free, clean, safe water for DOT		
Presence of safe, clean water for sale for DOT		
Availability of IPTp National protocol		
Availability of IPTp training manual		

Any additional observations made: .....

.....

.....

ETHICAL COMMITTEE

LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY TEACHING HOSPITAL

OGBOMOSO, OYO STATE, NIGERIA

Address: P.M.B 4007, Ogbomoso **Phone:** 08034305136/08038188308 **E-Mail:** Lthogbethcom@yahoo.com

Our Ref: LTH/OGB/EC/2014/054 Your Ref: Date: 11TH DECEMBER, 2014

CLEARANCE CERTIFICATE

PROTOCOL NUMBER:	**LTH/OGB/EC/2014/054**
PROJECT TITLE:	**Utilization of intermittent preventive treatment for malaria among pregnant women attending antenatal clinics in primary health care centres in Ogbomoso, Oyo State.**
INVESTIGATOR(S):	Dr Adewole A.O
DEPARTMENT/ INSTITUTION:	Department of Community Medicine, LAUTECH Teaching Hospital, Ogbomoso, Oyo State.
DATE OF SUBMITION OF PROTOCOL:	21ST OCTOBER, 2014
DATE CONSIDERED:	10TH DECEMBER, 2014
DECISION OF THE COMMITTEE:	**APPROVED**
CHAIRMAN:	Dr. Adeniji A.O.
SIGNATURE AND DATE:	10/12/2014

ETHICAL REVIEW COMMITTEE
Lautech Teaching Hospital
Ogbomoso

Cc: Supervisors:

NOTE: THE COMMITTEE IS EXEMPTED FROM LIABILITY OF THE PROPOSAL AND THIS CERTIFICATE WILL BE REVOKED IF PROTOCOLS STATED IN THE PROPOSAL IS DEVIATED FROM.

.....

DECLARATION BY INVESTIGATOR(S)

PROTOCOL NUMBER (Please quote in all enquiries): **LTH/OGB/EC/2014/054**

To be completed in four and three copies returned to the Secretary, Ethical Review Committee, Ladoke Akintola University of Technology Teaching Hospital, Ogbomoso, Oyo State, Nigeria.

I /We fully understand the conditions under which I am/we are authorized to conduct the above mentioned research and I/We will ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved, I/We undertake to resubmit the protocol to the Ethical Review Committee.

Signature..... Date. 11/12/14

LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY TEACHING HOSPITAL
OGBOMOSO, OYO STATE, NIGERIA
Address: P.M.B 4007, Ogbomoso Phone: 08034305136 / 08038188308 E-Mail: Lthogbethcom@yahoo.com

Our Ref: LTH/OGB/EC/2014/054 Your Ref: _____ Date: 11TH DECEMBER, 2014

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CHAIRMAN:	Dr. Adeniji A.O.
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Signature..... Date 11/12/14

APPENDIX 8

INFORMED CONSyENT - ENGLISH VERSION
ID number:
Consent to Participate in this Study

My name is Dr ADEWOLE, Adefisoye Oluwaseun, I am doing research on factors associated with utilization of intermittent preventive treatment for malaria among pregnant women attending antenatal clinics in primary health care centres in Ogbomoso, Oyo state. I am going to give you information on what the study is all about and then invite you to be part of this research.

Purpose of the Study

This purpose of this study is to collect information on factors associated with the utilization of Intermittent Preventive Treatment of Malaria among pregnant women attending ANCs in primary health centres, Ogbomoso , Oyo state. You have being asked to participate in this study because you have knowledge and experiences that is important to the study and which will help other women.

What Participation Involves

If you agree to participate in this study the following will occur: Firstly, you will be interviewed with a questionnaire and you will be required to provide the responses to the best of your knowledge as guided by the interviewer. Also it will take about 30minutes to fill the questionnaire.

Confidentiality

I assure you that all the information collected from you will be kept confidential. Only people working in this research study will have access to the information. We will be compiling a report, which will contain responses from clients from different health facilities without any reference to individuals. We do not require your name and will not put other identifying information on the records of the information you provide.

Risks

The questions asked will not interfere with your personal esteem. Please be truthful in your responses.

Rights to Withdraw and Alternatives

Taking part in this study is completely voluntary. If you choose not to participate in the study or if you decide to stop participating after you started you will not be harmed. You can stop participating in this study at any time, even if you have already given your consent. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits to which you are otherwise entitled.

Benefits

The information you provide will help improve our understanding on factors associated with the utilization of IPT. Identifying the underlying factors that hinder IPT utilization is an important step toward the development of effective prevention program aimed at reducing the effects of Malaria in pregnancy.

Who to contact

If you ever have questions about this study, you should contact the researcher, Dr ADEWOLE, Adefisoye Oluwaseun. Nigerian Field Epidemiology and Laboratory Training Programme Abuja, Nigeria. Tel: 08032072211.

Do you agree? Participant Agrees [__] Participant disagree [__]

Signature of Participant_____

Signature of witness (if participant cannot read)_____

Signature of research assistant_____

Date of signed consent_____

APPENDIX 9

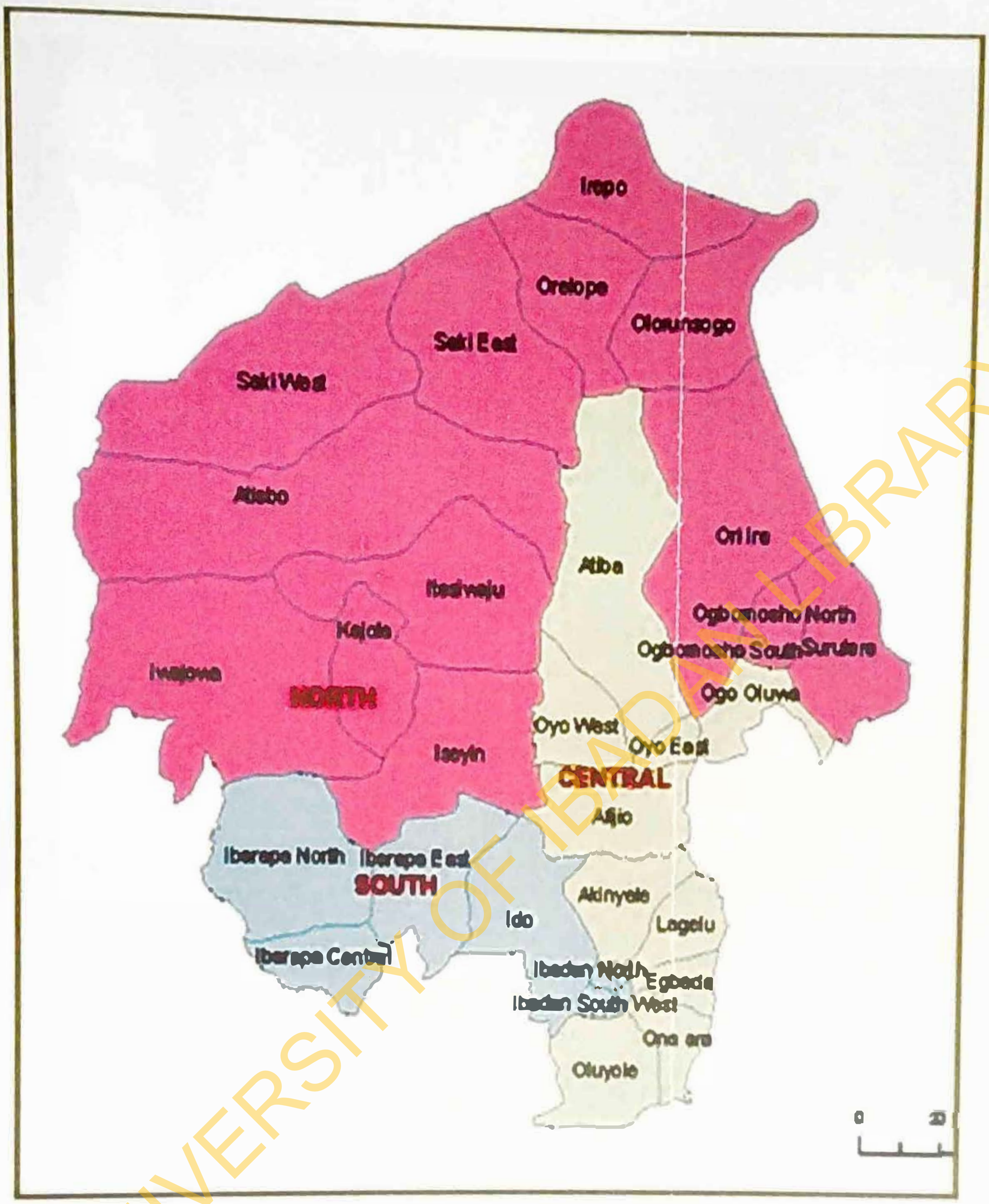


Figure: Oyo State Map Highlighting LGAs in Ogbomoso

APPENDIX 10

The researcher explaining details of the questionnaire (Yoruba version) during training of research assistants

APPENDIX 11

The researcher administering questionnaire to one of the respondent

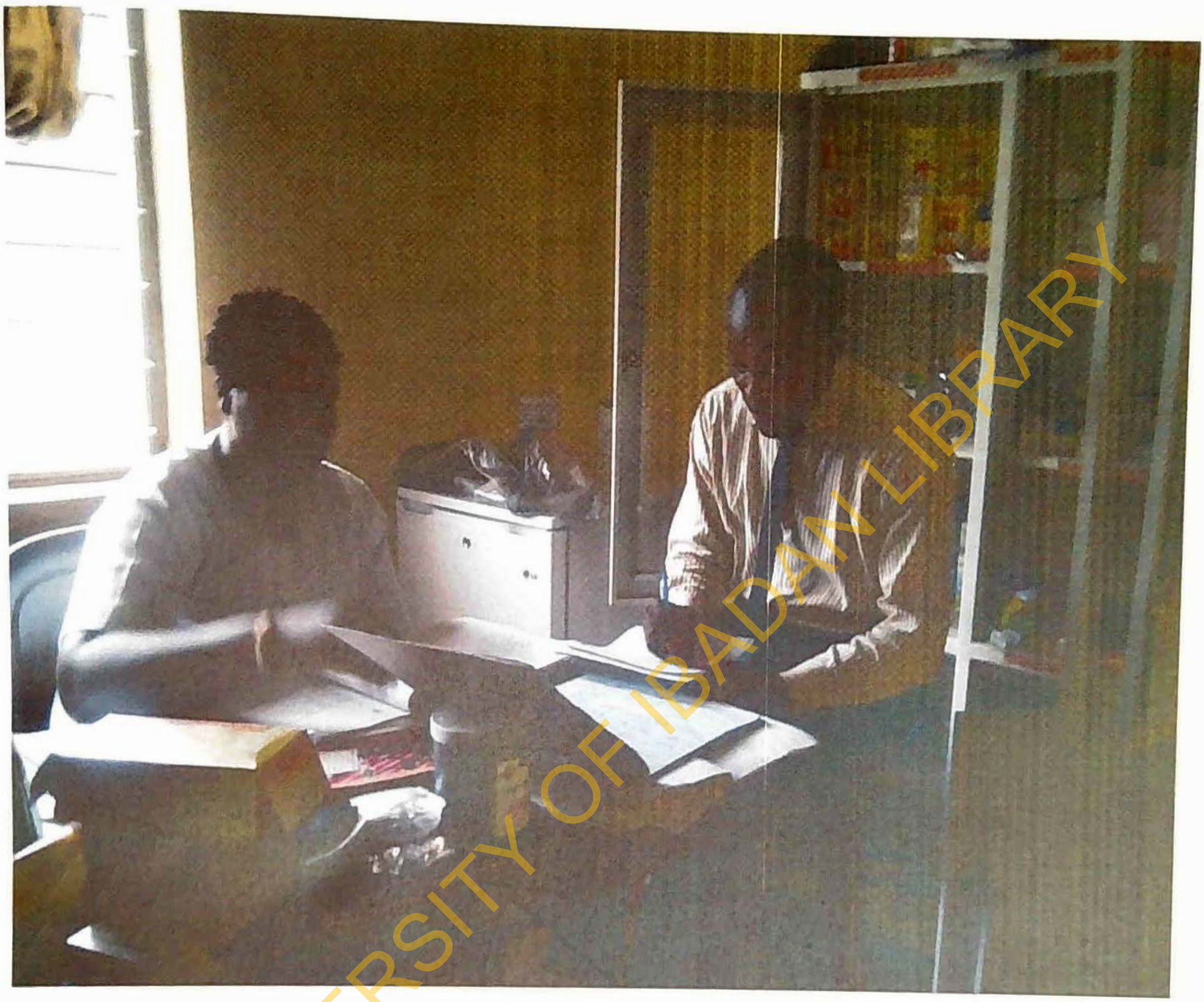
APPENDIX 11

The researcher administering questionnaire to one of the respondent

APPENDIX 12

One of the focus group discussion sessions

APPENDIX 13



The researcher conducting key informant interview with the officer in charge at PHC Katangua