

KNOWLEDGE OF INTERMITTENT PREVENTIVE TREATMENT OF MALARIA AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINICS IN NEMBE LOCAL GOVERNMENT AREA OF BAYELSA STATE

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DOI: <https://doi.org/10.5281/zenodo.20674969>

Article History	Abstract
Original Research Article	<p><i>Knowledge is a fundamental prerequisite for the adoption of appropriate health practices, particularly among pregnant women, where awareness of Intermittent Preventive Treatment in pregnancy (IPTp) can influence regular antenatal clinic attendance and improve the uptake of Sulphadoxine-Pyrimethamine (SP) for malaria prevention. Recognizing that knowledge of IPTp is a major determinant of its utilization, this study investigated the level of knowledge of intermittent preventive treatment of malaria among pregnant women attending antenatal clinics in Nembe Local Government Area. A descriptive research design was adopted, involving a population of 398 pregnant women, from which a sample of 239 respondents was selected using a multistage sampling technique. Data were collected using a structured questionnaire with a reliability coefficient of 0.834 and analyzed using the Statistical Package for the Social Sciences (SPSS) version 27.0. Descriptive and inferential statistics, including percentages, mean scores, and chi-square analysis, were employed at a 0.05 level of significance. The findings revealed that 105 respondents (47.50%) possessed a moderate level of knowledge regarding the use of Sulphadoxine-Pyrimethamine for malaria prevention during pregnancy. Furthermore, the results indicated that there was no statistically significant relationship between respondents' level of knowledge and their compliance with IPTp utilization ($\chi^2 = 4.83$, $df = 2$, $p > 0.05$). The study therefore concluded that knowledge of IPTp among the surveyed pregnant women remains inadequate and recommends the implementation of more comprehensive awareness and educational campaigns to improve understanding of the benefits of IPTp, enhance its uptake, and promote better maternal and neonatal health outcomes.</i></p> <p>Keywords: Antenatal, Knowledge, Malaria, Nembe, Pregnant Women.</p>
Received: 10-04-2026	
Accepted: 16-05-2026	
Published: 13-06-2026	
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Citation: Ebigoni Ben-Wakama, Ebiere Rachel Ndiomu Ben-Wakama, & Benjamin O. Osaro, Bonnie, K. Goodhope. (2026). Knowledge of intermittent preventive treatment of malaria among pregnant women attending antenatal clinics in Nembe Local Government Area of Bayelsa State. UKR Journal of Medicine and Medical Research (UKRJMMR), 2(3), 68-73.	

Introduction

Malaria is a highly important disease in human populations and remains to be one of the most widespread infectious diseases worldwide. Malaria is a disease caused by protozoan parasites belonging to the genus Plasmodium and which is most commonly (but not only) transmitted through the bites of infected female Anopheles mosquitoes. Stagnating water and high humidity create conditions

suitable for mosquito breeding, which increases the risk of transmission. Physiological and immunological changes that happen during pregnancy, such as the effects of high concentrations of human chorionic gonadotropin (HCG) and prolactin lead to susceptibility for malaria infection in pregnant women (Frank et al., 2016). Background Malaria remains a major cause of morbidity and mortality

worldwide, with approximately 214 million infections and 438,000 deaths estimated in 2015. Sub-Saharan Africa carries the greater burden of this disease, with ~85% of all malaria cases arising within this region. They are also on record to say that evidence suggests that nearly 72% of pregnant mothers in that region became infected with malaria any time during pregnancy. Malaria prevalence is still very high in Nigeria where greater than 79.5% has been reported at the national level, and even higher levels exist with as many as 99% of a population infected in Enugu State and more than half of the population (52%) infected near Lagos (Omang et al., 2020).

Malaria and its related effects in pregnancy pose serious challenges as they link with bad maternal and neonatal outcomes. Malaria prevalence among pregnant women was as high as 11.2% (Bayelsa State) and 12.56% (Rivers State) in the Niger Delta region of Nigeria (Chukwuocha et al., 2021). These are worrying numbers in view of the substantial morbidity and mortality due to malaria in pregnancy. Infection may result in maternal anaemia, placental parasitemia, low birth weight, preterm delivery as well as infant mortality. However, there is a large burden of preventable malaria in pregnancy and known, cost-effective control measures exist including Intermittent Preventive Treatment during pregnancy (IPTp). Pregnant women and children under 5 years remains most sensitive group as pregnancy impair the natural immunity resulting in increased susceptibility to infection. Therefore, greater efforts are needed to promote preventive interventions like IPTp that will benefit maternal and child health in malaria-endemic settings.

Knowledge is paramount in determining health behaviors, and motivation or intention is seen as a prerequisite to successfully adopting preventive healthcare practices. Antenatal care clinics are a vital entry point of education and counseling for pregnant women on the merits of IPTp and Sulphadoxine-Pyrimethamine (SP) use for prevention of malaria during pregnancy. Adequate knowledge makes pregnant women value the significance of regular attendance at ANC thus creating doors to obtain the recommended doses of IPTp. Previous studies found that knowledge and awareness of IPTp is one the most important predictors for its use. Therefore, IPTp utilization can be well enhanced through tailored health education targeting the threats of pregnancy malaria and the protective efficacy of IPT-SP (A Moran et al., 2012). Qualitative reports from South-East Nigeria show that while awareness of IPTp is found in over half (58.2%) of pregnant women, good knowledge on the intervention was only found among a small proportion [23.9%]. Moreover, despite the awareness of IPT-SP, only 27.3% of respondents used the preventive treatment which reflects

the gap between awareness and effective utilization (Ifatimehin et al., 2018).

It is therefore critical that health education messages continue during the ANC period, so that all pregnant women regardless of when they began or service attend ANC services have sufficient opportunities to be provided with information on malaria prevention and benefits of Intermittent Preventive Treatment in pregnancy using Sulphadoxine-Pyrimethamine (IPTp-SP). Repeated educational counseling can improve retention of knowledge and initiate positive health-seeking practices among mothers. Antwi(2019) provide evidence that the knowledge of pregnant women regarding IPTp-SP leads to a positive relationship between received doses and period of receiving it during pregnancy. It implies that women with knowledge on the protective benefit of IPTp-SP are more likely to visit ANC and comply to recommended treatment schedule. Thus, enhancing health education activities in ANC clinics and promoting active participation in these sessions are key strategies to increasing IPTp uptake and improving maternal health.

IPTp-SP has been shown to be effective but preventive antimalarial interventions are insufficiently utilized in many malaria endemic countries like Nigeria and there remains a high burden of malaria in pregnancy. According to estimates there are approximately 27800000 pregnancies/year in malaria high transmission areas of sub Sahara Africa, including Nigeria (Omang et al., 2020). Pregnancy can render a woman more susceptible to malaria infection as physiological changes dampen her natural immunity making infections more likely (Frank et al., 2016). Malaria in pregnancy has tragic consequences, being associated with almost 20% of stillbirths and 11% of maternal deaths. Furthermore, the disease is a risk factor for many unfavorable maternal and neonatal outcomes such as spontaneous abortion, maternal anemia, placental anomalies, infant morbidity and mortality or intrauterine growth restriction with low birth weight (Omang et al., 2020). These adverse effects on health highlight the need to do better in developing awareness, access and uptake of preventive interventions. In reference to this background, the current study was designed to answer targeted research questions on knowledge and practice of IPTp for pregnant women.

1. What is the level of knowledge of intermittent preventive treatment of malaria among pregnant women attending antenatal clinics in Nembe Local Government Area?
2. What is the significant association between the level of knowledge and compliance with intermittent preventive treatment of malaria among

pregnant women attending Antenatal Clinic (ANC) in Nembe Local Government Area?

Hypothesis

The following null hypotheses were postulated for the study;

1. There is no significant association between the level of knowledge and compliance with intermittent preventive treatment of malaria among pregnant women attending Antenatal Clinic (ANC) in Nembe Local Government Area.

Methodology

Method: A descriptive research design was adopted for the study as it analyzed the knowledge and use of Intermittent Preventive Treatment in pregnancy among pregnant women attending antenatal clinics in Nembe Local Government Area. The study sought to include all pregnant women who came for antenatal care services at primary healthcare facilities in the Local Government Area. Eligible participants were pregnant women who attended for antenatal care in the selected health facilities during the study period, and who voluntarily consented to participate. We have used a two-stage sampling procedure to select a total sample of 239. The first stage involved acquiring a list of antenatal care service providing health facilities throughout the wards identified from the Health Management Information System (HMIS) Unit, Ministry of Health. Seven health facilities were selected from

this list using simple random sampling. The second phase consisted of proportionate sampling of pregnant women from each facility selected using simple random sampling (the list of all antenatal clinic attendees was used as the sampling frame). The number of subjects allocated to each facility was determined based on the average attendance at antenatal clinics in the previous year, which were distributed as follows: Sabatoru (39), Nembe Greek (32), Ikensi (26), Obioku (27), Otumoama (26), Ogbolomabiri(40) and Bassambiri(49). They were then selected systematically from all the eligible respondents within each health facility., which was aimed to ensure that among the selected health facility-specific proportion of the categories, distribution is achieved and sampling bias can be avoided.

The data collection tool is a pretested semi-structured survey questionnaire titled “knowledge of intermitted preventive treatment of malaria (IPTM). Face, content and content validity of the instrument was established by two experts in the Department of Nursing Sciences, Rivers State University. The reliability coefficient is 0.834. Retrieved copies of the instrument were coded and analyzed with the aid of the Statistical Package for social sciences(SPSS) version 27.0. Data were presented in frequency tables and statistical summary was done using percentage for categorical variables while mean(SD)was used to analyses the continuous variables.

Results

The results of the study are shown below:

Table 1: Knowledge of Intermittent Preventive Treatment of Malaria (n = 221)

Items	Responses	Frequency	Percentage
Ever heard about IPT	Yes	171	77.4
	No	50	22.6
	Total	221	100
Sources of information	Clinic	100	45.2
	Radio station	13	5.9
	Community town hall	31	14.0
	Health Educators	27	12.2
	Non response	50	22.6
	Total	221	100
What is IPT?	Taking SP to prevent malaria in pregnancy	46	20.8
	Taking of drugs when you are pregnant	105	47.5
	Taking drug supplements	20	9.0
	Non response	50	22.6
	Total	221	100
Who can be given IPT?	Pregnant women	75	33.9
	Infant	6	2.7
	Aged people	7	3.2
	Every woman	83	37.6
	Non response	50	22.6
	Total	221	100
Which drug would you	Sulphadoxine-P (SP)	95	43.0
	Paludrin (Sunday-Sunday medicine)	24	10.9
	Chloroquin	19	8.6

prefer for IPT?	Injection	33	14.9
	Non response	50	22.6
	Total	221	100
The appropriate stage to take IPT	First and second trimester	102	46.2
	Second and third trimester	36	16.3
	First and third trimester	4	1.8
	Any stage	29	13.2
	Non response	50	22.6
Which of these occur as a result of taking IPT?	Total	221	100
	Nausea	16	7.2
	Vomiting	57	25.8
Which of these occur as a result of taking IPT?	Dizziness	22	10.0
	Body weakness	27	12.2
	No idea	49	22.2
	Non response	50	22.6
	Total	221	100

Table 1 shows that 171(77.4%) of the respondents have heard about IPT. Among the 171, more 100(45.2%) indicated that the clinic was their major source of information; 105(47.5%) said that IPT means taking of drugs when you are pregnant; 83(37.6%) stated that everywoman can be given IPT, 95(43.0%) indicated that Sulphadoxine-Pyrimethamine (SP) is more preferred for IPT. However, 102(46.2%) indicated that the appropriate stage to take IPT is the first and second trimester, while 57(25.8%) indicated that vomiting was the major effect as a result of taking IPT.

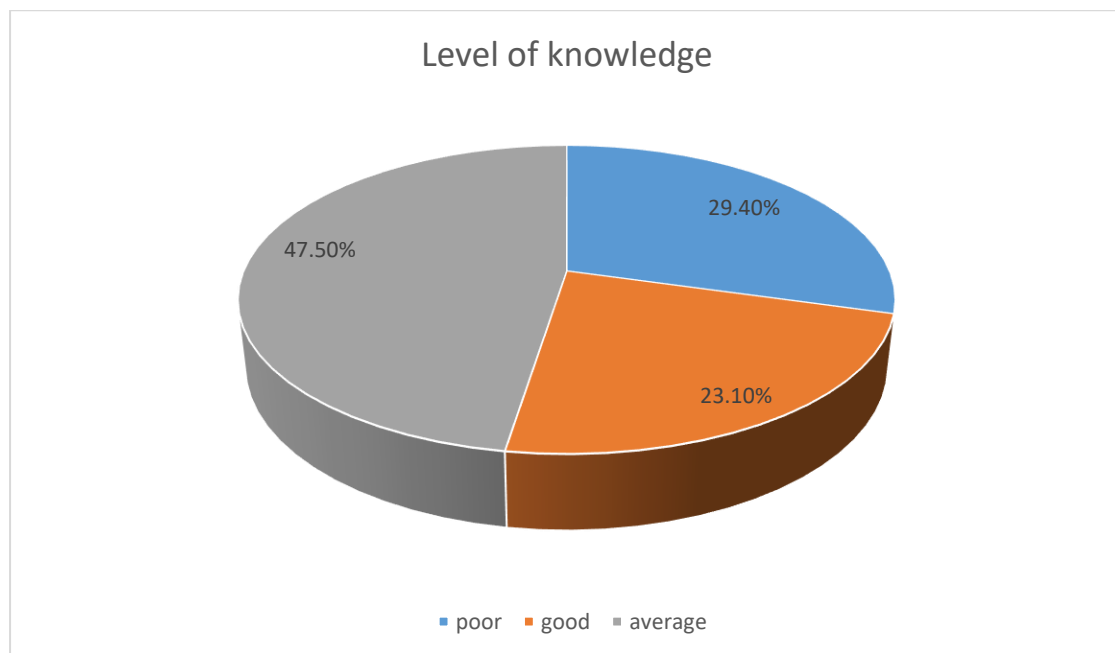


Fig 1: Pie chart showing the level of knowledge of IPT among women

The chart above showed that 105(47.5%) of the respondents had average level of knowledge, 51(23.1%) had good knowledge while 65(29.4%) had poor knowledge.

Table 2: Chi-square test showing association between parity and level of knowledge of intermittent preventive treatment of malaria among respondents

Variable	Level of Knowledge			Total	df	χ^2	p-value	Decision
	Poor Freq	Good Freq	Average Freq.					
1	55	38	86	179	6	8.49	0.20*	H ₀ not rejected
2	8	12	18	38				
3	2	0	0	2				

*Not Significant; $p > 0.05$.

Table 2 showed that there was no statistically significant association between parity and knowledge ($\chi^2 = 6.49$, $df = 4$, $p > 0.05$).

Table 3: Chi-square test showing association between level of knowledge and compliance with intermittent preventive treatment of malaria among respondents

Variable	Compliance		Total	df	χ^2	p-value	Decision
	High	Low					
Knowledge	Freq	Freq					
Poor	16	49	65	2	4.83	0.08*	H ₀ retained
Good	19	32	51				
Average	22	83	105				

*Not statistically significant; $p > 0.05$.

Table 3 showed that there was no statistically significant association between level of knowledge and compliance with the use of IPT ($\chi^2 = 0.4.83$, $df = 2$, $p > 0.05$).

Discussion of Findings

The findings of the study are discussed below:

Knowledge of IPT of Malaria among Pregnant Women

Results: The study found a substantial segment of the respondents to have an intermediate level of knowledge about Intermittent Preventive Treatment (IPT) of malaria during pregnancy. This agrees with the findings of Ajayi et al. (xlii), which was an cross sectional study carried out among attending antenatal clinic in a rural Local Government Area of Ekiti State and also documented moderate awareness and knowledge of IPT, than pregnant women. But the current finding is vastly different than Farotimi et al. (2019), who found that while most participants have heard of IPTp, only 26 (23.6%) were correctly defined the term. On the other hand a study from Olabisi Onabanjo University Teaching Hospital found that half of participants had only moderately good knowledge of IPT as malaria prevention. Similarly, Mohammed et al. Almost two-thirds of respondents, 39 (65%), had good knowledge regarding IPT during pregnancy found Zhang et al. (2022) This finding might also explain the similarities noticed between this study and certain others in that no statistically significant differences were found due to similarity of socio demographic, obstetric features like age of women, number of consultation, fluctuations in body temperature during antenatal care among mothers in these studies [13, 15].

The study also linked the level of knowledge among respondents with IPT utilization. The test showed no statistical significance between knowledge level and IPT compliance among the respondents. This finding implies that knowledge about IPT by itself may not influence adherence to the recommended regimen. However, more

research shows knowledge to be a determinant of IPTp-SP use. For instance, Uchechukwu et al. Koul et al. (2021) found that while many women recognized IPTp, an important proportion either did not know that Sulphadoxine-Pyrimethamine (SP) was a recommended and often prescribed drug for malaria prevention during pregnancy or compliance with the use of the preventive strategy fell to only 33%. In a similar way, Peters and Naido(2022) found that limited understanding on the importance of IPT in prevention of malaria negatively impacted uptake and use of IPTp-SP among pregnant women. These results highlight the importance of health educational and awareness campaigns providing both information regarding malaria prevention methods during pregnancy as well encouraging compliance with such measures.

Conclusion

Based on the findings of the study, it was concluded that, pregnant women attending health care facilities in Nembe Local Government Area, Bayelsa State had poor knowledge of IPT. Furthermore, there were statistically significant association between level of knowledge of IPT and compliance. Thus, there should be intensive sensitization and awareness campaign on the IPT-SP to increase uptake and utilization of IPT for improved health outcomes.

Recommendations

The following are recommendations based on the findings of the study.

- i) Health care providers at all levels of health care should be actively involved in intensive, extensive sensitization and awareness campaign on the importance of IPTp-SP.

- ii) Pregnant women should be encouraged to access health care facilities in nearby areas and also endeavor to initiate antenatal visits early because a delay in initiating ANC will reduce the number of times a woman can receive IPT prior to term.

Implication for Nursing Practice

This study showed that the major source of information on IPT is the health facility therefore nurses who are directly in contact with mothers should optimize this opportunity in creating awareness and supervising use. Nurses are highly involved with health education especially at the ANC both at primary, secondary and tertiary health care facilities. The responsibility of intensive/extensive sensitization and awareness campaign on IPTp-SP, the importance in preventing malaria in pregnancy and complications lies with them. They should be greatly involved in this source of concern among pregnant women. Also, the national guideline for the preventive strategy should be strictly adhered to.

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