



Malaria Prevention in Pregnancy among Traditional Birth Attendants in Rural Lagos, Nigeria

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ABSTRACT

Background : Malaria accounts for approximately 1 million deaths annually and about 300,000 deaths in Nigeria alone. Pregnant women are particularly vulnerable to adverse consequences of malaria. The National Malaria Policy has adopted the use of Intermittent Preventive

Treatment and Insecticide Treated Net for prevention of malaria in pregnant women. This study therefore determined the knowledge and

practice of Traditional Birth Attendants regarding prevention of malaria in pregnancy in 2 rural Local Government Areas of Lagos State, Nigeria.

Method : A cross sectional, descriptive study design was adopted and a total of 68 Traditional Birth Attendants were studied. Data was collected using a structured, interviewer administered questionnaire. Analysis was done with EPI info 2008 and WinPepi statistical softwares.

Results : Age range of respondents was 20-75 years and the mean age was 46.4±8.7 years. Most (67.7%) of the respondents were not aware of Intermittent Preventive Treatment. However, most(81.8%) of the respondents who were aware got the information from the health workers, while only 31.6% of those that aware knew the right drugs to be used.

Conclusion: Overall knowledge of malaria prevention with Intermittent Preventive Treatment in pregnancy was poor. The knowledge and practice of malaria prevention in pregnancy among the Traditional Birth Attendants in Ikorodu and Badagry Local Government Areas was poor. It is therefore recommended that a sensitization and training of the Traditional Birth Attendants be carried out since a good number of women still patronize them.

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INTRODUCTION

Malaria is a major public health burden in sub-Saharan Africa, especially Nigeria causing 300-500 million illnesses and 1-2million deaths every year.¹ About 1 million deaths occur annually in Africa and 300,000 in Nigeria alone.¹ There is a high case fatality rate due to late presentation and inadequate management with effective drugs. The economic burden of malaria is also enormous as Economists have shown that malaria costs Africa about \$12b per annum.²

Each year, approximately 25 million African women become pregnant in malaria-endemic areas in Africa and are at risk of Plasmodium falciparum malaria infection during pregnancy.³ More than 100 million

Nigerians are at risk of malaria, pregnant women and under five children being the most vulnerable groups.^{1,2} Pregnant women and children are particularly vulnerable to the adverse consequences of malaria caused by the most lethal parasite, Plasmodium falciparum, because they do not always receive the necessary prevention and treatment needed and this contributes to the extremely high numbers of maternal and infant deaths caused by malaria.² Infection of the placenta by malaria and maternal anaemia precipitated by malaria contribute to low birth weight, which results in higher infant mortality and impaired child development among other complications.

In the past decade, strategies have been developed to

more effectively control the adverse effects of malaria during pregnancy, and these can serve as the basis for highly effective programs in the African Region. The development of the Intermittent Preventive Treatment (IPT) approach constitutes a major advance for achieving high program coverage and effectiveness^{4,5} Until recently, weekly pyrimethamine chemoprophylaxis was used to prevent malaria in pregnancy. However, several studies have shown that weekly chemoprophylaxis with pyrimethamine during pregnancy has been shown to be of limited effectiveness because of poor compliance with the regimen and increasing drug resistance.

Therefore, weekly pyrimethamine chemoprophylaxis no longer has a role in National policies for the prevention and control of malaria during pregnancy in stable transmission areas in the African Region. The most promising preventive approach using antimalarial drugs for pregnant women is IPT. The recommendation in the malaria treatment policy is that each pregnant woman takes the two doses of SulfadoxinePyrimethamine (SP) for IPT and the current target is to have 100% of pregnant women taking the two doses of SP for IPT.

World Health Organization (WHO) recommends that all pregnant women in areas of stable malaria transmission should receive at least two doses of IPT after quickening (first noted movement of the fetus) during regularly/routinely scheduled antenatal clinic visits. The deliveries of IPT with each scheduled visit after quickening will assure that a high proportion of women receive at least two doses.⁶

Currently, the most effective drug for IPT is SP because of its safety in pregnancy, effectiveness in reproductive-age women and feasibility for use in programs, since it can be delivered as a single-dose treatment under observation by a health worker. IPT with SP has been shown to be effective in reducing the risk of malaria during pregnancy and associated adverse pregnancy outcomes including maternal anemia, placental parasitemia and the incidence of low birth weight.^{7,8} current scientific evidence

suggests that at least two doses of IPT with SP are required to achieve optimal benefit in most women. Malaria prevention during pregnancy using IPT and Insecticide Treated Net is highly cost-effective. IPT with SP is estimated to cost \$12 to \$21 per disability-adjusted life year prevented, which is a very favorable cost compared to the benefits.⁹ ITN use by children has been shown to be very cost-effective in several settings, and is similar to most childhood vaccines.⁹

In most developing countries, the traditional medical system still exists alongside with the modern system, and majority of the population regularly consult both orthodox and traditional healers including the Traditional Birth Attendants (TBAs), who are traditional, independent (of the health system), non-formally trained and community-based providers of care during pregnancy, childbirth, and the postnatal period.¹⁰ In fact, in some places, more people consult TBAs more than the modern health workers.¹¹ TBAs have been engaged to deliver IPT-sp in some malaria-endemic countries in Africa, and some of them have recorded a lot of success and higher coverage. This is especially useful in places with low coverage of health centres and Antenatal Care (ANC) services like Nigeria.

This new delivery system of IPT-sp through TBAs was conceptualized in Uganda because of the persistent low use of health-service-based interventions. Only 47% of women attend four ANC visits as recommended by the policy, and only 42% of births have skilled attendants, a situation similar to what is obtainable in developing Countries.^{13,14} Malaria-control programs that rely only on healthcare-facility-based ANC as a delivery system are likely to have poor coverage and adherence.¹⁵ Therefore, this new approach was shown to have increased access to and compliance with IPT in Uganda.¹⁶

This study determined the knowledge and practice of TBAs regarding prevention of malaria in pregnancy in 2 rural Local Government Areas (LGAs) of Lagos State.

METHODOLOGY

Study area

Lagos State is located in the south-western part of Nigeria with a provisional census figure of 9,013,534 out of the total national figure of 140 million.¹⁷The State is made up of 20 LGAs, of which 16 are classified as urban and 4 as rural LGAs. Badagry and Ikorodu LGAs are 2 of the 4 rural LGAs in the State.

Study Population

This study was conducted among the registered TBAs in Lagos State. Most TBAs in Lagos State are registered with the Lagos State Traditional Medicine Board as well as with the Local Government within which they work and their activities are monitored. There were 68 registered TBAs in Badagry and Ikorodu LGAs.

Study Design

This was a cross sectional study.

Sample Size Determination

The minimum sample size 41 was determined using the formula for population less than 10,000. $^{17}(n=z^2pq/d^2 \ \& \ nf=n/1+(n)/N; \ z=1.96, \ p=0.96^{22}, \ d=0.05, \ N=133; \ n=41)$. However, all the 68 registered TBAs in the two LGAs formed the study population

Eligibility Criteria

TBAs that were registered with Lagos State Traditional Medicine Board as well as with the Local Government Authorities, and consented to participate in this study

Sampling Method

Multi-stage sampling technique was adopted. A list of all the four rural LGAs in Lagos State constituted the sampling frame in stage 1. Badagry and Ikorodu LGAs were selected by simple random sampling by balloting procedure. In the target population sampling stage, total cluster sampling of all the registered TBAs in the 2 LGAs was used.

Data Collection and Analysis

Data collection was carried out using the

quantitative method through a questionnaire survey. Quantitative data was analyzed with EPI-info 2008 software package (windows version 3.4.1) and WinPepi statistical software. Each respondent's level of knowledge and attitude were determined with a scoring system developed by the researcher.

Thirty five (35) questions on knowledge of malaria in pregnancy and prevention were scored, each right answer attracting one point. Those who scored less than 33% were classified as having poor knowledge; those who scored between 33% and 66% were classified as having fair knowledge. And those with scores >66% were classified as having good knowledge.

Ethical Considerations

The study proposal was approved by the Research and Ethical Committee of Lagos University Teaching Hospital (LUTH). Confidentiality was assured and ensured in view of which names of those interviewed were not required.

Limitation of Study

Only registered TBAs were included in this study. This may be a limitation as the results may not apply to unregistered TBAs in Lagos State. The small sample size may also be a limitation to this study.

RESULTS

The age range of respondents was 20 -75 years, while the mean age was 46.4 ± 8.7 years. More than 60% of them were 40 years and above.

Majority, 43 (63.2%) were females, 58 (85.3%) of them were married, and more than 56 (80%) had primary and secondary education. about 7(10%) had no formal education, while 5 (7.4%) had a tertiary education.

Islam was the most (32, 47.1%) practiced religion among the respondents followed by Christianity; only about 7(10%) practiced traditional religion. Most, 57 (83.8%) of the respondents were Yorubas.

Majority (43, 63.2%) of them had been in practice for more than 10 years. The number of deliveries per month ranged between 2 -40 and the average delivery per month was 6.7

Almost all 67 (98.5%) the respondents knew that malaria could cause problems for pregnancy. The most identifiable symptom of malaria was fever (identified by 43 (64.2%) respondents). Less than a quarter 14(20.9%) of the respondents knew that ITNs could prevent malaria in pregnancy and only 2(3.0%) knew that the use of IPT-sp could prevent malaria in pregnancy. Most 46 (67.6%) of the respondents were not aware of IPT-sp.

More than three quarters (76.1%) of the respondents claimed that they counseled their clients on prevention of (MIP) but only 1 1.5% counseled on IPT-sp and 21 (31.3%) on ITN.

Majority 58(94.1%) of the respondents didn't

Table I: Socio-Demographic Characteristics of Respondents

Socio-Demographic Characteristics	Frequency (%) N=68
Age Group	
<30	4 (5.9)
30 – 40	25 (36.8)
>40	39 (57.4)
Mean Age ± SD	46.4 ± 12.0
Sex	
Male	25 (36.8)
Female	43 (63.2)
Marital Status	
Single	1 (1.5)
Married	58 (85.3)
Others	9 (13.2)
Education	
None	7(10.3)
Primary	25(36.8)
Secondary	31(45.6)
Tertiary	5(7.4)
Ethnicity	
Yoruba	57(83.8)
Igbo	1(1.5)
Others	10(14.7)
Duration of Practice as TBA (years)	
<10	25(36.8)
10 and above	43(63.2)
Mea n Duration ± SD	16.2 ± 12.0
Mean No. of Delivery per month ± SD	6.7 ± 6.2

prescribe SP for IPT-sp and 21(95.5%) did not refer their clients for IPT-sp.

Table III showed that majority of the respondents (85.3 %) a n d (50.0 %) h a d p o o r

Table II : Respondents Knowledge of Malaria and IPT in Pregnancy

Knowledge of Malaria in Pregnancy (MIP)	Frequency (%) (n=68)
Symptoms of MIP	
Fever	43 (64.2)
No symptoms	0 (0.0)
Don't know	1 (1.5)
Prevention of MIP and it's complications	
ITN use	14 (20.9)
Use of IPT-sp	2 (3.0)
Use of herbal concoctions	55 (82.1)
Others	9 (13.4)
Don't know	2 (3.0)
Awareness of IPT	
Aware	22 (32.4)
Not Aware	46 (67.6)
Main Source of Information (n=22)	
Previous training	2 (9.1)
Health worker	18 (81.8)
Patients	1 (4.5)
Radio/TV	1 (4.5)
Drugs used in IPT	
Fansidar	2 (10.5)
Amalar	1 (5.3)
Maloxine	3 (15.8)
Chloroquine	3 (15.8)
ACTs	3 (15.8)
Don't know	16 (72.7)
Number of doses	
Correct	4 (18.2)
Wrong	4 (18.2)
Don't know	14 (63.6)
When first dose is given (month)	
Correct	1 (4.5)
Wrong	8 (36.4)
Don't know	13 (59.1)
When second dose is given	
Correct	5 (22.7)
Wrong	1 (4.6)
Don't know	16 (72.7)
Drug taken as DOT**	
Yes	8 (36.4)
No	3 (13.6)
Don't know	11 (50.0)

*Correct: No of Doses are 2; First Dose given at 16-20weeks while the second dose is given 4 weeks after the first dose

**DOT Directly Observed Treatment

Table III: Knowledge Grading of Malaria in Pregnancy among Respondents

Knowledge of Malaria in Pregnancy	Frequency (%) (n=68)
Level of knowledge	
Poor	58 (85.3)
Fair	10 (14.7)
Good	0 (0.0)
Level of knowledge of IPT	(n=22)
Poor	11 (50.0)
Fair	10 (45.5)
Good	1 (4.5)

Table IV: Respondents Malaria prevention practices

Malaria Prevention Practices	Frequency (%)
Counsel clients on MIP prevention	(n=67)
Not at all	5 (7.5)
Yes, some of them	11 (16.4)
Yes, all of them	51 (76.1)
Subject of counseling	
ITN	21 (31.3)
Food/water	30 (44.8)
IPT-sp	1 (1.5)
Environmental hygiene	38 (56.7)
Prescribe SP	
Yes	4 (5.9)
No	58 (94.1)
No. of doses prescribed	(n=4)
1	3 (75.0)
2	1 (25.0)
Time of 1st dose(gestational month)	
3 - 5	1 (25.0)
>5	3 (75.0)
IPT used as DOT	
Yes	2 (50.0)
No	2 (50.0)
Refer Client for IPT	(n=22)
Yes	1 (4.5)
No	21 (95.5)

Table V: Association between respondents' socio demographic characteristics and level of knowledge about malaria in pregnancy

Sex	Knowledge of MIP		Statistics/P value
	Poor	Fair	
Male	35 (81.4)	8(18.6)	$\chi^2 = 1.4$; p value = 0.204 ;
Females	23(92.0)	2(8.0)	
Education			$\chi^2 = 4.0$; p value = 0.254 ; df=3
None	7(100)	0(0.0)	
Primary	22(88.0)	3(12.0)	
Secondary	26(83.9)	5(16.1)	
Tertiary	3(60.0)	2(40.0)	

knowledge of malaria in pregnancy and IPT-sp respectively.

A higher proportion (92.0%) of male respondents had poor knowledge of MIP and its prevention compared with 81.4% of female respondents, though, the difference was not statistically significant. (p=0.204).

There was no statistically significant association between the level of education of respondents and their knowledge and prevention of malaria in pregnancy, though a higher proportion(90.6%) of respondents with primary education and below had poor knowledge compared with those with secondary education and above (80.6%).

There was no statistically significant association between respondents' duration of practice as TBA and their level of knowledge of MIP and its preventions.

There was also no statistically significant association between the level of knowledge of respondents as regards MIP and its preventions and their IPT counseling practices.

There was no statistically significant association between the level of knowledge of respondents as regards and its preventions and IPT prescription practices.

There was no statistically significant association between the level of knowledge of respondents as regards MIP and its preventions and their IPT referral practices.

DISCUSSION

Respondents' ages ranged from 20 to 75 years and 28% of the TBAs in this study were below 40 years of age with a mean age of 46.4 years. There were more females (63.2%) compared to males. Generally, in other African and Asian studies where TBAs practice, they are usually females, over 40 years of age, mothers, illiterate and members of the community, chosen by the community to assist women in childbirth.¹ In this study, only about 10% of the TBAs had no formal education and 83% of them were Yorubas, which is not surprising as

Table VI: Association between respondents' level of knowledge about malaria in pregnancy and practice of prescribing Intermittent Preventive Treatment

Level of Knowledge	Prescription of IPT	
	Yes	No
Poor	2 (3.4)	56 (96.6)
Fair	2 (20.0)	8 (80.0)

$\chi^2 = 4.22$; p value = 0.100!!; df=1

Table VII: Association between respondents' level of knowledge about malaria in pregnancy and their referral practices of Intermittent Preventive Treatment (IPT)

Level of Knowledge	Referral Practices	
	Yes	No
Poor	0 (0.0)	58 (100)
Fair	1 (10.0)	9 (90.0)

$\chi^2 = 5.89$, P value = 0.147[†] df=1

[†]Fishers exact p value

Lagos State, being in the South-West zone of Nigeria is predominantly Yoruba speaking. On the average, about 6 deliveries were conducted by the TBAs in this study every month and about 63% had practiced for more than 10years. This is expected as the TBAs included in this study were those registered with the Lagos State Traditional Medicine Board, which could imply they had been in the profession for some appreciable length of time.

In this study, only 43 (64.2%) respondents identified fever as a symptom of malaria, despite the fact that malaria is generally associated with fever. This result is lower than that of the study in Kenya where about 75% of the respondents knew fever as a symptom of malaria.¹⁹ Although it is possible to have MIP without any symptoms at all, none of the TBAs knew this. This finding was significant because of the fact that prevention of MIP and its effects on pregnancy requires a pregnant woman to take antimalarial drugs, even though asymptomatic which might be contrary to the general belief that drugs should be taken only when one is sick or has symptoms.

Almost all (98.5%) the TBAs (in this study knew that malaria could cause problems in pregnancy, though the commonest complication identified was spontaneous abortion. Prevention of MIP was mainly by use of herbal concoctions from this study as majority of respondents had opted for this as a means of preventing malaria. This finding was

similar to those in Edo State, Nigeria where about 64% of TBAs had admitted to giving their clients leaves and roots as a form of medication and recommended use of herbal preparations for their clients.^{20,21} Awareness of IPT was generally low as only few of the study participants were aware of IPTs and less than 40% of those that were aware knew the drugs given as prophylaxis and the dose and appropriate time in pregnancy the drugs were given. This finding was puzzling because MIP and its attendant complications is one of the leading causes of maternal morbidity and mortality in Nigeria and ANC is meant to offer some preventive measures against this. Deliveries/ month from the TBAs ranged between 2-40 (mean=6), this is almost equivalent to the number of deliveries per month in a rural PHC. Bearing this in mind, it can be implied that adequate protection against malaria is not given to pregnant women that receive care from these TBAs. It can also be implied that the herbal concoctions given to the women probably prevented against malaria. This finding is comparable to the finding in Edo State, Nigeria, where it was reported that 73% of TBAs did not recommend Tetanus Toxoid (TT) to pregnant women.²⁰ These results are however lower compared to those of studies in Ibadan, Nigeria and Kenya among healthcare workers where 77.7% and 96% of the respondents were aware of IPT.^{22,23} The high level of awareness of IPT in the Ibadan and Kenyan studies is expected as they were conducted amongst health workers who worked in health facilities in which it was customary to provide IPT to pregnant women. In more specific terms however, knowledge of timing of the first dose of IPT was poor in the Ibadan study.²² A study in Malawi also reported inadequate knowledge of proper timing of SP used for IPT.²⁴ From these four studies, it can be implied that knowledge of appropriate timing for SP in pregnancy is poor both within the health facilities and amongst TBAs (especially if the health workers are not primarily responsible for the care of the pregnant women). Based on the scoring used for this study, knowledge of malaria prevention in pregnancy among TBAs was generally rated as poor as was rated by the Benin study.²¹

Most of the TBAs in this study admitted counseling all their clients on prevention of malaria in pregnancy, while 7.6% reported that they did not in any way counsel any of their clients on malaria. TBAs that had provided their clients with some counseling reported providing counseling on ITNs, food/water in pregnancy, IPT-sp and environmental hygiene, though only 31.3% counseled on use of ITNs. This finding was far lower than those in Cambodia where more than 78% of Village Health Workers (VHWs) counseled their clients on the use of ITNs.²⁶ This finding was rather worrisome as the focus of TBAs was solely on pregnant women compared with VHWs that solely attended to virtually everyone in the community.

Very few of the TBAs in this study prescribed SP and 25% of the reported number prescribed the 2 doses that are Nationally recommended. Timing of the prescribed doses of IPT to the clients was generally wrong among the TBAs. These findings were not unexpected as it was earlier reported that knowledge of malaria prevention amongst the TBAs in this study was poor. As such, the TBAs could not practice beyond what they knew which was also very much in agreement with the Benin study that reported poor knowledge and practices of MIP amongst TBAs.²¹ Another study in Benin with focus on prevalence of malaria and anemia in pregnant women receiving care from TBAs, equally reported a high prevalence (78.9%) of malaria among pregnant women receiving ANC from them. The same study associated anaemia with the use of only herbal preparations ("Agboiba") as a preventive measure amongst the pregnant women.²⁵ These findings are comparable to a study in Edo, Nigeria where it was reported that 73% of TBAs did not recommend TT to pregnant women.²⁰ Nearly all (95.5%) TBAs (equally did not make a referral for IPT in this study which is consistent with earlier findings in same studies that knowledge of IPT was poor.

There was no statistically significant association between the level of knowledge of MIP and the practice of prescription of IPTs. This finding was not surprising as not even one of the TBAs had a good

knowledge of MIP and its prevention. TBAs rather prescribed herbal concoctions (evidenced by 82% of the TBAs responding that it was prevention for malaria). There was no statistically significant association between level of knowledge of MIP and counseling of IPT and on referring clients for IPT. This was expected as the level of knowledge was generally poor.

In conclusion, the level of knowledge of MIP among TBAs in this study was generally poor, though majority agreed that it could cause problems and each TBA knew at least one symptom of malaria. The knowledge and practice of IPT-sp was not popular amongst TBAs for the prevention of MIP, as many would rather prescribe herbal preparations.

It is therefore recommended that efforts be made by the Local Government authorities to mobilize all TBAs in their communities for sensitization on prevention of MIP, especially with the use of IPT-sp since this is a National strategy in the reduction of maternal mortality. Local Government authorities should also be advised on the need to incorporate and engage the TBAs in the ongoing efforts to prevent malaria and its complications in pregnancy and the possibility of training them to deliver the IPT-sp at the community level.

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