

## MALARIA CHEMOPROPHYLAXIS AND CHILDBEARING WOMEN IN A PERI-URBAN NIGERIAN COMMUNITY: KNOWLEDGE ATTITUDE AND SOCIO-CULTURAL FACTORS FOR ACCEPTANCE.

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*This is a descriptive cross-sectional study, carried on childbearing women in Okelele community of Ilorin West Local Government of Kwara State, Nigeria. The aim was to assess the knowledge and attitude of childbearing women towards antimalaria chemoprophylactics and highlight socio-cultural factors influencing their knowledge and attitude. Three hundred and eighty childbearing women were interviewed but only 375 (98.7%) responded. A systematic sampling method was used to determine the houses where respondents were interviewed after obtaining informed consent; highly structured close-ended questionnaires were administered by trained interviewers. The respondents age range between 15 and 47 years. More than half (52.8%) of the respondents were literates. Knowledge of antimalaria chemoprophylactics among the respondents was good of 375 respondents, 353 (94.1%) had knowledge and 317 (84.5%) had ever used antimalaria chemoprophylactic drugs. The study revealed that respondents with higher educational level had significantly better knowledge of antimalaria chemoprophylactics and higher level of usage  $p < 0.05$ . Positive attitude towards malaria chemoprophylaxis was very high (84.5%) in this study and level of education was found to be an important influencing factor of the positive attitude. Conviction of the benefits of antimalaria chemoprophylactics was the main reasons advanced by the respondents for their positive attitude towards malaria chemoprophylaxis. Despite good knowledge and high level of positive attitude towards malaria chemoprophylaxis, a number of misconceptions and ignorance were still expressed towards malaria chemoprophylaxis by the childbearing women. There is need for regular health education programme especially for childbearing women so as to remove this misconception and ignorance. Health workers should also intensify effort in disseminating information on the benefits of antimalaria chemoprophylactics.*

### INTRODUCTION

Strategies for reducing the impact of malaria in childbearing women especially during pregnancy have generally relied on chemoprophylaxis. The acquired immunity to malaria is liable to break down under stress condition like pregnancy. Malaria is more pronounced in the second trimester of pregnancy and especially in the primigravidae (1). The actual cause of the increased frequency and severity of malaria infection in pregnancy is still not fully known. It may be as a result of general pregnancy-associated immuno-suppression or due to malaria specific component. Riley et al (2) has implicated increased steroid hormone as a result of placenta production of cortisol and other steroids known to be immuno-suppressive agents as a possible cause of increase frequency and severity of malaria infection in pregnant woman, which can depress the cellular as well as hormonal immune response of the host. Impaired antibody production and depressed cell mediated immunity have been implicated by Parsed et al (3), as possible factors for increased frequency and severity of malaria in childbearing women during pregnancy. Chemoprophylaxis has been directed almost exclusively towards childbearing women especially during pregnancy because multiple scientific studies (3) have suggested that malaria infection during pregnancy may be associated with maternal morbidity and mortality, first and second semester abortions, still births, premature deliveries, low birth

weight and rarely congenital malaria. According to WHO expert Committee (4) on malaria, repeated attacks of malaria during pregnancy result in placental insufficiency and women exposed to infection are at a high risk (particularly during their first pregnancy) of delivering premature or low birth weight infants. Chemoprophylaxis as a malaria control strategy has become progressively more difficult in recent years owing in part to the increase of drug resistance and the increasing recognition of the adverse side effects of several important antimalaria prophylactic drugs. Due to these adverse side effects associated with some antimalaria chemoprophylactic drugs, there is need to be cautious about their use especially in childbearing women and most especially pregnant mothers. The antimalaria drugs that are commonly in use for prophylaxis include Chloroquine, Proguanil, Pyrimethamine, Amodiaquine, and Pyrimethamine/ Dapsone combination (5). Women generally play an important role in determine the health of the family but regrettably their opinion have been traditionally ignored in most communities in developing countries-due to cultural beliefs and practices. Furthermore, women have rarely been asked what they know and feel about antimalaria chemoprophylaxis. The socio-cultural background particularly in developing countries is male dominant and male attitudes and values have strongly influence all women's decisions that are taken in the home including action to take even with regards to their own health. The aim of malaria chemoprophylaxis is to reduce

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morbidity; mortality and antecedent complications associated with malaria in groups that are at high risk especially the pregnant mothers. This study is designed to enhance the level of awareness and understanding of childbearing women to antimalaria chemoprophylaxis thereby promoting and maintain, the quality of life of childbearing women as a whole. It is the complexity of malaria that has enabled it to resist so successfully the many and varied attempts to eradicate or control it. With this in mind, and recognizing that the world wide eradication of the disease is not an attainable goal in the foreseeable future, it therefore becomes imperative to give antimalaria chemoprophylaxis special attention and consideration especially in childbearing women during pregnancy considering their easily susceptibility to malaria as well as the consequences of malaria in pregnancy.(6)

## **MATERIALS AND METHODS**

This is a descriptive cross-sectional study and was carried out in Okelele Community of Ilorin West local government of Kwara state. The community is characterized by poor social amenities and is inhabited by Ilorin indigenes of poor socio-economic status. The community has one Primary Health Care center (PUC), which offers a wide range of services. Traditional healers also provide a wide range of health care services including malaria prevention and treatment. The Ilorin West local government and Department of Epidemiology and community health of the University of Ilorin Teaching Hospital jointly run the PHC center. The geographical climate of the area is similar to the holoendemic region of malaria infection (7). The study was conducted between April and May 1997 and approval was obtained from the community leaders and most importantly the head of the ward (Ajikobi Ward) in which the community belongs. For ethical reason the consent of the childbearing women was properly sought and duly given. Furthermore, their human rights and dignity were respected. Data collection was based on a cross-sectional household survey. Due to lack of resources ten streets were randomly selected for the study. A systematic sampling of every fourth house in the selected streets was carried out to determine the houses in which the respondents would be obtained. The first house was chosen

randomly with the use of ballot papers. All the childbearing women between the ages of fifteen and forty-nine found in the selected houses were interviewed until required sample size was obtained. A total sample size of 380 childbearing women was used for the study. Four trained interviewers who were of public health background carried out the data collection and a close-ended questionnaire were used as data collection instrument. The interviewers were properly monitored and supervised so as to strengthen the reliability of the data being collected. The questionnaire was pre-tested in twenty houses outside the study area and standardized before being administered to the study subjects. The items in the questionnaire include the socio-demographic variables as well as knowledge and attitude of childbearing women towards antimalaria chemoprophylactics. Interviews were mainly carried out in the evenings during the working days and throughout the day on weekends to ensure that the women were met at home. The interview was over a period of six weeks and each interview lasted about thirty minutes.

The collected data were coded and analyzed using a computer with EPI-INFO version 6 soft ware packages. Frequency distribution tables including descriptive statistics such as means and standard deviation where applicable were used. Significant levels of association between variables were tested by chi-square test.

This study was not without constraints. Some of the respondents initially thought the interviewers were sanitary inspectors and they therefore felt reluctant until after so much explanations before they could withdraw their initial thought. Some respondents before cooperation requested material or monetary incentives. Even though malaria study has been extensively researched, yet few literatures could be found with regards to the title of this study.

## **RESULTS**

Out of the 380 women of childbearing age interviewed, 375 (98.7%) responded while only 5 (1.3%) did not respond for reasons such as lack of time and interest as well as lack of permission from husbands. The respondents' age ranged between 15 and 47 years. The mean (SD) and median (SD) ages were 34.2(12.8) and 36.8 (13.5) years respectively (Table 1). As seen in table one, 255 (68%) of the

respondents were Yoruba, 78 (20.8%) were Hausa / Fulani, 17(4.5%) were Igbo while 25 (6.7%) were from other ethnic groups like Gambari, Tapa and Nupe. More than half 210 (56%) of the respondents were married, 90 (24%) were single and only 13 (3.5%) were widowed. More than half (52.8%) of the childbearing women in this study were literates, 105 (28%) had primary education, 64 (17.1%) had secondary education and 29 (7.7%) had tertiary education. The Table I further shows that 76 (20.3%) of the respondents were civil servants, 102 (27.2%) were traders, 83 (22.1%) were artisans, 62(16.5%) were farmers, and only 52 (13.9%) were unemployed. Income was generally low and the respondents depended on support, mainly from their husbands and other members of the family.

Of 375 respondents, 359 (95.7%) knew malaria to be transmitted by mosquitoes, 122 (32.5%) understood malaria to be caused by standing too much in the sun were 290 (77.3%) said germs caused it. Respondents' knowledge on the presentations (signs and symptoms) of malaria are shown in Figure 1. Concerning susceptibility to malaria infection, majority 358 (95.5%) indicated that pregnant women were more at risk than non pregnant ones and no reason was given for their indication. Majority 253 (94.1%) of the respondents were aware about malaria chemoprophylaxis and their sources of awareness range from Friends (13.6%), Husband (8%), Health workers (56%), and Media (22.4%). The distribution of respondents' awareness status and sources of information to various forms of anti-malaria chemo-prophylactic drugs is shown in Table 2. Knowledge scores on antimalaria chemoprophylactics were not associated ( $p > 0.05$ ) with parity. Childbearing women with low parity (mean score = 58.4 points out of total 100 points mean scores) were found to be more knowledgeable than those with high parity (mean score = 36.2 points).

Concerning antenatal clinic attendance, there was a statistically significant relationship ( $p < 0.05$ ) between antenatal clinic attendance and knowledge scores (Table 3). Knowledge scores of those who attend antenatal clinic were higher (72.8 points) than those who do not attend (24.5 points). As regards the benefits of antimalaria chemoprophylactic drugs, 272 (72.5%) of childbearing women indicated malaria prevention

during pregnancy. Reduction of malaria attacks was indicated by 288 (76.8%), improvement in health status by 155 (41.3%) and assurance of healthy baby by 253(67.5%) childbearing women. These benefits were recalled from their experiences in the past pregnancies. It was observed in this study that 237 (63.3%) of respondents said both husband and wife should make decision while 77(20.5%) said only husband should be the decision maker with regards to the use of antimalaria chemoprophylactics.

Only 18 (4.8%) claimed that health workers should be the only persons to decide. Table 4 shows no statistical significant relationship between the level of education of respondents and those who should make decision about antimalaria chemoprophylactics usage. In this study, 317 (84.5%) of the respondents had positive attitude towards malaria chemoprophylaxis and use antimalaria chemoprophylactic drugs when they are pregnant. However 58 (15.5%) were not willing (negative). Education wise, while only 5 (17.2%) of respondents without formal education interviewed reacted positively to the use of antimalaria chemoprophylactic drugs, 38 (59.4%) with primary education, 81 (72.1%) with secondary education and 144(81.5%) with tertiary education reacted positively. There was a significant statistical direct relationship ( $p < 0.05$ ) between levels of education of respondents and their possible consideration of the use of antimalaria chemoprophylactic drugs as shown in Table 5. There was however no statistical significant difference in the percentages of respondents attitude religious wise (Table 6) Concerning 58 respondents with negative attitude to malaria chemoprophylaxis, 60.2% did not give any reason for their attitude; while 24.5% claimed fear of side effects and 4.5% mentioned lack of awareness, and 5.6% indicated that it was not necessary due to non-belief in its use. Only 4.2% linked their attitude to poor financial status (lack of money).

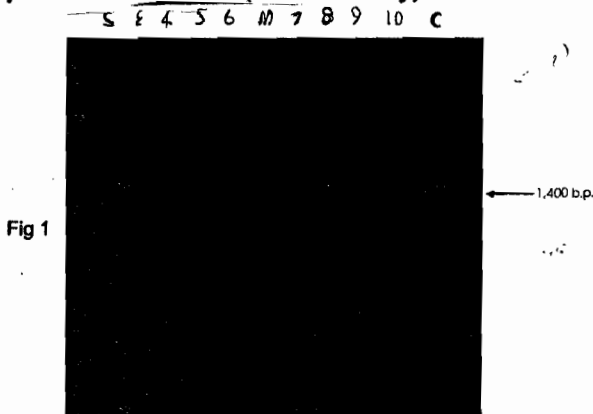
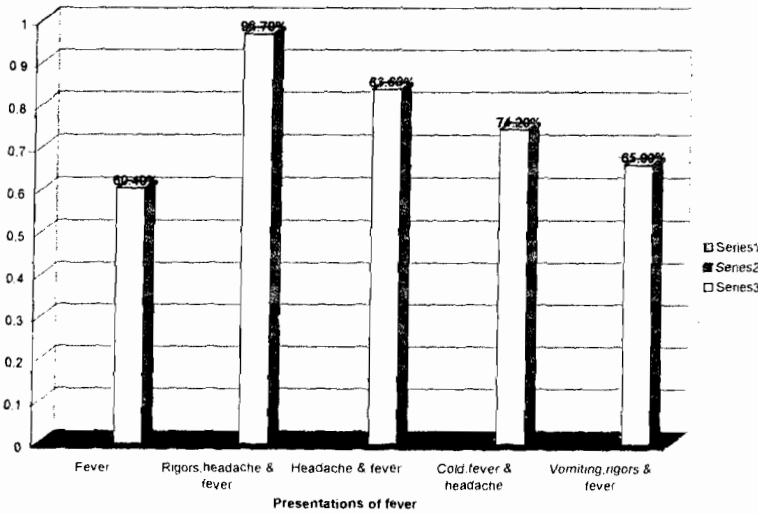


Fig 1

Samples 3,4,5,6,7,8 and 9 produced of 1,400 b.p  
 Samples 1,2 and 10 produced no pcr products.  
 C = Positive Control

Fig 1 Respondents knowledge of presentations of fever



Items	Frequency (%)
<b>General Awareness</b>	
Aware	353 (94.1%)
Not Aware	22 (5.9%)
Total	375 (100%)
<b>Awareness on Specific Drugs</b>	
Chloroquine	98 (27.8%)
Fansidar	70 (19.8%)
Pyrimethamine	140 (39.7%)
Proguanil	28 (7.9%)
Amodaquine	11 (3.104)
Mefloquine	6 (1.7%)
Total	* 353 (100%)
<b>Sources of awareness</b>	
Friends	51 (13.6)
Husband	30 (8)
Media	84 (22.4)
Health workers	208 (55.5)
Others	2 (0.5)
Total	375 (100)

Table 2: AWARENESS STATUS OF RESPONDENTS ON ANTIMALARIA CHEMOPROPHYLACTIC DRUGS  
\* Total number of awareness to antimalaria chemoprophylactic drugs.

Variable	Freq (%)	Occupation	Freq (%)
<b>Age (years)</b>		Civil service	76 (20.3)
15-24	125 (33.3)	Trading	102 (27.2)
25-34	154 (41.1)	Artisan	83 (22.1)
35-44	51 (13.6)	Farming	62 (16.5)
45-54	45 (12)	Unemployment	52 (13.9)
Total	375 (100)	Total	375 (100)
<b>Ethnic Group</b>		<b>Parity*</b>	
Yoruba	255 (68)	1-4	119
Hausa/Fulani	78 (20.8)	>4	256
Igbo	17 (4.5)	<b>ANC attendance*</b>	
Others	25 (6.7)	Yes	294
Total	375 (100)	No	81
<b>Marital Status</b>		<b>Religion</b>	
Single	90 (24)	Christianity	38
Married	210 (56)	Islam	325
Separated	27 (7.2)	Others	12
Widowed	13 (3.5)	Total	375 (100)
Divorced	35 (9.3)		
Total	375 (100)		
<b>Education</b>			
No formal education	177 (47.2)		
Primary education	105 (28)		
Secondary education	64 (17.1)		
Tertiary education	29 (7.7)		
Total	375 (100)		

ANC means antenatal clinic.  
\* still has total frequency of 375.

Factors	No	Mean Score	Variance	P-value
<b>Parity</b>				
1-4	119	58.4	0.97	0.718
>4	256	36.2	1.46	
<b>ANC attendance</b>				
Yes	294	72.8	0.62	0.0165
No	81	24.5	0.34	

Table 3: RESPONDENTS KNOWLEDGE SCORES BY PARITY AND ANTENATAL CLINIC ATTENDANCE ON MALARIA CHEMOPROPHYLAXIS  
ANC means Antenatal Clinic. Total mean scores 100

Level of Education	Who should make decisions				Total
	Husband	Wife	Both	H/workers	
No. formal Education	18(10.2)	10(5.6)	143(80.8)	6(3.4)	177(100)
Primary Education	20(19.1)	16(15.2)	64(60.9)	5(4.8)	105(100)
Secondary Education	21(32.8)	14(21.9)	25(39.1)	4(6.2)	64(100)
Tertiary Education	18(62.2)	3(10.3)	5(17.2)	3(10.3)	29(100)

Table 4: LEVEL OF EDUCATION RESPONDENTS VERSUS THEIR VIEWS ON SHOULD MAKE DECISIONS ABOUT THE USE OF ANTIMALARIA CHEMOPROPHYLACTIC DRUGS  
df=9, p-value = 0.08975.

Level of Education	Possible use of Chemoprophylactics		
	YES	NO	TOTAL
No formal Education	35(19.8)	142(80.2)	177(100)
Primary Education	60(57.1)	55(42.9)	105(100)
Secondary Education	47(73.4)	17(26.6)	64(100)
Tertiary Education	24(82.7)	5(17.3)	29(100)

df=3, p-value = 0.00027.

Table 5: LEVEL OF EDUCATION OF RESPONDENTS VERSUS THEIR POSSIBLE CONSIDERATION OF THE USE OF ANTIMALARIA CHEMOPROPHYLACTIC DRUGS

Religion	Possible use of Chemoprophylactics		
	YES	NO	TOTAL
Christianity	22(57.9)	16(42.1)	38(100)
Islam	200(61.5)	125(38.5)	325(100)
Others	9(75)	3(25)	12(100)

Table 6: RELIGION OF RESPONDENTS VERSUS THEIR POSSIBLE CONSIDERATION OF THE USE OF ANTIMALARIA CHEMOPROPHYLACTIC DRUGS  
df=2, p-value = 0.6728.

## DISCUSSION

The age range of respondents interviewed was between 15 and 47 years. The lowest age of respondents being fifteen years is expected because the area of study belongs to the Northern part of Nigeria where females are contracted earlier for marriage and expected to be having children. There was a preponderance of 25-34 years age group amongst the respondents. The preponderance is in keeping with the population pyramid of most developing countries where there are more young ones compared with the few elderly individuals.

The knowledge of childbearing women on the transmission, presentations and susceptibility of women to malaria was good. The level of awareness of antimalaria chemoprophylactics was generally high as a result all the women interviewed had knowledge of at least one form of antimalaria drugs (chemoprophylactics). This finding is similar to a Lagos study (8) in which women knew that malaria could be prevented by taking Daraprim. Furthermore, the Uganda study (9) showed that the childbearing women afflicted with malaria were quite knowledgeable about antimalaria chemoprophylactic drugs and therefore used them to prevent and treat malaria. In Malawi, Schultz (10) found out that the level of awareness about antimalaria chemoprophylactics was high among childbearing women. This level of awareness was as a result of the women's level of education, which serves as a significant predictor of initiating antenatal care. The decision on malaria chemoprophylaxis sometimes is based on the knowledge of the risk of malaria transmission, effectiveness and side effects of the drugs. This assertion is corroborated by Kenya study (11) in which the major reason for not taking chemoprophylactics was lack of awareness that the service was available. Considering the fact that childbearing women should be properly protected against malaria especially during pregnancy, it is equally important that they themselves should be knowledgeable about the epidemiology and chemoprophylaxis of malaria. For effective control of malaria the basic principles of epidemiology by everyone involved is crucial (12, 13).

There was a positive attitude to antimalaria chemoprophylactics in this study because majority (84.5%) of the respondents had ever used them. The study also revealed that husband (63.2%) as well as both husband and wife (20.5%) jointly made decision

about using antimalaria chemoprophylactics. All these may be explained by high level of education amongst the respondents as well as the fact that the family structure in most African cultures is patrilinear and patriarchal. The social and economic dependence of women including the childbearing ones on their husbands gives men great influence in the house hold, a position that is strengthened by a patrilinearly organized family structure. As a result of this position occupied by men, they often decide the choice of health services women receive during pregnancy. Men in many developing countries place a high premium on children because of the tangible and emotional benefits derived from them. Children bring a high sense of satisfaction or success to a man even if he is materially poor. Children especially sons are agents of continuity for the family name -a characteristic that encourages both polygamy and prolific childbearing to ensure that sons survive to perpetuate the lineage~) It is not surprising to find out that religion has no influence on the attitude of the respondents with regards to malaria chemoprophylaxis because all the practiced religions in the community support prevention against diseases.

## CONCLUSIONS AND RECOMMENDATIONS

This study revealed that Okelele Community consists of families belonging mainly to the low socio-economic group, and are multi-ethnic and multi-tribal. The study demonstrated high knowledge of malaria chemoprophylaxis among the childbearing women, which could be due to high level of education among the respondents coupled with increased level of primary health care activities in the community. Education was found to play a very significant role on the respondents' attitude towards malaria chemoprophylaxis by increasing the level of awareness and usage. Decision on the usage of antimalaria chemoprophylactics was observed and greater percentage of husband and wife took decision jointly. It is worth nothing that there was no significant relationship between religion of respondents and the attitude towards malaria chemoprophylaxis. Considering malaria endemicity in the study area and its implications on childbearing women especially during pregnancy, the health workers must increase their effort in dissemination of information about malaria chemoprophylaxis. Greater emphasis should be laid on antenatal clinic attendance for the delivery of antimalaria chemoprophylactics to childbearing women. Factors like efficacy, safety and ease of delivery of the antimalaria chemoprophylactics as well as compliance with the dosage regimen must be considered in selecting a practical antimalaria chemoprophylactics for childbearing women during pregnancy.



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