

Malaria Intermittent Preventive Treatment in Nigeria: A Qualitative study to explore barriers and facilitators

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Research article

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Abstract

Background : Sulphadoxine pyrimethamine (SP) used as a preventive treatment for malaria is low among pregnant women in Nigeria. However, there is limited evidence on the barriers and facilitators of intermittent preventive treatment (IPTp) use in pregnant women. This study aimed to explore the barriers and facilitators of IPTp use among pregnant women in Kano state, Nigeria.

Methods: This qualitative study used a conventional content analysis method. Purposive sampling strategy was used to select study participants. A total of 14 key informant interviews were conducted with policy makers, malaria experts and health care providers. Three focus group discussions (FGD) were also conducted among pregnant women. Furthermore, separate three FGDs were conducted among husbands whom were selected using opportunistic maximum variation sampling method. MaxqDA 10 software was used for data analysis, i.e., to develop categories, subcategories and themes.

Results: Malaria policy implementation, antenatal care attendance, accessibility of intermittent preventive treatment in the communities, strengthening IPTp service delivery were the facilitators of IPTp use while political reluctance, high population density, inadequate budget to implement IPTp related policies emerged as barriers to IPTp use.

Conclusion: The political will to allocate sufficient budget could help improve service delivery and IPTp use among pregnant women and facilitate the achievement of the Sustainable Development Agenda to end malaria in 2030.

Background

Malaria infection during pregnancy is a major public health problem in several low-middle income countries (LMICs) – posing substantial risk to pregnant mothers, their fetuses and the neonates (1). Intermittent preventive treatment in pregnancy (IPTp) is given at routine antenatal care visits regardless of whether the pregnant woman is infected with malaria or not (2), reduces maternal malaria infection episodes, maternal and fetal anemia, placental parasitaemia, low birth weight and neonatal mortality (3, 4).

An estimated 11 million pregnant women living in 38 countries with moderate-to-high transmission rates in sub-Saharan Africa were infected with malaria in 2018 (5). This makes malaria infection in pregnant women 29% of all pregnancies which causes maternal and infant mortality in these countries (5). The new guidelines on antenatal care by world health organization (WHO) recommends increase in the number of contacts between care providers and pregnant women to effective malaria infection prevention in pregnant women (6). These guidelines effectively ensure more opportunities to expand IPTp using sulphadoxine pyrimethamine (SP). However, WHO has observed a declining effort to scale-up IPTp in a number of African countries, including Nigeria (2).

Several efforts have been made in Nigeria to fight malaria through strengthen government and partners' support. In addition, several activities such as mass media campaign on long-lasting insecticidal nets (LLINs) use, intermittent preventive treatment for pregnant women (IPTp), and massive scale up in malaria case management have been implemented to reduce malaria infection in pregnant women (7). Yet, many researchers have reported high prevalence of malaria in pregnancy in different parts of Nigeria, which ranges from 19.7–72.0% (8, 9). The percentage of recent national surveys of pregnant women that received at least two doses of IPTp is low across the country, although there has been a slight increase from 6.5% in 2008 to 13.2% in 2010 (10). Furthermore, pooled data from facilities shown moderate coverage (18.7%) of IPTp with a wide variation of IPTp use across the regional states of Nigeria (10). The recent demographic health survey in Nigeria also revealed the total IPTp use to be 40.4% (11), which is still low to reach a malaria free world strategy.

Quantitative studies have been used to determine the burden of malaria and risk factors that affect the use, coverage, and access to IPTp in Nigeria (12–14). Major limitation of these studies includes the inability of study design to capture the comprehensiveness of the barriers and facilitators of intermittent preventive treatment (IPT) use among pregnant women. In addition, there is limited evidence in the use of qualitative approach in exploring the phenomenon in Nigeria.

This study aimed to explore the barriers to and facilitators of IPTp use by pregnant women from the perspectives of different stakeholders in Nigeria with an equity lens. It is anticipated findings could be used in malaria control program to improve IPTp use in pregnant women.

Methods

Study setting

This study was conducted in Kano state, located in the North West of Nigeria. Kano state is the second most populous state in the country, with an estimated 13.4 million people – representing the second-most populous state in Nigeria. The maternal mortality ratio in Kano regional state is 1,025 per 100,000 live births in 2014 (15). Malaria prevalence in Kano regional state of Nigeria is high, with an estimated prevalence of 32.4% which is above the national average (11). We selected Kano state because it is a malaria endemic area in Nigeria (12).

Participants and sampling

14 participants from various administration levels of malaria programs were purposively sampled for face-to-face in-depth interview. The sampling method was used because of the managerial position and their interaction with study participants. Focus group discussions (FGDs) comprised of pregnant women and Husbands which were homogenous regarding the sex of participants. Three FGDs were conducted with pregnant women in different antenatal units in the hospitals. The maximum variation sampling approach was used in the selection of participants. Pregnant women differed in terms of place of

residence and educational status. Three other FGDs were also conducted for husbands in the community. Each focus group consisted of 8-12 participants.

Table 1: Characteristics of key informants interviewed

Key Informant and FGD	Abbreviations	Numbers
National malaria director	NMD	1
Regional state malaria coordinator	SMC	1
Malaria experts	ME	6
Health care providers/Matron ANC units	HCP	4
Community heads	CH	2
Pregnant women	PW	3
Husbands	H	3

Data collection tool and procedures

Separate semi- structured interview guides were used for data collection – key informant interviews and FGD. Topics covered in the interview include: challenges hindering IPTp policy implementation, attendance of women for ANC care, IPTp distribution in ANC units, accessibility of IPTp in the communities, knowledge of malaria adverse effects during pregnancy, facilitators and barriers of IPTp use. Data collection came to a halt upon reaching saturation (16).

Data processing and analysis

Conventional content analysis approach was used to interpret meaning from the content of text data due to the inductive nature of this qualitative design (17). Some of the transcripts were first translated from the local language to English and verified by experts. Transcripts were analyzed using a coding scheme developed from the topics. Codes were highlighted to show concepts. Similar codes were summarized to form categories. Next, each category was defined as a sub-category and the theme was developed. The themes were linked to research questions and study objectives. The MaxqDA 10 software was used in data management.

Quality control and assurance

5 of the 20 interviews were double-coded by the researcher (FMM) for completeness and accuracy. The interviews were given to another researcher (SN) to check the notes and codes, followed by a thorough discussion of findings by all authors. Some interviews were taken back to the interviewee after the analysis to be sure that the words were correctly interpreted. The interviews and data analysis were done at the same time. This enabled us to identify areas that needed to be explored further, and to seek explanations for alien responses.

Results

A total of 68 key informants were interviewed in this study. One national malaria director, one state malaria coordinator, six malaria experts (three from the ministry of health and three from maternal and child health) were among the key informants. Moreover, two community heads, 24 husbands from the community, 30 pregnant women attending the antenatal care units, and four health care providers working in the antenatal care units were interviewed. The age of pregnant women ranged from 17- 40 years. Most of them had primary education (50%), 35% had secondary education, and 15% had no formal education. 40% of the pregnant were rural dwellers while 60% from urban.

Table 2: Categories, sub-categories and themes

		Categories	Sub-categories	Themes
1	Barriers of Intermittent preventive treatment use	Malaria policies implementation	1-1 Financial obstacles (NMD,SMC,ME)	Inadequate budget for implementation of policies
			1-2 Political obstacles (NMD,ME,HCP)	High population density in endemic areas, corruption in the health system
			1-3 Social obstacles (NMD,ME)	Political reluctance
			1-4 Geographical obstacles (NMD)	Hard to reach areas having rivers and mountains
2		Attendance of women for ANC care	2-1 Education (NMD,ME,SMC,HCP)	Low education status of pregnant women
			2-2 Husband Support (ME,HCP,PW)	Some husbands don't support their wives attending ANC due to cultural believes, low educational status or financial status.
			2-3 Awareness (ME,HCP,PW)	Some pregnant women are not aware of the importance of attending ANC including the effect of Malaria in pregnancy
3		Distribution of IPTp in hospitals	3-1Availability (HCP,ME,PW,H)	IPTp is little or sometimes unavailable in public hospitals,.
			3-2 Coverage (ME,HCP)	Low coverage of IPTp
			3-3 Monitoring of IPTp in ANC wards (NMD)	No proper monitoring to ensure a secure supply of IPTp
4		Accessibility of IPTp in the communities	4-1 Out of pocket payment for IPTp (PW,H,ME,CH)	IPTp is not given for free at PHC
5	Facilitators of Intermittent preventive treatment use	Strengthening IPTp service delivery	5-1 Supervised treatment and providing relevant information to pregnant women (ME,HCP)	Training of health care providers on IPTp, Improve the quality of services in health facilities, directly observed therapy should be done in all health facilities as a routine
			4-2 Community involvement (CH,H,ME)	

Findings are explained below:

Implementation of malaria policies

Financial obstacle. Most influential key informants believed that the major barrier for poor implementation of policies is the financial limitation. Based on findings, the Government mainly relies on foreign aids to fight malaria which is not enough, fascinated by the high population of the country.

"We have about 1,200 pregnant women attending the antenatal care monthly in this hospital. In a year we have nearly up to 16,000. How much does a pack of IPTp cost, providing three packs for each of these women costs 4.8 million Naira (13,445 Dollars). So you see, providing IPTp for all pregnant women is a huge burden on the government". – (Malaria Expert from Murtala Mohammed Teaching hospital)

Political obstacle: Majority of the policy makers Participants revealed the utmost need for Governments to show the political willingness to provide more IPT in public hospitals.

A malaria program focal person complained *"After we finished training the health workers about malaria issues in pregnancy and how to administer IPT, a local government chairman would just come to give another task changing them from the ANC units"* - Policy maker(National level)

Attendance of women for ANC

Educational status:

Almost all the focal persons complained about the attendance of pregnant women for the ANC compared to their actual population in Kano state. They mentioned that the turnout was not satisfying compared to other parts of the country and the educational status of women might have contributed to it.

"About 58% of pregnant attend at least one visit of antenatal care in Kano state. Some of the pregnant women delayed the visits till their third trimester, so this will make them have one of the IPTp doses. It is there the nurses and midwives give them health talk on important issues including malaria. Their educational status contributed to antenatal visits"- Malaria expert (Abdullahi Wase specialist hospital)

Support: Policymakers and experts also emphasized on inadequate male involvement in maternal care although they have the financial resources to support the initiative. Views from experts include: *'The men should help the society by making sure that their wives are educated and also financially empowered. Women with these qualities will not rely all the time on her husband to visit the ANC unit.'*- Malaria expert (Aminu Kano teaching hospital)

Distribution of IPTp in hospitals

Availability: The three FGDs conducted for pregnant women in all the public hospitals showed that they do not receive free IPTp Some, participants in the Murtala Mohammed Specialist Hospital emphasized that *"we were given hematinic as part of the free drugs, but IPTp was not included in the package-* (Pregnant woman). In the Aminu Kano teaching hospital, the informants confirmed that IPTp prescribed for the pregnant women are to be paid for. A health care provider in Murtala Mohammed specialist hospital said: *"It has been many years that we distributed IPTp and mosquito nets for pregnant women in this unit. - Health care provider (Murtala Mohammed specialist hospital)*

Accessibility of IPTp in the communities

Out of pocket payments for IPT: The FGDs conducted in the community revealed that most of the men confirmed they did not buy IPTp for their wives when they were pregnant, due to ignorance and lack of financial affordability. About six of them said their wives attended hospitals just for delivery. Some informants complained about the amounts they charged in primary health care (PHC) units for drugs. A community head mentioned that *“We need the government to provide us with free drugs in the PHC units, especially the IPT some can’t afford to pay the fees.”- Community head (Nassarawa local government)*

Strengthening IPTp service delivery

Supervised treatment: Expert mentioned supervision of treatment as an important step to facilitate the uptake and the coverage in the health facility. *“The training of nurses and midwives about IPTp should be given much attention because they are the best people to corporate with, in this situation, directly observed therapy should be done in all health facilities as a routine.”-Policy maker (State level)*

Community involvement: Most participants emphasize on the importance of community involvement. Opinions of experts were that: *“Health education on IPTp use is very important in the community, it will make the pregnant women, husbands and community members know about the malaria risks during pregnancy. A community head in one of the rural areas said “We have a small group of dedicated men in this area. We use the monthly sanitation day to spray insecticide here and the people have no problem with it. We can use the same approach for IPTp- Community head (Kano municipal)*

Discussion

The findings of this qualitative study provided insight on barriers to and facilitators of IPTp use. The interviews were helpful in holistic exploration of the existing gaps that might hinder Nigeria from reaching the sustainable development goals (SDGs) on ending malaria by 2030 if action were not taken.

This study identified five important categories: the barriers include malaria policies implementation, pregnant women ANC attendance, distribution of IPTp in hospitals and accessibility of IPTp in the community. The facilitator is strengthening IPTp service delivery. The respondents concentrated more on the barriers which indicated call for action. The major barriers from policymakers' perspectives were poor implementation of policies, inadequate budget, high population density in the endemic areas and poor delivery method of IPTp in the hospitals. Studies conducted in Uganda and Malawi have revealed similar findings (18, 19). The results indicate that poor ANC attendance by pregnant women, as mentioned by majority of malaria experts and health care providers, is one of the major barriers to IPTp use, and delay of visit to the third trimester which makes them to receive only a dose. Similar studies reported from Ghana and Malawi indicated that irregular and late ANC visits are the key factors for low uptake of IPTp (20, 21).

In most of the in-depth interviews with malaria experts, unavailability of SP in most of the ANC units is the main concern. This finding is similar to the previous quantitative studies reported from Southern and Western parts of the country in which free IPTp is out of stock in ANC units (22, 23). In this study, most of

the husbands living in the rural community did not know the significance of IPTp thereby limiting supports to the pregnant women. This finding asserts the importance of awareness creation in the community through media and IPTp campaigns (24). Most of the respondents in the community mentioned that the SP at the PHC units is allegedly sold to patients which the poor can't afford. However, SP should be given to the pregnant women free of charge. This finding is similar to the study reported from Uganda in which women are asked to pay for SP when it is out of stock (18). Malaria experts acknowledged the significance of community involvement to IPTp service use. Community members should be attached to IPTp programs in such a way that the implementation committee from the PHC collaborates with the community leadership. For example, a community head suggested that SP should be distributed like mosquito nets. This is similar to the recent systematic review, which indicates the effectiveness of community-led model of malaria interventions, including the IPTp in reducing the burden (25).

In this study, there was no indication that the pregnant women were afraid to take SP. In fact, when responding to questions about willingness to take IPTp if given, most of them agree to take SP to protect themselves and their unborn from malaria. This disagree with the findings reported from Kenya and Mali in which some women fear taking IPTp (26).

Conclusion

Our findings revealed the key barriers and facilitators of IPTp-SP use. Existing barriers include poor policy implementation, low antenatal care attendance, lack of financial accessibility of intermittent preventive treatment in the communities.

To facilitate the uptake of SP, stakeholders should create awareness and empowerment programs using different platforms through community involvement strategies. This could also help strengthen IPTp service delivery – being a major facilitator of IPTp use according to our findings. Again, Governments should exhibit the political will by increasing resources allocation to the fight against malaria, and to facilitate the achievement of sustainable health development.

Abbreviations

ANC-Antenatal care; CH-Community head; FGD-Focus group discussion; H-Husband; HCP-Health care provider; IPTp-Intermittent preventive treatment in pregnancy; ME-Malaria experts; NMD-National malaria director; PW- pregnant women; SMC-State Malaria coordinator; SP-Sulphadoxine Pyrimethamine; WHO-World health organization.

Declarations

Acknowledgment

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Authors Contribution

FM organized the data, RM supervised the study, FM & SN performed data coding, analysis, interpretation and writing the manuscript. RM, MP&HSS participated in study design, data collection and transcription. All authors read and approved the final version of the Manuscript.

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Availability of data

Data can be made available upon reasonable request from the corresponding author.

Ethics approval and consent to participate

This study was approved by the ethics review boards of Tehran University of Medical Sciences (Project No. IR.TUMS.SPH.REC.1398.070), Kano State Ministry of Health in Nigeria (MOH/Off/797/T. I/1417).

The verbal consent to participate was obtained from participants before interview. Participants' anonymity and confidentiality were also guaranteed.

Consent for publication

Consent was obtained from all participants to publish the data

Competing Interest

The authors declare they have no competing interests

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