

Using equity lens to explore Malaria Intermittent Preventive Treatment in Nigeria: A Qualitative study

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Research

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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. Thus, 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. Purposeful 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. The data were analyzed with MaxqDA 10 software which was used to develop the categories, subcategories and themes.

Results: A total of five main categories, 13 subcategories, and 17 themes were identified. Malaria policy implementation, antenatal care attendance, accessibility of intermittent preventive treatment in the communities, strengthening IPTp service delivery were the main facilitators of IPTp use. However, political reluctance, high population density, inadequate budget to implement IPTp related policies were the main barriers of IPTp use.

Conclusion: This study revealed key barriers and facilitators of the use of Intermittent preventive treatment using Sulphadoxine pyrimethamine. Our study findings suggest that any strategy for improving the of IPTp use among pregnant women should focus on political reluctance, inadequate budget and strengthen the service delivery

Background

Malaria infection during pregnancy is a major public health problem in some parts of the world It has substantial risks to pregnant mothers, their fetuses and the neonates (1). Intermittent preventive treatment of malaria in pregnancy is given at routine antenatal care visits regardless of whether the pregnant woman is infected with malaria or not (2). Intermittent preventive treatment in pregnancy (IPTp) 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 net (LLIN) 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). However, still many researchers have reported the 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 remained low across the country, but the recent report shown 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 is also indicated that the total IPTp use was 40.4% (11), which is still low to reach to achieve 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). However, quantitative study design could not capture 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 to explore the real barriers and facilitators of IPTp use in pregnant women in Nigeria.

Thus, the current study aimed to explore the barriers and facilitators of IPTp use by pregnant women from the perspectives of different stakeholders in Nigeria with an equity lens. Findings from this study provides information that could be used in malaria control program to improve IPTp use in pregnant women.

Methods

Study setting and design

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. 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 chose Kano state because it is the second-most populous state in Nigeria and malaria endemic area in the country. Conventional content analysis qualitative study design was used as the research method in this study due to the inductive nature of the design.

Participants and sampling

Fourteen participants were selected from various administration levels of malaria programs for key informant interview using purposive sampling method. 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 using maximum variation opportunistic sampling approach in selecting pregnant women. Pregnant women differ in terms of wealth index and educational status. Three other FGDs were also conducted for husbands in the community. Each focus group was consisted 8-12 participants.

Table 1: Key informants interview and focus group discussions

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 study procedures

Semi- structured key informant and focus group discussion interview guides were developed and used for data collection. The topics covered in the interview include major challenges hindering the implementation of IPTp policies, 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 for the uptake of IPTp. Adequate data were collected during interview and FGDs to address the study aim, because similar instances were reported by the participants and the theme was saturated.

Data processing and analysis

Data were analyzed using conventional content analysis. Some of the transcripts were first translated from the local language to English and verified by experts. The transcripts from in-depth interviews and FGDs were analyzed using a coding scheme developed from the topics. The codes were highlighted to show concepts; similar codes were summarized to form categories. Each category was defined as a sub-category and the theme was developed. The themes were linked to the research questions. The MaxqDA 10 software was used in data management and to assist in finding presentation.

Quality control and assurance

Five of the 20 interviews were double-coded by the researcher for completeness and accuracy. The interviews were given to another researcher to check the notes and codes. A discussion was done to resolve discrepancies between the interviewer and the second researcher. 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 in order to identify other areas that must be explored further and seek explanations for the unexpected results.

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 from low socioeconomic status and 60% from high socioeconomic status. Similarly, 70% of the pregnant women were urban dwellers while 30% rural.

Table 2: Categories, sub-categories and themes

			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 IPT (PW,H,ME,CH)	IPT 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)	

The categories are presented as follow:

Category 1: Implementation of malaria policies

Table 2 shows category 1 with six sub-categories and six themes. The two most important sub-categories, frequently mentioned by the participants identified were finance and political obstacles. These sub-categories were explained by informants as follow:

1-1 Financial obstacle: This sub-category was derived from the topics discussed with the national and Kano state malaria program coordinators. Most influential key informants believed that the major barrier for poor implementation of policies is the financial limitation.

One of them said that *"The major barrier is finance limitation; the government relies on foreign aids to fight malaria which is not enough because of the high population. If you compare Nigeria with other countries that eliminated malaria, their population is less than a local government in Nigeria"*.

A focal person in the ANC wards of Kano public hospital explained how much the cost of IPT is a huge burden for the government. *"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"*.

1-2 Political obstacle: Two policymakers raised some important points. 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"* The other policy maker observed the utmost need for government to provide more IPT in public hospitals.

Category 2: Attendance of women for ANC

Of the four sub-categories shown in Table 2, educational status of pregnant women and husband's support were the most important.

2-1 Educational status: Almost all the focal persons complained bitterly 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. They believed that many factors contributed to such low education status of pregnant women, financial status, culture and support from husbands.

An expert in maternal and child health says that *"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 determines how serious they take the antenatal visits."*

2-1 Support: Policymakers and experts emphasize on male involvement in maternal care because they are the ones mostly with the resources. Malaria experts were mentioned that *‘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.’*

Category 3: Distribution of IPTp in hospitals

There were two sub-categories under IPTp distribution in hospital categories [Table 2]. The most important sub-category was availability of IPTp in ANC wards.

3-1 Availability: The three FGDs conducted for pregnant women in all the public hospitals showed that they didn’t receive free IPTp. Some, in the Murtala Mohammed Specialist Hospital said they were given hematinic as part of the free drugs, but IPTp was not included in the package. In the Aminu Kano teaching hospital, the informants confirmed that IPTp prescribed for the pregnant by the doctors at their expense. 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.”*

Category 4: Accessibility of IPTp in the communities

Under accessibility of IPTp there was only one sub-category which was out of pocket payment and mostly mentioned by the husbands interviewed from the community and community heads [Table 2].

4-1 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. Most of their reasons were ignorance and 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.”*

Category 5: Strengthening IPTp service delivery

Under strengthening IPTp service delivery main category, there were two sub-categories such as supervised treatment and providing relevant information to pregnant women and community involvement [Table 2].

5-1 Supervised treatment: A malaria expert mentioned supervision of treatment as an important step to facilitate the uptake and the coverage in the health facility. He said that *“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.”*

5-2 community involvement: Most of the participants emphasize on its importance. A malaria expert mentioned 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.

Discussion

The findings of this qualitative study provided insight which is worth to be considered because it based on opinions and facts from key informants. The interviews were helpful in understanding that all hands of malaria stakeholders must be on deck if Nigeria wants to reach sustainable development goals (SDGs) by 2030.

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 concentrate more on the barriers which indicated call for concerning bodies' attention. The major barriers from policymakers' perspectives were low implementation of policies such as inadequate budget, high population density in the endemic areas and poor delivery method of IPTp in the hospitals. Findings that support our results are shown similar problem in Uganda and Malawi (16, 17). 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 of IPTp use and delay of visit to the third trimester which leads to receive only dose. Similar studies reported from Ghana and Malawi indicated that irregular and late ANC visits are the key factors for low uptake of IPTp (18, 19).

In the majority of the in-depth interviews with malaria experts were raised unavailability of SP in most of the ANC units as 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 (20, 21). In this study, most of the husbands living in the rural community did not know the significance of IPTp which intern to poor support to the women. This finding asserts the importance of awareness creation in the community through media and IPTp campaigns (22). 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 is 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 (16). Malaria experts observed 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 delivered model of malaria interventions, including the IPTp in reducing the burden (23).

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 (24).

Limitations

This study has two major limitations. The first limitation is the interviews might be biased due to purposive sampling. However, this limitation was taken into consideration before sampling by assuring the diversity of participants to rule out the bias. The second limitation relates to the focus group discussion for pregnant women, which was done in the hospitals. This environment might be uncomfortable for some of the pregnant women.

Conclusion

Our findings revealed the key barriers and facilitators of the use of IPTp-SP. The main barriers were malaria policy implementation, antenatal care attendance, accessibility of intermittent preventive treatment in the communities., strengthening IPTp service delivery was the main facilitator. The finding suggests several approaches for improving the use of IPTp among pregnant women

The stakeholders should create awareness and empowerment programs using different platforms through community involvement strategies to facilitate the uptake of SP. This makes the women relatively self – reliant to take the IPTp. The government should have more political will and allocate more funds to fight malaria. Strengthen the service delivery system through facility initiated supervision across public hospitals and PHC units is important.

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

The datasets transcript generated during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

This study was approved by the ethics review boards of Tehran University of Medical Sciences (IR.TUMS.SPH.REC.1398.070), Kano State Ministry of Health (MOH/Off/797/T. I/1417).

The verbal consent to participate was taken from the participants before any interview. Participants anonymity and confidentiality were guaranteed throughout the research process.

Consent for publication

Consent was gained from all the participants to publish the data

Competing Interest

The authors declare they have no competing interests

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Figures



Figure 1

Map of Nigeria: The blue shaded area shows the study area.