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Experiences of Pregnant Women Regarding the Utilization of Intermittent Preventive Treatment of Malaria in Buchi Township of Kitwe

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Abstract

Introduction: Malaria is a known major deadly global public health problem that causes morbidity and mortality in many countries, mostly in the African region. Evidence in Zambia shows it is amongst the top ten killer diseases, having a morbidity and mortality rate of 60/100 and 0.01/1000 respectively in pregnant women as recorded in 2013. The usage of IPTp is one of the recommended interventions by WHO to mitigate its impact in stable transmission zones such as Sub-Saharan African regions and also to ensure the best outcome for both the mother and her unborn child. Despite the availability of IPTp services offered in the health facilities, the uptake of IPTp is still very low.

Aim: This study aims to traverse the experiences of pregnant women regarding the utilization of intermittent preventive treatment of malaria in the Buchi township of Kitwe.

Methodology: The study will utilize an explorative qualitative design in which convenient sampling will be used to select participants to participate in the study. Data collection will be done through focus group discussions and in-depth interviews data collection will continue until the saturation point thematic content analysis will then be used to analyse the qualitative data.

Possible outcomes: This study aimed at identifying the factors influencing the utilization of IPTp Buchi area of Kitwe, improve the knowledge of IPTp treatment in women and with the health institutions, help them see where they are lacking in the sector of IPTp-SP thus help change or amplify their policies in regards to the above and also establish guidelines if none on the adoption of IPTp services and thereby increasing the health status of pregnant women and their unborn babies leading to reduced maternal morbidity and mortality rates.

Keywords: Ante-Natal Care (ANC) • Malaria in Pregnancy (MiP) • Direct Observation Therapy (DOT) • Anopheles mosquito • Foetal anaemia

Abbreviations: IPTp: Intermittent Preventive Treatment of malaria in pregnancy; SP: Sulfadoxine-Pyrimethamine; ANC: Ante-Natal Care; MiP: Malaria in Pregnancy; ITN: Insecticide-Treated mosquito Nets; LBW: Low Birth Weight; WHO: World Health Organization; DOT: Dichloro-diphenyl-trichloroethane; RCH: Reproductive and Child Health; AIMI: African Integrated Malaria Initiative; USAID: United States Agency for International Development; IEC: Information, Education and Communication; DOT: Direct Observation Therapy; FGD: Focus Group Discussions

Introduction

Background information

Malaria is known to be a major global public health problem and a leading cause of morbidity and mortality in many countries [1]. It is a disease that is transmitted from person to person through a bite of an infected anopheles mosquito that enters the victim's blood system and travels into the person's liver where the parasite reproduces leading to a high fever that involves shaking chills and pain, in worst cases leading to coma and death [2].

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A total of 216 million estimated malaria cases had occurred in 2010, of which 81% were reported in the African region, followed by Southeast Asia (13%) and the Eastern Mediterranean region (5%) [3]. Fifteen countries in sub-Saharan Africa and India carried almost 80% of the global malaria burden and the incidence rate of malaria declined globally between 2010 and 2017, from 72 to 59 cases per 1000 populations at risk. In 2017, there were an estimated 435,000 deaths from malaria globally, compared with 451000 estimated deaths in 2016, and 607000 in 2010, the WHO African region accounted for 93% of all malaria deaths in 2017. As the statistics have shown that Africa is the most affected by this disease, Zambia is one of the African countries heavily affectted by it.

It's said that Malaria is among the ten top killer diseases in Zambia with an incidence rate of 412/1000 accounting for 45% of all outpatient attendances and 50% of admissions among Children fewer than five years [4]. It also contributes to about 20% of maternal mortality and 40% of infant and under five child mortality. Hence the need for its elimination and prevention.

According to the elimination Agenda, more than 16 million people are at risk of malaria in Zambia and it was estimated that in 2015, there were over 5 million malaria cases, it has also shown that the scourge of malaria continues to strike hardest against pregnant women and young children in Africa causing significant deleterious effects on the pregnant woman, the developing fetus and the newborn infant [5]. Furthermore, negative consequences have been associated with malaria in pregnancy and these include severe malaria, severe anaemia, pre-term delivery, maternal death, and placental malaria which are linked to intrauterine growth restriction, stillbirth, and delivery of Low Birth Weight (LBW) infants [6]. The above mentioned henceforth called for serious concern and led to the administration of intermittent preventive treatment of malaria in pregnancy with sulfadoxine-pyrimethamine (IPTp-SP) known as Fansidar.

IPTp-SP helps to reduce maternal malaria episodes, maternal and foetal anaemia, placental the drug to be administered in pregnant women. Comes with for both the mother and the baby [7]. This is an indication that age-specific immunity plays a vital role in controlling a malaria infection during pregnancy in areas of high and stable transmission. According to Kochar DK, et al. the incidence of infection was higher among primigravida and second gravida as compared to multigravida and the greater incidence of infection was seen during 14-28 week of gestation. Similarly, another study found that primigravidas were more susceptible than multigravidas to complications during malaria infection, such as low birth weight from preterm delivery and/or foetal growth restriction [8].

According to an assessment of the utilization of intermittent preventive treatment of malaria among pregnant women in Lusaka Province of Zambia, a comparative cross-sectional study was conducted to assess the utilization and determinants of IPT of malaria by pregnant women in the rural and urban districts and it was found that full IPT utilization in the province was low. The study demonstrated that utilization levels of IPT/SP of malaria were very low in both the rural and urban districts despite the availability of Fansidar in health facilities [9]. The association of the utilization of IPTp-SP services with educational status and economic status was not of great significance. It was found that women with higher educational status were more likely to take preventive measures against malaria compared with less educated women.

This finding meant that health education programs for pregnant women should be intensified among women with low educational status.

Through research conducted from the malaria in pregnancy library and global health database, the key barriers in the health sector were unclear policy and guidance on IPTp in that the general healthcare system issues, such as stockouts and user fees; health facility issues stemming from poor organization, led to poor quality of care; poor healthcare provider performance, including confusion over the timing of each IPTp dose; and women's poor antenatal attendance, affecting IPTp uptake [10]. When it comes to the household level, women's lack of power in decision making in the household and their socio-cultural practices contributed to the poor utilization of IPTp. Individual level factors related to uptake included knowledge about IPTp-SP, education level, socioeconomic status, the timing of ANC visits, and the number of ANC visits [11].

Although Zambia has adopted WHO recommendations on the use of SP for IPTp, IPT2 according to research done in Lusaka coverage remains generally low. In similar research in Sesheke, it was also found that the service utilization of IPTp is low and some factors and challenges were found. However, not much has been documented about the knowledge of pregnant women on IPTp and MiP as well as factors that influence the uptake of IPT of Malaria in Pregnancy using SP among pregnant women. Therefore, this study is aimed at determining the factors that influence the uptake of IPT of malaria in pregnancy using SP among pregnant women in Kitwe, Buchi.

Statement problem

Despite the effective preventive measures established in all parts of the world, malaria has continued to cause a substantial disease burden among pregnant women in malaria endemic areas as IPTp coverage has remained low despite high Antenatal Care (ANC) [12]. Approximately 32 million pregnancies per year occurring in regions of Sub-Saharan Africa are at risk for malaria and an estimated 200,000 of the 32 million estimated pregnancies occur in Zambia. To curb this problem, a prophylactic strategy involving IPTp with SP proved to decrease the adverse effects of malaria during pregnancy and was, hence, implemented in Zambia in the year 2003. In spite of the implementation of IPTp, its success has not been widely studied in Zambia and neither has the factors determining its utilization when it comes to pregnant women. As a result, the estimated IPTp-SP coverage rates throughout the Sub-Saharan African region, which is inclusive of Zambia, continue to lag behind the national target [13]. Hence, the need for this study to be conducted.

Literature Review

Intermittent preventive treatment during pregnancy

IPTp-SP is an integral part of whose three-pronged approach to the prevention and treatment of malaria in pregnancy, which also includes the use of insecticide-treated nets and prompt and effective case management. Its use was viewed as a safe alternative that could be directly administered during antenatal consultations. Relatively easy and cheap to implement. It was aimed at reducing the burden of malaria in certain high risk groups, namely pregnant women and

children by three strategies namely IPT in pregnancy (IPTp), infants (IPTi), and children (IPTc) [14]. In this case, our focus being IPTp which was a treatmentinitiated to protect women in areas of moderate and high malaria transmission in Africa was recommended by WHO. And it has been found that IPTp has been adopted as a national policy in 37 countries worldwide, 33 of which are in the sub-Saharan region [15].

SP was adopted for intermittent preventive treatment of malaria during pregnancy when proof of its superiority to weekly prophylactic dosing with either chloroquine or pyrimethamine became evident from studies in different malaria-endemic countries. Thus In 2012, the World Health Organization issued new guidelines for Intermittent Preventative Treatment of Malaria in Pregnancy (IPTp), recommending that pregnant women are given Sulfadoxine-Pyrimethamine (SP) at monthly Antenatal Care (ANC) visits beginning in the second trimester of pregnancy and continuing up until delivery.

The intervention of the use of IPTp-SP has proved to be safe and effective. Also, it proved to be inexpensive and had demonstrated high levels of acceptance by pregnant women. Another study carried out in Ghana elaborated on how the key goal of the global action plan was to cover 80% of the pregnant women in malaria-endemic regions receiving no less than two doses of IPTp-SP to reduce the complications that arise from malaria in pregnancy. Though not sustained, the 2011 multiple indicator cluster survey from Ghana indicated progress on IPTp in Ghana and also reported that SP had a good safety profile and was cheap, cost-effective, and easier to administer through the already existing Antenatal-Care clinics (ANC).

In Sesheke district of Western Province Zambia, it was reported that the use of Intermittent Presumptive Treatment (IPTp) of malaria during pregnancy is based on the assumption that every pregnant woman living in an area with high malaria transmission has malaria parasites. The parasites live in her blood or placenta, whether or not she has symptoms and signs of malaria and also that it augments the use of Insecticide-Treated mosquito Nets (ITNs) to prevent malaria transmission and early case detection and effective case management of malaria. In a similar case study conducted in Zambia, it was mentioned that for the IPTp services to work they are coupled with antenatal visits as the gap between the proportion of pregnant women attending ANCs and those who receive IPTp is a missed opportunity for delivering all doses of IPTp in Zambia and other sub-Saharan African countries [16].

Although using IPTp-SP is effective in most pregnant women it was also found to have some challenges like the timing of SP administration, rising levels of parasite resistance to SP in the general population, effect of folate supplementation, adequacy of the recommended doses with regards to malaria endemicity and HIV status, interactions between SP and antiretroviral drugs and low coverage in the bid to scale up its use. Despite its disadvantages, SP continues to be used in IPTp given the importance of IPTp-SP in the prevention of malaria in pregnancy and its resulting outcomes, such as maternal illness and low birth weight, and WHO continues to recommend IPTp-SP use [17].

Concept of IPTp-SP

As mentioned earlier in the above section on IPTp women are required to go for ANC to acquire the IPTp services and so in areas of moderate-to-high malaria transmission, IPTp with SP is recommended for all pregnant women at each scheduled antenatal care visit. WHO recommends a schedule of four antenatal care visits?

- The first IPTp-SP dose should be administered as early as possible during the 2nd trimester 3 of gestation.
- Each SP dose should be given at least 1 month apart.
- The last dose of IPTp with SP can be administered up to the time of delivery, without safety concerns.

Many countries have followed the WHO recommendation of the intake of IPTp-SP starting in the 2nd and not the 1st trimester. Seeing from a study taken in Nigeria, it was quoted that sulphadoxine-pyrimethamine should not be given during the first trimester of pregnancy; however, the last dose of IPTp-SP can be administered up to the time of delivery without safety concerns and the treatment was for all women regardless of whether they have malaria. Similarly, in Tanzania, the national policy stipulates the provision of SP to all pregnant women during ANC visits, between 20 weeks and 24 weeks gestation for the first dose and between 28 weeks and 32 weeks gestations for the second dose to properly prevent malaria. This is because there is limited evidence of potential teratogenicity when SP is used in the first trimester and until more safe data arrives, a woman should protect herself against malaria by using an insecticide treated net in the early weeks of pregnancy.

IPTp services in Zambia involve taking three doses of Sulphadoxine-Pyrimethamine (SP) as the presumptive treatment of malaria [18]. But subsequently, Zambian guidelines were updated to be in line with the WHO 2012 recommendations for monthly dosing of SP-IPTp given at each antenatal visit in the second and third trimesters and the intake should be through directly observed therapy and currently, Zambia is among countries with the highest IPTp coverage in the sub-Saharan African region at 73% (against the national target of 80%).

Factors influencing utilization of IPTp-SP

Women face a lot of barriers when it comes to the utilization of IPTp-SP and some known factors in studies carried out across the world mostly sub-Saharan as that's where IPTp is mostly practiced were established. Some of these factors included the poor administration of SP at the facility, improper planning of stock management leading to reported regular stock-outs of SP tablets, deficiency in behavioural change communication messages that are primarily meant to be delivered at the ante-natal clinic before the medication is prescribed, health workers' attitude towards client, unavailability of IPT services during outreach activities and health workers themselves giving wrong messages about the timing of the administration of the drug could undermine the achievement of IPT3 coverage.

It was discovered in a study, that for IPTp-SP, pregnant women may present too late or too few times for ANC to receive the recommended number of doses; however, some studies suggest that

healthcare workers do not administer SP, either due to confusion over the guidance or because they are too busy or lack supplies.

A study conducted in cross river states in Nigeria they found in general that, husbands, other relatives, and community members support ANC, IPTp and malaria treatment for pregnant women, and encourage the women to attend and if these were not around for that, others didn't feel the courage to go ahead with the whole process. Also, many women lacked specific knowledge or had a different perception of the risks of MiP and the difference between prevention and treatment, and why prevention was necessary. Even the issue of long-distance to the health facility and the transportation together with the rudeness of health providers and long waiting times contributed to the utilization of IPTp.

In Tanzania, their findings were that unclear messages about IPTp (specifically, the timing of doses), limited supply of SP, limited understanding of IPTp, late enrollment or irregular ANC visits, and nurse underachievement contributed to decreased utilization of IPTp. In India according to the article effects of malaria infection on pregnancy, they found that the infection rate was also found to be higher in second trimester compared to first and third semesters and also that microcytic anaemia was predominant in the infected group.

In Zambia's western province the factors discovered were the educational status of a woman, knowledge level of a woman about IPTp services, gestational age of the pregnancy at which a woman starts ANC and number of times a woman attends ANC. The most common challenge health providers faced while providing IPTp services was found to be a lack of transport and resources in form of allowances for the health center staff to conduct adequate outreach activities as planned so that women in far and hard to reach areas could be reached; periodic shortage of Fansidar and a tendency by women to deliberately start ANC late [19].

Why women need IPTp services

Malaria infection is more dangerous during pregnancy, and adverse effects are more serious for the pregnant woman as well as the fetus and newborn. Low Birth Weight (LBW), infant mortality, maternal anaemia, spontaneous abortion, and stillbirth are documented as devastating health consequences of Plasmodium falciparum MiP. About 11% of neonatal mortality in malaria endemic African countries is attributable to LBW that results from MiP. In sub-Saharan Africa, MiP reportedly accounts for 26% of severe maternal anaemia and up to 200,000 infant mortalities annually due to LBW. Some 10,000 maternal deaths are recorded each year due to malaria related anaemia.

In Tanzania they stated that the negative consequences associated with malaria in pregnancy included: severe malaria, severe anaemia, pre-term delivery, maternal death, and placental malaria. It went further to state that Placental malaria is linked to intrauterine growth restriction, stillbirth, and delivery of Low Birth Weight (LBW) infants and that Preterm delivery and LBW are the risk factors for neonatal and infant deaths.

Another similar study, also outlined that Maternal anaemia and Low Birth Weight babies (LBW) are two important consequences of malaria in pregnancy also saying that Malaria-associated anaemia puts pregnant women at greater risk of other morbidities including placental abruption, placenta praevia, premature labour, and maternal death. Besides, LBW babies are at an increased risk for early childhood mortality.

In Zambia, a similar concept was put out saying untreated pregnant women are at risk of developing a severe and complicated form of malaria. They are also at high risk of high abortions, which could lead to stillbirth, low birth weight infants, premature deliveries, intrauterine growth retardation, and anaemia [20].

The complete dose uptake: The uptake of at least three doses of IPTp-SP in the present study was very low. The uptake of IPTp-SP in the present study is far below the Roll Back Malaria (RBM) target for all pregnant women living in areas with the stable transmission in SSA to receive IPTp-SP by the end of 2015.

Objectives

General objectives: To explore the experiences of pregnant women regarding the utilization of intermittent preventive treatment of malaria in the Buchi township of Kitwe

Specific objectives

- Evaluate pregnant women's understanding of IPTp services in Buchi Township of Kitwe.
- Identify cultural conceptions about women's usage of IPTp and the risk factors linked with low consumption.
- Examine the adverse effects that IPTp users have encountered and if they have impacted their choice to continue therapy.

Research questions

- What are the knowledge levels of pregnant women on IPTp services in Buchi?
- What are the cultural misconceptions known about malaria prevention and what risk factors are associated with its low intake?
- What are some of the adverse effects experienced by pregnant women due to IPTp and have they influenced their decision in taking the treatment?

Justification and rationale

IPTp-SP in Zambia poses as a huge benefit in that it has proved to reduce many maternal complications such as malaria episodes, malaria related anaemia which leads to morbidities including placental abruption, placenta previa, premature labour, and maternal death and incidence of LBW (which causes an increased risk for early childhood mortality). Thereby preventing a pregnant woman from undergoing harmful experiences in her maternal health and also leading to avoidance of maternal mortalities.

As stated earlier, the extent to which IPTp is being utilised in the area of Buchi is questionable. It is, therefore, essential that the factors that influence the utilization of ITPp- SP by pregnant women in the township are established and also help health facilities, as well as, the ministry of health to come up with ways to encourage and give knowledge on the utilization of IPTp by pregnant women. This will contribute to an overall improvement of general maternal child health. In addition, this study will aid in informing the women about IPTp-SP, not only through ANC as shown in the literature above, but through other means such as community based public health awareness campaigns.

Conceptual framework

This study will use the socio-ecological model to identify and understand factors that may determine the use of IPTp-SP for malaria prevention in pregnant women which recognizes and describes the interwoven relationship that exists between an individual and their environment. It consists of four levels: individual, relationship/interpersonal level, community, and societal level factors. Though, in this study, only individual, relationship, and community level factors will be used. In addition, the "relationship" level factors were termed as "household" level factors, and the individual level factors include the characteristics of an individual that influence behaviour change for example education, knowledge, attitudes, gender, age, religion, socioeconomic status, etc. while it is the responsibility of pregnant women to implement and maintain the necessary lifestyle changes such as using IPTp to reduce the risk of malaria infection and improve their health, their behaviour is largely influenced by their social environments such as community norms and values, regulations and policies (Figure 1).

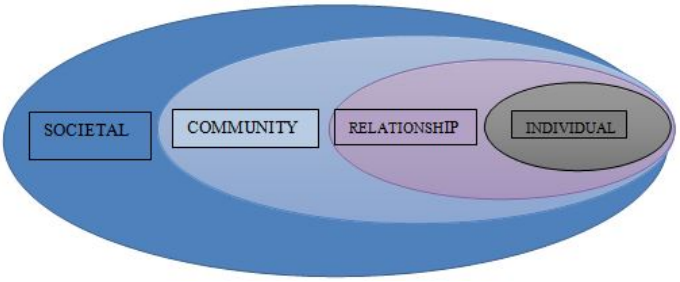

Figure 1. Conceptual framework.

Below is a diagrammatic presentation of the relationship (household) level to the individual level resulting in either benefits or no benefits due to utilisation of IPTp-SP (Figure 2).

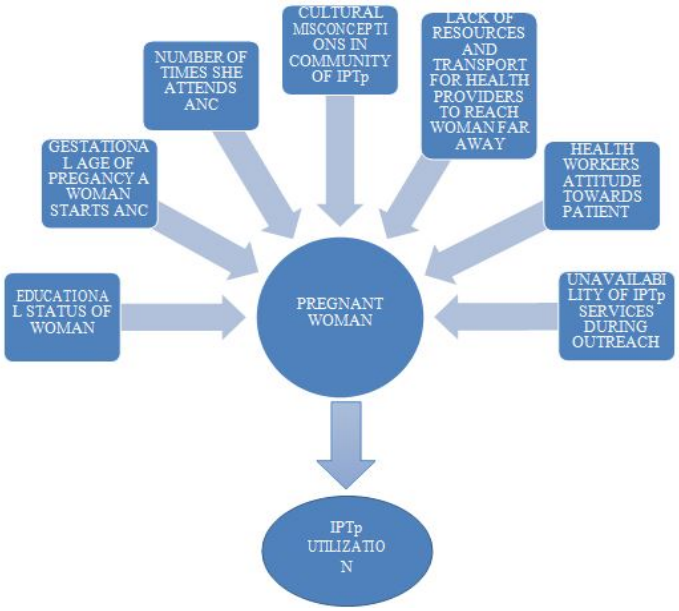

Figure 2. Diagrammatic presentation of the relationship (household) level to the individual level resulting in either benefits or no benefits due to utilisation of IPTp-SP.

Study site

The study was conducted in Buchi, a place with an average area of 3.313 km^2 in Kitwe. It has a population density of 7302/km^2 with a total population of 24193 people having 12161 males and 12032 females according to the census that took place in October 2010 gotten from the central statistical office of Zambia from the clinics.

Target population

These were pregnant women of age between 15 and 49 who were currently undergoing ANC and taking IPTP-SP (Fansidar) at Buchi clinic.

Study design

Qualitative explorative design was utilized to explore participant's experiences regarding the use of intermittent preventive treatment of malaria in pregnant women.

Sample size

A one sample, dichotomous outcome was used to determine the sample size in that the plan was to estimate the prevalence of successes in a dichotomous outcome variable of a single population, the formula for determining sample size was:

The equation $n=Z^2P(1-P)/e^2$

$n=1.96^2 \times 0.05(1-0.05)/0.05^2$

n =73

Where,

n=The sample population needed;

p=The accepted prevalence which in Zambia from other studies is estimated to be at 0.05 (5%);

z=The value of normal standard distribution which is 1.96 for 95%;

e=The margin of error falling at 5%; then to include an attrition (drop out) rate of 10% of the people who may not manage to take part or show up for the study the equation;

N (number enrolled)/(% attained)=73/0.90=82 people were addressed.

Therefore, 82 was the sample size. However, during the study, the sample size was adjusted to 92 as more participants were available.

Sampling procedure

The convenience sampling method was used to pick all eligible mothers of child bearing age of 15 to 49 years that were coming to the clinics for health care services. Participants were selected as they come to access the IPTp.

Inclusion and exclusion criteria

- All pregnant women above the age of 14 and below the age of 49.

- A health practitioner at the ANC clinic.
- A community health assistant/community health worker.
- Mothers below the age of 14 and above the age of 49.

Data collection

In-depth interviews were conducted using open-ended questionnaires until saturation was achieved; the questionnaire was written in english and bemba and administered in the language that the respondent knew best. The socio-ecological model comprised of individuals (knowledge, attitudes, religion,), relationship/interpersonal, community, and societal level aspects were all included in the interview guide. Three focus group discussions each with 10 participants were done and lasted for about 35-60 minutes.

Data analysis

After approval from the research supervisor, the in-depth interview guide data obtained underwent a deductive semantic approach of thematic content analysis which involved a six-step process: Familiarization, coding, generating themes, reviewing themes, defining and naming themes, and writing up. The first step involved knowing the data through transcribing the questionnaires, reading through the text and taking initial notes, and generally looking through the data to get familiar with it. The second and third steps were coding the data and then generating themes that were broader by grouping the codes into one theme by identifying patterns among them.

The fourth, fifth, and sixth steps made sure that the themes were useful and accurate representations of the data and also allowed us to get the final list of defined themes and then write them up. And afterwards microsoft excel was used to complete the analysis.

First, the audio recordings were transcribed from the focus group discussions and compared the transcripts with the handwritten notes to ensure that no important data was missed. Then some verbatim responses were included that reflected the original ideas of the participants. Afterwards, there was a development of the preliminary coding framework from themes ideated in the discussion guide. The final coding framework was arrived at by comparing the transcripts with the preliminary coding framework to detect other themes.

Results

Sample characteristics

The sample size was initially 82 participants but as the collection took place 92 participants were used for in-depth interviews and 60 for the focus group discussion who were selected from the in-depth interviews.

These focus group discussions were held on 3 separate antenatal occasions having 20 pregnant women in each session. Both the in depth interviews and focuses group discussions included women from all 1st, 2nd and 3rd trimesters.

Qualitative findings

The information below shows the data that was collected from 3 focus group guides in form of open-ended questions amongst pregnant women from Buchi hospital who were attending antenatal care and were sampled in groups of 20 participants per group and was attained *via* audio recording which later was transcribed into written form.

In summary of all the sessions

The information above acknowledges that all of the pregnant women are knowledgeable on IPTp-SP to a small extent and that approximately most of them agreed to being informed about it but a few of them complained about not being informed enough on the subject. It has also shown that all participants upon the first intake of the drug did not have a good experience and almost all would still continue even if given the choice to stop and a good number though not more than half would stop due to the effects. And most of them have never had malaria from start to finish of pregnancy whilst on the drug and only one reported to have had malaria due to not taking the drug but upon taking it had never gotten sick again and all agreed to them being taught on IPTp-SP regardless the time of first ANC visit be it 1st 2nd or 3rd trimester.

Interview guide data analysis

This was collected *via* in-depth interviews that comprised closed-ended questionnaires.

Knowledge on IPTp-SP: The vast majority of pregnant women interviewed showed familiarity with IPTp-SP with only 2% not familiar with it as shown in Figure 3. Awareness is driven by the many channels through which these pregnant women learn about the treatment (Tables 1-4). Figure 4 below shows the channels they first heard of the treatment. The clinic was mentioned by 89% of the women, followed by other sources, then TV and radio stations mentioned by 6% and 5% of the pregnant women respectively. This entails that the clinic was a major source of information on IPTp-SP for women and also the only place they mentioned taking the drug from. And as such, encouraging women to attend ANC is key to the fight against malaria related morbidity and mortality in pregnant women (Tables 5 and 6). From the 98% of the women that reported to have taken the drug, 40% took the drug thrice, 28% took it twice, 21% took it more than 3 times and 11% having taken it the least being once shown on Figures 5-7.

ID No	Q_1	Q_2	Q_3	Q_4	Q_5	ID NO	Q_1	Q_2	Q_3	Q_4	Q_5
1	YES	LC	Y	LC	OT	47	YES	LC	Y	LC	TW
2	YES	LC	Y	LC	TH	48	YES	LC	Y	LC	TW
3	YES	LC	Y	LC	OT	49	YES	LC	Y	LC	TH
4	YES	LC	Y	LC	TH	50	YES	LC	Y	LC	OT

5	YES	LC	Y	LC	ON	51	YES	O	Y	LC	OT
6	YES	LC	Y	LC	ON	52	YES	LC	Y	LC	OT
7	YES	LC	Y	LC	TH	53	YES	LC	Y	LC	OT
8	YES	LC	Y	LC	OT	54	YES	LC	Y	LC	TW
9	YES	LC	Y	LC	TH	55	YES	LC	Y	LC	OT
10	YES	LC	Y	LC	TW	56	YES	LC	Y	LC	TH
11	YES	LC	Y	LC	TH	57	YES	LC	Y	LC	OT
12	NO		Y	LC	OT	58	YES	LC	Y	LC	TW
13	YES	LC	Y	LC	TH	59	YES	LC	Y	LC	TW
14	YES	LC	Y	LC	TW	60	YES	LC	Y	LC	ON
15	YES	LC	Y	LC	TW	61	YES	LC	Y	LC	TH
16	YES	LC	Y	LC	OT	62	YES	LC	Y	LC	TW
17	YES	LC	Y	LC	TH	63	YES	LC	Y	LC	TW
18	YES	LC	Y	LC	TW	64	YES	T/R	Y	LC	OT
19	YES	LC	Y	LC	ON	65	YES	LC	Y	LC	TH
20	YES	LC	Y	LC	TH	66	NO		Y	LC	TH
21	YES	LC	Y	LC	TW	67	YES	T/R	Y	LC	ON
22	YES	LC	Y	LC	TH	68	YES	T/R	Y	LC	TW
23	YES	LC	Y	LC	TH	69	YES	LC	Y	LC	TH
24	YES	LC	Y	LC	TW	70	YES	T/R	Y	LC	ON
25	YES	LC	Y	LC	TW	71	YES	LC	Y	LC	TH
26	YES	LC	Y	LC	TW	72	YES	LC	Y	LC	TH
27	YES	LC	Y	LC	ON	73	YES	LC	Y	LC	TH
28	YES	LC	Y	LC	TH	74	YES	LC	Y	LC	TH
29	YES	LC	N			75	YES	LC	Y	LC	TH
30	YES	LC	Y	LC	TW	76	YES	LC	Y	LC	TH
31	YES	LC	Y	LC	OT	77	YES	LC	Y	LC	TH
32	YES	LC	Y	LC	OT	78	YES	LC	Y	LC	ON
33	YES	LC	Y	LC	TH	79	YES	LC	Y	LC	TW
34	YES	LC	Y	LC	TH	80	YES	O	Y	LC	TH
35	YES	LC	Y	LC	TW	81	YES	LC	Y	LC	ON
36	YES	LC	Y	LC	TW	82	YES	LC	Y	LC	TH
37	YES	LC	Y	LC	OT	83	YES	LC	Y	LC	TH
38	YES	LC	Y	LC	TH	84	YES	O	Y	LC	TW
39	YES	LC	Y	LC	ON	85	YES	LC	Y	LC	TH
40	YES	LC	Y	LC	TW	86	YES	LC	Y	LC	TH
41	YES	LC	Y	LC	OT	87	YES	O	N		
42	YES	O	Y	LC	TH	88	YES	LC	Y	LC	TW
43	YES	LC	Y	LC	TW	89	YES	LC	Y	LC	TH

44	YES	LC	Y	LC	ON	90	YES	LC	Y	LC	TH
45	YES	LC	Y	LC	OT	91	YES	T/R	Y	LC	OT
46	YES	LC	Y	LC	TH	92	YES	LC	Y	LC	OT

LC-Local clinic, Y- Yes, N-No, ON-Once, TW-Twice, TH-Thrice, OT-Other

Table 1. Knowledge on IPTp-sp.

Familiar with IPTp- SP?	YES	NO
Out of 92 participants	90	2

Table 2. Demonstrate the number of those who have heard about IPTp-SP from a total of 92 participants.

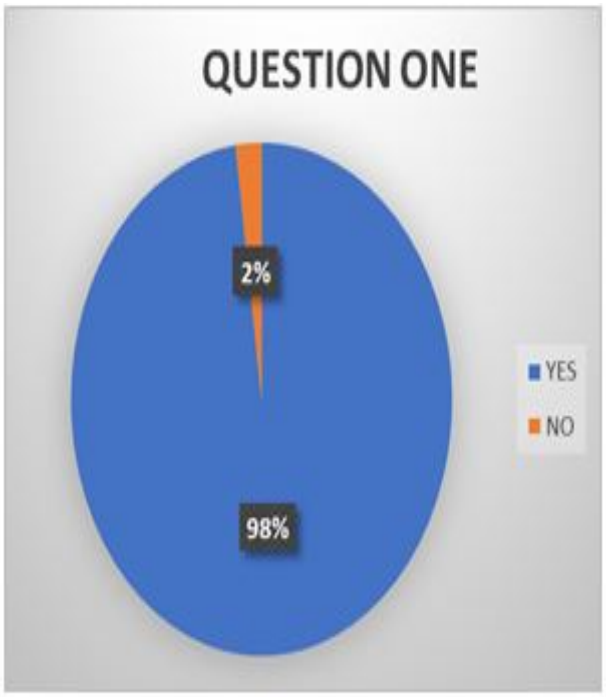

Figure 3. Demonstrate the number of those who have heard about IPTp-SP from a total of 92 participants.

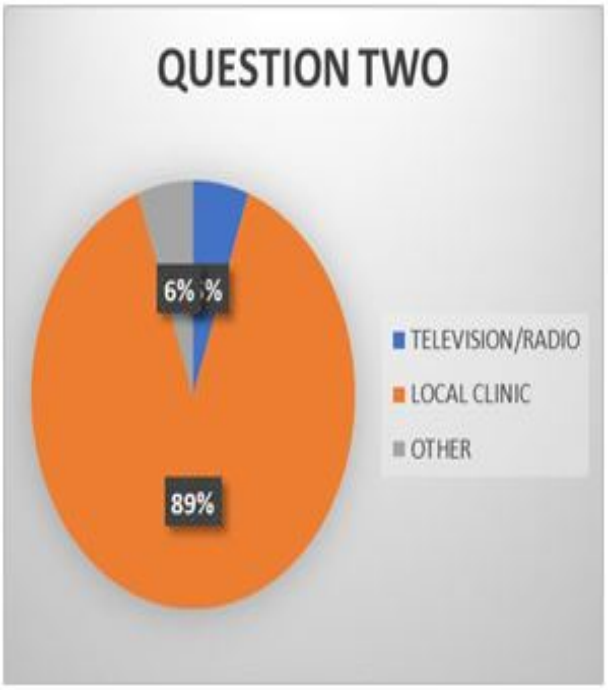

Figure 4. Where the participants had heard of IPTp-SP (Fansidar).

Where you heard about IPTp-sp?	Television/Radio	Local clinic	Other
Out of 90 participants	5	80	5

Table 3. Where the participants had heard of IPTp-SP (Fansidar).

Have you taken Fansidar?	YES	NO
Out of 92 participants	90	2

Table 4. Illustrate how many have taken Fansidar from a total of 92 participants.

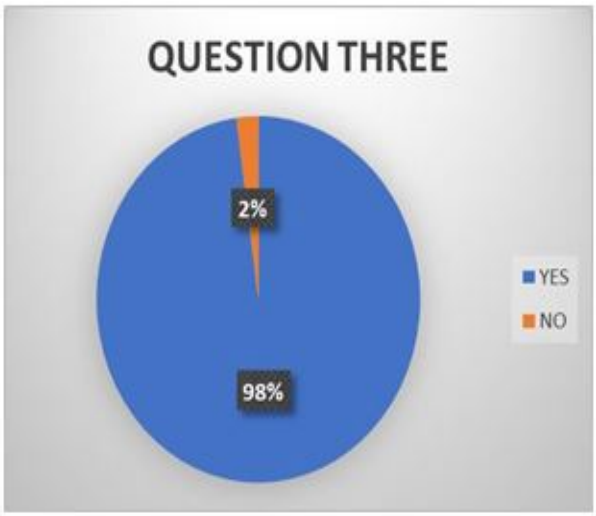

Figure 5. Illustrate how many have taken Fansidar from a total of 92 participants.

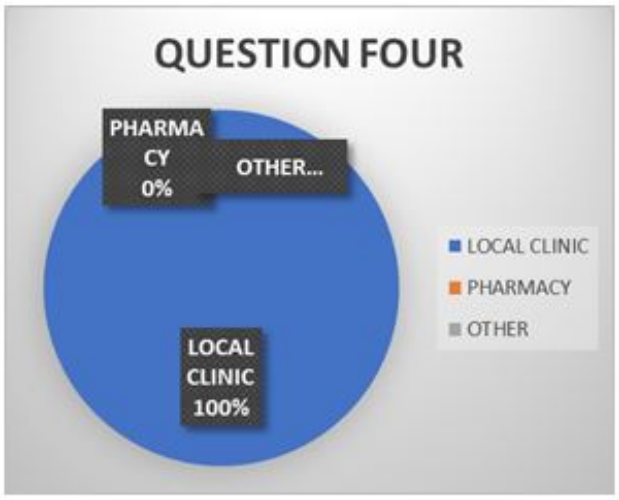

Figure 6. Where exactly the pregnant women where administered the IPTp-SP (Fansidar) from a total of 90 participants from the above question.

Where did you take Fansidar from?	Local clinic	Pharmacy	Other
Out of 90 participants	90	0	0

Table 5. Where exactly the pregnant women where administered the IPTp-SP (Fansidar) from a total of 90 participants from the above question.

How many times has Fansidar been administered to you?	Once	Twice	Thrice	Other
Out of 90 participants	10	25	36	19

Table 6. Illustrate the number of times the pregnant women took drugs from a total of 90 participants from question 2 of those who said yes.

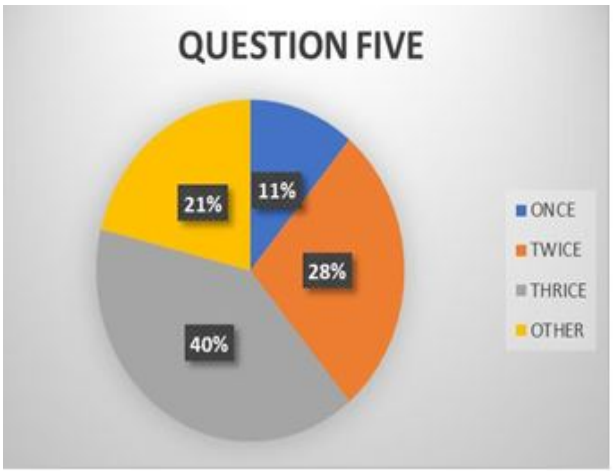

Figure 7. Illustrate the number of times the pregnant women took drugs from a total of 90 participants from question 2 of those who said yes.

Cultural concepts: The information below showed that 25% of the participants had not heard any cultural concepts regrding IPTp-SP and 75% had heard (Tables 7 and 8). And of that 75%, positive comments were 74% and negative comments were 26% this is illustrated in Figure 8. This information came from family members (36%), others (36%) around and members of the community (19%) and it did not pose as a discouragement to most participants at it showed that 86% would still take the drug regardless (Tables 9 and 10). This is shown in Figure 9.

ID	Q_1	Q_2	Q_3	Q_4	ID	Q_1	Q_2	Q_3	Q_4
1	YES	GOOD	EOC	NO	47	YES	GOOD	OT	NO
2	YES	GOOD	OT	NO	48	YES	BAD	FM	NO

3	YES	BAD	EOC	YES	49	YES	BAD	FM	YES
4	YES	BAD	FM	NO	50	YES	GOOD	FM	NO
5	YES	GOOD	OT	NO	51	YES	GOOD	FM	NO
6	YES	GOOD	FM	NO	52	YES	BAD	FM	NO
7	YES	BAD	FM	NO	53	YES	BAD	FM	NO
8	YES	GOOD	OT	NO	54	YES	GOOD	OT	NO
9	YES	BAD	EOC	NO	55	YES	GOOD	OT	NO
10	YES	GOOD	OT	NO	56	NO			
11	YES	GOOD	EOC	NO	57	YES	GOOD	EOC	NO
12	YES	GOOD	EOC	NO	58	NO			
13	NO				59	YES	GOOD	OT	NO
14	YES	BAD	OT	NO	60	YES	GOOD	FM	NO
15	NO				61	YES	BAD	OT	NO
16	YES	BAD	EOC	NO	62	NO			
17	YES	GOOD	OT	NO	63	YES	BAD	EOC	NO
18	YES	GOOD	FM	NO	64	NO			
19	YES	BAD	EOC	YES	65	YES	GOOD	FM	NO
20	NO				66	NO			
21	YES	GOOD	OT	NO	67	YES	GOOD	EOC	NO
22	YES	GOOD	EOC	NO	68	YES	GOOD	EOC	NO
23	YES	GOOD	FM	NO	69	YES	GOOD	EOC	NO
24	YES	GOOD	OT	NO	70	YES	GOOD	FM	NO
25	NO				71	NO			
26	NO				72	YES	GOOD	FM	YES
27	YES	GOOD	EOC	NO	73	NO			
28	YES	GOOD	OT	YES	74	YES	GOOD	FM	NO
29	YES	BAD	FM	YES	75	NO			
30	YES	GOOD	OT	YES	76	YES	BAD	OT	YES
31	YES	GOOD	FM	NO	77	YES	GOOD	EOC	NO
32	YES	GOOD	FM	NO	78	YES	BAD	FM	YES
33	YES	GOOD	OT	YES	79	YES	GOOD	FM	NO
34	YES	GOOD	OT	NO	80	NO			
35	NO				81	NO			
35	YES	GOOD	EOC	NO	82	YES	GOOD	EOC	NO
37	YES	GOOD	FM	NO	83	YES	GOOD	FM	NO
38	YES	GOOD	EOC	NO	84	NO			
39	YES	GOOD	OT	NO	85	YES	GOOD	OT	NO
40	YES	GOOD	FM	NO	86	NO			
41	YES	GOOD	OT	NO	87	NO			

42	NO				88	YES	GOOD	FM	NO
43	NO				89	NO			
44	YES	GOOD	OT	NO	90	YES	BAD	OT	NO
45	YES	GOOD	OT	NO	91	NO			
46	YES	BAD	EOC	NO	92	YES	GOOD	OT	NO

EoC: Elders of the Community, OT: Others, FM: Family Members

Table 7. Summary of questions on cultural concepts.

Heard of any cultural concepts?	YES	NO
out of 92 participants	69	23

Table 8. Demonstrate the number of participants who have heard any cultural concepts concerning IPTp-SP (Fansidar).

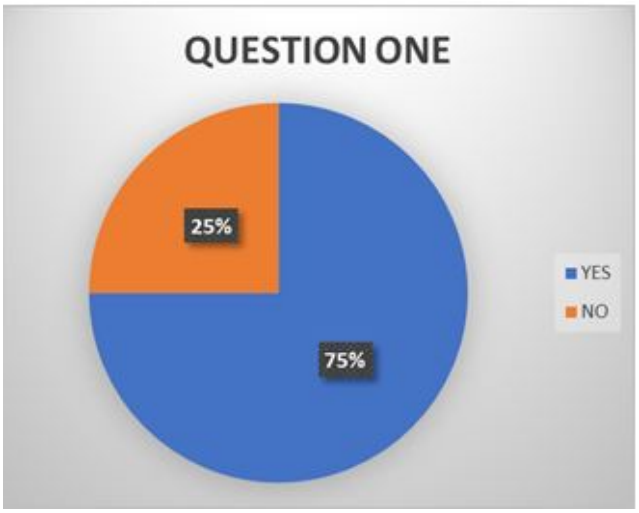

Figure 8. Demonstrate the number of participants who have heard any cultural concepts concerning IPTp-SP (Fansidar).

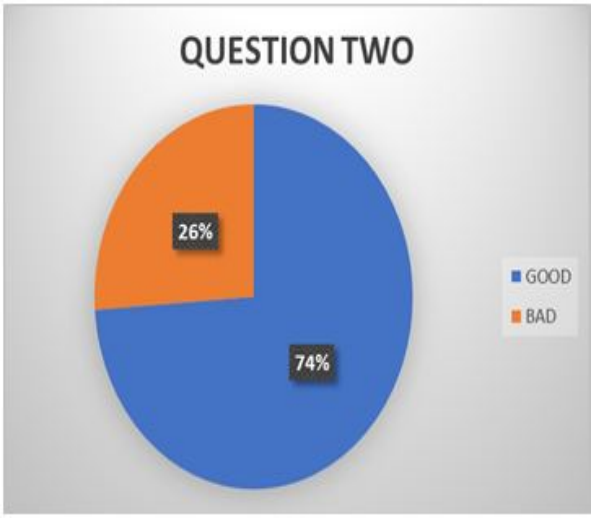

Figure 9. Express the views the participants heard on the subject of cultural concepts.

How were the comments?	GOOD	BAD
Out of 69 participants	51	18

Table 9. Express the views the participants heard on the subject of cultural concepts.

Where did you get the IPTp-SP information	Family members	Elders of community	Others
Out of 69 participants	25	19	25

Table 10. Demonstrate where the participants got the information about cultural concepts from. With a total of 69 participants only from the other questions above.

Adverse effects: The information below showed the findings of question one and two wherein Figures 10 and 11 it illustrated that 53% of the pregnant women appeared to not have experienced side effects whilst 47% experienced the side effects of the drug and further highlighted how a higher percentage (81%) didn't find this as a discouragement to take the drug in Figures 12 and 13 showing that only a lower percentage (19%) found it a discouragement (Tables 11-14).

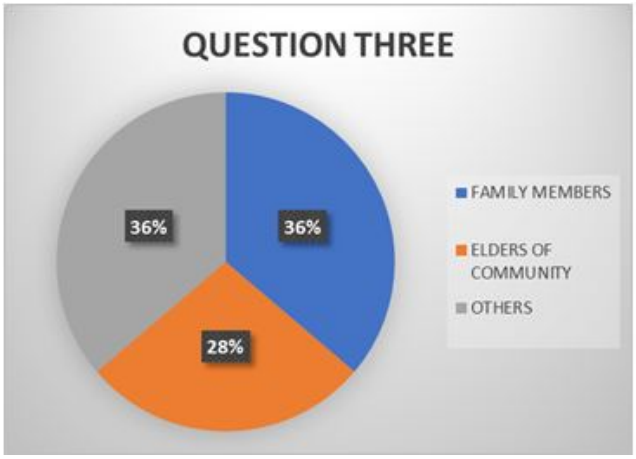

Figure 10. Demonstrate where the participants got the information about cultural concepts from. With a total of 69 participants only from the other questions above.

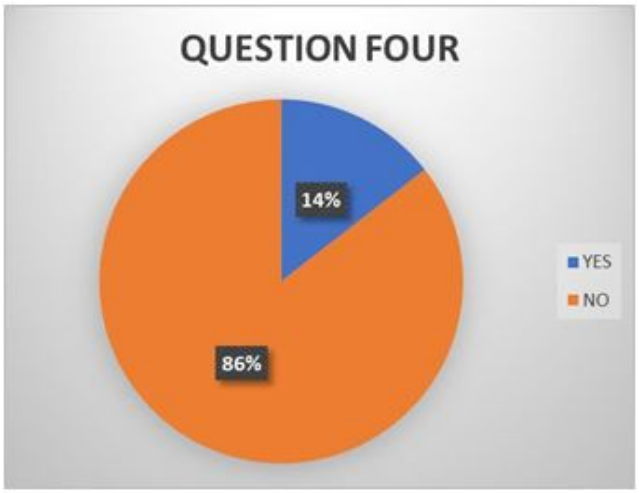

Figure 11. Whether there was any form of influence on IPTp-SP intake in association with cultural concepts.

Did the information pose as a discouragement?	YES	NO
out of 69 participants	10	59

Table 11. Whether there was any form of influence on IPTp-SP intake in association with cultural concepts.

ID	Q_1	Q_2	ID	Q_1	Q_2
1	NO		47	YES	NO
2	NO		48	NO	
3	YES	YES	49	NO	
4	YES	NO	50	YES	NO
5	YES	NO	51	YES	NO
6	NO		52	NO	
7	NO		53	YES	NO
8	NO		54	YES	NO
9	NO		55	NO	
10	NO		56	NO	
11	NO		57	YES	NO
12	NO		58	NO	
13	NO		59	YES	NO
14	NO		60	NO	
15	YES	NO	61	YES	NO
16	YES	NO	62	NO	
17	NO		63	YES	YES
18	NO		64	NO	
19	YES	NO	65	NO	
20	YES	NO	66	YES	NO

21	YES	NO	67	YES	NO
22	NO		68	NO	
23	YES	NO	69	NO	
24	NO		70	NO	
25	YES	NO	71	NO	
26	NO		72	YES	NO
27	NO		73	NO	
28	YES	YES	74	NO	
29	YES	NO	75	YES	NO
30	NO		76	YES	NO
31	YES	NO	77	NO	
32	YES	NO	78	YES	NO
33	YES	YES	79	NO	
34	YES	NO	80	NO	
35	NO		81	YES	YES
36	YES	NO	82	YES	NO
37	NO		83	YES	NO
38	NO		84	YES	YES
39	YES	YES	85	YES	NO
40	NO		86	YES	NO
41	YES	NO	87	NO	
42	NO		88	NO	
43	NO		89	YES	YES
44	YES	NO	90	NO	
45	NO		91	NO	
46	NO		92	YES	NO

Table 12. The table explains about adverse effects

Did you ever experience side effects?	YES	NO
92	43	49

Table 13. Illustrate the number of participants that experienced adverse effects.

Did it pose as a discouragement?	YES	NO
43	8	35

Table 14. Express the views of the participants on the adverse effects influencing the uptake of IPTp-SP.

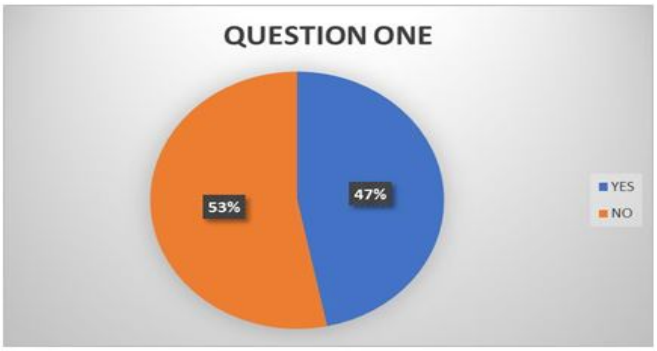

Figure 12. Illustrate the number of participants that experienced adverse effects.

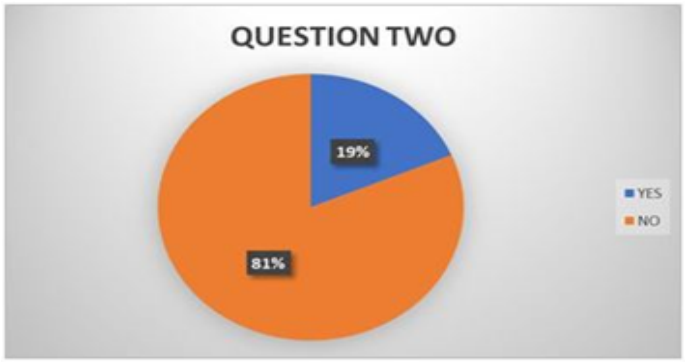

Figure 13. Express the views of the participants on the adverse effects influencing the uptake of IPTp-SP.

Discussion

This descriptive study is based on data obtained from 92 participants, females, and pregnant from the Buchi clinic of Kitwe during ANC visits regardless of their marital status or socioeconomic status.

Knowledge of IPTp-SP

The FGDs and in-depth interviews showed that a good number of women if not all were knowledgeable on IPTp-SP these results were similar to the study based in Nigeria and also to a study done in Zambia western province the knowledge level of health providers was found to be equally encouraging with 64.7% having good knowledge, 29.4% had fair knowledge and only 5.9% had poor knowledge but regardless these women only understood the basic surface knowledge which is prevention against malaria.

Pregnant women need to understand the full impact of the drug IPTp-SP and what it can lead to. As it is said in most literature malaria is an important contributor to the cause of maternal and perinatal morbidity and mortality in most Sub-Sahara African countries and can lead to consequences like maternal anemia and low birth weight to mention a few if infected.

It was also highlighted from the results that yes clinics do teach about IPTp-SP but some participants aired their opinions suggesting they teach more, enough for them to understand and take the medication despite its side effects. They alluded that all that is being said is to take this drug if you do not want to infect your baby and yourself with malaria.

And it was also noticed that most of these women do not follow the DOT implementation of the drug (SP should ideally be given as Directly Observed Treatment (DOT) since this ensures that pregnant women take the full dose but rather they are given the drug to go and take at home. As some participants mentioned that they would take the drug at night to avoid the side effects whilst others would not even take the drug at all to avoid feeling ill. This showed that health practitioners were unable to make follow-ups. Pregnant women in Zambia are expected to attend ANC clinics at least three times during their gestation period in which they are expected to receive at least three of the four doses of Fansidar which are considered a full utilization of service. Compared to a study done in western province similar findings illustrated that System data showed that only 33.5% of pregnant women effectively utilized IPTp services (completed the three recommended doses) during pregnancy during the year 2011.

whilst from this study, it showed that from the 92 participants of the in-depth interviews, only 21% took from than three, 40% three doses, 28% taking two doses and 11%one dose of which these were all received from the local clinic.

This demonstrated that 39% of the women didn't reach the criteria for completing the doses which clearly shows that there is still a lot of room for improvement on both the maternal side and the health system in that women need to be sensitized about the importance of this service increasing more coverage on the information education and communication. This is because when more women are educated about the importance of IPTp services, they will be empowered with knowledge and will be able to make informed decisions that impact positively on their lives.

The study results also showed that a majority of the information that was being given came from clinics during antenatal sessions about 89% and a small 5% from radios and televisions and 6% from other places. This shows that little coverage is being done by the government and health institutions in ensuring that all sectors of communication systems are used to inform and educate everyone, not just the pregnant women but also other members of the family, community and country on the very importance of IPTp-SP. As if more coverage is done other people be it family members or members of the community can help pregnant women adhere to the compliance of taking the medication as they would all know the risks and consequences it poses to give.

Cultural concepts

As mentioned in other study findings, "local cultural norms and practices present a considerable barrier to women accessing ANC services in some but not all study countries, with wide variation within countries and between countries", a finding also reported in the review by Pell, et al.

In this study, it was found that more than half of the participants attested to having heard cultural concepts about IPTp-SP and of those more than half mentioned having heard good comments. Only a few of those who had heard of cultural concepts mentioned the comments to be bad but despite this most women still reported that these comments whether good or bad did not pose an influence to take or not take the drug. Most women alluded that they would take the drug regardless because of ensuring the safety of the baby and their own.

Adverse effects

The administration of the dose has been said to be accompanied by mild and transient side effects, particularly with the first dose but has also been seen to decrease with the administration of further doses. From the results, some side effects that were reported were body pains, nausea, dizziness, headache, weakness, and mouth bitterness, fever, vomiting and even swelling of groins. But despite the side effects a good number of the women from the FGDs and in-depth interviews still took the drug due to the knowledge of its benefits.

Similar findings were reported by the study done in the Western province which illustrated that a few women reported having had side effects after taking Fansidar which were worsened nausea and vomiting, headaches as well as dizziness. However, the study also showed that the experience of side effects of Fansidar did influence the completion of the recommended IPTp doses and implied that despite some women experiencing some side effects of Fansidar, they still went ahead and completed the remaining subsequent doses.

WHO alluded that it is important that side effects be discussed openly and managed in the ANC this would help more women deal with these effects and maybe also ensure the uptake of complete doses.

Conclusion

This study has showed that the clinics have managed to impact a positive influence on pregnant women and the utilization of Fansidar. It displayed how women were at least somewhat knowledgeable on the subject of IPTp-SP but the information that is being given is only but on surface data. It illustrated that yes pregnant women are taking their doses, nonetheless, they are being given to take it at their own time, there is no direct observation hence, it tends to be unknown if women are actually drinking this medication or completing the full dosage.

The cultural concepts have proven to be otherwise giving a positive influence, even though some other elders or community members still have some negative thoughts on IPTp-SP. Young women respect and look up to these people and they can ensure that pregnant women in all communities and societies regardless of socioeconomic status or marital status can be helped through the prophylaxis of IPTp-SP. And also, it has shown that adverse effects usually tend to occur and despite women still taking the drug to oversee the benefits these can be helped.

Ethical Consideration

Ethical approval was acquired from the tropical disease research centre's ethics review committee. Written informed consent will be obtained from each respondent before the interview. Permission to carry out the study was sought from Buchi medical offices and clinics.

Study Limitation

The small sample size may limit the study's power and prevent findings from being applied in other situations. However, in-depth interviews and the use of key information enabled rich data exploration regarding the experiences of women on the use of intermittent preventive treatment of malaria in pregnant women.

Recommendation

Based on the findings of this study, the following are recommendations to help broaden the knowledge and improve on IPTp-SP services:

- Broadening the knowledge levels of the pregnant women in the hospitals and clinics during ANC so they know more on IPTP-SP not only that it prevents malaria.
- The community must be taught the importance of utilization of IPTp-SP through mass sensitization and Information, Education, and Communication (IEC).
- The IEC will help address most of the factors and deficiencies influencing the IPTp- SP service utilization which must include the importance of starting ANC as early as possible, the risk factors and consequences such as Low Birth Weight (LBW) and the importance of completing the recommended doses through DOT.
- Health management can help in teaching about the adverse effects to expect during the drug utilization and can help them manage the symptoms making the process easier.
- The ministry of health must work hand in hand with the ministry of information and media to help spread and teach knowledge and everything about IPTp-SP through televisions, and radios to reach even those in rural areas who cannot afford to have the luxury of TVs.
- They should also improve on resource allocation to health centers for outreach activities to enable women in far and hard to reach areas to access IPTp services.

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It is with deep and sincere gratitude that I acknowledge the almighty god who called upon the Holy Spirit to come and be with me and give me the strength and ability to complete this proposal.

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