

Formative Research Study on Integrated Malaria, Maternal, Newborn, Child Health, and Nutrition

Lovemore Mwanza

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List of Acronyms

ANC	Antenatal Care
DOT	Directly Observed Therapy
FGD	Focus Group Discussion
IDI	In-Depth Interview
IPTp	Intermittent Presumptive Treatment in Pregnancy
IRS	Indoor Residual Spraying
ITN	Insecticide-Treated Nets
MCH	Maternal and Child Health
MIS	Malaria Indicator Survey
NMSP	National Malaria Strategic Plan
ZDHS	Zambia Demographic and Health Survey

Executive Summary

Integration of scaled-up malaria programmes with existing maternal, child health, and nutrition services is essential to achieving tangible results for malaria reduction. There is growing evidence for the cost-efficiencies of integrating malaria treatment and prevention with maternal and child health (MCH) services to reduce the burden of malaria while simultaneously addressing other health concerns. However, the efficacy and sustainability of these integrated approaches require the development of evidence-based campaigns. Understanding human behaviour is therefore prerequisite to change behaviour and improve health practices. This study attempted to explore in detail the barriers and promoters of health-seeking behaviour of mothers of children under 5 years, pregnant women, and community members with regard to malaria prevention and control methods and other MCH services.

Methods

This study was carried out in three districts of three provinces of Zambia: Kabwe (Northern Province), Kasama (Central Province), and Mansa (Luapula Province). A total of 16 focus group discussions (FGDs) and 14 in-depth interviews (IDIs) were conducted with pregnant women and mothers with children under the age of 5 years (or under-5 children) as well as with health care providers. Pregnant women and mothers of under-5 children were segmented into those aged 16–24 years and those aged 25–49 years. All interviews were audiotaped, transcribed, and translated into English. The data were analysed for themes, subthemes, and patterns using Atlas.ti.

Key Findings

Malaria

Findings revealed that malaria was perceived as a big concern because many pregnant women and mothers of children under 5 years were being affected. Knowledge about malaria was quite high; participants reported obtaining this information from health providers, including community health workers during antenatal care (ANC) and in clinics for children under 5 years (under-5 clinics). Knowledge provided to the women included the fact that malaria can cause anaemia; miscarriage; premature birth; or death of the pregnant woman, the mother, or her baby, who were all at greater risk. The women were informed of the importance of preventing the transmission of malaria by various means, including intermittent presumptive treatment in pregnancy (IPTp) and the use of insecticide-treated nets (ITNs). They were informed about the signs and symptoms of malaria. While ITNs were generally accepted and used in the households, some factors prevented their use. Among the complaints about the ITNs were that they caused itching and difficulties in breathing. In some cases, ITNs were not used because they were not adequate for use by the pregnant woman and all the children under the age of 5 years in the household.

ANC and Under-5 Care and Immunisation

During their ANC appointment, pregnant women were encouraged to seek early ANC services to monitor their pregnancy. They were also informed of the danger signs that they should look out for while they were pregnant.

During postdelivery appointments, the mothers were informed of the importance and benefits of postnatal care, including growth monitoring and vaccination. The biggest motivation for attending both ANC and under-5 clinics was the desire to maintain the good health of both the pregnant woman and the mother, but especially of the under-5 child, through preventive measures. Just as access to information was an important facilitator for seeking ANC and under-5 services, the lack of access to information was a barrier. In many instances, ANC and under-5 services were used only as a curative rather than a preventive measure. Some women preferred to delay their first ANC meeting in order to reduce the number of times they would have to attend the clinic before delivery. Other women may not realise that they are pregnant until a much later time. On the other hand, some women's need to attend to other responsibilities may cause them to miss ANC or under-5 services. This may be the case for women in both the formal and the informal sectors. Rather than stopping to attend ANC or the under-5 clinic, the women's more regular practice seemed to be inconsistent attendance. The major reason for mothers to take their children for vaccination and not for growth monitoring is that they are able to do the latter on their own but cannot administer the vaccination. On the other hand, myths and misconceptions prevent some mothers from taking their children for vaccination.

Intermittent Presumptive Treatment in Pregnancy

Pregnant women were informed of their risk of contracting malaria and the need for IPTp to reduce the risk. Pregnant women complained that IPTp caused drowsiness, nausea, or weakness, especially if taken on an empty stomach. Pregnant women did not often leave the clinic without taking IPTp, because it was taken using directly observed treatment (DOT).

Nutrition

Both pregnant women and mothers of children under 5 years knew the importance of nutrition during pregnancy and after delivery. One of the biggest obstacles to a balanced diet was the lack of adequate financial resources. Mothers of children under 5 years were informed of how the foods they ate help to produce the milk necessary for the baby. They generally had positive perceptions of exclusively breastfeeding during the first 6 months, although it was seemingly common for the mothers to introduce other foods before the babies reached 6 months. A major reason was the belief that breast milk alone was not adequate to satisfy the baby's hunger. Others introduced other foods because of commitments, such as employment or other income-generating activities that compelled them to be away from the baby for some time. In some cases, the mother did not produce enough milk for the baby's satisfaction.

Recommendations

Communication campaigns that seek to integrate malaria treatment and prevention with MCH services can use these findings to develop effective messaging that meets the needs and realities of people's lives. Specifically, recommendations are as follows:

1. Encourage ANC attendance by informing pregnant women that their concerns about their pregnancy and unborn child can be attended to only if they consistently seek ANC services.

2. Educate the target audience that pregnant women and children under the age of 5 are at greater risk of malaria and should be given priority to sleep under an ITN.
3. Raise the risk perception of pregnant women and mothers of under-5 children by informing them that every pregnant woman or mother of an under-5 child and her child are at greater risk of malaria and other related health problems if they do not seek ANC and under-5 services.
4. Health care providers are trusted, and the information they provide is accepted and generally used. This trust and acceptance is such that, in some cases, they are seen as the ones who make the health-related decisions for the pregnant women or mothers of under-5 children.
5. Encourage pregnant women and mothers of under-5 children by emphasising the importance of prioritizing health-related responsibilities, so that they are given precedence over other activities that can be deferred to a later time.
6. Educate mothers that taking their children for growth monitoring is equally important because under-5 children are at greater risk of diseases and other health problems.
7. Promote exclusive breastfeeding of babies by emphasising that breast milk is best for the baby until the baby is 6 months old.
8. Seek to improve participation by male partners by encouraging them to help make health-related decisions that concern their wife, child, and family; inform them that their lack of active and effective participation puts their wife, child, and family at risk to malaria and other health problems.

1.0. Introduction

Integration of scaled-up malaria programmes with existing maternal, child health, and nutrition services is essential to achieving tangible results for malaria reduction. There is growing evidence for the cost-efficiencies of integrating malaria treatment and prevention with maternal and child health (MCH) services to reduce the burden of malaria while simultaneously addressing other health concerns. However, for these integrated approaches to be effective and sustainable, campaigns that are based on evidence need to be developed. Understanding human behaviour is therefore prerequisite to changing behaviour and improving health practices.

This study, therefore, attempts to explore in detail the barriers and promoters of health-seeking behaviour of mothers with children under 5 years (or under-5 children) and of pregnant women, with regard to malaria prevention and control methods and other MCH services. It is envisioned that findings from this research will help inform the design of an integrated malaria and maternal, newborn, and child health campaign that will contribute to the reduction of maternal, newborn, and child mortality in Zambia.

1.1. Background Information

1.1.1. Malaria Situation in Zambia

Although there are clear signs of improvement, malaria continues to be a major cause of morbidity and mortality in Zambia; thus control of the disease is one of the government's highest priorities. According to the Health Management Information System, Zambia had 3.2 million cases of malaria in 2009. Malaria contributes significantly to mortality in under-5 children and continues to be a threat to pregnant women and infants. The Malaria Indicator Survey of 2010 estimates malaria parasite prevalence to be 16 percent for Zambia. The parasite prevalence ranges from 0 percent (Lusaka Province) to 50.5 percent (Luapula Province). To mitigate the effects of malaria, an ambitious programme has been established that encompasses both preventive and curative interventions. The main preventive interventions are indoor residual spraying (IRS), insecticide-treated nets (ITNs), and intermittent presumptive treatment (IPTp) in pregnant women. Prompt case management is the main curative intervention using artemisinin combination therapy (artemether lumefantrine), expert microscopy, and rapid diagnostic tests. These interventions have been scaled up throughout the country, with the curative being the most widespread.

1.1.1.1. Indoor Residual Spraying

Zambia is currently implementing this intervention in 54 of its 72 districts. The scale-up of this intervention has been a gradual process, initially starting with 15 districts in 2005–2006 and increasing to 36 in 2009. IRS activities continue to expand within existing spray districts and to additional districts as funding allows. Although IRS initially was targeted toward urban and peri-urban areas of selected districts, since 2007 an increasing amount of rural areas have also been sprayed. The Malaria Indicator Survey (MIS) reported that nationally, the percentage of households reported to have been sprayed

have increased from 9.5 percent in 2006 to 23.1 percent in 2010, with a marked increase in rural areas of an estimated 15 percent.

1.1.1.2. Insecticide-Treated Nets

ITNs are one of the primary strategies for preventing malaria transmission in Zambia. Results from the 2010 MIS indicate that 70 percent of Zambian households have at least one mosquito net and 64 percent of households have at least one ITN. Fifty-five percent of all Zambian under-5 children slept under a mosquito net the night before the survey, an increase from 2008, despite challenges in increasing overall net availability. Ninety percent of under-5 children who had slept under a net the night before the survey had slept under an ITN.

1.1.1.3. Intermittent Preventive Treatment in Pregnancy (IPTp)

The strategy of IPTp for prevention of malaria during pregnancy has been implemented in Zambia since 2003. IPTp is currently defined as a pregnant woman having taken at least two treatment doses of an effective antimalarial drug during routine antenatal care (ANC) visits starting from the second trimester and a month apart thereafter. In Zambia, sulfadoxine-pyrimethamine is currently the drug used for IPTp.¹

According to the 2010 MIS, 89 percent of mothers reported taking an antimalarial drug for prevention during their last pregnancy. Nearly 85 percent (84.5 percent) of mothers received the antimalarial drug during a routine ANC visit. Among pregnant women, 70.2 percent took the recommended two or more doses of IPTp; however, not all of these doses were received through ANC visits; some were received during child health weeks and routine immunisations days when pregnant women bring their children to under-5 clinics. Sixty-nine percent of mothers reported receiving two doses of IPTp during the pregnancy where at least one of the doses was received during an ANC visit. Responses varied by demographic characteristics. For example, urban women were more likely to have taken an antimalarial drug during their last pregnancy than were rural women (93.1 percent and 86.9 percent, respectively). Urban women also were more likely than their rural counterparts to receive IPTp during an ANC visit (89.4 percent and 81.9 percent, respectively) and to have taken at least two doses than rural women (78.7 percent and 65.7 percent, respectively)

The literature also indicates that women often leave health facilities without receiving IPTp, arrive too late in their pregnancies to complete the full course of IPTp, or have concerns about the safety of medications during pregnancy. These factors have substantially contributed to high maternal, infant, and child mortality.

The myths and misconceptions about IPTp should therefore be investigated thoroughly to facilitate the design of communication materials that will help address the above concerns.

1.1.1.4. Case Management

The objective of this component is to provide prompt and effective treatment within 24 hours of the onset of symptoms. In this regard, in 2004 Zambia reviewed its treatment policy for malaria due to the

¹ *Zambia National Indicator Survey 2010.*

increased parasite resistance to the then first-line treatment, chloroquine. The more efficacious artemether lumefantrine was adopted as first-line treatment for uncomplicated malaria. This review was coupled with a commitment to increase confirmatory diagnostic capacity in the country to guide the treatment process. In this regard, rapid diagnostic tests were adopted; they have been scaled up throughout the country in addition to a gradual increase in microscopy services. Thus, currently, Zambia has the potential to confirm all suspected malaria cases.

1.2. National Malaria Response—2006–2010

The Zambian National Malaria Control Centre had a well-conceived and ambitious Five-Year Strategic Plan for 2006–2010 that was based on the National Malaria Strategic Plan (NMSP) for Malaria Control developed by the national Roll Back Malaria Partnership with the Ministry of Health and the National Malaria Control Centre. The NMSP showed considerable commitment to rapid scale-up of malaria interventions and had the overarching goal of reducing malaria incidence by 75 percent by the end of 2011, ultimately contributing to the reduction of all-cause mortality by 20 percent in under-5 children. The specific objectives for the National Malaria Control Programme Action Plan were as follows:

ITNs

Objective: Eighty percent of all people will sleep under an insecticide-treated bed net by December 2008.

Household IRS

Objective: In 15 targeted districts, 85 percent of people living in households eligible for IRS will have their homes sprayed annually by December 2008.

Prevention of Malaria During Pregnancy

Objective: At least 80 percent of pregnant women will access the package of interventions to reduce the burden of malaria in pregnancy by December 2008. The package of interventions will include a full three courses of IPT, an ITN, and anaemia reduction.

Accurate Diagnosis

Objective: At least 80 percent of suspected malaria cases are correctly diagnosed by December 2008.

Prompt and Effective Treatment of Malaria

Objective: At least 80 percent of malaria patients will receive prompt and effective treatment, according to the current drug policy, within 24 hours of onset of symptoms by December 2008.

1.3. Maternal, Child Health, and Nutrition in Zambia

Maternal, newborn, and child health is a cause for serious concern in developing countries such as Zambia. Rates of morbidity and mortality in pregnant women, mothers, and newborns remain shockingly high. The 2007 Zambia Demographic Health Survey (ZDHS) reported that under-5 mortality rate decreased by 30 percent from 168 to 119 per 1,000 live births. The infant mortality rate was reduced from 95 per 1,000 live births to 70 per 1,000 live births, and 61 percent of infant deaths occurred during the first month of life. The ZDHS further reports that 57 percent of under-5 deaths occur before the first birthday and that between 2002 and 2007 the maternal mortality ratio had

declined from 729 to 591 per 100,000 live births. The 2007 ZDHS also reports that 53 percent of births in rural areas did not occur in health facilities or with assistance from medically trained personnel. Furthermore, a large proportion of maternal and neonatal deaths occurred within the immediate postnatal period (24 hours after delivery). The ZDHS also states that in 2007, less than 10 percent of mothers had received their first postnatal check-up within 4 to 23 hours of their delivery. This check-up should include early diagnosis and treatment of complications (especially postpartum haemorrhage), resuscitation and care of newborns (including thermal care and hygienic cord care), promotion of exclusive breastfeeding, and other interventions.

To achieve optimal health outcomes for the mother and the baby, it is important for pregnant women to consistently seek ANC services from a skilled health worker. These services include early detection of complications and prompt treatment (i.e., detection and treatment of sexually transmitted infections), prevention of diseases through immunisation and micronutrient supplementation, birth preparedness and complication readiness, and health promotion and disease prevention by providing health messages and counselling to pregnant women. However, 94 percent of women had received ANC from a skilled provider (doctor, clinical officer, nurse, or midwife) during their last pregnancy. According to the 2007 ZDHS, 87 percent of women had received ANC services from a nurse or midwife, while 5 percent had received these services from a clinical officer and 2 percent from a doctor. Three percent of women had received ANC services from a traditional birth attendant, and 2 percent did not receive ANC services at all (ZDHS 2007).

Furthermore, the traditional approach recommends at least 12 ANC visits. The first visit should occur during the first trimester, and visits should continue on a monthly basis through the 28th week of pregnancy, every 2 weeks thereafter up to the 36th week, and then every week until delivery. The assumption is that more visits result in better care for the pregnant woman. According to the 2007 ZDHS, 97 percent of women had at least one ANC visit. Sixty percent of women reported visiting ANC clinics at least four times during pregnancy, and 34 percent reported two to three ANC visits during their last pregnancy. Only about one-fifth (19 percent) of women had their first ANC visit during the first trimester of pregnancy. However, about three-fourths (73 percent) of women had their first ANC visit before their sixth month of pregnancy, and more than half (53 percent) of women attended their first ANC visit between their fourth and fifth months of pregnancy. The median number of months of pregnancy at the first ANC visit is five. One-fourth of the women continue to delay the initiation of ANC until after their sixth month of pregnancy, thus missing out on potential benefits of early ANC services.

Lastly, it is clear that the inextricable link between mothers, newborns, and children requires an integrated approach. In developing countries, a mother's death during childbirth means that her newborn will almost certainly die and that her older children are also more likely to suffer from disease. Moreover, when mothers are malnourished or ill or receive inadequate care, their newborns face a higher risk of disease and premature death. Almost one-fourth of newborns in developing countries are born with low birth weight, largely because of their mothers' poor health and nutritional status, which results in increased vulnerability to infection and a higher risk of developmental problems. A number of simple and cost-effective interventions at key stages in a child's life could go a long way in reducing

undernutrition, such as breastfeeding within 1 hour of birth, exclusive breastfeeding for the first 6 months of life, adequate complementary feeding, and micronutrient supplementation between 6 and 24 months of age. Undernutrition among under-5 children continues to be widely prevalent, due to both lack of food and lack of good-quality food, inadequate water, poor sanitation and health services, as well as less-than-optimal caring and feeding practice.

Therefore, the quality of care that both mother and newborn receive during pregnancy, at delivery, and in the early postnatal period is essential to ensuring that women remain healthy and that children get a strong start. Many stillbirths and newborn deaths could be averted if more women were in good health and well nourished; received high-quality care during pregnancy, labour and delivery; and if both mother and newborn received appropriate care during postpartum.²

1.4. Research Objectives

The research objectives are divided to cover three areas, namely, (1) malaria, (2) maternal health, and (3) nutrition. These research objectives are the basis on which our research questions for the FGD and IDIs were formulated.

Pregnant women (with or without under-5 children)

Malaria

1. Find out why some pregnant women take all doses of IPTp and others do not.
2. Explore the knowledge of pregnant women in detecting the signs and symptoms of malaria in pregnancy.
3. Find out why pregnant women do not consistently use ITNs.

ANC

1. Find out why some women delay attending their first ANC appointment.
2. Find out why some pregnant women consistently attend their ANC appointments and others do not.

Nutrition

1. To explore what pregnant women know about their nutritional needs during pregnancy and the barriers they experience to adequate nutrition.
2. Explore how pregnant women plan to feed their baby during the first 6 months and their perceptions of exclusive breastfeeding.

² *The Maternal-Newborn-Child Health Continuum of Care: A Collective Effort to Save Lives*, March 2006.

Mothers of children under 5 years

Malaria

1. Explore the knowledge of mothers in detecting the early signs and symptoms of malaria in children under 5 years.
2. Explore what mothers do to prevent their children under 5 years from contracting malaria and the barriers they face to protect their children.
3. Find out why mothers with children under 5 years do not consistently use ITNs.

Maternal and child health

1. Find out why some mothers take their children to be immunised and others do not
2. Find out why some mothers bring their children to under-5 clinic for only vaccination and not for growth monitoring.
3. Understand why some women go back to the health centre to receive health care after the birth of their child (postnatal care) and why others do not.

Nutrition

1. Explore what mothers know about the nutritional needs of their children under 5 years.
2. Find out what difficulties women experience with feeding their under-5 children exclusively in the first 6 months, between 6 and 23 months, and after 24 months.

Health care providers and community health workers

1. Find out why some pregnant women do not get all the doses of IPTp, including those who consistently go to ANC.
2. Find out what kind of information is given to women with under-5 children and pregnant women in relation to malaria prevention (including IPTp and signs and symptoms), delivery, postnatal care, growth monitoring, vaccinations, and nutrition.
3. Find out what are the barriers that prevent women from consistently using ANC and child health services.

1.5. Methodology

1.5.1. Justification for the Qualitative Approach Used for the Study

It was important to use qualitative research methods because this approach is suitable for achieving an in-depth understanding of the social processes that influence the choices of pregnant women and mothers of children under 5 years and younger to either seek or not seek health services.

1.5.2. Selection of Provinces

Data were collected from three provinces: Central, Luapula, and Northern. These provinces were selected because they had the worst scores on a scale based on the following 2007 ZDHS indicators:

1. Percentage who received IPTp during the pregnancy for their last live birth,
2. Percentage of under-5 children classified as malnourished in terms of weight for age, and
3. Percent distribution of live births that occurred at home.

1.5.3 Selection of Districts

Through the Provincial Health Office in each province, one district that was the worst affected was selected. Through the District Health Office, two health centre catchment areas that were not doing well in terms of the above indicators were selected per district. In each district, one of these two health centres was within the central district and the other was in the outskirts.

1.5.4. Sampling Strategy

Focus groups discussions (FGDs) and in-depth interviews (IDIs) were used to gather data from the different categories listed below. FGDs were used to collect information from mothers who had children under 5 years and from pregnant women who had sought ANC services. IDIs were used to collect information from health care providers and community health workers.

Table 1 shows the segmentation plan for pregnant women and mothers with children under 5 years old. A minimum number of two groups per category (classified by age) composed of five to six members were interviewed. A total of three FGDs were conducted with pregnant women between 16 and 24 years who sought ANC services. Three more FGDs were conducted with pregnant women aged 25–49 years who also sought ANC services. FGDs were also conducted with mothers with children under 5 years old who had sought child health services. This category of women was also split into two age categories as shown in Table 1.

Table 1: Segmentation Plan for FGDs

	Rural/Peri Urban Health Centre		Rural/Peri Urban Health Centre	
	Age 15–24	Age 25–49	Age 15–24	Age 25–49
Province	Pregnant women who consistently seek ANC service	Pregnant women who consistently seek ANC services	Mothers with children <5 who consistently seek health services	Mothers with children <5 who consistently seek health services
Luapula	1	1	1	1
Central	1	1	1	1
Northern	1	1	1	1
Total FGDs	3	3	3	3

Table 2 shows the segmentation plan for IDIs of pregnant women with under-5 children, of mothers with under-5 children who did not seek health services, and with health care providers and community health workers. In total, we expected to conduct six IDIs with pregnant women and six IDIs with women with children under 5 years old. We also expected to conduct six IDIs with health care providers and six IDIs with community health workers (see Table 2).

Table 2: Sampling Matrix for IDIs

	Rural Health Centre	Urban Health Centre	Rural Health Centre	
	Age 15–49	Age 15–49		
Provinces	Mothers with children <5 who do not consistently seek child health services	Pregnant women with children <5 who do not consistently seek ANC	Health care providers	Community health workers
Luapula	2	2	2	2
Central	2	2	2	2
Northern	2	2	2	2
Total IDIs	6	6	6	6

1.5.5. Conducting FDGs and IDIs

On the day of the interviews and discussions, the moderator, the interviewers, and the field coordinator screened the attendees provided by the health centre and made the final list of those eligible for the interview. The attendees who were not eligible were advised accordingly. The health centre management provided the most appropriate room or space for the FGD and IDIs, preferably a quiet and isolated area of the health centre to avoid unnecessary distractions. This arrangement was made by the field coordinator before the date of the interviews.

1.5.6. Data Collection

1.5.6.1. Moderators and Notetakers

Experienced moderators were recruited and trained to facilitate the FDGs and IDIs. They were complemented by notetakers who were trained to write down important themes and observations of behaviours during the FDGs. Both the moderators and the notetakers were recruited on the basis of being fluent in the predominant language spoken in the respective sample sites and were equipped with an in-depth understanding of the purpose of the topics of discussion.

1.5.6.2. Recording and Transcription

The moderators and notetakers were trained in the specifics of translating and transcribing to ensure more accurate and useful transcribing of the interviews. Both were used as transcribers for the interviews because they understood the groups that they moderated or from which they took notes. Additionally, the notetakers and moderators were trained in using digital voice recorders to ensure the highest-quality recording and transcribing of the discussions.

1.5.7. Ethical Consideration

The research was reviewed by the Institutional Review Board of ICF International and the local Research Ethics Committee in order to ensure that the protocol met the required ethics related to studies on human subjects. Ethical issues were duly observed during the entire data collection process. This included providing information about the study, obtaining informed consent, seeking permission to record, and providing incentives to participants.

1.5.8. Research Tools

Semistructured discussion and interview guides were used to gather information from respondents. A screening guide was used to ensure that only eligible participants were recruited for the study.

1.5.9. Data Analysis

The data were processed and analysed for themes and patterns using the computer software Atlas.ti.

1.5.10. Study Limitations

A few challenges were faced about recruiting FGD participants. In two sites in two respective provinces, it was not possible to recruit inconsistent users because they were not available, as all community members in the catchment area were reported to be consistent users.

The recruitment of inconsistent and consistent users did not bring out noteworthy differences from absolute nonusers, since absolute users had not been recruited.

The primary methodological limitation to this study is that it is not generalisable. Findings provide only an insight into what could be happening with regard to malaria and MCH. Moreover, the study was limited to only three of the nine provinces of Zambia.

2.0. Research Findings

2.1. Malaria

2.1.1. Perceived Prominence of Malaria and Risk Perception

Malaria was the most significantly reported health concern. The extent to which malaria was perceived to be a health concern seemed to be defined by various factors. These included the perceived prominence of mosquitoes in the communities, the large number of people who suffered from malaria, and the perceived large number of malaria-related deaths. To illustrate their arguments, some participants reported how, in some instances, up to four members of one household had malaria at the same time or how, in some cases, persons suffering from malaria did not respond to treatment. The assertions were supported by health care providers who expressed that health centres had attended to many malaria cases.

[Malaria] is a problem because people die. ... When we go to bury the dead, we [often] hear that they died of malaria. There are a lot of malaria cases at the clinic. ... When we hear that someone in our community has died of malaria, we know then that there is a lot of it and worry that our children might get it as well. (Consistent mother³ 16–24 years, urban site)

Malaria is a very big problem in this community. ... We had many cases of malaria [at the health centre]. In a day, we used to see more than 50 patients with malaria. (Health care provider, rural site)

While everyone was reported to being affected by malaria, pregnant women and children were particularly seen as its most typical victims. Children were singled out as being at greater risk of suffering from malaria, with some believing that every case referred to the health centre was almost always diagnosed as malaria.

Malaria is one of the problems a pregnant woman faces. (Consistent pregnant women, 16–24 years, rural site)

Malaria is a concern because it is the most common illness in children. Most times when you bring an ill child to the clinic, they find [diagnose] that it as malaria. (Inconsistent mother, 16–24 years, rural site)

Despite the fact that malaria was perceived as a serious health concern in their communities, participants—especially health care providers—also reported that its prominence had reduced over time.

As of now, it [malaria] has come down a [reduced] bit as compared to some time back. Even then, there still is a problem of malaria in our community. (Community health worker, rural site)

At the moment, the number of cases has reduced a bit. (Community health worker, urban site)

³ A “consistent mother” is one who goes to appointments consistently and an “inconsistent mother” is one who goes to appointments inconsistently.

2.1.2. Sources of Information Regarding Malaria

Almost all information regarding malaria was reported to having been obtained from health care providers during ANC and under-5 clinics, including outreach services. Other sources of information were reported to be older family members and the general community members, the schools that some of the participants had attended, and posters at some of the clinics that the participants had attended.

For me, I get the information from the nurses when I come for antenatal. ... I get information from here. (Consistent pregnant women, 16–24 years, rural site)

We emphasise on the ... use of these nets through our community outreach programmes and at the clinic. ... They are taught how to use these nets. ... (Community health worker, urban site)

[We get information] from our parents as well. When we were growing up, when your temperature went high or you were vomiting, they would usually suspect malaria. (Consistent mother, 25–49 years, urban site)

Sometimes we hear from our friends. (Inconsistent mother, 16–24 years, rural site)

2.1.3. Levels of Knowledge Regarding Malaria

Participants generally perceived their knowledge of malaria as fairly high, and their responses exhibited that they were quite knowledgeable. According to some health care providers, the fact that the pregnant women and mothers were able to put into practice what they had learnt from ANC or under-5 clinics was an indication of their high knowledge levels.

I have some knowledge on malaria. They have taught us at the clinic that we need to protect ourselves and our children from malaria by using mosquito nets all the time so that mosquitoes do not bite and make us sick. (Inconsistent pregnant women, 25–49 years, urban site)

[Their knowledge is high] because ... many who come [to the health centre] follow what we tell them to do, and only a few do not. That's why I say the knowledge levels are somewhat high. (Health care provider, rural site)

2.1.4. Information Received from Health Care Providers Regarding Malaria

The pregnant women and mothers of under-5 children were informed about the consequences of malaria, such as anaemia, miscarriage, premature birth, or even death; they were also told that pregnant women and children were at a greater risk. Moreover, they were informed about the type of mosquito that causes malaria and the time of the day that the mosquito was most likely to transmit malaria. Information provided on malaria was said to emphasise preventive measures such as sleeping under ITNs, wearing long clothes, cleaning the surroundings, and planting crops such as maize far from dwelling areas. The pregnant women and mothers of under-5 children were informed of the malaria signs and symptoms so that they could recognise these signs and seek health care on time. Other information provided regarded both preventive and curative medicines provided at the health centres.

We were taught that the mosquito that transmits malaria is the black female mosquito. (Consistent pregnant women, 16–24 years, rural site)

Mosquitoes come out the most in the night and they are not that many during the day. It is at night that we should use the mosquito net and make sure they [the children] wear clothes that fully cover them. (Consistent mother, 16–24 years, urban site)

These women are told to keep their surroundings very tidy and burn all rubbish pits to avoid mosquitoes. Those households with a lot of grass are told to cut the grass because mosquitoes like to manifest in hidden grass. (Community health worker, urban site)

We educate them [women] on medications that are given when a person has malaria such as fansidar and coartem. (Health care provider, urban site)

2.1.5. Modes of Dissemination of Information

Information was reportedly being disseminated verbally to pregnant women and mothers of children under 5 years, with the health care providers explaining the relevant issues to the respective groups. In a few cases, posters were used and other written materials, such as leaflets, distributed whenever they were available. The pregnant women and mothers of children under 5 years were said to be given the opportunity to ask questions, and they were also individually urged to seek further information by visiting the health centre. Some health care providers in Luapula and Northern provinces reported that the dissemination of information at the clinic was followed up with community outreach programmes to monitor and ensure that the information provided had been understood and was being implemented correctly.

When the mothers come for antenatal, we teach them as a group; or when they come for under-5, we teach them as a group. There are times when a person can just come alone with a problem and if we see that this problem is related to malaria [and] we teach them alone. (Health care provider, rural site)

This information is greatly understood by the pregnant women, and we usually visit them in their homes for 12 days to monitor them and see if they understand and follow the information we tell them. ... After 12 days, we move to other pregnant women. (Community health worker, urban site)

2.1.6. Perceptions About Malaria Information Received from Health Care Providers

The pregnant women and mothers of children under 5 years generally accepted the information they received on malaria from health care providers, mostly because they recognised that it was meant to protect them from malaria. In addition, by applying information they had gained from the health providers, they realised that they could reduce the frequency of malaria transmission in their homes.

We accept these prevention methods because they help us. (Inconsistent mother, 25–49 years, rural site)

This information is easily accepted because they want to protect their children and themselves from malaria. They learn a lot on different malaria prevention methods ... and the information obtained is regarded to be important to every mother who is concerned on the well-being of their children. (Community health worker, urban site)

In contrast, other women did not accept or use the information they received, and, as a result, these women continued to suffer the repercussions of malaria. Some other women were reported as needing constant education and reminders before they accepted the information. Furthermore, acceptance of the information was perceived as dependent on the education levels of women, as those with lower education levels were reported as being less likely to readily accept the information.

There are some who accept [the information while others don't]. ... [Some] will follow what is taught and others will simply hear what is said and everything will end there. (Consistent mother, 16–24 years, urban site)

Sometimes you may choose to ignore what you hear and your child ends up getting malaria. When the child gets sick that's when you ... realise how much of a problem it [malaria] is. (Consistent mother, 25–49 years, urban site)

2.1.7. Knowledge of Malaria Signs and Symptoms

Participants reported knowing the signs and symptoms of malaria as well their benefits. The most significantly reported benefit of knowing the signs and symptoms of malaria was that it enabled participants to seek professional medical attention on time.

The benefit of knowing that this is malaria is that ... I must rush to the clinic, where they [health professionals] will know what to do. ... The important thing is rushing to the clinic so that the child is cured. (Inconsistent mother, 16–24 years, rural site)

If you know the sign or symptoms of malaria, you will quickly rush to the clinic and will be treated in time. If you go in the later stages, it will be very difficult to treat you and you would end up dying. (Consistent pregnant women, 25–49 years, urban site)

In some cases, knowledge of malaria signs and symptoms seemed to stem from experience of suffering from malaria over time. With frequent illness from malaria and subsequent frequency of visits to the clinic, they came to experience, know, and confirm the signs and symptoms. Generally, mothers and pregnant women reported that they correctly detected malaria signs and symptoms, and their suspicions were often proved correct by tests at the health centre. Some health providers reported that the mothers and pregnant women were very accurate at identifying the signs and symptoms of malaria. Among the most notable of these symptoms were fever or shivering, headache, yellow vomit, loss of appetite, and diarrhoea; some participants also reported yellow stool, joint pains, and body weakness. In some cases, participants mentioned swelling of the eyes. Swelling of the body or feet, backache, and hurting feet were mentioned by pregnant women, while rash, basking in the sun, yellow eyes, convulsions, and constant crying were associated more with children. In addition, symptoms reported for children included loss of appetite, as participants argued that children barely ate when they had malaria.

We came to know the signs of malaria from the treatment we are given at the clinic after we explained what the problem was. ... When you tell them that you had [a] headache with pain in the joints, they would tell you that you had malaria ... and this happens over and over again. Eventually you get to know that when I feel this way, it must be malaria. (Inconsistent mother, 16–24 years, rural site)

They know through their experiences with malaria. They get sick with malaria many times, and it is therefore easy for them to tell that this is malaria or that this is not ... those who already have also see it [repeatedly] in their children and are able to tell by its signs. (Consistent mother, 16–24 years, rural site)

They are very good at that [recognizing signs and symptoms]. The signs they talk about most of the time are “fever” and “headache,” and maybe “vomiting” and “diarrhoea.”... Fever is an automatic sign; it will be mentioned besides nausea and loss of appetite. (Health care provider, urban site)

They know because they are able to tell that it is malaria when they have body pains, when they feel abnormal coldness, or experience pain in the joints. They are able to tell from such signs. (Consistent mother, 25–49 years, rural site)

In some cases, however, the pregnant women and mothers of under-5 children did not correctly detect the signs and symptoms of malaria. Some health care providers argued, for instance, that because headache and fever were notable signs and symptoms, some of the pregnant women and mothers of under-5 children tended to believe that every headache and fever meant malaria, even when it could be the result of a different health problem. Similarly, convulsions did not necessarily imply malaria.

When my child has a temperature, I am convinced its malaria. However, when I go to the clinic I am told it's not malaria. (Inconsistent pregnant women, 25–49 years, urban site)

All they report is ... headache or fever, which are not very common these days. This is because a person may present just vomiting, or just diarrhoea [without headache or fever]. Previously, they used to know only fever and headache. ... It's still confusing them. (Health care provider, rural site)

They have heard about mothers convulsing during pregnancy. However, this may not necessarily be due to malaria. It could be due to something else. (Health care provider, urban site)

2.1.8. Insecticide-Treated Nets

Pregnant women and mothers of children under 5 years were reportedly availed a lot of information regarding ITNs and their use in preventing malaria. They were warned that the mosquito nets were not given to them to sell but to protect them and their children from malaria. They were informed of the importance of consistently sleeping under an ITN, especially their children under the age of 5 years. They were also taught how to use the ITN correctly as well as how to wash and dry it.

We are...told that the mosquito nets we have been given are not for sale but for use. ... We are [also] told that the mosquito nets come from Ministry of Health for us and not for the nurses. (Young consistent mother, urban CP)

Mothers with children under 5 [years] are educated on the importance of the use of ITNs ... how to use the net in a correct and proper way. They are educated on the importance of these nets and why they [mothers] need to use them for their children. (Health care provider, rural site)

We explain to them, what that mosquito net is there for. ... [That] the essence behind it is to prevent them from [getting] malaria ... how to cover them [their babies], and the method of washing them and sun drying them. (Health care provider, rural site)

2.1.9. Motivations for Consistent Use of ITNs

The major motivation for the use of ITNs was the desire to protect against malaria. Participants recognised that sleeping under a mosquito net protected pregnant women, mothers, and their children from mosquito bites, thereby preventing malaria. There seemed to be a strong will to sleep under mosquito nets, with some participants arguing that everyone who has a mosquito net in their community uses it as protection against malaria. This motivation was seen as being so strong that barriers, such as reported discomfort of the ITNs, did not stop many from using the ITNs. Many were motivated to use ITNs because the ITNs had reportedly reduced the occurrence of malaria in their communities.

In this community, pregnant women know that if they use ITNs they are protected from getting malaria because these nets are treated and prevent mosquito to penetrate and bite. That also applies to women with children under 5. (Health care provider, urban site)

It is rare for us now to suffer from malaria, because the mosquitoes cannot pass into the net. (Inconsistent pregnant women, 16–24 years, urban site)

ITNs were preferred because they were seen as protecting the participants against the irritating buzzing sound of mosquitoes and against other harmful insects. ITNs had contributed to reducing malaria-related problems in pregnant women, such as miscarriages, while enabling their babies to be born on time. The free distribution of ITNs was itself a motivating factor. ITNs were furthermore seen as more effective, comfortable, or accessible than other available options such as mosquito coils or sprinkling maize meal on charcoal to ward off the mosquitoes.

When one is sleeping under a mosquito net, they are not bitten by just anything. There is no disturbance from the sound of a mosquito; you do not hear it when one is sleeping under a [treated] mosquito net. (Young consistent mother, urban site)

At least when they [participants] use them [ITNs], they don't get malaria and the babies are born on time and the[re] are no miscarriages. (Health care provider, rural site)

Mosquito coils are unavailable in this area, so women have very few choices. When they go to the clinic, they collect the mosquito net for free; so they feel it is better to sleep under a mosquito net, since there is no place where they can buy mosquito coils around here. Some prefer mosquito nets because they do not like the smoke from the coil or from the "mealie" meal, which is sprinkled on fire. (Inconsistent pregnant women, 25–49 years, urban site.)

2.1.10. Barriers to Use of ITNs

Various issues emerged as barriers to the use of ITNs. From a distribution point of view, ITNs were seen as inadequate. Health centres did not receive adequate or constant supply of ITNs. As a result, the ITNs were reportedly rationed—such as one per household. Other health centres, however, were reported to have distributed as many as four ITNs per household when they were available. Some of those who did not receive free ITNs were not able to afford the commercial ITNs, even when they would have liked to buy one.

We recently distributed nets per household and we gave them three or four—meaning everyone in the house is able to sleep under a mosquito net. (Inconsistent pregnant women, 25–49 years, urban site)

Some children 5 years old or younger may not be sleeping under an ITN because some households had more than one child under the age of 5 years and, therefore, not all those children could sleep under an ITN. If these children's mothers became pregnant, they had to decide whether to use the ITN for themselves and their unborn baby or whether to give the ITN to the other children under the age of 5 years in the household. Some pregnant women sacrificed the ITN for their children, putting themselves and their unborn babies at risk of malaria.

Other households were reported to restricting the use of the sole ITN available in the household to the heads of that household; that is, the mother and father. Therefore, unless there is a breastfeeding child in that household who would be able to sleep under the ITN together with its parents, the rest of the children did not sleep under the ITN. While some parents gave ITNs to their children to sleep under, lack of supervision and monitoring meant that the children did not actually sleep under the mosquito net, or, if they did, they did not use it properly, so they were still bitten by mosquitoes.

One of the most prominent complaints about using ITNs was that they were uncomfortable. They made breathing difficult and were uncomfortably hot, especially during the hot season. Others complained of itching or developing a rash. ITNs were reported as being difficult to use for those who slept on the floor, as it was easier to hang the ITN on a raised bed. Among those who possessed ITNs, some did not bother to hang them back after having untied them to wash. Other households used ITNs, which were torn and allowed mosquitoes to enter and bite occupants.

Although the practice was reported to have reduced, some people were reported to using or selling the ITNs as fishing nets. Others tore them to use as curtains or for other uses, such as interior decoration or for demarcating a room. Generally, however, more people had reportedly come to appreciate the ITNs and were using them for the intended purpose.

Others say these nets they have given us are for catching fish. I can't sleep under a net and I will take it to Chambeshi River to use it to catch fish. (Consistent pregnant women, 16–24 years, urban site)

People used to use the nets ... for fishing or they would hang them on the wall, leaving the children without anything to protect them from mosquito bites. ... Nowadays, people know that these nets protect [them] from malaria and this disease kills. (Inconsistent mother, 25–49 years, rural site)

Some women feel uncomfortable sleeping under mosquito nets. They say they are unable to breathe properly because of lack of air. (Consistent pregnant women, 25–49 years, urban site)

2.1.11. Feeding Children Suffering from Malaria

Some mothers reported that malaria dehydrates the body and causes anaemia. Therefore, a child suffering from malaria requires a lot of fluids, including frequent breastfeeding within shorter timespans. Some mothers mentioned the need to give such children oral rehydration salts for diarrhoea or egg flip for anaemia. The argument that a child with malaria had poor appetite was very prevalent, and it was predominantly asserted that such a child should be given normal foods—such as nshima, potatoes, and rice—with others suggesting giving food that the child would enjoy to eat. Others believed that a child who was able to speak should be asked and provided with whatever that child preferred to eat. Participants also mentioned the need to give warm food to a child suffering from malaria.

Malaria tends to dehydrate people, and people with malaria tend to have less blood. A child with malaria should be given foods and fluids that will help increase both blood and water levels in the body. Because children with malaria usually have diarrhoea, they should be given ORS [oral rehydration salts]. (Consistent mother, 25–49 years, rural site)

2.1.12. Some Malaria-Related Myths and Misconceptions

Some women have not accepted IRS, believing that it does not kill but rather encourages the breeding of mosquitoes, including the breeding of bedbugs.

When the houses are sprayed, we see a lot of mosquitoes. ... The mosquitoes still do not die; so it's better they do not even spray. (Younger consistent mother, urban NP)

While malaria was associated anaemia, some women seemed to think that malaria causes yellow fever. Others believed that contaminated water or food can cause malaria, and, therefore, keeping food and water covered or treating drinking water with chlorine can prevent malaria. Still, others believe that being exposed to extreme cold can cause malaria and keeping oneself warm could protect against it.

Other pregnant women protect themselves from malaria by wearing socks or shoes so that they do not step on the cold floor; the whole body has to be kept warm. (Consistent pregnant women, 16–24 years, rural site)

The water that we take has germs; so if we do not add chlorine to the water, we can have malaria. (Inconsistent pregnant women, 16–24 years, urban site)

“Indusha” is yellow fever. ... It comes when someone has malaria and the blood in the body is very low. When that happens, the body becomes yellow [and] it is like there is more water than blood, and that causes the body to swell. (Inconsistent pregnant women, 16–24 years, urban site)

2.2. Intermittent Presumptive Treatment in Pregnancy

2.2.1. Information Received from Health Care Providers Regarding IPTp

Pregnant women were reportedly informed about their risk to malaria and their need to ensure that they are consistent with ANC appointments, so that they take preventive medication correctly and on time in order to reduce the risk. They are informed about the advantages of IPTp in preventing malaria and that IPTp had minimal side effects.

We emphasise that it is important for pregnant women to take Fansider [sic]. ... We educate them that Fansider [sic] is good medication, which a pregnant women needs to take; and this medication usually does not have side effects and one can take it on an empty or [a] full stomach. (Health care provider, urban site)

2.2.2. Perceptions About IPTp

Pregnant women complained about IPTp treatment, that the tablets were too big and were difficult to swallow or they left a bad taste in the mouth. By far the most common complaint was that the tablet caused drowsiness, nausea, or weakness. Other pregnant women complained that it caused them to vomit or, in some cases, faint. The side effects were reported to be worse if the medication was taken on an empty stomach. Some of the pregnant women were reported to arrive at the health centre as early as six o'clock in the morning but were attended to as late as midday, when they were hungry, despite having had breakfast before coming to the health centre. Others reported lacking food to eat every time before their ANC appointment, thus having to take the medication on an empty stomach. A health care provider pointed out that although the complaints about the side effects were true, they were exaggerated as a ploy to avoid taking the medicine.

We ... ask them [the pregnant women], for instance, whether they had eaten before giving them the medication ... [as well as] what time they had eaten. They might have come to the clinic at six in the morning and that might be the time they had eaten at home. If they take Fansidar at this time at 12, they definitely might get drowsy. (Health care provider, urban site)

Even though they tell us to eat before we come to the clinic, since Fansidar makes us weak, some of us don't manage [to eat] because food isn't available every day. (Consistent pregnant women, 16–24 years, rural site)

2.2.3. Reasons for Leaving Health Facilities Without Receiving IPTp

Despite their complaints about IPTp, participants reported that all pregnant women who went for ANC appointments took the medicine because the health care providers made sure that they took it through directly observed therapy (DOT). Health care providers confirmed this, asserting that pregnant women rarely left the ANC clinic without having taken IPTp, because it was given as DOT. Motivated by their desire to protect themselves and their unborn child from malaria, and despite their complaints about the side effects, the women ultimately took the medicine as long as they did not miss their ANC appointment for other reasons.

Because what we do is we have to witness the mother taking Fansidar from there. We ... let the mother take the medicine ... [and] witness them taking the medicine there and then. It's a sign that someone has actually taken the dose. (Health care provider, rural site)

The pregnant women know that it's a must for them to take this medication. ... They know that they need to come [to the clinic] every time they are supposed to take the medication ... [and] are afraid of losing their babies. (Health care provider, rural site)

There has never been such a situation. ... No one has been difficult or refused to take the medication. (Health care provider, rural site)

2.3. Antenatal, Under-5 Care, and Immunisation

2.3.1. Information Received from Health Care Providers Regarding ANC and Under-5 Care

At ANC appointments, pregnant women were told of the importance of seeking ANC early and the general advantage of ANC in monitoring the health of both the pregnant woman and the unborn baby. They were also told of the importance of hygiene and about things they need to prepare for the birth of their baby, such as gloves, bleach, napkins, and clothes; about the danger signs during pregnancy; and about how they should look after themselves nutritionally.

We are taught ... how you should do things. ... When I am pregnant I should go and register [early] and [I] should take note of that I should have gloves, jik [bleach], pads, napkins, four brand new chitenge materials, a dress, and a jersey. ... We are taught ... that we should eat foods such as liver. (Inconsistent mother, 16–24 years, urban site)

We are taught on the danger signs of pregnancy; that this is safer than sitting at home depending on elders who won't know what to do if you have complications. (Inconsistent pregnant women, 16–24 years, urban site)

We tell them to seek antenatal care as soon as they are pregnant during antenatal, and to seek under-5 care. (Consistent pregnant women, 16–24 years, rural site)

At postdelivery appointments, the mothers were told about the importance and benefits of growth monitoring and vaccination. For instance, they were informed that vaccinated children were less likely to suffer from certain health problems, and, therefore, it was important for these children to complete all their vaccinations on time. Besides, they were also informed of the number of vaccinations a child needed before the age of 5.

These women are told this information after they [give] birth. They are told how many vaccinations a child should have before they turn the age of 5. They are educated on the importance of these vaccinations. (Consistent mother, 25–49 years, rural site)

The women have been educated that they must take their children for all the vaccinations on time. In doing this, the children do not get some illnesses, which they might have had if these vaccinations were not taken. (Inconsistent pregnant women, 16–24 years, rural site)

2.3.2. Facilitators/Promoters of ANC and Under-5 Care-Seeking Behaviour

The most important reported reason for seeking ANC or under-5 care seemed to be the desire to ensure the good health of the pregnant women, their unborn baby, and mothers of children under 5 years or their children. It was equally noted that ANC was essential for monitoring the growth and position of the unborn baby as well as monitoring the health of the pregnant woman. Some participants reported how such visits enabled the health care providers to take necessary preventive measures for safe delivery.

They want to know the health of their child and the health of the baby in the womb as well as their own health. We check for their blood pressure and weigh them. They usually want to know how the baby is growing each time when they come. (Health care provider, rural site)

We go for ANC to know how the baby is in the stomach. If you just sit home, you can't know how the baby is doing. ... I think that is the most important reason why we come for ANC—to monitor the growth of the baby and to know how the baby is positioned in the stomach. (Consistent pregnant women, 16–24 years, rural site)

Both pregnant women and mothers of children under 5 years expressed concern about the risks related to pregnancy. It was evident that both categories of women were anxious about their health and that of their babies. The risks that come with pregnancy seemed real to many of them. Their responses revealed how, during pregnancy, women spent a lot of time worrying about their health and physical state. Pregnant women, particularly, were concerned about their pregnancy and about their unborn child; whether they or their baby would survive pregnancy, and, if they survived, whether they would be healthy. For instance, the pregnant women worried about premature delivery, if the baby would live or be normal.

What is most worrying is whether you will deliver safely. That is what worries me the most. I wonder how God will help me on that day [of delivery]. Even when you have gone to bed, all you think about is, "Will God help me when my time comes? What will happen? How will the baby be? Will it be alive and healthy? After delivering, all these worries stop. (Inconsistent pregnant women, 25–49 years, rural site)

Am I going to have a normal delivery? ... We worry if the baby is ok, if it's in the right position, if it's lame or blind ... the position of the baby in the stomach, you don't know if it's a breech. (Inconsistent pregnant women, 25–49 years, rural site)

Some health care providers attributed consistency in ANC attendance to the information obtained from the health centres and the detailed discussion that health care providers had undertaken with the pregnant women, where they emphasised the importance of attending ANC or under-5 clinics. For

some of the health providers, proof that their information had been accepted was seen in the increased number of women who were attending ANC or under-5 clinics. Another motivation for attending under-5 clinics was that a child who attends these clinics would not be charged fees for any other health services.

We have a long discussion with them [the pregnant women] on ... their maternal well-being. We spend a lot of time discussing those important issues ... and we explain that if the child is not monitored, you may think it is alive but you may have lost it ...; so it's better for problems to be detected early enough and acted upon. That makes them [the pregnant women] come to have their developing baby monitored. (Health care provider, rural site)

Yes, they do [accept the information we give them]. They even cite their own experiences. [For example], you might even find a mother of five who was delivering her sixth child at the [health] centre, while all her previous deliveries had been from home. (Health care provider, urban site)

One advantage of bringing my child for under-5 clinic is that I will not be charged to obtain services when my child gets ill, whereas a mother whose child is never brought for under-5 will be charged should child fall ill. ... [Because of this, other mothers] learn and they start taking their children for under-5 [clinics]. (Health care provider, rural site)

Some women were encouraged by their parents, neighbours, or other persons to attend ANC. In some cases, the involvement of local leadership seemed to facilitate ANC attendance, as was reflected by the report about a local chief who had intervened to ensure that mothers took their children to under-5 clinics. Furthermore, access to information about ANC facilitated attendance. For instance, some women reported that community outreach services had contributed to increasing ANC attendance. During outreach activities, the communities were implored to propagate the importance of under-5 care and urge mothers to attend these clinics. This was said to be effective in encouraging other women and increasing the number of mothers attending under-5 clinics.

I asked my neighbour what I had to do when I found out I was pregnant and she told me to go to the clinic on Monday, when they do registration for pregnancies. (Consistent pregnant women, 16–24 years, rural site)

Our chief ... here in Kasama district intervened because he saw that the problem had persisted. ... Some women did not want to take to their children for under-5 [clinics]. The chief was so upset ... that he ... stated that every woman who did not take their children for under-5 [clinics] will be punished. This rule, coming from the chief scared the women, and this made more women take their children for under-5 [clinics]. (Consistent pregnant women, 25–49 years, rural site)

We educate the community on the importance of under-5 [clinics] and tell the women who bring their children for under-5 clinics to motivate their friends and families to do so too. This has

really worked because more women are bringing their children for under-5 clinics. There is a huge improvement. (Health care provider, urban site)

2.3.3. Barriers to the Use of ANC and Under-5 Care

Some pregnant women were said to be discouraged from attending ANC services by some community members, especially by the older women such as grandmothers who, in some cases, referred to other pregnant women who experienced normal and healthy deliveries at home. Some pregnant women seemed to find it embarrassing to be attended to by younger people during delivery. Other pregnant women may not have had the energy to continue attending ANC during their last trimester and opted to stay away. Other pregnant women knew about under-5 services but, because they had delivered from their homes, were too embarrassed to face the health care providers. They wanted to start attending the under-5 clinics, if only for the sake of obtaining the under-5 card.

Others say, "I cannot have that young nurse attending to me during delivery. I would rather get help from older people in the village. " (Consistent mother, 25–49 years, rural site)

For some, it's because during pregnancy they don't go for ANC; and when they deliver from their homes they feel embarrassed to come and open an under-5 card for their child. (Consistent mother, 25–49 years, rural site)

Financial and structural factors also had an effect on ANC or under-5 attendance. Some women were not able to afford to buy the materials required for delivery, such as baby clothes, napkins, or gloves. Some who had old clothes were afraid that the health care providers would not accept the clothes and opted to deliver from home. This seemed worse if the woman relied for financial support on her husband, who may not regard the provision of such materials as a priority. Because of the required materials for the delivery, some husbands were reportedly discouraging their wives from attending ANC. Husbands who attended ANC clinics with their wives were reportedly more likely to want to provide for these requirements, either because they realised the necessity or simply to avoid embarrassment.

They stay away because they cannot afford the requirements like gloves, bleach and napkins. (Consistent pregnant women, 16–24 years, urban site)

Some ... make a decision to deliver from the village as a result of not having new clothes for the baby. They like to use old things, and the fear is that the nurses may not accept the old things. (Consistent mother, 16–24 years, rural site)

When ... you come with your husband for ANC, he will try by all means to buy the requirements for delivery because he doesn't want to be embarrassed. (Inconsistent pregnant women, 25–49 years, urban site)

Some husbands don't allow their wives to attend antenatal classes, saying that the clinics demand for a lot of things that he can't afford. (Consistent mother, 16–24 years, rural site)

Long distances to the health centre contributed to nonuse or inconsistent use of ANC or under-5 health services because some women could not afford to pay the fare to attend the clinic. Others, in the late stages of their trimester, opted to deliver from home for fear that they may deliver on their way to the health centre.

For some it could be because of distance. ... In the third [trimester], the mother has to deliver. ... So it is not always that they come. (Health care provider, rural site)

Risk perception and the perceived benefits of ANC or under-5 services seemed to play a big role in attendance. Some women did not appear to see the need to fulfil the appointments if they believed there was nothing worrisome about the pregnancy, the under-5 child, or the woman herself. Such women sought health services only when they experienced a health problem. For some of the women who attended ANC or under-5 clinics, their interest to continue using these health services waned with every subsequent appointment or visit—if, during this time, they did not experience any health problems. Similarly, some pregnant women may seek the health services only if they had reason to think that the pregnancy may have complications that needed professional health care. In the same vein, previous safe home deliveries seemed to consolidate perceptions that such deliveries were safe and reduced such women's ability to realise the importance of seeking professional health care. Other pregnant women seemed to see ANC as only a means to monitor whether the baby was alive; in order to decide whether it was necessary to deliver from the health centre, they felt their stomachs to determine whether or not the baby was fine.

If I can feel the baby moving in my stomach, why should I be going to the clinic? (Inconsistent pregnant women, 16–24 years, urban site)

Some of them do not encounter any problems. That is why they think it is not important. ... She may feel the baby is moving in her womb and will think everything is okay and there is no need to go to the clinic for checkups. (Consistent pregnant women, 25–49 years, urban site)

In most cases, what brings us [for under-5 care] is when the child gets ill. (Inconsistent pregnant women, 16–24 years, urban site)

Some women had experienced problems during their pregnancy in the past, and this experience taught them the importance of seeking ANC or under-5 services. Such women not only attended ANC clinics consistently but were also propagators of the importance of ANC or under-5 services. On the other hand, some women attended ANC or under-5 clinics only as a means to obtain the under-5 card because it is required when the woman is sick, when she has to deliver at the health centre, or when her child enrolls in school. Once given the card, they may see no further need to continue attending the ANC or under-5 services. For some women, risk perception was associated only with pregnancy—they seemed to see themselves at high risk only as long as they were pregnant. As soon as they had delivered safely, they did not see the need to continue with health care through under-5 care.

Some may have had stillbirths sometime back and began to deliver healthy babies only after they began to attend ANC. This could motivate others [pregnant women to attend ANC]. (Consistent pregnant women, 25–49 years, urban site)

They have already received the antenatal card and so are sure that when they get sick, they would easily come to the clinic and be attended to. Unlike when they do not have, the nurses refuse to attend to them when they go to the clinic. The first thing they ask for is the card. (Inconsistent pregnant women, 16–24 years, urban site)

[They stop attending ANC] because they have already received the antenatal card so they are sure that when they get sick, they can ... be attended to. When they do not have [the under-5 card], the nurses refuse to attend to them. The first thing they ask for when you get to the clinic is the card ... even when you are enrolling a child into their first grade at school, they request for the under-5 card. (Consistent pregnant women, 16–24 years, rural site)

Myths and misconceptions, such as the belief that medicines given during ANC worsen the pregnant woman's health, discouraged some women from attending ANC. Some women believed that a pregnancy should not be known to the public, including at the clinic, in its early stages. Others were reported to believe that vaccinations given to pregnant women posed a danger to the baby because it could be born with other problems. Some of the maternal complications that pregnant women experienced seemed to be attributed to the infidelity of their male partners rather than to malaria.

Others don't want people to know in the early stages that they are pregnant. ... Others even say that they could be witched if people know that they are pregnant and be seen at the clinic in the first few months. (Inconsistent pregnant women, 16–24 years, urban site)

There are some men who cheat during pregnancy, and, when they do that, they block you from delivering safely. We call it "inchila," and if there is no one to organise traditional medicine for you, you could die in labour. (Younger consistent pregnant women, rural NP)

Some women are afraid of knowing their HIV status and are not keen to attend ANC, mostly because of fear that such knowledge may hasten their death. Despite their reluctance to attend ANC, some women were reported to prefer delivering from the health centre rather than from home.

Some don't like to come for ANC because of the HIV tests ... and say, "What if am HIV-positive? If I know my HIV status, I would die quickly. It is better I don't know." (Inconsistent pregnant women, 25–49 years, urban site)

Others stay away [because] they don't want to be told that they are HIV positive ... some fear knowing their status and say, "What if am HIV-positive? If they tell me, I would die quicker. It is better I don't know." (Consistent mother, 25–49 years, rural site)

2.3.4. Reasons for Delaying the First ANC or Under-5 Appointment

Some women did not attend ANC because they were ignorant of these services—until they sought attention for a health problem. Others may know about the services but see no urgency to attend for various reasons, including lack of adequate support from a husband. Some pregnant women thought the ANC appointments were too frequent and took steps to reduce the number of times they would have to attend ANC by deliberately registering late. Some women, particularly in their first pregnancy, may not realise they are pregnant until much later. It was also reported that the number of pregnant women who were delaying attending ANC clinics had reduced.

They come in the eighth month; that's when they come to have their pregnancy booked. A woman may delay if her husband is refusing to take her [for ANC]. ... It, too, contributes to the delay. (Health care provider, urban site)

Others don't want to have a lot of appointments. That's why they register late so that they come just for two appointments until their due date. ... They say they cannot manage to be coming for all the antenatal appointments if they registered early. (Inconsistent mother, 16–24 years, urban site)

Some just feel lazy and say, "If I register now, will I manage to go for all the appointments until I deliver? ... It is too much. I will start when the pregnancy is bigger so that I can have few appointments. " (Consistent pregnant women, 16–24 years, rural site)

Some come late [for ANC], even at 32 weeks, at 7, or 8 months. For instance, yesterday two came at 9 months. However, these are few. Most of them come in the range of 3–5 months. (Health care provider, rural site)

2.3.5. Reasons for Consistent or Inconsistent Use of ANC or Under-5 Services

Inconsistent ANC or under-5 attendance may be due to the fact that a pregnant woman is preoccupied with other responsibilities that they may see as priority at the time. For instance, they may have attended a funeral or simply had to perform an economic activity to generate an income. Some participants reported women who see attendance at under-5 clinics as a waste of time and would rather go about attending to other commitments. While some mothers were reported in such cases to delegating such duties to another person, those who could not delegate this responsibility had no alternative but to miss the clinic. Similarly, some pregnant women with other young children missed ANC appointments because they did not have any one to leave the other children with. Some women may feel that they did not have appropriate or clean attire to wear to the clinic.

Most of the times, it's because of businesses which makes them go to town very early and they have no one to leave the children with. They explain that "they would take them the following month." When it [that month] comes; they say the same thing again. (Health care provider, rural site)

Some participants saw inconsistent ANC and under-5 attendance resulting from a negative attitude toward such responsibilities or because of sheer laziness. For this reason, the women allowed other responsibilities to take precedence over ANC attendance or under-5 attendance.

For others, it's just a matter of laziness. Still others will tell you they had gone for a funeral and that was why they didn't come on the appointed date. They just give excuses ... forgetting that they could use the same antenatal card for their ANC visit even [at the place] where they had gone to. (Inconsistent mother, 25–49 years, urban site)

Some mothers seemed to attend under-5 clinics for fear of rebuke by the health care providers, if identified as not having attended the previous ANC appointment. This concern seemed to compel them to commit to attending the clinics. For instance, some mothers were reportedly recording false weights on their children's under-5 clinic cards. The fact that they could do this enabled them to escape detection of having missed the previous appointment. On the other hand, the fact that the health providers stopped writing the weights on the cards had reportedly made it difficult for the mothers to know where or how to indicate the weight on their own. This compelled them to take their child to the clinic.

[What] can improve the attendance of mothers with under-5 children is the system they have introduced whereby they do not write the weight of the child [on the card]. Many of us are afraid that if we do this [write the baby's weight on the card], I will be caught at the clinic that they [providers] were not the ones who wrote it. This time around, it's better than before when we could write our own weights and get away with it. ... Because of that [the new system] I see that we are caught a lot. [These days] they simply ask you to remove the child from the scale, and they themselves make a mark which you don't know and cannot alter ... and there is now an improvement in the turnout. (Inconsistent mother, 25–49 years, urban site)

In some cases, mothers' attendance of under-5 clinics was negatively affected by long queues, since some mothers turned back upon finding such queues. Some mothers were said to prefer to pay the penalty fee, which they were required to pay for missing the under-5 appointment, than to wait a long time.

Others go back when they find a long queue at the clinic. ... When they arrive at the clinic and just see how long the queue is, they go back and say it's better I pay K1,000 when I come next month. (Consistent mother, 16–24 years, rural site)

2.3.6. Reasons for Discontinuing ANC or Under-5 Attendance

Stopping ANC and under-5 attendance was attributed very prominently to sheer laziness. Others attributed it to the long distance to the health centre or the lack of realisation of the benefits of ANC or under-5 services. Generally, however, it was reported that very few women stopped going for ANC appointments altogether. In most cases, women were reported either to start ANC attendance late or to attend ANC inconsistently than to absolutely stop ANC attendance.

We have never seen a situation where women just stop going for ANC. However, there are situations where women skip some appointments or start ANC a bit late. Even those who skip one, two or three appointments do attend ANC at some point and ensure that they receive the services at that time. (Health care provider, rural site)

The reason why some women do not take their children for under-5 [care] is because some women are lazy. They say they feel lazy to take their children for under-5. This problem at some time persisted [in our community] and some women stopped taking their ... children for under-5 [clinics]. (Health care provider, urban site)

For antenatal appointments, most of these women are strict; unless there is a funeral or the woman goes somewhere, they usually attend. There are a few of those who are inconsistent. (Health care provider, urban site)

Some mothers seem to see their children as too old for under-5 clinics even when such children may be well below age 5, even as young as age 2. These mothers will stop attending under-5 clinics.

Some say, “My child is too old to come for under-5 clinic[s]”—and yet the child is just 2 years old. Even when they are encouraged to attend under-5 [clinics], they simply say, “My child is [too] old to be taken for ANC.” (Consistent mother, 25–49 years, rural site)

2.3.7. Reasons Some Mothers Use Under-5 Clinics Only for Vaccination and Not for Growth Monitoring

Some women were reportedly embarrassed to take their children to ANC for growth monitoring if that child suffered from a health problem that could have been prevented by vaccination. In other instances, mothers see the vaccination as less within their control than growth monitoring. Some such mothers therefore stopped as soon as their child received the vaccination and would not attend the clinic until the next vaccination. It was felt that not many mothers understood and appreciated the role of under-5 clinics in monitoring the children up to the age of 5 years.

It’s the fear that they will be laughed at if their children suffer from the condition that is meant to be prevented [by vaccination]. So they would rather take their child for vaccination. (Consistent mother, 25–49 years, rural site)

They think ... under-5 is just for injections that’s the under-5. So the importance of assessing how the baby is growing up to the age of 5, very few have come to understand that. (Health care provider, rural site)

Working women were said to lack the time to take their children for growth monitoring. However, they may find time to take the children for vaccination because it is a less constant duty compared to growth monitoring. In this category are women who are engaged in income-generating activities that require them to be away from home at the time they are supposed to take their child for growth monitoring. Similarly, women who stayed far from clinics reportedly failed to travel to the health centres for growth monitoring when the time was due, but could find the time to take their children for vaccination.

The reason why some women take their children for vaccination but do not take them for growth monitoring is because some of these women are ... working and find it difficult to find time to take their children for both growth monitoring and vaccination. (Health care provider, urban site)

2.3.8. Reasons Some Mothers Take Their Children for Immunisation and Others Do Not

Some mothers do not want to take their children for vaccination because they believe that this would negatively affect their children's health. Others do not want to take their children for immunisation because the injection may cause the child to be feverish and cry the whole day. Such an experience may discourage attendance of subsequent immunisations. Mothers may not take their children for immunisation because they may still be ignorant about the specific reasons or diseases for which their children should be immunised. Other mothers may see immunisation as something out of their control and therefore possible only if they take their child to the clinic. In contrast, they may see growth monitoring as something they can achieve without the involvement of health care providers.

Some fear that if the child is given an injection on the thigh, the child will be hot and will cry the whole day. (Consistent mother, 25–49 years, rural site)

There is the one [vaccination that is given] on the arm whereby children cry a lot. ... They [mothers] may just take the child for that one injection, and if the child cries a lot, they vow never to go back for vaccinations. (Inconsistent mother, 25–49 years, urban site)

I think that what makes some not bring their children for vaccination is that they do not know its importance—which disease is being prevented. (Health care provider, rural site)

The reason why some women do not take their children for vaccinations is because they come from long distances and they stay in far-away places. When the time comes to vaccinate their children, they find it difficult to come to the centre ... especially to finish all vaccinations. (Health care provider, urban site)

2.4. Nutrition

2.4.1. Knowledge of the Nutritional Needs of Women and Children During and After Pregnancy

Both pregnant women and mothers of children under 5 years seemed knowledgeable about the importance of nutrition during pregnancy and after delivery for themselves and their children. Aware of their financial challenges, they were also generally aware of the need to have a balanced diet within their means. Whenever they could, they attempted to eat other foods they usually would not afford, such as meat and fruits.

Participants were aware that breast milk was best for the nutrition, protection, and good health of their baby. They were knowledgeable of the value of exclusive breastfeeding for the first 6 months. They were aware that exclusive breastfeeding contributes to delay in the return of menstruation and to reduced chances of pregnancy and that introduction of other foods during this phase had negative

impact on the health of the baby and caused such problems as diarrhoea or constipation as well as increasing the threat of disease.

Breast milk is good for the baby. It is the food intended for the baby below 6 months old. ... Breast milk has all the nutrients and is clean and not difficult to handle like a formula [milk].
(Consistent mother, 25–49 years, rural site)

2.4.2. Information Regarding Nutrition During Pregnancy and After Delivery

Information given to both pregnant women and mothers of children under 5 years emphasised the need for a balanced diet that improved the nutrition and health status of women and children as well as the different food groups that should be appropriately mixed for the required nutritional variety. The information stressed the need to use of foods that are accessible and affordable, including staple foods such as *nshima*, cassava, and vegetables. Pregnant women were reminded of how the nutritional value of the food they ate had equal impact on the nutrition and health status of their baby. They were informed that the health of the baby begins during pregnancy.

Mothers of children under 5 years were further informed of how the foods they ate helped to produce milk, necessary for their baby. Other information included the need to observe hygiene as they prepared their children's food.

We tell them to have a balanced diet according to the rural setup. We tell them to eat at least beans, vegetables, nshima, fish, and kapenta. We also encourage them to eat fruits in case they have cuts during delivery for them to heal fast. We encourage them to eat this food depending on the environment in which they live. (Health care provider, rural site)

The pregnant women are told to eat food that will help the unborn baby to grow. When they give birth, they are told to eat a balanced diet in order for them to be able to produce breast milk, which is important for the newly born. The women are told of the importance of breastfeeding. (Health care provider, urban site)

2.4.3. Perceptions About Exclusive Breastfeeding

Perception about exclusive breastfeeding was generally positive. They spontaneously thought it to be very beneficial in several ways. Among all the participants, breast milk was seen as the most nutritionally balanced baby food, the most appropriate for, and specifically meant for the baby, and good for the baby's protection from diseases. Breast milk was right for the baby because the baby's intestines during their early stages of growth were still too delicate to take on other foods. A baby fed exclusively on breast milk was perceived to grow better; however, some women still seemed to disbelieve some of the information they received from health providers. For instance, it was not believed by some women that it was healthy to deny a baby water for 6 months.

Women in this community know the importance of exclusive breastfeeding as it makes the baby healthy and that during the time the woman is exclusively breastfeeding, she cannot become pregnant. (Consistent pregnant women, 25–49 years, rural site)

Breast milk is very nutritious; it is more nutritious than this milk for buying, [and] it has balanced nutrients. (Consistent pregnant women, 16–24 years, urban site)

Exclusive breastfeeding is okay, but I have not let my child reach 6 months before giving it water. I had a sister who had a child. ... They followed these same things and did not give the child water up to 6 months. When the child got sick, she was short of water in the body. ... What followed was her death! The baby died because it was not used to water in the body so if water was not important, why did they put water in her body before she turned 6 months? (Consistent mother, 25–49 years, rural site)

2.4.4. Pregnant Women's Plans To Feed Their Baby During the First 6 Months

While pregnant women reportedly planned to exclusively feed their baby on breast milk for the first 6 months, this did not seem the case in practice. For various reasons, mothers reportedly introduced other foods before their babies reached 6 months. The fact that they did not have the financial means for formula milk generally seemed to make them turn to other foods such as porridge or, for some mothers, yogurt, and, in some cases, *nshima*. Some women reportedly simply disliked breastfeeding while others did not want to be seen breastfeeding in public. Working mothers introduced other food in order to reduce the time they had to spend on breastfeeding and to free up more time for their employment. Some, among those who were not in full-time employment, were reportedly forced to leave their babies to create enough time for their income-generating activities to sustain the family. This situation forced them to introduce other foods at an earlier stage.

As for me, I plan to breastfeed my baby without any other food or water until after 6 months. I did that even with my other two children. (Consistent pregnant women, 25–49 years, rural site)

Since I am selling things, when the child is 5 months [old], I will stop [breastfeeding]. (Consistent mother, 25–49 years, urban site)

Other mothers stopped breastfeeding during the first 6 months because of poor health, especially if they were chronically ill (such as those who were HIV positive), believing that continuing with breastfeeding would increase the baby's chances of contracting HIV. Some HIV-positive women, however, reportedly breastfed exclusively for the first 6 months. Some participants seemed confused about the duration in which an HIV-positive mother should breastfeed her baby, believing that the baby should continue breastfeeding until it developed teeth—risk was seen as a result of open skin that resulted from the baby's biting of the nipple. In some cases, even when she may be HIV negative, a mother may introduce her baby to other foods because she has sores on her nipples.

It seemed common practice for a breastfeeding mother to introduce her baby to other foods if she was not producing enough milk. Some participants, however, argued that some mothers were not able to produce enough milk because they did not eat enough appropriate food. It was argued that for some mothers, the assertion that they did not produce enough breast milk was mere perception and not a fact. It seemed very typical for mothers to believe that a baby's frequent crying implied that it was

being starved because breast milk was inadequate for that baby. For some mothers, this suspicion was confirmed when the baby stopped crying after it was fed other foods.

I was told to try and feed the child on porridge after it was suspected that the child was not getting satisfied with the breast milk. (Consistent mother, 25–49 years, urban site)

Others feel they are starving their children. When they reach 3 months or so, they would rather introduce them to other foods such as light porridge.... They feel that when the baby cries a lot, it means breast milk is not enough. (Health care provider, rural site)

Some say that their babies cry a lot when they are hungry. The problem I have seen with these women is that they don't eat enough food and so the milk is affected. (Health care provider, urban site)

Some mothers introduced their babies to other foods simply because the babies seemed to be staring at the adults when they were eating. Such stares were interpreted as a sign that the baby was yearning for that food. When a baby refused to suck, some mothers introduced it to other foods. Other mothers were influenced by people such as their parents or simply mimicked mothers who, for their own various reasons, had stopped breastfeeding their babies.

They say those of you who breastfeed exclusively just starve your children; they need to eat [other] foods. I have seen a 1-month-old baby put on porridge. (Consistent mother, 25–49 years, urban site)

It was believed that a mother who became pregnant while breastfeeding should stop breastfeeding because the milk produced during that time was contaminated—either because of the couples' sexual intercourse or because the woman was not cleaning her body through her menstruation. Rather, the body's cleansing was done through the breastfeeding. Some mothers believed that a child breastfed exclusively could never gain weight.

2.4.5. Pregnant Women's Plans To Feed Their Baby After the First 6 Months

The pregnant women's plans to feed their babies after the first 6 months were not different from their plans for the first 6 months. Just as they would have introduced other foods by the time the baby was 3–4 months, mothers introduced their children to other foods, such as porridge, potatoes, *nshima*, vegetables, and fruits, between 6 and 24 months. During this stage, mothers continued to feed their babies on breast milk. By 24 months, mothers will have already introduced the children to *nshima* and would reportedly have stopped breastfeeding. They seemed during this time to fall into the normal adult feeding routine of three meals made up of breakfast, lunch, and supper. A few gave them porridge later after lunch.

2.4.6. Barriers to Adequate Nutrition

The most significant barrier affecting pregnant women and mothers of children under age 5 from having adequate nutrition seemed to be the lack of financial means to buy the required food. They expressed

financial challenges in finding these foods. In many instances, some of these mothers were young and single; their pregnancies or children were a result of premarital sexual relationships, and their partners either had denied responsibility or were financially incapable of providing all requirements. Some participants reported times when they did not have any food to eat in the household. The lack of adequate breast milk reportedly made mothers feed other foods to their children.

[It is difficult to have good nutrition if] your husband does not work. It could also be that one has a large family and are not able to afford. All these bring about problems. (Inconsistent mother, 16–24 years, urban site)

We do not all manage to have what we are told. However, because I do not have money to buy oranges and other things, I will only give the child what I have. (Consistent mother, 16–24 years, rural site)

Maybe ... they have no husband; they were just impregnated, and so it's difficult to source for those foods to balance their diets. It is very difficult. Maybe they are being taken care of by their parents, step or grandparents.... So it's quite difficult due to lack of resources. (Consistent mother, 25–49 years, urban site)

2.5. Powers of Decision-Making

Very notably, pregnant women or mothers of children under 5 years were the ones associated with making health-related decisions. In most cases, the women asserted that they or their children were the ones whose health or life was at stake, and it was, therefore, their primary responsibility to make the decision. Where there was need for their male partners' participation, it was perceived as the women's responsibility to be proactive in order to involve them. In this case, male partners were secondary partners in decisions.

It is the woman herself. She cannot wait for the husband to decide because he is not the one who gets pregnant; the one who is pregnant is the one that decides. (Consistent pregnant women, 25–49 years, urban site)

The mother makes this decision [whether or not to exclusively breastfeed the baby] and if her health is good, she can exclusively breastfeed the child. If she's HIV positive, she cannot breastfeed to protect the child. (Health care provider, rural site)

Women themselves make the decisions to go for ANC and at times they tell their husbands and close relatives about their antenatal visits. These women are the right people to make such decisions because they are the ones who are pregnant and know the importance of going for ANC appointments. (Consistent mother, 25–49 years, rural site)

The male partners were reported as lacking knowledge and did not really understand or appreciate the importance of making the decisions. It was reportedly not usual for the male partners to be involved in making such decisions. If the women did not make the decision, the man would not do it, and it would

be left to the women to be responsible for the repercussions, such as taking the child for medical attention or providing care if the child was taken ill, while the man will be passive. For this reason, the women took it upon themselves to make the decision.

We ourselves as women decide because if you, the woman, is not concerned, the man will not do it. (Consistent mother, 25–49 years, urban site)

It is us women who should push our husbands to buy these things required after delivery. If you notice that the man is not serious, you, as a woman, must make the effort on your own to get these things. (Consistent pregnant women, 16–24 years, rural site)

We women are the ones who normally decide on this. It is not common for a man to be involved. Therefore, if you don't look out for yourself, your husband will just be watching you. It is up to you to come when you are 3 months pregnant to register at the clinic for antenatal care. (Inconsistent pregnant women, 16–24 years, urban site)

Some male partners took part in making the decisions in their household, either from a male-dominated position or by mutual responsibility and discussion with his female partner. Some women reported how a woman could not do anything if her husband did not allow it. For instance, she could not use a mosquito net if her husband did not want to sleep under a mosquito net. In some cases, while male partners were involved in making health-related decisions in the home, it was still the woman who took the primary role.

Our husbands have a say because they too would be using the mosquito net. If he doesn't allow you as a wife, you cannot hang the mosquito net because you share the same bed. ... Even if you are told to use mosquito nets at the clinic, you cannot use it if your husband refuses. (Inconsistent mother, 25–49 years, urban site)

I am the one who says we should sleep under [mosquito] nets, and I tell myself to come to the clinic when the time is right. ... Even my husband reminds me when my appointment day comes to go to the clinic. (Consistent pregnant women, 16–24 years, urban site)

Sometimes when he finds that I haven't dressed the child in warm clothing or if I leave the child to sleep on the couch, he advises me that the child might get bitten by mosquitoes and that I should ensure that the child sleeps under a mosquito net. (Inconsistent mother, 16–24 years, urban site)

Both of us make a decision together because once one has malaria, everyone will be affected. (Consistent pregnant women, 25–49 years, urban site)

Health providers seemed significant facilitators of the women's decision-making. They were not only seen as credible information sources but also perceived to be the persons that made the decisions for the pregnant women or mothers with under-5 children. In their responses, the women generally

asserted that the health providers were responsible for the decisions they made. Thus, while the health providers perceived themselves as providers of health information for the pregnant women and mothers of under-5 children to make decisions, such women did not seem to perceive themselves as having made the decisions but rather that such decisions had been made by the health providers.

The Ministry of Health has also given us a directive that we should ensure that our children are taken to the health centres for vaccinations and for under-5 [clinic]. Therefore, we have to follow [what they tell us to do]. (Consistent mother, 16–24 years, rural site)

It is the nurse who makes the decision [for us]. (Inconsistent mother, 16–24 years, rural site)

The nurse is the one who tells us that we should breastfeed from the time a child is born till [the child reaches] 6 months. ... It's the nurse who makes the decision ... not to give the child any other food apart [from] breast milk. (Consistent mother, 16–24 years, urban site)

2.6. Reported Solutions to Problems of MCH

By far, the most repeated suggestion for increasing protective and health-seeking behaviour was the need for continuous sensitisation activities. Participants saw the need to provide further information. Responses seemed to suggest the existence of a category of women who currently possess the information but for various reasons did not simply use it to their benefit. Such women were repeatedly referred to as lazy and were seen as needing further and constant encouragement.

Many women nowadays know the importance of bringing their children for under-5 [care]. There needs to be more encouragement among those women who still feel lazy so that they too would bring their children for under-5 [care]. (Community health worker, urban NP)

It was generally felt that some women did not have the information and, therefore, failed to appreciate the importance or benefit of making certain positive health decisions. Therefore, teaching such women to understand and appreciate the information would help them change their behaviour. These women could be given examples about how other women have benefitted from ANC and under-5 care activities.

They need to be taught the things that we have been learning; when they learn, they will change and start going for antenatal on their own. (Consistent pregnant woman, 16–24 years, urban site)

Another category of women were those who had received information but still had questions that needed clarification. Such women, seen as needing the opportunity to ask questions, should therefore be accorded this opportunity. They cited some women who, during under-5 clinics, had questions but failed to ask them and consequently left the clinics without adequately understanding what had been taught.

As we are being taught there and then, if I do not understand, it is better I ask so that it's easier and I understand. It's the same as when [I] am being taught about how to take care of a child by

the under-5 clinic; at times, you do not understand what they said about feeding the child. I must ask there, and then so that I know the correct thing. (Consistent mother, 16–24 years, urban site)

It was suggested that women who are inconsistent with their ANC or under-5 appointments should be individually followed up in their communities and urged to attend the clinics. Furthermore, they could be invited to accompany fellow pregnant women or mothers of children under 5 years to their appointments in order to encourage them to attend the clinics. Regular and constant outreach activities should be increased in the communities to sensitise relevant issues; this could include drama performances. Outreach activities should include ANC and under-5 clinics; therefore, the existing mobile clinics need to be improved. This would be especially important for women who stay very far from health centres, since these were the ones who were inconsistent with their appointments.

They need more education, more sensitisation in the community. Even drama performances would really help to sensitise the mothers on the importance because many of them are still behind; they do not know the importance. (Consistent mother, 25–49 years, urban site)

Women who complain of side effects of IPTp were urged to persevere, knowing that it was meant for their own good and that the side effects would pass and the women would be back to their normal selves again. Others suggested that those who take IPTp should be given something to eat or drink before or after they take the medicine. Still others suggested that the drugs should be replaced with a drug that had fewer side effects.

Women should just be strong and persevere. ... We should just believe and trust that it is going to be fine. Sometimes it is just fear, and for others, it is just a mindset. (Consistent mother, 25–49 years, rural site)

It was suggested that the topics and mode of teaching at the health centres should be varied in order to enhance understanding and appreciation of what is taught.

Others do this because when they go the first time, they are taught about child care. The next time they come, they are again taught about the same thing again. Others do not learn this way so they should be changing each time. (Inconsistent mother, 25–49 years, urban site)

2.7. Conclusion

This study reveals that, in general, both pregnant women and women with children 5 years old or younger are quite knowledgeable about information relating to MCH and malaria in particular. This knowledge cuts across all the groups of participants and across all the study sites. Generally, women are accepting information obtained from health providers and putting it into practice to protect themselves, their children, and their families. Health providers remain a very important source of information and facilitators of behaviour change. Some of the women, however, seem to fall short of the desired motivation and, in some cases, the desired conviction to transform their knowledge into practice. In many cases, the desire to maintain good health is hampered by financial incapacities and long distances

to health centres. Issues of gender power relations still hamper desired behaviour change, since health-related responsibilities are considered female decisions. Women seem to use a narrower portion of the wider services that ANC and under-5 services provide. For example, some women prefer to use ANC services only if they have complications. Other women deliberately delay to initiate ANC appointments.

However, more pregnant women and mothers of children under 5 years are using the health services and acknowledge that the preventive measures they are adopting have contributed to improving their health status and that of their children. Participants acknowledged that the number of pregnant women, mothers, and children who suffer from malaria has reduced and their health status has generally improved as any complication is detected early by health providers.

2.8. Recommendations

Communication interventions aimed at designing integrated malaria and maternal, newborn, and child health campaigns that will contribute to reduction of maternal, newborn, and child mortality in Zambia can use these findings to develop appropriate messages toward this aim. The following recommendations are proposed:

- 1. Encourage ANC attendance by informing pregnant women that their concerns about their pregnancy and unborn child can be attended to only if they consistently seek ANC services.**

Pregnant women worry about their health and safety and that of their unborn baby. Failure to seek ANC and under-5 care puts the women and their children at greater risk of malaria and malaria-related effects on their health.

- 2. Educate the target audience that pregnant women and children under the age of 5 are at greater risk of malaria and should be given priority to sleep under an ITN.**

Promote the consistent use of ITNs by addressing the reasons that people refuse to use ITNs and inform them about the greater benefits of sleeping under ITNs. Encourage parents to supervise and monitor under-5 children who sleep alone under an ITN to ensure that they are appropriately tucked in under the ITN.

- 3. Raise the risk perception of pregnant women and mothers of under-5 children by informing them that every pregnant woman or mother of an under-5 child and her child are at greater risk of malaria and other related health problems if they do not seek ANC and under-5 services.**

Pregnant women have information but may not be using ANC because of lack of finances, distance, clashing interests, and so on. Encourage pregnant women and mothers of under-5 children to seek further information, advice, or assistance from health care providers, as these are the most appropriate and trusted resources for providing such services.

- 4. Health care providers are trusted, and the information they provide is accepted and generally used. This trust and acceptance is such that, in some cases, they are seen as the ones who make the health-related decisions for the pregnant women or mothers of under-5 children.**
- 5. Encourage pregnant women and mothers of under-5 children by emphasising the importance of prioritizing health-related responsibilities, so that they are given precedence over other activities that can be deferred to a later time.**

There is a barrier whereby ANC or under-5 services are not consistently sought because priorities clash. For instance, the women may miss ANC appointments because they have to attend to income-generating activities or funerals or, in some cases, because of laziness. Missing appointments puts their own life and that of their children at risk of malaria or other health problems. Educate the women and mothers that their life and their children's lives are more important than some of the other responsibilities that cause them to miss ANC or under-5 clinics.

- 6. Educate mothers that taking their children for growth monitoring is equally important because under-5 children are at greater risk of diseases and other health problems.**

Mothers of children under 5 years prefer to take their children only for vaccinations and not for growth monitoring. Consistent attendance of under-5 clinics helps to prevent many health problems these children could suffer from.

- 7. Promote exclusive breastfeeding of babies by emphasising that breast milk is best for the baby until the baby is 6 months old.**

Mothers think that when a breastfeeding baby cries, it means it is not getting satisfied by the breast milk and should be introduced to solid foods. Inform mothers that any change of feeding plans from exclusive breastfeeding may put their baby at risk, and a mother who wants to make any changes in the feeding plan should first consult her health care providers.

- 8. Seek to improve participation by male partners by encouraging them to help make health-related decisions that concern their wife, child, and family; inform them that their lack of active and effective participation puts their wife, child, and family at risk to malaria and other health problems.**

Male partners take a passive role by leaving the health-related decisions to their female partners.

3.0. References

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