

**KNOWLEDGE, ATTITUDES AND
PRACTICES ON MALARIA PREVENTION
AND CONTROL IN UGANDA**

A CASE STUDY OF NSAABWA VILLAGE, MUKONO DISTRICT

BY

LUYIGA FARIDAH MWANJE

MAKSPH-CDC FELLOW

JANUARY 2013

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DECLARATION

I, Luyiga Faridah Mwanje, do hereby declare that this research report entitled “Knowledge, attitudes and practices on malaria prevention and control in Uganda. A case study of Nsaabwa village, Mukono District,” has been prepared and submitted in fulfilment of the requirements of the MakSPH-CDC Fellowship Program and has not been submitted for any academic qualifications at any other institution.

SignedDate.....

Luyiga Faridah Mwanje, Fellow

SignedDate.....

Host Institution Mentor

SignedDate.....

Academic Mentor

DEDICATION

This report is dedicated to the people of Nsaabwa Village in Mukono District whose participation made this work possible.

ACKNOWLEDGEMENTS

I would like to acknowledge the support extended to me by my mentors, Nankunda Allen and Charity Nazziwa (Host Mentors), Dr. Noerine Kaleeba (Academic Mentor) and Ms Rose Baryamutuma (reviewer) who offered invaluable guidance during this research.

I also acknowledge the support from CDFU staff, Fellows at the School of Public Health and the Fellowship office. I am greatly indebted to the study participants and research assistants. Special thanks go to the Centres for Disease Control and Prevention and Fellowship office for the financial support.

LIST OF ABBREVIATIONS/ACRONYMS

BCC	Behaviour Change Communication
CDC	Centres for Disease Control
CDFU	Communication for Development Foundation Uganda
CDO	Community Development Officer
CHW	Community Health Worker
DHE	District Health Educator
DHO	District Health Officer
FGD	Focus Group Discussion
HC	Health Centre
HMIS	Health Management Information Systems
HI	Host Institution
HIV	Human Immunodeficiency Virus
IDI	In-depth Interview
IEC	Information, Education and Communication
IRS	Indoor Residual Spraying
ITNs	Insecticide Treated mosquito Nets
KAP	Knowledge, Attitudes and Practices

KII	Key Informant Interview
MakSPH	Makerere University School of Public Health
MoH	Ministry of Health
NGO	Non-Governmental Organisation
NMCP	National Malaria Control Programme
OPD	Out Patient Department
PMI	Presidential Malaria Initiative
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
SMP	Stop Malaria Project
VHT	Village Health Team
WHO	World Health Organisation

ABSTRACT

Background: A clear understanding of the knowledge, attitudes and practices of a particular community can inform the design of Behaviour Change Communication (BCC) campaigns to influence acceptance and use of any malaria control measures. Research to clearly determine what interventions to carry out has not been undertaken in some areas such as Nsaabwa Village in Mukono District. In this regard, a study was conducted guided by the following objective:

Objective: To assess knowledge, attitudes and practices on malaria prevention and control in Nsaabwa village, Mukono District, Uganda.

Methods: A cross-sectional study was conducted in June 2012 in Nsaabwa Village. Quantitative data were collected by means of a structured questionnaire covering all 140 households while qualitative data were collected through four Focus Group Discussions (FGDs) and 10 Key Informant Interviews (KIIs). Quantitative data were analysed using Stata 12 and Microsoft Excel while qualitative data were analysed manually using a thematic framework.

Results: Sixty one percent of respondents had “medium” knowledge about malaria prevention and control, scoring either 5 or 6 out of a maximum 7 points (Mean score = 5.46 points, SD = 1.17). On the whole, respondents do recognise the threat posed by malaria as most (97.1%) agreed with the statement: “I think that malaria is a serious and life-threatening disease.” Despite most households (79%) owning mosquito nets, participants of focus group discussions confirmed that some people do not use the nets because they associate them with breathing difficulties. 76% of the respondents had “poor” practices towards malaria prevention and control

Conclusion/Recommendation: In general, most people had fair knowledge about malaria prevention and control. Most of the respondents see malaria as a threat to their lives and community and majority had poor practices towards malaria prevention and control. Therefore interventions aimed at social and behaviour change are necessary to address the gaps highlighted by the study.

OPERATIONAL DEFINITIONS

There are a number of operational definitions that frame and help guide this research. These include:

Knowledge of malaria: The ability of a person to have correct understanding of malaria in terms of causative agent, mode of transmission, signs and symptoms, treatment and prevention.

Attitudes towards malaria: Beliefs on susceptibility, seriousness and threat of malaria.

Practice of malaria prevention: Routine activities and actions of individual or group for prevention of malaria. These include the use of insecticide treated mosquito nets, using insecticides to spray and control/clear mosquito breeding places.

Community refers to a group of people living in a particular area and having shared values, cultural patterns, and social problems.

Malaria management refers to the whole process of recognition of the causes, symptoms and transmission of malaria and seeking health care for its treatment promptly.

Malaria control is a process that requires eradicating the carrier mosquito or reducing man-vector contact so as to cut in the life –cycle of the parasite.

1 INTRODUCTION

Malaria continues to be a leading cause of morbidity and mortality in many tropical regions of the world, despite global efforts to eradicate the disease. While the disease is easily preventable, curable and treatable, it remains a big health threat to many communities the world over, most especially in Sub-Saharan Africa. Although there have been advances in terms of new drugs and vaccines, eradication is still a way off and many health strategies now focus on malaria prevention and control.¹

The Uganda Ministry of Health (MoH) has comprehensively reviewed the malaria programme for 10 years and in its Malaria Program Review Report (MPR) which analyses the 10 years of the National Malaria Control Programme (NMCP), it is indicated that “although progress has been made in the delivery of the key technical and supportive interventions to fight malaria, there remains a significant gap in achieving universal coverage for impact.” One of the gaps identified in the MPR is insufficient advocacy and social mobilisation. Behaviour Change Communication (BCC) activities are an effective vehicle that can be used to address advocacy and social mobilisation in preventing and controlling malaria. While some malaria interventions have included BCC activities, they often lack operational research to guide them, resulting in inappropriate Information, Education and Communication (IEC) materials amongst other shortcomings (Uganda Government, 2011a).

While BCC practitioners such as Communication for Development Foundation Uganda (CDFU) would like to design interventions to prevent and control malaria in Nsaabwa village, they have inadequate understanding of the factors that can influence community behaviours to adopt malaria prevention and control practices in Nsaabwa village.

¹ Centers for Disease Control and Prevention,
http://www.cdc.gov/Malaria/Malaria_worldwide/index.html

Nsaabwa Village in Mukono District is a typical rural community experiencing high and stable all-year-round malaria transmission. CDFU selected the community as a potential test bed to explore how to tackle malaria through behaviour change communication in local communities in Mukono.

This study therefore, investigated a local community's knowledge, attitudes and practices (KAP) on malaria. The KAP investigated the Nsaabwa community's understanding of malaria transmission, their recognition of signs and symptoms, their treatment-seeking behaviours, community preventive measures and practices such as bed net use and clearing of bushes around households, as well as the cultural context within which all of this occurs. The study was intended to provide baseline information that would inform the design of malaria prevention and control interventions in Nsaabwa village, Mukono District.

1.1 Background

Uganda is the third largest contributor of the malaria burden in the world after Democratic Republic of Congo (DRC) and Nigeria (World Health Organisation, 2012). Malaria is one of the most challenging diseases in Uganda where delayed or complete lack of treatment can lead to serious health complications like death. The community will never know exactly what causes malaria and how to control it if they are not educated about its prevention and control. This is where advocacy and social mobilization come in to create behaviour change.

However, behaviour change interventions that have been undertaken often lack information to guide them (Uganda Government, 2011a). Despite efforts to reduce deaths due to malaria, the disease is still the leading cause of morbidity and mortality. In Uganda, malaria accounts for 30-50% of outpatient consultations, 20% of inpatient admissions and 9-14% of inpatient deaths. The entire population is at risk of malaria with over 90% of the country experiencing high, stable all-year-round transmission while the rest has low, unstable transmission and is also epidemic prone (Uganda Government, 2011a).

One of the recommendations of the MPR is that advocacy and all the other techniques used to create awareness have indeed been effective in creating awareness and should be upheld (Uganda Government, 2011a). However, to effectively mobilize the community, we need to know what information they have about malaria, their attitudes and practices towards malaria, so that we can tailor messages that will suit their needs, hence the KAP study.

A key action point of the MPR is to assess knowledge, attitudes and practices regarding malaria in the general population. Sound knowledge of community beliefs and practices about malaria will help in surveillance and control activities (Hlongwana et al., 2009).

It's important to note that improving the health of poor people depends on understanding their socio-cultural and economic aspects and using these to design effective public health interventions. This information can be gathered through various types of surveys, the most popular and widely used being the KAP survey (Mazigo, et al., 2010).

2 LITERATURE REVIEW

This chapter presents related literature on knowledge, attitudes and practices (KAP) about malaria prevention and control. The section also briefly summarises key studies on malaria prevention and control that have been undertaken in Uganda and other parts of the world.

2.1 Malaria and Uganda's Health Care System

Over the last 10 years (2001-2010), Uganda has adopted the Roll Back Malaria (RBM) strategies and it has made great efforts to scale up proven malaria control and prevention practices to achieve the global and regional targets for malaria control and the Millennium Development Goals (MDGs) (Uganda Government, 2011). According to the World Malaria Report 2011, RBM aims at maintaining an overall vision of a malaria-free-world. The goals and targets for malaria control aim at reducing global malaria deaths to near zero by 2015, reducing global malaria cases by 75% from 2000 levels by end 2015 and eliminate malaria by end 2015 in 10 new countries (World Health Organisation, 2012). However, malaria is still a major public health problem in Uganda and accounts for about 30–50% of all outpatient consultations and 35% of hospital admissions in the country (Uganda Government, 2008). Although the entire population is at risk of malaria, the most vulnerable groups include children below five years of age, pregnant women and people living with HIV/AIDS (Uganda Government, 2011a).

The objectives of the National Malaria Control Strategy 2005/06-2009/10 are: to go to national scale with a package of effective and appropriate interventions to promote positive behaviour change; to prevent and treat malaria and; to rapidly achieve and sustain high coverage levels for this intervention package. However, designing effective BCC interventions in specific communities can only be done after good operational research has been conducted to inform the design. This created the need for a KAP survey I undertook.

Despite the high prevalence and awareness of malaria in rural communities, there are still some misconceptions about its transmission and prevention. In a clinical study conducted in 20 post-conflict IDP camps of Gulu District, 769 pregnant women were interviewed about malaria. While the majority of respondents had ever heard about malaria (85%) and attributed its transmission to mosquito bites (80%), a number of misconceptions were discovered. In terms of transmission, 15 respondents thought malaria was transmitted by cold weather, 53 respondents faulted dirt, while 35 respondents said not sleeping under a net. In terms of cause, the majority rightly identified the mosquito (91%), but 28 suspected cold foods, 3 mentioned playing in the rain, and 19 mentioned cold weather, while 6 cited eating mangoes. On the whole, the study concluded that most pregnant women in the post conflict IDP camps had relatively high knowledge about malaria transmission, signs, symptoms, and consequences during pregnancy. However, misconceptions about the cause and transmission of malaria still persisted (Hausmann-Muela et al., 2003).

The community's socio-cultural context can play a critical role in the prevention and control of malaria. Mbonye et al. (2006) conducted a multi-methods study to assess women's perceptions on malaria during pregnancy in Mukono District and discovered that most women could not differentiate symptoms of malaria from those of early pregnancy. Given the socio-cultural expectations for married women to get pregnant and children, the study found that many of them concealed symptoms like "feverishness, backache, nausea, general weakness, loss of appetite and vomiting" until they were pregnant. Many women erroneously believed that malaria was a sign of pregnancy and most resorted to using traditional herbs as a remedy for both malaria and other pregnancy ailments (Obol et al., 2011). This study highlights the contextual nature of beliefs and practices and the need to understand them before one can design interventions meant to address malaria prevention and control at the community level. This study used focus group discussions and key informant interviews, but is not complimented by quantitative survey data as planned in my proposed study.

2.2 KAP Studies on Malaria

Hlongwana et al. (2009) report on a KAP household survey undertaken with 320 respondents in Northern Swaziland. This was the premier KAP in Swaziland and was meant to provide baseline data before the implementation of a malaria elimination strategy at the community level. 99.7% of respondents correctly associated malaria with mosquito bites and 90% reported that they would seek treatment within 24 hours of seeing the first symptoms of malaria. Indoor residual spraying (IRS) was reported at 87.2% while bed net ownership was reported at 38.8%. Despite the high level of knowledge about malaria within the surveyed communities, there was little information coming to people via their preferred source of information—tinkhundlas or traditional community district meetings. Similarly, while the Department of Health (similar to the Ministry of Health in Uganda) promoted measures such as Community Health Workers (CHWs) and Rural Health Motivators (RHMs), they also generated very little information for the communities about malaria. The most important source of information was currently the health facilities, which in Nsaabwa's context are inadequate.

The importance of availability of information through proper rural community channels is echoed by another study in North Western Tanzania, which highlights the need to address the challenge of illiteracy amongst the local residents (Mazigo, et al., 2010). Both studies highlight that hearing about malaria is a good foundation onto which other activities like prevention and control can build, but it is just that, a start!

A number of KAP studies have also been undertaken within an urban setting. While some had a bias towards children (Njama et al., 2003), others were more general. These studies raise interesting issues to keep in mind from the mixed results in correlation between education level and knowledge about malaria to the cost of malaria treatment as a fraction of household income (Akazili et al., 2007; Ahmed, et al., 2009).

2.3 Statement of the Problem

Nsaabwa Village in Mukono District presents a typical case study of a community grappling with the challenge of high morbidity due to malaria. Patient statistics at the two health centres (Seeta Kasawo HC II and Namuganga HC III) that serve Nsaabwa confirmed the high prevalence of malaria in the area.

Health Management Information Systems (HMIS) data about malaria in Nsaabwa, for the period July 2011 to December 2011, showed that of the 6952 Out Patient Department (OPD) cases at Namuganga HC III, malaria was responsible for 4902 cases (71%). At Seeta Kasawo Health Center II, out of the 4353 OPD patients, malaria cases were 2336 (54%) (Uganda Government, 2011b). With malaria accounting for an average of 63% across the two health facilities supporting the community, Nsaabwa Village presents a community facing a problem of malaria.

A situation analysis survey conducted by CDFU in 2009 revealed that Nsaabwa is struggling with malaria for a number of reasons ranging from poor hygiene to bushy environments, all of which make it easy for mosquitoes to thrive and transmit malaria. Pregnant women and children below five were identified to be particularly vulnerable.

This study investigated the Nsaabwa community's understanding of malaria transmission, their recognition of signs and symptoms, their treatment-seeking behaviours, community preventive measures and practices as well as the cultural context within which all of this occurs. This knowledge coupled with an understanding of community's socio-culture, attributes as well as demographics will facilitate CDFU to design more effective BCC campaigns.

2.4 Objectives

2.4.1 Main Objective

The main objective of this study is to assess community's knowledge, attitudes and practices in relation to malaria prevention and control and use the information obtained to design more effective strategic/behaviour change communication (BCC) interventions.

2.4.2 Specific Objectives

The KAP will specifically;

- Document the socio-demographic characteristics of the community. These will include gender, age, educational level and income.
- Identify and prioritise the different sources and channels used by the community to access malaria prevention and control information
- Identify relationships between knowledge, attitudes and practices, socio-economic and demographic variables in relation to malaria prevention and control.

Answers to such behavioural factors coupled with an understanding of community demographics will enable CDFU design more responsive BCC campaigns.

2.5 Study Justification

The contribution of KAP studies to malaria prevention and control has not received much attention in Uganda (Ahmed et al., 2009). The study will add to the growing body of knowledge needed for malaria programming for Mukono District and the Ministry of Health NMCP by providing strategic information to complement facility-based malaria data sources. The survey will provide community data on key malaria indicators including mosquito net ownership and use. In general, KAP surveys can be used to improve the design of community-based malaria control programmes, and help identify indicators of programme effectiveness (World Health Organisation, 2011). In particular, findings of this KAP study will enable CDFU design more effective BCC campaigns. CDFU will be able to design messages that are tailored to the needs of the people in Nsaabwa village.

2.6 Conceptual Framework

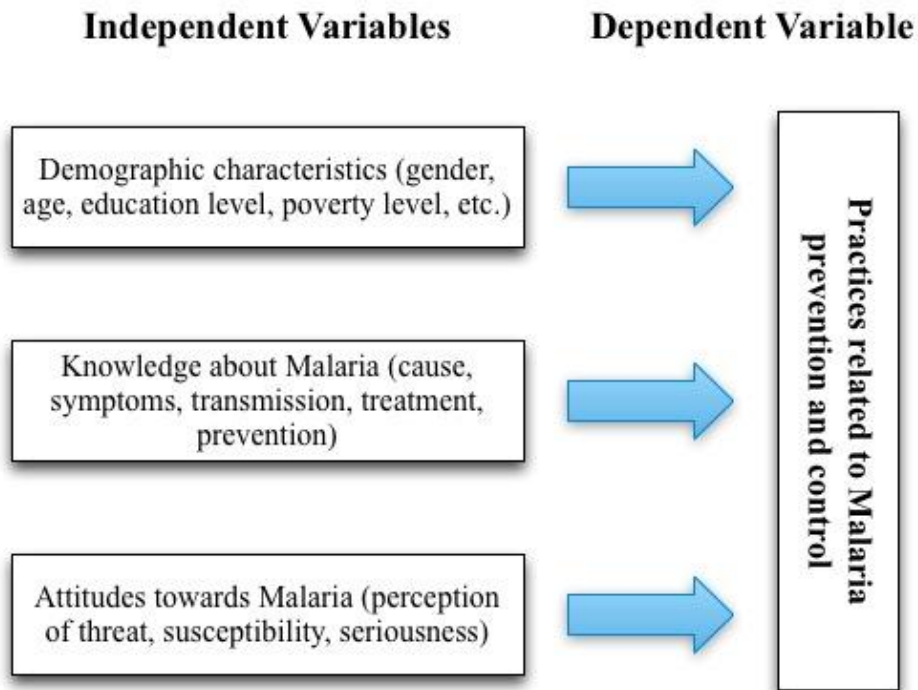


Figure 1: Conceptual framework indicating factors relating to Malaria prevention and control

The illustration above shows the relationship between the dependent and independent variables. It shows the factors that affect adoption of malaria preventive practices. These factors include socio-demographic characteristics, the community's knowledge about malaria and their attitudes towards malaria prevention and control. Several research studies have shown that high knowledge about malaria among a community enables practice of preventive and control strategies (Hlongwana et al., 2009; Ahmed et al., 2009). Other studies have also associated gender, age, education and poverty level, to practices towards malaria prevention and control (Appiah-Darkwah & Badu-Nyarko, 2011). Perceptions, threat and susceptibility are believed to have an influence on practices adopted by the community to prevent and control malaria (Appiah-Darkwah & Badu-Nyarko, 2011).

3 RESEARCH METHODS

3.1 Study Design

This was a cross-sectional study that employed both quantitative and qualitative methods. It involved use of varied methodologies and data sources to help ensure more accuracy and stronger research outcomes by triangulating data from different methods. The primary method was a quantitative survey of the Knowledge, Attitudes and Practices of malaria prevention and control amongst residents of Nsaabwa village in Mukono that targeted heads of household across the village.

To complement the survey, Key Informant Interviews (KII) and Focus Group Discussions (FGDs) were also conducted. FGDs and KIIs helped the research team clarify complex phenomena like behaviours and motivations that emerged during the survey.

The study included 4 FGDs of 10 people each. An equal number of FGD participants were selected from each village, with one FGD comprising opinion leaders (because they shape opinion and are change agents in society) and the other, health workers (because they offer malaria treatment and advice on malaria prevention and control). There was also an FGD for pregnant women and mothers with children under 5 years (because they are the most vulnerable to malaria) and another FGD for men (because they use their financial power to influence decisions on malaria control and prevention and more so, they could have been left out of the household survey since they were likely to be at work during survey data collection).

Ten key informants were drawn from both villages using purposive sampling method. Respondents for KIIs included: a health worker (nurse or clinical officer), a local council chairperson, an opinion leader such as religious leader, a local council health secretary, drug shop attendant, the District Health Educator, herbalist, teacher and a mother of a child under 5 years of age.

3.2 Study Site and Population

The population in this study were residents of Nsaabwa, who had been living there for at least 6 months and were at least 18 years old. Nsaabwa village was selected as the study site because the researcher's host institution, CDFU had already identified it as a possible location for interventions.

Nsaabwa village is 65 kilometres away from Mukono town, off Kayunga road and neighbours the villages of Namanoga, Makenke, Kalangalo and Buyita. Nsaabwa is characterized by a population with poor health, low levels of education, low income, in addition to poor infrastructure. Administratively, Nsaabwa comprises two villages namely Nsaabwa A and Nsaabwa B. According to findings of a situational analysis report, there were 140 households with an average household size of 8 persons.

3.3 Sampling

The study was designed to cover all 140 households in the village because this was considered feasible. The researcher compiled a household list for the entire village with the help of local council members. This list was used to randomly assign households to different enumerators for data collection process. At each household, the head of household (either male or female) was interviewed. In the event that the head of household was away, an adult (18 years or older) was selected for the interview. Given the buy-in from local authorities, all households were willing to participate in the study.

3.4 Research Instrument and Measurement

A number of research instruments were prepared for this study. A standardized questionnaire was developed from earlier studies related to malaria. The questions sought to gain insight into a respondent's knowledge, attitudes and practices towards malaria. It also covered demographic characteristics of respondents as well as an indication of their financial wellbeing using the Progress out of Poverty index (PPI). The questionnaire was translated into Luganda using professional linguists and pre-tested to ensure that it maintained its original meaning.

The questionnaire was divided into 5 major areas that included:

- **Demographics**—had 17 questions that covered a wide range of social demographic areas. 10 of these questions also covered the Progress Out of Poverty Index (PPI)
- **Basic knowledge about Malaria**—had 14 questions that related to different aspects of malaria. They ranged from sources of basic information, signs and symptoms, transmission as well as the prevention of malaria
- **Treatment seeking behaviours**—had 7 questions covering basic sources of treatment information as well as different treatment options
- **Attitudes towards Malaria**—had a combination of 15 positive and negative statements that used a likert scale to measure the attitude of respondents towards different aspects of malaria
- **Malaria prevention practices** —had a combination of 9 positive and negative statements that used a likert scale to gauge respondent’s malaria prevention and control practices. In addition, a number of instruments were developed to guide different Focus Group Discussions and Key Informant Interviews. Copies of the instruments are included in this report as appendices at the end of this document.

Determining the poverty level (PPI)

This study used the Progress out of Poverty Index (PPI) as a tool to measure the poverty level of the household by estimating the likelihood that a household has income below a national or international poverty line. The Grameen Foundation², using an approach by Mark Schreiner³ of Microfinance Risk Management, develops the PPI. Each PPI is country-specific and is created using that country’s best nationally representative income and household survey. Uganda’s current PPI is based on data collected by the Uganda Bureau of Statistics⁴ for Uganda's 2009/10 National Household Survey (UNHS).

²Grameen Foundation website www.grameenfoundation.org

³Microfinance website www.microfinance.com

⁴Uganda Bureau of Statistics website www.ubos.org

Respondents were scored using a list of 10 questions summarised in Table 1 that provide a measure of their poverty level. These are included in the survey instrument attached as part of the appendices at the end of this report.

Table 1: List of questions used to generate respondent PPI score in this study

PPI Questions
1. How many people live in your household including you? (Includes biological children or other dependents)
2. Do all children ages 6 to 18 currently attend school (government, private, NGO/religious, or boarding)?
3. What is the highest grade that the female head/spouse completed?
4. What is the major construction material of the roof?
5. What is the major construction material of the external wall?
6. What is the main source of lighting in your house?
7. What is the type of toilet that is mainly used in your household?
8. Does any member of your household own electronic equipment (e.g., TV, radio, phone, etc.) at present?
9. Does every member of the household have at least two sets of clothes?
10. Does every member of the household have at least one pair of shoes?

From the Uganda PPI: Look-up Tables⁵, using the 2005 international purchasing power parity (PPP) poverty line of \$2.50/day, a respondent with a PPI score of 59 or less is 61.5% likely to be below the \$2.50/day poverty line and was classified as “poor” for this

⁵PPI toolkit for Uganda <http://progressoutofpoverty.org/uganda>

study. As the respondent PPI scores decreases, this probability increases, and vice versa. Those with a score of 60 and above were classified as “non-poor.”

3.5 Data Collection Process

After receiving clearance from Makerere University Institutional Review Board (IRB) and Uganda National Council of Science and Technology (UNCST), the study was conducted using a paper questionnaire and FGD and KII guides. A two-day training workshop was held for the 5 data collectors and 1 supervisor to orient them about the purpose of the study, the survey questionnaire and how to handle respondents while in the field.

The research tools were pre-tested and data collection occurred between 9th and 15th June 2012 using 140 questionnaires, 4 FGDs and 10 KIIs. The researcher and supervisor checked questionnaires at the end of each day for completeness. The researcher designed data entry screens using epi info that were used by data entrants to translate the paper questionnaires into electronic data for analysis. A supervisor reviewed accuracy of each questionnaire at least once and corrected any resulting data errors before analysis. Tape recorded data from KIIs and FGDs were transcribed and entered in a computer according to themes.

3.6 Data Analysis-quantitative

Data was analysed using Stata 12 and Microsoft Excel for Windows. Descriptive statistics (frequencies, means and standard deviations) were used to tabulate and describe the data. For analytical statistics, both Chi-Square and Fisher’s exact tests were used. Chi-Square tests assume the expected value of each cell to be at least five or more (some cells did not meet this requirement); while Fisher's exact tests do not make this assumption.

Chi-square is a statistical test that is used to compare observed data with data we would expect to obtain according to a specific hypothesis. In our study for example, we expect that knowledge about malaria amongst respondents is associated with their practices related to its prevention and control. The chi-square test always tests the “null

hypothesis” that states that there is no significant difference between the expected and observed result. The “p-value” is the probability that the “null hypothesis” explains the outcome of the analysis.

The lower the “p-value” the less likely that the null hypothesis explains the results. In this study, we assume 5% significant levels i.e. $\alpha = 0.05$ implying that if $p < 0.05$, we reject the “null hypothesis.”

Data collected through key informant interviews and FGDs were analysed using thematic analysis procedures. Tape-recorded FGD and KII data were transcribed and translated for coding and analysis. The data were used to compliment and elaborate quantitative findings and clarify relevant aspects of malaria-related practices and behaviour.

3.7 Ethical Considerations

At a high level, clearance and approval were obtained from the Makerere University School of Public Health Institutional Review Board (IRB) and Uganda National Council of Science and Technology (UNCST). The study also sought and received authorization from the district and community leaders.

At an individual level, verbal consent was received from each participant before data collection. A copy of the consent form is included in the appendix section. Respondents received a detailed description of the research, confidentiality provisions and the fact that their participation was voluntary and they could withdraw at any point if they so deemed. The principles of privacy and confidentiality were upheld.

3.8 Limitations of the Study

The study has limitations that include:

- This study describes the Knowledge, Attitude and Practices of Nsaabwa respondents in relation to malaria prevention and control. Results from Nsaabwa are specific to that community and will inform design of interventions that

address malaria in that community. They are not generalizable to populations in other areas or communities of Uganda or even applicable to other diseases within Nsaabwa.

- The study targeted the head of household as a proxy to the Knowledge, Attitudes and Practices held by all members of the household. Ideally, the research team should have interviewed every adult in Nsaabwa, which was not possible due to funding constraints. Therefore the results may not accurately represent the community's perspectives as a whole.
- Interviews and the questionnaire captured self-reported information and relied primarily on respondents providing the right information. Misreporting by respondents cannot be ruled out.

4 RESULTS

This section provides a detailed description of the results obtained from analysis of the study. Variables are described as simple percentages, means, standard deviations, etc. depending on their nature. It provides a summary of the demographic data, knowledge about malaria prevention and control, attitudes towards malaria and practices towards malaria. The level of knowledge, attitude and practice were each scored across all respondents. The findings are presented according to objectives.

Chi-Square and Fisher's exact tests were used as appropriate to determine whether there was any association between practice scores and demographic characteristics, knowledge scores and attitude scores as hypothesised in the conceptual framework.

Quantitative data

4.1 Socio-demographics characteristics

The demographic characteristics of the sample are summarised in Table 2. One hundred forty (140) respondents participated in the survey, representing all of the households in Nsaabwa A and Nsaabwa B villages. The majority of the respondents were female (63.6%). Most respondents either fell in the 31-40 (23.6%) age category or 21-30 (22.9%) category, while the least were aged 18-20 (2.9%). Family sizes are large with the majority (43.6%) reporting having six or more household members. In terms of educational level, 57.9% reported incomplete or no primary education. Only 4 respondents reported completing secondary education and were the most educated amongst the whole group. For economic activity, agriculture, livestock, forestry or fisheries disproportionately account for the primary occupation (78.6%), which is understandable given the rural nature of the site.

In terms of financial wellbeing, 106 (75.7%) respondents were classified as "poor" while 34 (24.3%) were classified as "non-poor." For detailed explanations on poverty classification, see section 3.4.

Table 2: Distribution of respondents by demographic characteristics

Characteristic		Number	Percentage
Gender	Female	89	63.6%
	Male	51	36.4%
	Cumulatively	140	100.0%
Age	18 – 20	4	2.9%
	21 – 30	32	22.9%
	31 – 40	33	23.6%
	41 – 50	28	20.0%
	51 – 60	29	20.7%
	Above-60	14	10.0%
	<i>Cumulatively</i>	140	100.0%
	Education	No formal schooling	24
	Incomplete primary school	57	40.7%
	Complete primary school (P7)	30	21.4%
	Incomplete secondary school	25	17.9%
	Complete secondary school (S6)	4	2.9%
	Post-secondary e.g. certificate, diploma,	0	0.0%
	Degree and above	0	0.0%
	<i>Cumulatively</i>	140	100.0%
Source of income	Agriculture, livestock, forestry, fisheries	110	78.6%
	Casual or wage labour	5	3.6%
	Craft/creative workers	2	1.4%
	Formal employment	4	2.9%
	Support from friends/family	7	5.0%
	Trading, commerce, selling	9	6.4%
	Transport industry	3	2.1%
	<i>Cumulatively</i>	140	100.0%
Poverty level	Poor	106	75.7%
	Non poor	34	24.3%
	<i>Cumulatively</i>	140	100.0%
Household size	Six or more	61	43.6%
	Four to five	40	28.6%
	Three	16	11.4%
	Two	7	5.0%

	One	16	11.4%
	<i>Cumulatively</i>	140	100.0%
History of Malaria in last six months	Yes	98	70.5%
	No	32	23.0%
	I don't know	9	6.5%
	<i>Cumulatively</i>	139	100.0%
	Missing data	1	
	Total	140	

To explore association between demographics characteristics and various variables, different characteristics were categorised into groups. Related studies on malaria (Masangwi et al., 2012; Chansamone et al., 2009) have used similar grouping principles to determine associations. In this study, respondent age was categorised into 3 groups—youth were aged between 18 and 30, adults were aged between 31 and 50, while mature respondents were taken as those aged 51 years or more. Proportions of each category are summarised in

Table 3 below.

Table 3: Distribution of respondents by age

Level	Number	Percentage
Youth (18-30)	36	25.7%
Adult (31-50)	61	46.6%
Mature (51+)	43	30.7%
Total	140	100.0%

4.2 Knowledge about Malaria

Respondents answered a number of questions to gauge their knowledge about malaria. They ranged from basic information about malaria to sources of information, signs and symptoms as well as transmission and prevention of malaria. The number of correct

responses on knowledge (and their percentage of total respondents) is summarised in Table 4.

Table 4: Performance of respondents on malaria knowledge (correct answers, percentage)

Level	Number	Percentage
1. Which vector can transmit malaria to humans?	122	87.1%
2. Malaria can be transmitted to humans by?	105	75.0%
3. Do you think malaria can kill you if it's untreated?	132	94.3%
4. Which of these are ways to prevent and control malaria?	90	64.3%
5. When do malaria mosquitoes feed?	101	72.1%
6. If you or a member of the household were to present with signs and symptoms of malaria, where would you seek treatment	129	92.1%
7. How soon after suspecting malaria would you seek treatment?	85	60.7%

4.2.1 Overall Knowledge Score

Common principles used to measure knowledge about malaria include questions about transmission, interventions, treatment and consequences (Obol et al., 2011). This study used similar principles to generate seven multiple-choice questions, each of which was scored one point for a correct response and zero for the rest. An overall knowledge score was calculated by adding up the scores for each respondent across all seven questions. There were 18.6% of respondents with a “high” knowledge about malaria, 61.4% of them had “medium” knowledge, while 20.0% had “low” knowledge about malaria. The mean knowledge score for all respondents was 5.46 out of a possible 7 points (SD = 1.17). Distribution of knowledge about malaria across all respondents in Nsaabwa is highlighted in Table 5.

Table 5: Distribution of malaria knowledge amongst respondents

Level	Number	Percentage
High (score 7)	26	18.6%
Medium (score 5 – 6)	86	61.4%
Low (score 0 – 4)	28	20.0%
Total	140	100.0%
<i>Minimum = 2</i>	<i>Mean = 5.46</i>	
<i>Maximum = 7</i>	<i>SD = 1.17</i>	

In addition, there were two questions that tested the knowledge of respondents, first—to identify common signs and symptoms (Figure 2) and second—to identify common protection measures that respondents used against malaria (Figure 10). Both questions permitted respondents to select multiple answers from a range of answers and most respondents (69%) associated malaria with high temperature/fever as summarised below.

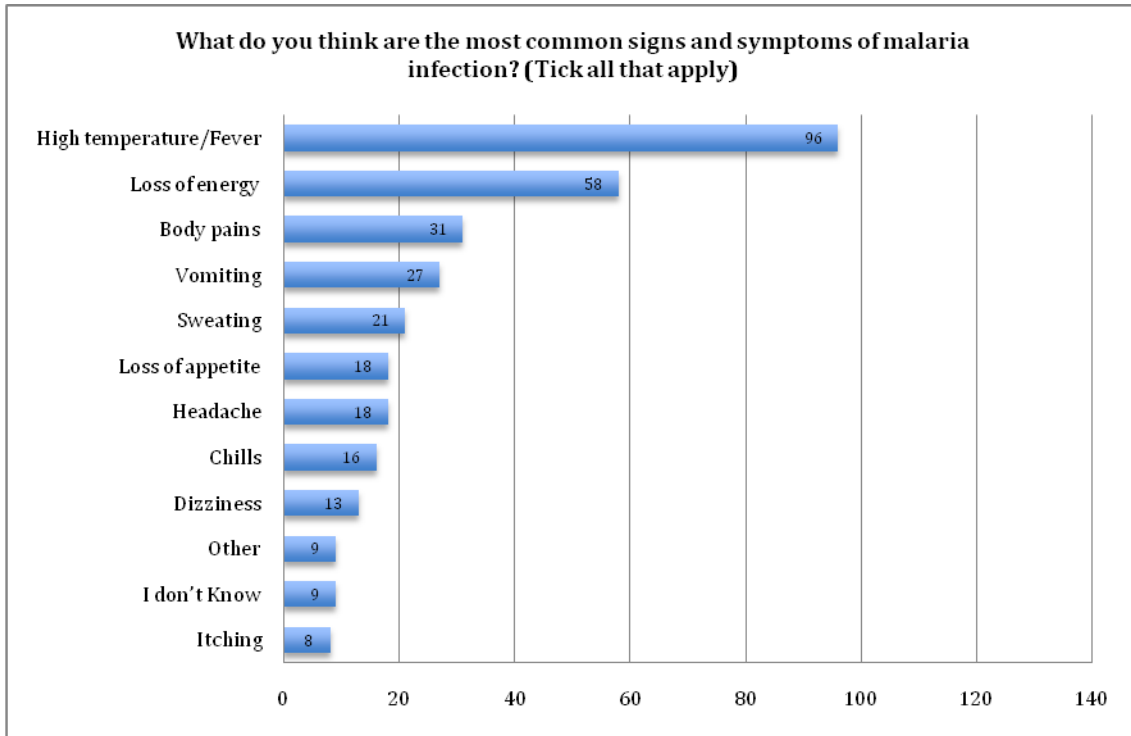


Figure 2: Number of respondents that selected different common signs and symptoms of Malaria. N=140

4.2.2 Sources of information about malaria

Amongst respondents, 85.61% reported having received some information about malaria, while 12.95% reported not receiving any information as summarised in Figure 3.

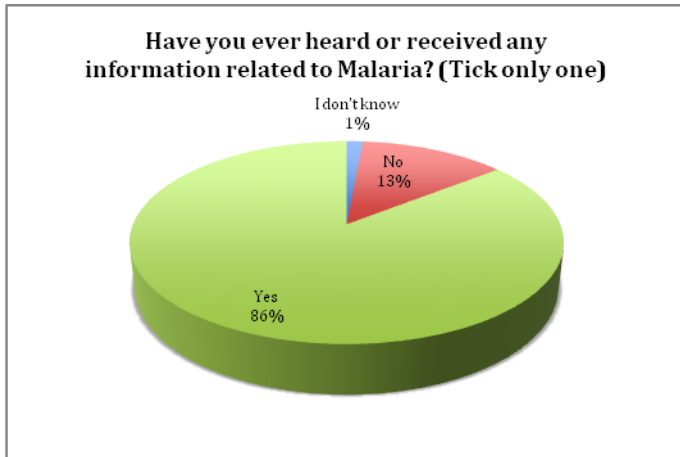


Figure 3: Respondents who reported receiving information about malaria

Sources of information varied amongst respondents. Radio is the main source (62.9%), followed by the health centre (23.6%) and the village health team members (17.9%) were the most common sources of information amongst those that had received information about malaria as indicated in Figure 4. Other common avenues like newspapers (0%), church (0%), posters (0.7%) or schools (0.7%) hardly accounted for any malaria information dissemination.

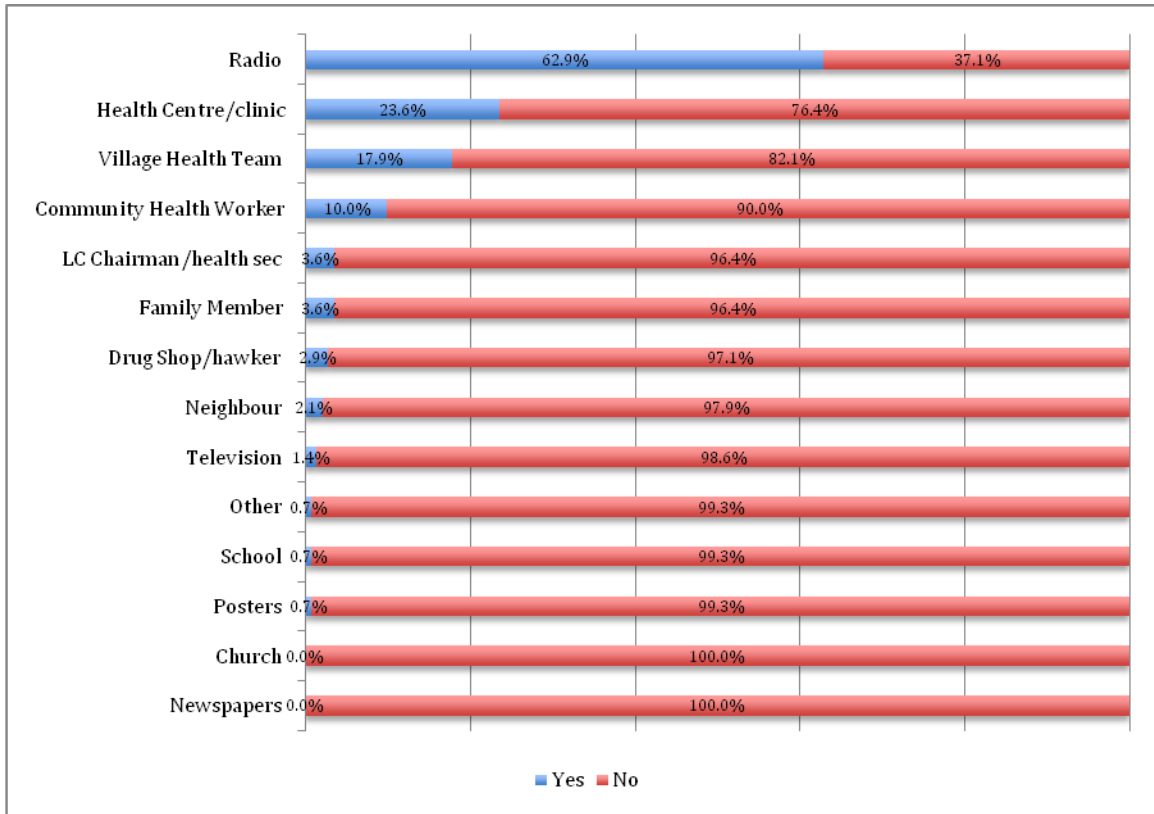


Figure 4: Percentage of respondents that had received information about malaria (multiple-select question)

Despite several respondents (85.6%) reporting having heard or received information about malaria, most (87.3%) felt that they did not have enough information related to malaria, indicating a need for more dissemination efforts as summarised in Figure 5.

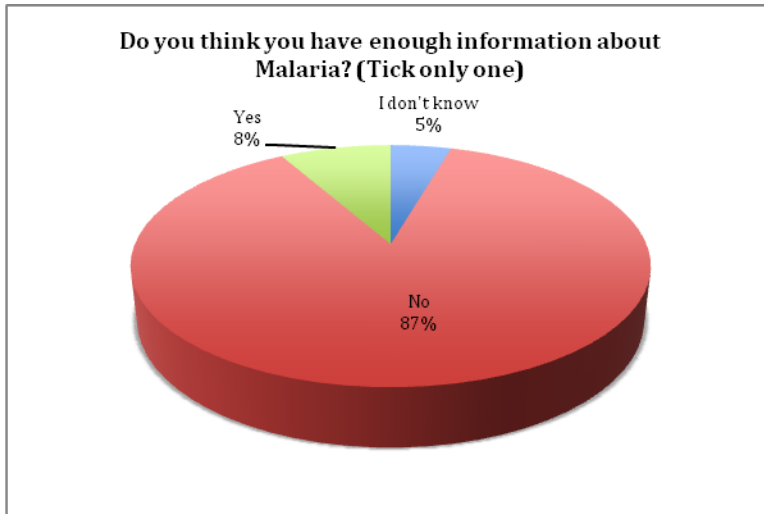


Figure 5: Proportion of respondents who reported having insufficient information about malaria

Respondents who indicated not having enough information about malaria were asked about particular topics where they would like more information. The results are summarised in Figure 6. Most respondents selected treatment (58 respondents) and prevention (51 respondents) as the topics where they would like to receive more information.

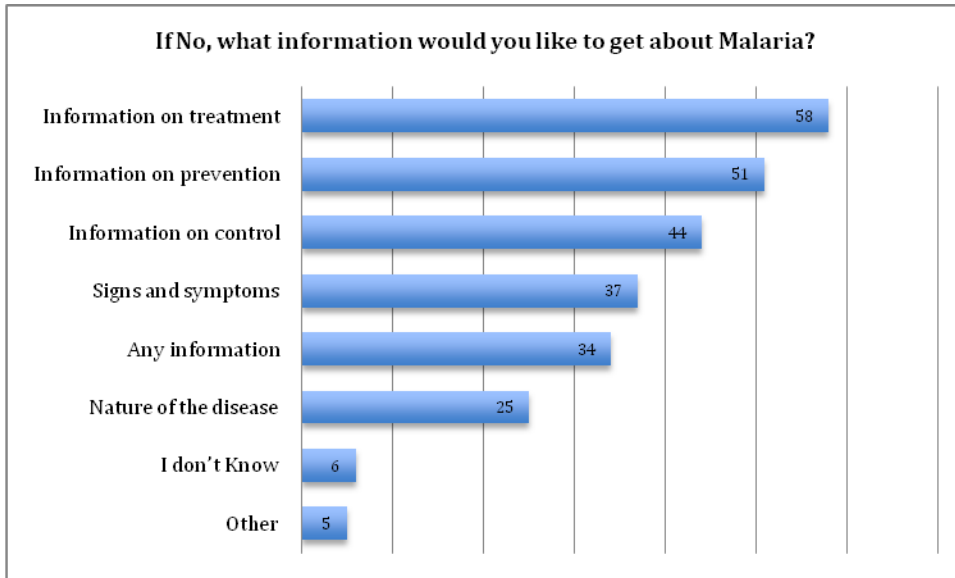


Figure 6: Number of malaria topics selected by respondents to receive more information

When asked for potential channels that should be used to communicate more information about malaria, radio is still a prominent channel (40.7%), but most respondents selected the Village Health Team (41.4%) as the most preferred channel as indicated in Figure 7.

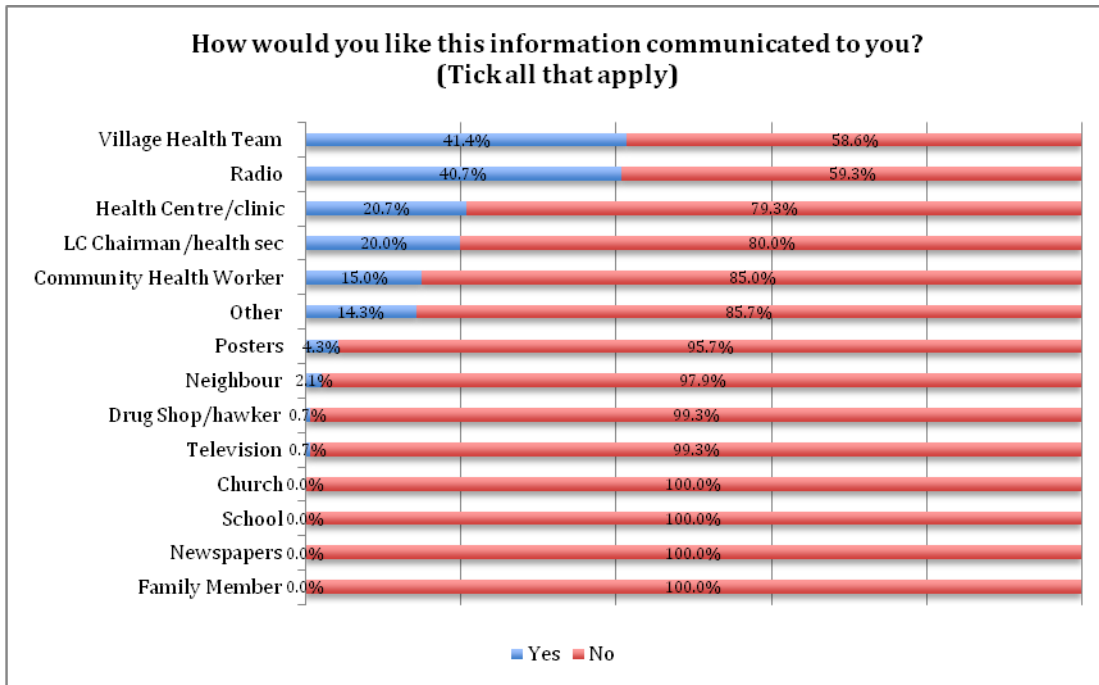


Figure 7: Percentage of respondents interested in using particular channel to receive more

information about malaria (multiple-select question)

Village Health Teams were reported to be a popular channel for receiving information about malaria, although they are ranked third as a current source of information. While radio is still preferred as a channel, the other top four channels currently used or preferred do involve people as intermediaries. This might indicate a need for knowledgeable agents to disseminate information amongst the residents of Nsaabwa.

4.2.3 Qualitative data

Basic understanding of malaria: The residents of Nsaabwa Village associate mosquitoes with malaria, which the VHTs/CHWs said is usually a problem during the rainy season and harvest seasons for mangoes and ground nuts. Respondents from the women FGD said that mosquitoes mostly enter the house in morning and evening hours and stay everywhere in the house. Participants however said they do not know the difference between malaria and any other kind of fever. VHTs added that the commonly used word for malaria is “omusujja” (fever) which they said is not specific to malaria as there are types of “omusujja” say: “omusujja gwa mulalama” (Meningitis), “omusujja gwe’kitengo” (chills and rigors), or “eyaabwe mu baana” (convulsions). These are misconceptions a BCC campaign should address.

Signs and symptoms: Regarding signs and symptoms of malaria, respondents mentioned some or all of the following to indicate infestation by malaria parasites: loss of appetite, shivering, joint pains, headaches, body weakness, sour/biter mouth and sores on the mouth. Health workers in particular mentioned dehydration in children, refusal to suckle, sunken eyes, dizziness, irritation and stomach ache as the other signs and symptoms of malaria. This showed that residents have some fair knowledge about signs and symptoms.

Treatment: To treat malaria, health workers (during FGD) said that they usually give coartem or quinine and that medication at government health centres is free of charge but cost varies if treatment is received from private practitioners. They further mentioned that normally quinine is recommended when coartem gets resistant. They also mentioned that

patient turn up is big as they receive on average about 80 new malaria cases per day and as a result, usually experience malaria drugs stock out.

It was further mentioned that if RDTs (Rapid Diagnostic Test Kits) and power are available, tests for malaria are done, but in their absence, malaria is treated clinically. A key informant (spiritual diviner) said that to determine whether a person has malaria, he checks someone's temperature by feeling the stomach and head to see whether they have fever and he proceeds to administer herbs and for those with convulsions, he administers herbal powders. When there is no improvement, he refers patients to a health centre. This shows the importance of "phasing in" spiritual diviners in the fight against malaria and training them on when to advise patients to seek medical attention.

Preventive treatment of malaria during pregnancy: Although respondents from the women FGD said that it is important for a pregnant woman to go for ANC, they were not aware of when a pregnant woman should make her first ANC visit or how many visits they should make to seek preventive treatment for malaria during pregnancy. The women said the number of times a pregnant woman should visit the health center are determined by the doctor. They mentioned that different pregnant women visit the health centres at different stages of pregnancy and they do so for different reasons which include: to check whether the pregnancy is in good condition, for treatment when they are sick, and to test for HIV. Some of the benefits of going for ANC that were mentioned include: one gets a free mosquito net, is immunized and also receives a card that can be used for emergencies during pregnancy. They get checked to determine whether they have enough blood, and in addition receive treatment when they are sick, and the baby's condition is checked too.

Health workers on the other hand said that pregnant women are given preventive malaria treatment also known as Intermittent Preventive Treatment of malaria (IPT) for pregnant women (*IPTp*) during ANC. They said that women ought to go for ANC as soon as they miss their periods but they do not and they usually go when they are not feeling well. Health workers added that pregnant women who are HIV negative are given 2 doses of IPT (Fansidar) throughout the pregnancy, but for HIV positive pregnant mothers who are

not on cotrimoxazole (cotrim) a third dose is given. They further mentioned that the first dose of IPT is normally given at 16 weeks (4months) and the dose is given at intervals of two months. Since women do not have this information about IPT, there's need to raise awareness and also educate all women of child-bearing age about preventing malaria during pregnancy.

Vulnerability to malaria: When respondents were asked whether there are some people who are vulnerable to malaria, all said pregnant women, babies/young children; sick and old people are more vulnerable to malaria. They reasoned that these categories of people have low immunity and their bodies are susceptible to malaria.

Sources of information: During FGDs and KIIs, residents confirmed the prominent role of radio as an information source, citing accessibility and portability as primary reasons. When probed on which particular health programmes they listened to, they were hard pressed to provide an answer. Participants indicated that they preferred VHTs to radio because the VHTs were people known to them in the community and they could ask questions as the need arose as opposed to listening to radio that was non-interactive and one way. Participants also indicated that the community needed to be informed about the radio station to be used for certain health programs and their timing so that they would tune in to the programme.

4.3 Attitudes towards malaria

Respondents answered a combination of positive and negative statements to help gauge their attitude towards malaria using a 4-point likert's scale ranging from "strongly disagree" (score 1) to "strongly agree" (score 4). There were 15 questions related to attitude and the general attitude is summarised in Figure 8, while the positive statements are averaged in Table 6 and the negative in

Table 7.

Figure 8: Percentage of respondents by attitude towards malaria (ranked by Strongly Agree/Agree

and Strongly Disagree/Disagree)

Statements	Strongly disagree (1)/Disagree (2)	Agree (3)/Strongly agree (4)
If someone has got malaria, people should avoid having close contact with him/her	82.6%	17.4%
I think that one can recover spontaneously from malaria without any treatment	86.3%	13.7%
I am sure that I can treat myself if I get malaria	41.3%	58.7%
Malaria can be transmitted from one person to another like the common cold	58.1%	41.9%
I can buy anti-malaria drugs from the drug shop/pharmacy to treat myself when I get malaria	26.1%	73.9%
I think the best way to prevent myself getting malaria is to avoid getting mosquito bites	15.1%	84.9%
I will seek for advice or treatment when I get malaria	7.9%	92.1%
I believe sleeping under a mosquito net during the night is one way to prevent myself getting malaria	10.8%	89.2%
In my opinion, only children and pregnant women are at risk of malaria	44.6%	55.4%
I might be at a greater risk of getting malaria if I work and sleep overnight in the garden or forest	10.1%	89.9%
I am sure that anyone can get malaria	15.1%	84.9%
I think that it is dangerous when malaria medicine is not taken completely	6.5%	93.5%
I think that I should go to the health centre/clinic to have my blood tested as soon as I suspect that I have suffered from malaria	3.6%	96.4%
In my opinion, it is very important to check for an expiry date of the	12.9%	87.1%

drug before taking it		
I think that malaria is a serious and life-threatening disease	2.9%	97.1%

The mean average score for each of the 9 positive statements across all respondents is presented in Table 6 (below). On the whole, respondents do recognise the threat posed by malaria as most (97.1%) agreed with the statement that “I think that malaria is a serious and life-threatening disease.”

Table 6: Percentage of respondents and their average attitude to positive statements

Positive Statements	Strongly disagree (1)/Disagree (2)	Agree (3)/Strongly agree (4)	Mean
1. I think that malaria is a serious and life-threatening disease	2.9%	97.1%	3.68
3. I think the best way to prevent myself getting malaria is to avoid getting mosquito bites cold	15.1%	84.9%	3.13
4. I am sure that anyone can get malaria	15.1%	84.9%	3.24
5. I believe sleeping under a mosquito net during the night is one way to prevent myself getting malaria	10.8%	89.2%	3.24
10. I might be at a greater risk of getting malaria if I work and sleep overnight in the garden or forest	10.1%	89.9%	3.26
11. I think that it is dangerous when malaria medicine is not taken completely	6.5%	93.5%	3.49
13. I think that I should go to the health centre/clinic to have my blood tested as soon as I suspect that I have suffered from malaria	3.6%	96.4%	3.54
14. I will seek for advice or treatment when I get malaria	7.9%	92.1%	3.22
15. In my opinion, it is very important to check for an expiry date of the drug before taking it	12.9%	87.1%	3.51

Table 7: Percentage of respondents and their average attitude to negative statements

Negative Statements	Strongly disagree (1)/Disagree (2)	Agree (3)/Strongly agree (4)	Mean
2. Malaria can be transmitted from one person to another like the common cold	58.1%	41.9%	2.24
6. I am sure that I can treat myself if I get malaria	41.3%	58.7%	2.50
7. In my opinion, only children and pregnant women are at risk of malaria	44.6%	55.4%	2.69
8. I think that one can recover spontaneously from malaria without any treatment	86.3%	13.7%	1.61
9. If someone has got malaria, people should avoid having close contact with him/her	82.6%	17.4%	1.70
12. I can buy anti-malaria drugs from the drug shop/pharmacy to treat myself when I get malaria	26.1%	73.9%	2.80

Conversely, many respondents (55%) agreed/thought, “only children and pregnant women are at risk of malaria” while self-medication seemed prevalent as reflected by respondents indicating/agreeing that “I am sure that I can treat myself if I get malaria” (58.7%) and “I can buy anti-malaria drugs from the drug shop/pharmacy to treat myself when I get malaria” (74%).

4.3.1 Overall Attitude Score

When both positive and negative statements are scored with the right answer scoring 4 points and the wrong answer 1 point following the likert scale, an overall attitude score is determined for each respondent by adding up the scores across the 15 attitude questions. There were 10.00% of respondents with a “positive” attitude, 54.29% of them had a “neutral” attitude, while 35.71% had a “negative” attitude towards malaria. The mean attitude score for all respondents was 46.28 out of a possible 60 points (SD = 6.00). Distribution of attitudes across all respondents in Nsaabwa is summarised in Table 8.

Table 8: Distribution of malaria attitudes amongst respondents

Level	Number	Percentage
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Positive (score => 53)	14	10.0%
Neutral (score 45 – 52)	76	54.3%
Negative (score <=44)	50	35.7%
Total	140	100.0%
<i>Minimum = 0</i>	<i>Mean = 46.28</i>	
<i>Maximum = 58</i>	<i>SD = 6.00</i>	

4.3.2 Qualitative data

Treatment-seeking behaviours: Community members mentioned that whenever they recognise signs of malaria, they seek treatment and they are usually given coartem and panadol. However, they do not seek treatment immediately or within 24 hours. They also added that sometimes they use local herbs like *Kigaji* (aloe vera), *Mululuza*, *Nakasero*, *kakuba nsiri* and *Bombo* to cure malaria. Most of them first give local herbs and others buy painkillers like panadol from nearby drug shops and only go to health centre when symptoms persist. Any BCC campaign about malaria targeting Nsaabwa residents should raise awareness about seeking prompt treatment for malaria (within 24 hours).

Health workers felt that the community does not take malaria as a serious problem. They said that some people go to the health centre for treatment when they are “badly off” but when they feel better after taking some of the medicine, they abandon treatment but soon go back to the health centre complaining of malaria and yet this is due to incomplete dosage. They further noted that some people do not even go to health centres for treatment and share the medicine that one of the family members or a friend has been given to treat their malaria; so both people end up taking an incomplete dose.

“I have discovered that in a family when many people fall sick of malaria, only one person comes to the hospital for treatment because of transport problems but others do not come so they share the medicine”. (Health worker, Namuganga HCIII)

Health workers also said that pregnant women usually take all the IPTp given to them because they must swallow it in the presence of the health worker.

Resistance to malaria: When asked if there are people whose bodies are resistant to malaria, majority of the respondents from men's FGD said there are people who never suffer from malaria. They mentioned that those with blood group O and others who are "just lucky" never suffer from malaria. A respondent from the men's FGD said he always washes his head with a mixture of local herbs (*kamunye, bombo, kafumbe*) and this has kept malaria "at bay." Such misconceptions should be addressed by any malaria prevention and control campaign.

Mosquito nets use: Despite that fact that most respondents are aware of the benefits of using mosquito nets, it was noted that some people do not actually sleep under the nets in spite of having them. Some respondents from the women's FGD said that they do not use nets because they pose breathing allergies. They also claimed some types of nets were rough in texture while others were weak and could tear easily. Others expressed fear that if they used the nets, they could easily get burnt since they mostly use *tadooba* for providing light at night.

Despite the high prevalence of bed nets, an FGD with VHTs/CHWs revealed that while some community members used nets properly, others did not. VHTs reported that some people use bed nets as curtains in their homes.

4.4 Practices towards malaria

Respondents answered nine questions related to the practices of control and prevention of malaria in the survey and these are summarised in Figure 9.

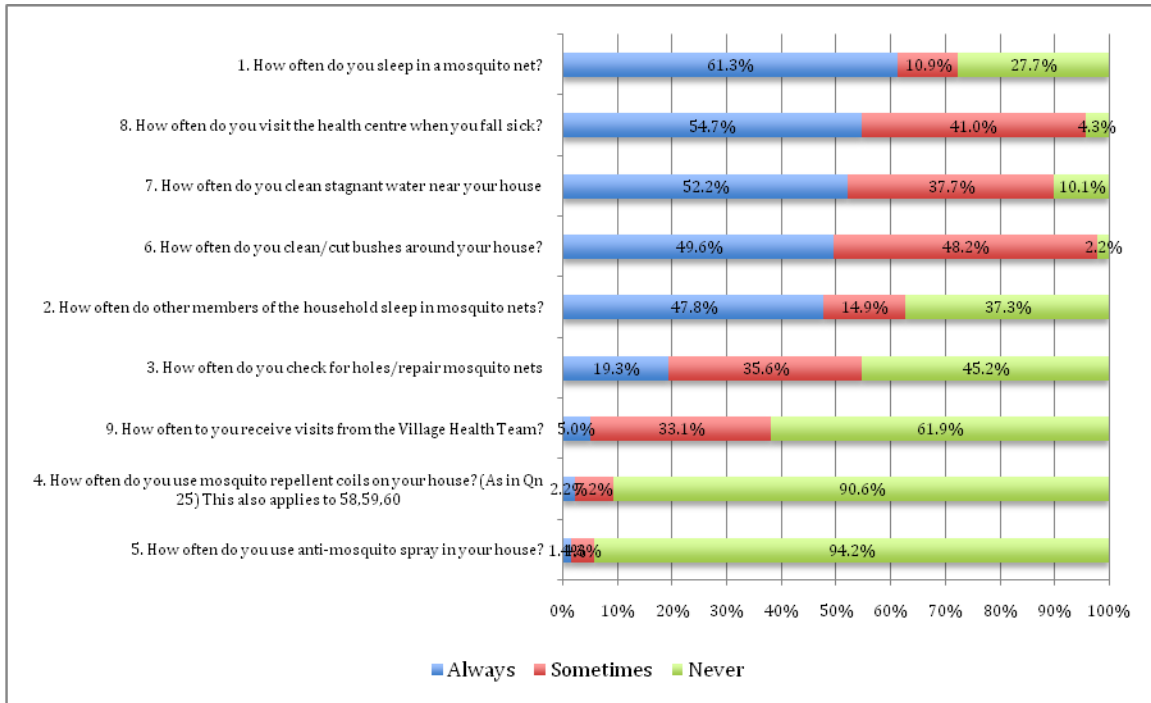


Figure 9: Percentage of respondents by practice towards Malaria (ranked by Always)

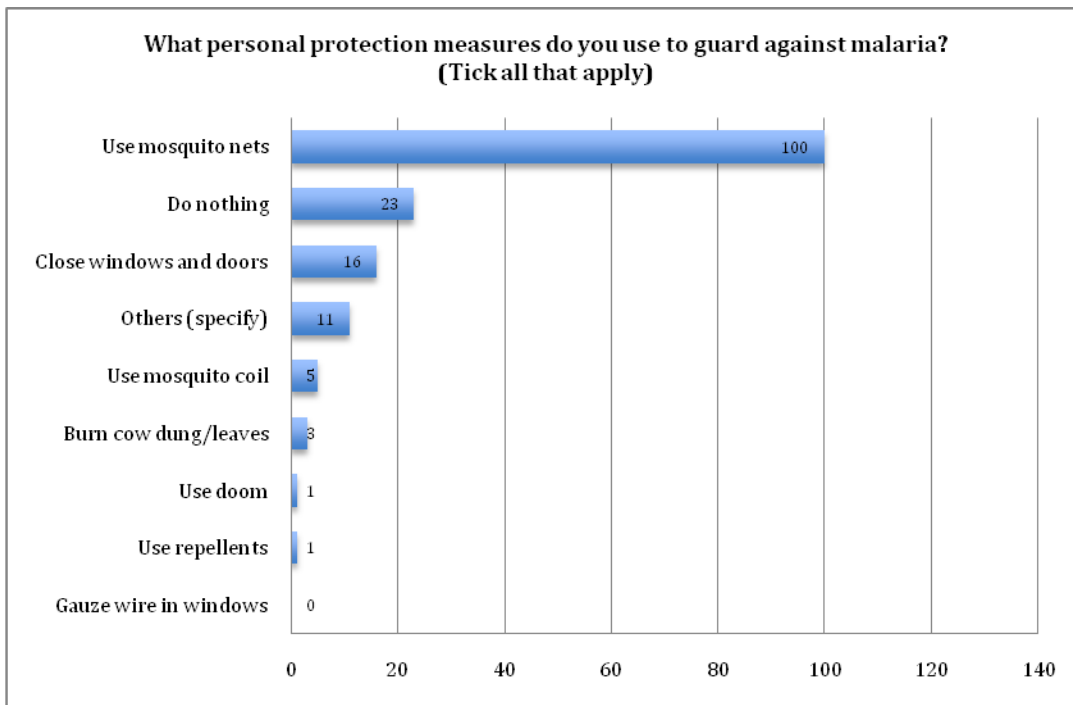


Figure 10: Number of respondents that used different protection measures to guard against malaria

At least 79% reported owning a mosquito bed net as highlighted in Figure 11. Most of the bed nets reportedly belong to mothers and children under five as indicated in Figure 12, who are perceived by the community to be most vulnerable to malaria.

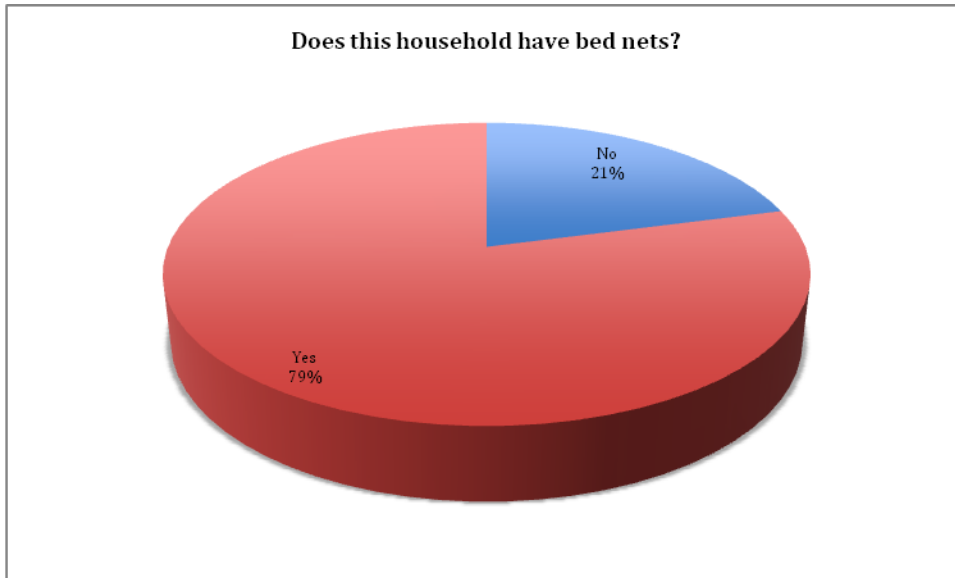


Figure 11: Ownership of mosquito bed nets amongst respondents

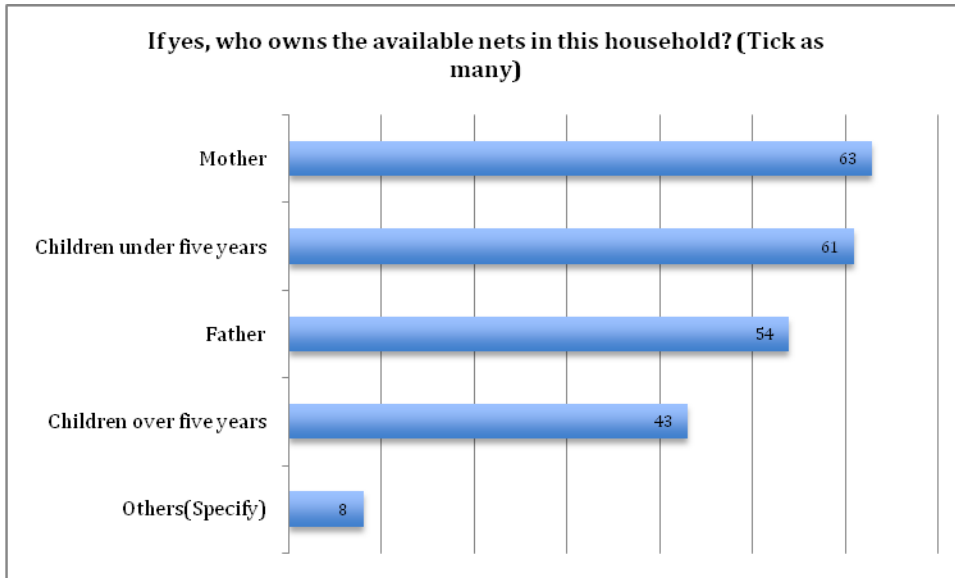


Figure 12: Number of respondents who owned mosquito bed nets. N= 140

4.4.1 Overall Practices Score

The nine questions that indicate malaria practices were scored for each respondent. If a respondent indicated that they “always” performed a good practice i.e. sleeping under a mosquito net, they were given a score of two points. If they indicated that they “sometimes” performed a good practice, they were given a score of one point. If on the other hand, they indicated they “never” performed a good practice, they were given a score of zero. An overall practices score was determined for each respondent by adding up the scores across the nine malaria practices questions. There were 1.43% of respondents with “good” practices, 22.14% of them had “fair” practices, while 76.43% had “poor” practices in relation to malaria. The mean practices score for all respondents was 8.05 out of a possible 18 points (SD = 2.99). Distribution of malaria practices across all respondents in Nsaabwa is summarised in Table 9.

Table 9: Distribution of malaria practices amongst respondents

Level	Number	Percentage
Good (score => 12)	22	15.7%
Fair (score 9 – 11)	41	29.3%
Poor (score <= 8)	77	55.0%
Total	140	100.0%
<i>Minimum = 0</i>	<i>Mean = 8.05</i>	
<i>Maximum = 14</i>	<i>SD = 2.99</i>	

4.4.2 Qualitative data

Protection measures: When asked about what they do to protect themselves from malaria, respondents from men’s and women’s FGDs mentioned that they use bed nets, clear away bushes near their homes, drain away stagnant water or burn dry cow dung to chase away mosquitoes. From women’s FGD, closing doors and windows in the evening, avoiding darkness in the house and drinking boiled water are other ways used to prevent malaria.

Periodic residual spraying of houses and retreatment of mosquito nets were also suggested as the other ways to prevent malaria in communities. VHTs said Indoor Residual Spraying (IRS) would be a good move to fight malaria but however mentioned that they are still ignorant about it and hear contradicting information from MP Lukyamuzi and the government. They advised that before IRS can be used people have to be properly sensitized about its effectiveness and dangers.

4.5 Comparison of Practice across Independent Variables

In order to test our conceptual framework summarised in Figure 1, we compared malaria practice scores to demographic characteristics, knowledge about malaria and attitudes towards malaria across all our respondents. The results are summarised in the next three sections.

4.5.1 Demographic Characteristics

Comparing malaria practice scores to different demographic characteristics (gender, age, educational level and the poverty level) using the Chi-Square test indicated that there was statistically significant association between malaria practices and the respondent's age ($p = 0.024$. Table 10) as well as between malaria practices and the respondent's poverty level ($p = 0.031$. Table 10). This means that older respondents were more likely to have poor malaria practices compared to younger respondents and poorer respondents were more likely to have poor malaria practices compared to the non-poor. There was no association between malaria practices and the respondent's gender ($p = 0.700$. Table 10) or education level ($p = 0.475$. Table 10).

Table 10: Association between Gender, Education, Poverty, Age and Malaria Practices

Malaria Practices	Gender (n=140)		
	Female	Male	Total
	No (%)	No (%)	No (%)
Good practice	15 (16.85)	7 (13.73)	22 (15.71)
Fair practice	24 (26.97)	17 (33.33)	41 (29.29)
Poor practice	50 (56.18)	27 (52.94)	77 (55.00)
Total	89(100)	51(100)	140(100.0)
	<i>chi2(2) = 0.7126 Pr = 0.700</i>		
	Education Level (n=140)		
	No Primary	Completed Primary	Total
	No (%)	No (%)	No (%)
Good practice	11 (13.58)	11 (18.64)	22 (15.71)
Fair practice	22 (27.16)	19 (32.20)	41 (29.29)
Poor practice	48 (59.26)	29 (49.15)	77 (55.00)
Total	81(100.00)	59(100.00)	140(100.0)
	<i>chi2(2) = 1.4874 Pr = 0.475</i>		
	Poverty Level (n=140)		
	Poor	Non Poor	Total
	No (%)	No (%)	No (%)
Good practice	12 (11.32)	10 (29.41)	22 (15.71)
Fair practice	31 (29.25)	10 (29.41)	41 (29.29)

Poor practice	63 (59.43)	14 (41.18)	77 (55.00)	
Total	106 (100.00)	34 (100.00)	140(100.0)	
	<i>chi2(2) = 6.9219 Pr = 0.031</i>			
	Age (n=140)			
	Youth	Adult	Mature	Total
	No (%)	No (%)	No (%)	No (%)
Good practice	11 (30.56)	7 (11.48)	4 (9.30)	22 (15.71)
Fair practice	12 (33.33)	19 (31.15)	10 (23.26)	41 (29.29)
Poor practice	13 (36.11)	35 (57.38)	29 (67.44)	77 (55.00)
Total	36 (100)	61 (100)	43 (100)	140(100.0)
	<i>chi2(4) =11.2843 Pr = 0.024</i>			

4.5.2 Comparing Practices and Knowledge about Malaria

Comparing malaria practice scores to malaria knowledge scores using the Chi-Square test indicated that there was no statistically significant association between respondent's knowledge about malaria and their practices towards malaria ($p = 0.074$, Table 11).

Table 11: Association between Malaria Practices and Malaria Knowledge (chi square test)

	Knowledge (n=140)			
	High	Medium	Low	Total
Practices	No (%)	No (%)	No (%)	No (%)
Good practice	5 (19.23)	15 (17.44)	2 (7.14)	22 (15.71)
Fair practice	10 (38.46)	27 (31.40)	4 (14.29)	41 (29.29)
Poor practice	11 (42.31)	44 (51.16)	22 (78.57)	77 (55.00)
Total	26 (100.00)	86 (100.00)	28 (100.00)	140(100.0)
	<i>chi2(4) = 8.52568 Pr = 0.074</i>			

Because the Chi-Square test assumes the expected value of each cell to be at least five or more (two cells did not meet this requirement), we also conducted Fisher's exact test that does not require this assumption. The results shown in Table 12 confirmed that there is no statistically significant association between knowledge about malaria and practices towards malaria (Fisher's exact=0.074).

Table 12: Association between Malaria Practices and Malaria Knowledge (Fisher's exact test)

	Knowledge (n=140)			
	High	Medium	Low	Total
Practices	No (%)	No (%)	No (%)	No (%)
Good practice	5 (19.23)	15 (17.44)	2 (7.14)	22 (15.71)
Fair practice	10 (38.46)	27 (31.40)	4 (14.29)	41 (29.29)
Poor practice	11 (42.31)	44 (51.16)	22 (78.57)	77 (55.00)
Total	26 (100.00)	86 (100.00)	28 (100.00)	140 (100.0)
	<i>Fisher's exact=0.074</i>			

4.5.3 Comparing Malaria Practices to Attitudes

Comparing “malaria practice” scores to “malaria attitude” scores using the Chi-Square test indicated that there was no statistically significant association between respondent’s attitude towards malaria and their practices towards malaria ($p = 0.154$, Table 13).

Table 13: Association between Malaria Practices and Malaria Attitudes (chi square test)

	Attitudes (n=140)			
	Negative	Neutral	Positive	Total
Practices	No (%)	No (%)	No (%)	No (%)
Good practice	6 (12.00)	15 (19.74)	1 (7.14)	22 (15.71)
Fair practice	11 (22.00)	23 (30.26)	7 (50.00)	41 (29.29)
Poor practice	33 (66.00)	38 (50.00)	6 (42.86)	77 (55.00)
Total	50 (100.00)	76 (100.00)	14 (100.00)	140 (100.0)
	<i>chi2(4) = 6.6791 Pr = 0.154</i>			

Because the Chi-Square test assumes the expected value of each cell to be at least five or more (one cell did not meet this requirement), we also conducted Fisher's exact test that does not require this assumption. The results shown in Table 14 confirmed that is no statistically significant association between “malaria attitudes” and “malaria practices” (Fisher's exact=0.181).

Table 14: Association between Malaria Practices and Malaria Attitudes (Fisher's exact test)

	Attitudes (n=140)			
	Negative	Neutral	Positive	Total
Practices	No (%)	No (%)	No (%)	No (%)
Good practice	6 (12.00)	15 (19.74)	1 (7.14)	22 (15.71)
Fair practice	11 (22.00)	23 (30.26)	7 (50.00)	41 (29.29)
Poor practice	33 (66.00)	38 (50.00)	6 (42.86)	77 (55.00)
Total	50 (100.00)	76 (100.00)	14 (100.00)	140 (100.0)
	<i>Fisher's exact=0.181</i>			

4.6 Other significant findings

There were other findings the study did not set out to investigate but may be relevant to the design and implementation of a BCC intervention. These are mainly challenges that could pose a bottleneck to any intervention if not overcome.

Treatment: One of the major challenges facing respondents in seeking treatment for malaria that emerged from the FGDs and KIIs is the distance to the health centre. The nearest health centre, Seeta Kasawo, a health centre II is far from people, creating a transport challenge. People have to incur huge costs to get there. The problem is aggravated when their health issues cannot be solved and they are referred to Namuganga Health Centre III, Nagalama Hospital (approx. 35km away) or Kayunga Hospital (approx. 40 km away).

Respondents complained that health personnel at Seeta Kasawo Health Centre II are so rude that people fear going to the centre for treatment. Female FGD participants also indicated that some people don't seek medical attention there because health workers solicit bribes and there are long waiting hours given that it is the only government health facility in the area with few health personnel compared to the number of patients.

Availability of adequate medical supplies was another common complaint. A drug attendant indicated that many times, people are treated for malaria even without taking

blood tests. This was due to lack of adequate of RDT kits. Malaria drugs also tend to stock out much faster compared to other drugs at the health centre.

Local Organisation: Despite that fact that the District Health Educator (DHE) boasts of the district having a health plan which provides for malaria prevention and control and supports community involvement, majority of people of Nsaabwa were not aware of its existence and there had not been any recent encounters between district health officials and the Nsaabwa community.

“I do not think the district has a health plan, if it exists then we do not know about it, we haven’t been told about it” (LC I Chairman, Nsaabwa B)

The DHE further reported that malaria prevention was one of the priority issues planned for by the district. With the help of the Stop Malaria Project, they had managed to train some people in Home-Based Management of Fever and they were supposed to have distributed drugs. Unfortunately, the drugs were not delivered which made malaria treatment hard.

Although most respondents reported no existing local groups, Community-Based Organisations (CBOs) or Non-Governmental Organisations (NGOs) that had contributed to the health and development of Nsaabwa village, the health secretary cited Stop Malaria and praised it for training of VHTs and provision of Mosquito nets to pregnant mothers and bicycles to VHTs.

“In reality, it is CDFU which has interest in that village, for us we consider all villages but we have not done anything specific for Nsaabwa”. (DHE, Mukono)

Although it is important to note that the district programmes focus on all villages without giving priority to any, CDFU was referred by the district to the sub-county which selected Nsaabwa village as an area for intervention.

5 DISCUSSION

This chapter provides a brief discussion of the major findings from the study on knowledge, attitudes and practices that can be used to create or improve malaria prevention and control programmes.

Regarding knowledge about malaria, majority of respondents correctly associated mosquitos with malaria transmission (88%) and acknowledged that malaria can kill if it went untreated (96%). Studies have proved that improved community knowledge of malaria and its source of transmission promote preventive and personal protection practices amongst the affected community (Ahorlu et al., 2006; Tatem et al., 2010). This is an opportunity any malaria prevention and control intervention can utilise. However, fewer (64%) were aware of the different ways to prevent and control malaria. A few even believed that malaria could be transmitted by drinking contaminated water (13%), eating a lot of mangoes (2%) or eating contaminated food (2%). All of this highlights the public health challenge that a BCC campaign needs to address in order to address malaria in Nsaabwa.

The results of this study indicate that respondent age and poverty have significant association with malaria practices. Youth tend to have better malaria practices towards malaria prevention and control compared to older people, while the poor tend to have worse malaria practices compared to the non-poor. With 76% of the respondents classified as “poor,” and only 26% of the respondents in the youth category, interventions to prevent and control malaria in Nsaabwa could include poverty eradication projects and special adult programmes. The relationship between poverty and practices is similar to findings of a study in Nigeria where results showed that malaria is higher in rural than urban areas. This may be associated with the high level of poverty in the rural areas. Poor people live in dwellings that are prone to mosquito proliferation (Oyindamola et al., 2010)

Gender also had no association with malaria practices. One would have suspected that women had better practices since they take care of the household and are also more likely to come across information on good practices at health centres when they take children for treatment (Appiah-Darkwah & Badu-Nyarko, 2011). Women are also at risk when pregnant and take care of babies who are also susceptible to malaria. Gender roles can play an important part in maintaining a home, as a result they will affect any malaria prevention and control measures undertaken at home. BCC interventions towards malaria prevention and control should accommodate the different gender roles that exist in a home.

A relatively good number of respondents (61%) stated they would seek treatment within 24 hours of onset of malaria symptoms. This is in line with the Abuja summit on malaria, which says, “at least 60% of those suffering from malaria should seek treatment within 24 hours of the onset of symptoms” (World Health Organization, 2000). However, this is far below the percentage of another study in Swaziland (Hlongwana et al., 2009) which reported that 90% of respondents would seek treatment within 24 hours of seeing the first symptoms of malaria. This indicates that there is still sufficient room for improvement in Uganda’s efforts to encourage positive malaria treatment seeking behaviours.

Regarding practices, sleeping under bed nets was the most prevalent method of malaria prevention and control (87%). Despite the high prevalence of bed nets, an FGD with VHTs/CHWs revealed that many community members did not use nets properly. VHTs reported that some people use bed nets as curtains in their homes. They also stressed that majority of the residents of Nsaabwa can’t afford buying nets so they rely on those freely issued by the government. Given the prominent role already played by bed nets in the fight against malaria, control programmes can build on this opportunity to fight malaria. On the one hand, it is fine to have mass campaigns that distribute free bed nets, but care must be taken to teach people how to effectively use them and create ownership or pride that prevents misuse because bed nets were free hand-outs.

On the whole, the attitude tends towards positive, and was confirmed via FGDs and KIIs where participants affirmed that residents of Nsaabwa take malaria as a serious problem because now they know that it kills and many children have died from it. However, the positive attitudes did not translate into practicing malaria preventive behaviours amongst respondents. There could be factors responsible for this as behaviour depends on more than just knowledge and attitude. Examples might include local customs, taboos, perceived benefits, etc. These are areas a good BCC campaign could address.

6 CONCLUSION AND RECOMMENDATIONS

The study aimed at assessing community knowledge, attitudes and practices in relation to malaria prevention and control to inform the design of more effective strategic/behaviour change communication (BCC) interventions. In general, most people had fair knowledge about malaria prevention and control. The majority of respondents recognised malaria as a threat to their lives in the community. Despite this (fair knowledge and good attitudes), practices towards malaria prevention and control were poor. Therefore interventions aimed at social and behaviour change should primarily target the gaps in practices highlighted by the study.

Based on the findings in this study, the following issues should be considered for improving preventive and control behaviour against malaria amongst the residents of Nsaabwa:

1. Although knowledge about malaria prevention and control was generally fair, it did not translate into good practice behaviours. Therefore public education is necessary to address the few but highly negative-impact knowledge gaps highlighted by the study. For example, some residents thought that there are people who can never fall sick from malaria such as those with blood group O. There is need to raise awareness and also educate all women of child-bearing age about preventing malaria during pregnancy. Although respondents from the women FGD said that it was important for a pregnant woman to go for ANC, they were not aware of preventive treatment for malaria during pregnancy. Some respondents said they do not know the difference between malaria and any other kind of fever. VHTs added that the commonly used word for malaria is “*omusujja*” (fever) which they said is not specific to malaria as there are types of “*omusujja*” say: “*omusujja gwa mulalama*” (Meningitis), “*omusujja gwe’kitengo*” (chills and rigors), or “*eyaabwe mu baana*” (convulsions). Therefore BCC can be used to improve residents’ knowledge about malaria in these areas.

2. While residents were aware of the risks associated with suffering from malaria, they had a lax attitude towards preventive and control behaviour. There is need to reinforce good behaviour and demystify the myths and misconceptions held by residents about malaria prevention and control measures. Examples of myths or misconceptions here included the fear of suffocating in mosquito bed nets or taking local herbs for treatment. Therefore, there's need for information, education and communication materials about seeking proper treatment for malaria. Many residents do not seek treatment immediately or within 24 hours. They sometimes use local herbs like *Kigaji* (aloe vera), *Mululuza*, *Nakasero*, *Kakuba nsiri* and *Bombo* to cure malaria. Most of them first use local herbs and others buy painkillers like panadol from nearby drug shops and only go to health centre when symptoms persist. Other residents share medicine while some stop taking medication as soon as they feel better, leading to incomplete doses. Any BCC campaign about malaria targeting Nsaabwa residents should raise awareness about seeking proper treatment and also tackle the lax attitude of residents in order to promote prompt treatment for malaria (within 24 hours).
3. Malaria prevention and control efforts should aim at creating local examples of excellence to promote good practices towards malaria prevention and control. These may be in the form of model homesteads to provide concrete examples of how to translate what people are taught into good disease prevention behaviours/practices. Model homes show others exactly how certain things ought to be done, while also creating local champions that can show others what should be done.
4. Communication about malaria prevention and control should employ a combination of channels from the ubiquitous radio, posters at health centres and other community locations, VHTs as well as community forums that bring together residents for different purposes. Use of Luganda, the local language will also be critical given that the majority of Nsaabwa residents are illiterate.

5. The district administration should engage local leaders in their attempt to operationalize the district health plan. Local community involvement is critical to any malaria prevention plans whether national or local in scope. In addition, efforts to create malaria IEC materials should involve local stakeholders like the DHO, DHE, local health secretary and others who will play a role in the dissemination of information. Besides creating local ownership of the efforts, involving the local community from the onset also creates sustainability.
6. Interventions in Nsaabwa village should integrate information on income generating projects/activities to enable residents fight poverty and its effect on their health. Some residents revealed they cannot afford mosquito nets to replace those provided by government (which had become old) or even seek proper treatment for malaria at health centers. Interventions could be as simple as teaching residents how to create a village savings and loan scheme. Equipping residents with basic financial literacy and saving skills will go a long way in promoting good behaviours towards malaria prevention and control.

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8 APPENDICES

8.1 Survey Questionnaire (English)

Assessment of Knowledge, Attitudes and Practices regarding Malaria Prevention and Control in Nsaabwa Village, Mukono District

Date: _____

Enumerator: _____

Entry Number: _____
(To be filled by the data entry person before entering the data of this questionnaire)

Demographics

1. Name of village: _____

2. Gender of interviewee

Female	<input type="checkbox"/>	(1)
Male	<input type="checkbox"/>	(2)

3. How old are you? (Tick only one box)

15 - 20	<input type="checkbox"/>	(2)
21 - 30	<input type="checkbox"/>	(3)
31 - 40	<input type="checkbox"/>	(4)
41 - 50	<input type="checkbox"/>	(5)
51 - 60	<input type="checkbox"/>	(6)
Above 60	<input type="checkbox"/>	(7)

4. What is the highest level of education that you have achieved? (Tick only one box)

No formal schooling	<input type="checkbox"/>	(1)
Incomplete primary school	<input type="checkbox"/>	(2)
Complete primary school (P7)	<input type="checkbox"/>	(3)
Incomplete secondary school	<input type="checkbox"/>	(4)
Complete secondary school (S6)	<input type="checkbox"/>	(5)
Post secondary e.g. certificate, diploma, degree	<input type="checkbox"/>	(6)
Degree and above	<input type="checkbox"/>	(7)

5. How many people live in your household including you? (Includes biological children or other dependents, tick only one box)

- | | | |
|--------------|--------------------------|------|
| Six or more | <input type="checkbox"/> | (0) |
| Four or five | <input type="checkbox"/> | (6) |
| Three | <input type="checkbox"/> | (9) |
| Two | <input type="checkbox"/> | (14) |
| One | <input type="checkbox"/> | (27) |

6. What is your relationship to the head of the household? (Tick only one box)

- | | | |
|------------------------|--------------------------|-----|
| I am Head of household | <input type="checkbox"/> | (1) |
| Spouse/partner | <input type="checkbox"/> | (2) |
| Son/daughter | <input type="checkbox"/> | (3) |
| Grandchild | <input type="checkbox"/> | (4) |
| Parent | <input type="checkbox"/> | (5) |
| Brother /sister | <input type="checkbox"/> | (6) |
| Not related | <input type="checkbox"/> | (7) |
| Other | <input type="checkbox"/> | (8) |

If "other" describe:

7. Do all children ages 6 to 18 currently attend school? (Government, private, NGO/religious, or boarding, tick only one box)

- | | | |
|---|--------------------------|-----|
| Not all attend | <input type="checkbox"/> | (0) |
| All attend government schools | <input type="checkbox"/> | (2) |
| No children ages 6 to 18 | <input type="checkbox"/> | (4) |
| All attend, and one or more attend a private, NGO/religious, or boarding school | <input type="checkbox"/> | (5) |

8. What is the highest grade that the female head/spouse completed? (Tick only one box)

- | | | |
|-----------------------|--------------------------|------|
| No female head/spouse | <input type="checkbox"/> | (0) |
| P.5 or less, or none | <input type="checkbox"/> | (2) |
| P.6 | <input type="checkbox"/> | (6) |
| P.7 to S.6 | <input type="checkbox"/> | (8) |
| Higher than S.6 | <input type="checkbox"/> | (19) |

9. What is the major construction material of the roof? (Tick only one box)

Thatch, straw, or other (0)
Iron sheets, or tiles (5)

10. What is the major construction material of the external wall? (Tick only one box)

Un-burnt bricks, mud and poles, thatch/straw, timber, stone, burnt bricks with mud, other (0)
Burnt bricks with cement, or cement blocks (2)

11. What is the main source of lighting in your dwelling? (Tick only one box)

Firewood (0)
Tadooba, or other (11)
Paraffin lantern, or electricity (grid, generator, solar) (17)

12. What is the type of toilet that is mainly used in your household? (Tick only one box)

Bush (none) (0)
Covered pit latrine (private or shared), VIP latrine (private or shared), uncovered pit latrine, flush toilet (private or shared), or other (4)

13. Does any member of your household own electronic equipment (e.g. TV, radio, cassette, etc.) at present? (Tick only one box)

No (0)
Yes (7)

14. Does every member of the household have at least two sets of clothes? (Tick only one box)

No (0)
Yes (5)

15. Does every member of the household have at least one pair of shoes? (Tick only one box)

No (0)
Yes (9)

16. What is your main source of income?(Tick only one)

- Formal employment (e.g. nurse, teacher, secretary, accountant, etc.) (1)
- Trading, commerce, selling (e.g. wholesalers, retailers, petty traders, etc.) (2)
- Agriculture, livestock, forestry, fisheries (e.g. subsistence farmers, market vendors, etc.) (3)
- Craft/creative workers (e.g. tailor, hairdresser, building, wood trades, metal and machinery) (4)
- Transport industry (boda boda, taxi, bicycles, etc.) (5)
- Casual or wage labour (construction workers, farm labourers, etc.) (6)
- Support from friends/family (husband/wife, students, remittance from friends/family) (7)
- Support from institutions (government, NGO payments, pensions, etc.) (8)

17. What is your second source of income?(Tick only one)

- Formal employment (e.g. nurse, teacher, secretary, accountant, etc.) (1)
- Trading, commerce, selling (e.g. wholesalers, retailers, petty traders, etc.) (2)
- Agriculture, livestock, forestry, fisheries (e.g. subsistence farmers, market vendors, etc.) (3)
- Craft/creative workers (e.g. tailor, hairdresser, building, wood trades, metal and machinery) (4)
- Transport industry (boda boda, taxi, bicycles, etc.) (5)
- Casual or wage labour (construction workers, farm labourers, etc.) (6)
- Support from friends/family (husband/wife, students, remittance from friends/family) (7)
- Support from institutions (government, NGO payments, pensions, etc.) (8)
- None (9)

Basic knowledge about Malaria

18. Have you ever heard about Malaria?

- Yes (1)
- No (2)
- I don't Know (3)

19. Which vector can transmit Malaria to humans? (Tick one only)

- Rat (1)
- Dog (2)
- Mosquito (3)

- Fly (4)
- Cockroach (5)
- I don't Know (6)

20. Malaria can be transmitted to humans by?

- Drinking contaminated water (1)
- Eating contaminated food (2)
- Eating a lot of mangoes (3)
- Bite of mosquito infected with Malaria (4)
- Coming into close contact with a Malaria patient (5)

21. Do you think Malaria can kill you if its untreated?

- Yes (1)
- No (2)
- I don't Know (3)

22. What do you think are the most common signs and symptoms of Malaria infection?
(Tick all that apply)

- High temperature/Fever (1)
 - Loss of energy (2)
 - Vomiting (3)
 - Sweating (4)
 - Headache (5)
 - Body pains (6)
 - Itching (7)
 - Loss of appetite (8)
 - Chills (9)
 - Dizziness (10)
 - I don't Know (11)
 - Other (12)
- If "other" describe:

23. Which of these are ways to prevent and control Malaria? (Tick all that apply)

- Sleeping in bed nets (1)
- Wearing long sleeved clothes (2)
- Making fire and smoke (3)

- Spraying insecticide (4)
- Trimming bushes around the house pain (5)
- Cleaning dark corners in the house (6)
- I don't Know (7)

24. When do Malaria mosquitoes feed? (Tick only one)

- Daytime (1)
- Night time (2)
- Both day and night time (3)
- I don't Know (4)

25. What personal protection measures do you use to guard against Malaria? (Tick all that apply)

- Use repellents (1)
- Use mosquito coil (2)
- Use doom (3)
- Burn cow dung/leaves (4)
- Close windows and doors (5)
- Gauze wire in windows (6)
- Use mosquito nets (7)
- Do nothing (8)
- Others (specify) (9)

Bed net ownership and use

26. Does this household have bed nets?

- Yes (1)
- No (2)

27. If yes, who owns the available nets in this household? (Tick as many)

- Father (1)
- Mother (2)
- Children over five years (3)
- Children under five years (4)
- Others(Specify) (5)

28. Are all these bed nets being used?

- Yes (1)
 No (2)
 Don't know (3)

29. If no to question 28, why? _____

Sources of information about Malaria

30. Have you ever heard or received any information related Malaria? (Tick only one)

- Yes (1)
 No (2)
 I don't Know (3)

31. If yes, From which sources have you heard or received information about Malaria?
 (Tick all that apply)

- Family member (at home) (1)
 Neighbour (in the village) (2)
 Radio (3)
 Television (4)
 Newspapers (5)
 Posters/pamphlets (6)
 School (7)
 Church (8)
 LC Chairman/Health Secretary (9)
 Village Health Team (10)
 Health centre/clinic (11)
 Community health worker (12)
 Health centre/clinic (13)
 Drug shop /drug hawker (14)
 Other (15)
 If "other" describe:

Treatment seeking behaviours

32. Have you or any member of the household suffered from Malaria in the last six months (Tick only one)

- Yes (1)

- No (2)
- I don't Know (3)

33. If you or a member of the household were to present with signs and symptoms of Malaria, where would you seek treatment

- Health centre/clinic (1)
- Community health worker (2)
- Traditional healer (3)
- Drug shop /pharmacy (4)
- Look for local herbs (5)
- No where (6)
- I don't Know (7)
- Other (8)

If "other" describe:

34. How soon after suspecting Malaria would you seek treatment?

- One day(within 24 hours) (1)
- 2-3 days (2)
- 4-6 days (3)
- 7 days or more (4)
- I don't Know (5)

35. If you do not seek treatment immediately (within 24 hours), what would you do?

36. Do you think you have enough information about Malaria? (Tick only one)

- Yes (1)
- No (2)
- I don't Know (3)

37. If No, what information would you like to get about Malaria?

- Information on treatment (1)
- Information on control (2)
- Information on prevention (3)
- Signs and symptoms (4)

- Nature of the disease (5)
- Any information (6)
- I don't Know (7)
- Other (8)

If "other" describe:

38. How would you like this information communicated to? (Tick all that apply)

- Family member (at home) (1)
- Neighbour (in the village) (2)
- Radio (3)
- Television (4)
- Newspapers (5)
- Posters/pamphlets (6)
- School (7)
- Church (8)
- LC Chairman/Health Secretary (9)
- Village Health Team (10)
- Health centre/clinic (11)
- Community health worker (12)
- Health centre/clinic (13)
- Drug shop /drug hawker (14)
- Other (15)

If "other" describe:

Attitudes towards Malaria

	Strongly Disagree	Disagree	Agree	Strongly Agree
39. I think that Malaria is a serious and life-threatening disease	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
40. Malaria can be transmitted from one person to another like the common cold	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
41. I think the best way to prevent myself getting Malaria is to avoid getting mosquito bites cold	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>

42. I am sure that anyone can get Malaria	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
43. I believe sleeping under a mosquito net during the night is one way to prevent myself getting Malaria	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
44. I am sure that I can treat myself if I get Malaria	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
45. In my opinion, only children and pregnant women are at risk of Malaria	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
46. I think that one can recover spontaneously from Malaria without any treatment	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
47. If someone has got Malaria, people should avoid having close contact with him/her	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
48. I might be at a greater risk of getting Malaria if I work and sleep overnight in the garden or forest	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
49. I think that it is dangerous when Malaria medicine is not taken completely	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
50. I can buy anti-Malaria drugs from the drug shop/pharmacy to treat myself when I get Malaria	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
51. I think that I should go to the health centre/clinic to have my blood tested as soon as I suspect that I have suffered from Malaria	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
52. I will seek for advice or treatment when I get Malaria	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
53. In my opinion, it is very important to check for an expiry date of the drug before taking it	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>

Practices towards Malaria prevention

	Always	Sometimes	Never
54. How often do you sleep in a mosquito net?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
55. How often do other members of the household sleep in mosquito nets?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
56. How often do you check for holes/repair mosquito nets	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
57. How often do you use mosquito repellent coils on your house?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
58. How often do you use anti-mosquito spray in your house?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
59. How often do you clean/cut bushes around your house?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
60. How often do you clean stagnant water near your house	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
61. How often do you visit the health centre when you fall sick?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
62. How often do you receive visits from the Village Health Team?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>

8.2 Survey Questionnaire (Luganda)

Okwekenneenya Okumanya, Enkolan'endowooza abantu bo kukyalo Nsaabwa, mu disitulikiti ye Mukono gyebalina kungeri y'okwekuumamu omussujja gw'ensiri

Ennaku z'omwezi: _____

Omukebezi: _____

Ennambayaayo: _____

(Kano kajjuzibwa oyo omukungaanya ngatanajjuzamu ebyo ebididdwamu wammanga)

Ebikwaata ku bantu

Erinnya ly'ekyalo: _____

1. Ekikula ky'oyo agenda okubuuzibwa

Mukyala	<input type="checkbox"/>	(1)
Mwami	<input type="checkbox"/>	(2)

2. Olina emyaka emeka? (Golola akabokisi kamu kokka akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

15 - 20	<input type="checkbox"/>	(2)
21 - 30	<input type="checkbox"/>	(3)
31 - 40	<input type="checkbox"/>	(4)
41 - 50	<input type="checkbox"/>	(5)
51 - 60	<input type="checkbox"/>	(6)
Waggulu we 60	<input type="checkbox"/>	(7)

3. Wasoma kye nkanawa? (Golola akabokisi kamu kokka akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

Saasoma.	<input type="checkbox"/>	(1)
Nasomako <i>primary</i> naye sagimaliririza	<input type="checkbox"/>	(2)
Nakoma mu kibiina kyamusavu(P7)	<input type="checkbox"/>	(3)
Nasomako siniya naye sagimaliririza	<input type="checkbox"/>	(4)

- Nakoma mu siniya yamukaaga (S6) (5)
 Neyongerayo oluvanyuma lwa siniya nenfuna (6)
 Ebbaluwa ya Satifiketi, dipulooma oba diguri (7)
 Diguri n'okukirawo (7)

4. Muli abantu bameka mu maka go nga naawe webaliddeko? (Ngogaseeko abaana bo n'abantu abalala bonna bolabirira, (Golola akabokisi kamu kokka akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

- Mukaaga n'okusingawo. (0)
 Bana oba bataano (6)
 Basatu (9)
 Babiri (14)
 Omu (27)

5. Luganda ki lwolina ku nnyini maka ago? (Golola akabokisi kamu kokka akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

- Nze nnyinimu (1)
 Ndi mu kyala / mwami mu maka (2)
 Mutabani /muwala we (3)
 Muzzukulu we (4)
 Muzzadde (5)
 Muganda wange / mwanyinze (6)
 Simulinaako luganda lwonna (7)
 Ebirala (8)

“Ebirala” binnyonyoea :

6. Abaana bonna mu maka omwo abaliwakati w'emyaka 6 ne 18 basoma? (bawererwa gavumenti, basomera mu masomero gabwannanyini, bawererwa bitongole eby'omwannakyeewa(NGO) oba ebyamadiini, bali mu bisulo, (Golola akabokisi kamu kokka akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

- Bonna tebasoma (0)
 Bonna basoma era bawererwa gavumenti (2)
 Tetulina baana bali wakatiwa myaaka 6 na 8 (4)
 Bonna basoma, naye omu n'okusingawo besasulira, bawererwa bitongole

eby'obwannakyeewa(NGO) oba bali mu kisulo

(5)

7. Omukyala omukulu mu makamuno / mukyalawo yasoma kyenkana ki? (Golola akabokisi kamu kokka akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

Mu maka temuli mukyala yenna (0)

Teyatuuka mu kyakutaano (P.5),

Yakoma mu kyakutaano oba okusingawo (2)

Mu kyamukaaga (P.6) (6)

Mu kyamusanyu (P.7) okutuukira ddala

Musiniya ey'omukaaga S.6) (8)

Nasomako siniya ey'omukaaga (S.6) (19)

8. Enyumba yammwe mwagiseresaaki? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olabanga kyekituufu)

Ssubi, kiwempe, obaebirala (0)

Mabaati, obamategula (5)

9. Ebisengebyazimbibwanaki? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olabanga kyekituufu) Bulooka ezitalinjokye, ttaka na mpagi, ssubi oba biwempe, mbaawo, mayinja, bulooka enjokye n'ettaka, ebirala

(0)

Bulooka enjokye ne Seminti, Bulooka eza seminti

(2)

10. Mukozesa ki awaka ekiro okusobola okufuna ekitangaala? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olabanga kyekituufu)

Nku (0)

Tadooba, obaebirala (11)

Taala ey'ekirawuli ey'amafuta, masanyalaze (genereta,

Maanyi ganjuba) (17)

11. Awaka mukozesa kabuyonjo yakikaki? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olabanga kyekituufu)

Tetulina (tugenda mu nsiko)

(0)

Kabuyonjo ebikkwaako (eyaffe kubwaffe obawamu ne banaffe), Kabuyonjo

ey'omulembe–eyaffe kubwaffe oba wamu ne banaffe) Kabuyonjo ey'ekinnya ebikwaako, kabuyonjo eyekinnya (eyaffe ku bwaffe obawamu ne bannaffe) oba ebirala (4)

12. Mu maka omwo mulimu omuntu yenna alina ekintu kyonna ekikolera ku masanyalaze (okugeza TV, Ladiyo, cassette, n'ebirala) mu kiseera kino? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olabanga kye kituufu)

Nedda (0)
Ye (7)

13. Mu maka omwo ddala buli omu awezamu emigogo gy'engoye wakiri ebiri? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

Nedda (0)
Ye (5)

14. Mu maka omwo ddala buli omu alina engatto wakiri omugogo ogumu? (Golola akabokisi kamu kokka akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

Nedda (0)
Ye (9)

15. Okola mulimu ki?(Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

Emirimu emisomerere (okugeza; obusawo, obusomesa, obuwandiisi, okubalirira ebitabo, n'ebirala) (1)

Ndimusuubuzi, nsuubula n'okusuubuza abalala (okugeza, okuddukanya edduka erisuubuza abasuubuza, eriguza abantu kinnomu, n'obusubuza bwonna obwengeri endala) (2)

Ndimulimi, mulunzi, nkola mu bibira oba mu by'enyanya (Okugeza; Okwerimira ebirime N'okutunda, oba okutunda ebirime n'engeri endala ezenjawulo) (3)

Abaluka / n'emirimu emirala egy'emikono nga (omutunzi, omusibin'omukoziw'enviiri, Omuzimbi, omusuubuuzi w'embaawo, ow'ebyuuman'ebirala) (4)

Abasaabaza abantu (omuvuziwa bodaboda, owa takisi, n'omuvuzi w'akagaali, n'ebirala) (5)

Nkolerera lunaku (ng'okuwereza ku bizimbe, kumasamba n'ebirala) (6)

Nyimiriddewo ku mikwano / banganda (mwami/mukyala, muyizi, ku mikwanon'enganda) (7)

Ndabirirwa bitongole (nga gavumenti, ebitongole eby'obwa nnakyeewa-NGOs, ku kasiimo, n'ebirala) (8)

16. Ngerikiendalagy'ofunamuensimbiezikuyimizaawo? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

Emirimu emisomerere (okugeza; obusawo, obusomeza, obuwandiisi, okubaliriraebitabo, n'ebirala) (1)

Ndimusuubuzi, nsuubula n'okusuubuza abalala (okugeza, okuddukanya edduuka erisuubuza abasuubuza, eriguza abantu kinnomu, n'obusuuzi bwonna obwengeri endala) (2)

Ndimulimi, mulunzi, nkola mu bibira oba mu by'enyanya (Okugeza; Okwerimira ebirime N'otunda, oba okutunda ebirime n'engeri endala ezenjawulo) (3)

Abaluka / n'emirimu emirala egy'emikono nga (omutunzi, omusibi n'omukozi w'enviiri, Omuzimbi, omusuubuza w'embaawo, ow'ebyuuma n'ebirala) (4)

Abasaabaza abantu (omuvuziwa bodaboda, owa takisi, n'omuvuzi w'akagaali, n'ebirala) (5)

Nkolerera lunaku (ng'okuwereza ku bizimbe, ku masamba n'ebirala) (6)

Nyimiriddewo ku mikwano / banganda (mwami/mukyala, muyizi, ku mikwano n'enganda) (7)

Ndabirirwa bitongole (nga gavumenti, ebitongole eby'obwa nnakyeewa-NGOs, ku kasiimo, n'ebirala) (8)

Sirina (9)

Abantu kyebamanyi ku Mussujja gw'ensiri

17. Wali owulidde ku mussujja gw'ensiri?

Ye (1)
Nedda (2)
Simanyi (3)

18. Kiwuka ki ekiretera abantu okulwaala omussujja gw'ensiri? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

Mmese (1)
Mbwa (2)
Nsiri (3)

- Nsowera (4)
 Kiyenje (5)
 Simanyi (6)

19. Omussujja gw'ensiri omuntu agufuna atya?

- Mu kunywa amazzi amakyaafu (1)
 Mu kulya emmere erimu obuwuka (2)
 Okulya emiyembe emingi (3)
 Singa olumwa ensiri ereeta omussujja gw'ensiri (4)
 Singa osemberera omulwadde w'omussujja gw'ensiri (5)

20. Olowooza ddala omussujja gw'ensiri gusobola okukutta singa tojjanjabibwa?

- Ye (1)
 Nedda (2)
 Si manyi (3)

21. Buboneroki obukulu kw'olabira oyo alina omussujja gw'ensiri? (Golola akabokisi kamu akakwatagana n'enkyokuddamu gwe ky'olaba nga kyekituufu)

- Ebbugumu eringi / omussujja (1)
 Okuggwamu amanyi (2)
 Okusesema (3)
 Okutuuyana (4)
 Okulumwa omutwe (5)
 Okulumwa mu mubiri (6)
 Okusiiyibwa (7)
 Okubanga tokyayagala kulya (8)
 Okukankana (9)
 Kammunguluze (10)
 Simanyi (11)
 Ebirala (12)
 Nnyonyola "ebirala:"

22. Ngeri ki ku zino wammanga omuntu zaasobola okwekuuma n'okwewala mu omussujja gw'ensiri? (golola ebyo ebituufu okusinziira ku ggwe)

- Okwebaka mu katimba (1)
 Okwambala engoye ez'emikono emiwanvu (2)
 Okukuma omuliro n'okunyokeza (3)

- Okufuura n'eddagala (4)
 Okulima ensiko yonna eyetoloodde amaka gaffe (5)
 Okulongoosa ensonda zonna ezirimu enzikiza (6)
 Mu maka gaffe (6)
 Simanyi (7)

23. Ensiri ezisaasanya omussujja zirumaddi? (golola akabokisi kamu kokka akatuufu okusinziira ku ggwe)

- Misana (1)
 Kiro (2)
 Emisanan'ekiro (3)
 Simanyi (4)

24. Ngeri ki esinga zonna gy'osobola okukozesa ng'omuntu okusobola okwekuuma omussujja gw'ensiri? (golola akabokisi kamu kokka akatuufu okusinziira ku ggwe)

- Okwesiiga ebizigo ebigoba ensiri (1)
 Okunyookeza ka *coil* akagoba ensiri (2)
 Okufuuyira ne *doom* (3)
 Okunyookeza obusa bw'ente n'amakoola (4)
 Okuggala enzigin 'amadirisa (5)
 Okuteeka obutimba mu madirisa (6)
 Okukozesa obutimba bw'ensiri (7)
 Obutabaako kyonna kyokola (8)
 Ebirala (nnyonyola) (9)

25. Mu maka muno mulinamu obutimba?

- Ye (1)
 Nedda (2)

26. Bwe muba nga mubulina, Aninnyinibwo? (golola akabokisi kamu kokka akatuufu okusinziira ku ggwe)

- Taata (1)
 Maama (2)
 Abaana abali waggulu w'emyaaka ettaano (3)
 Abaana abali wansi w'emyaaka etaano (4)
 Abalala (Nyonyola) (5)

27. Ddala obutimba bwe mulina awaka bwonna mu bukozesa?

- Ye (1)
- Nedda (2)
- Simanyi (3)

28. Bwewabangawaliwoobwobwemutakozesa,

waensongalwaaki?

Ensibuko y'okumanya eri Omussujja gw'ensiri

29. Wali owulidde ku bubaka bwonna obwekuusa ku mussujja gw'ensiri? (golola akabokisi kamu kokka akatuufu okusinziira ku ggwe)

- | | | |
|---------|--------------------------|-----|
| Ye | <input type="checkbox"/> | (1) |
| Nedda | <input type="checkbox"/> | (2) |
| Simanyi | <input type="checkbox"/> | (3) |

30. Bwoba nga oline obubaka bwonna bwewali owulidde obwekuusa ku mussujja gw'ensiri, wabufuna kuva ku ani obawa? (golola akabokisi kamu kokka akatuufu okusinziira ku ggwe)

- | | | |
|--|--------------------------|------|
| Nasooka kuwulirira kubawaka. | <input type="checkbox"/> | (1) |
| Ku muliraanwa (ku kyaalo kyaffe) | <input type="checkbox"/> | (2) |
| Ku ladiyo | <input type="checkbox"/> | (3) |
| Ku TV. | <input type="checkbox"/> | (4) |
| Mu mpapula z'amawulire | <input type="checkbox"/> | (5) |
| Ku bipande | <input type="checkbox"/> | (6) |
| Ku ssomero | <input type="checkbox"/> | (7) |
| Ku kanisa | <input type="checkbox"/> | (8) |
| Ku mwami we LC / Omuwandiisi
ow'eb'obulamu ku kakiiko ke LC | <input type="checkbox"/> | (9) |
| Ababeezi babasawo ku kyalo (VHTs) | <input type="checkbox"/> | (10) |
| Ku ddwaliro | <input type="checkbox"/> | (11) |
| Ku omu ku basawo ku kyaalo | <input type="checkbox"/> | (12) |
| Ku ddwaliro | <input type="checkbox"/> | (13) |
| Ku kaduuka k'eddagala | <input type="checkbox"/> | (14) |
| Amakubo amalala | <input type="checkbox"/> | (15) |
| Ga nyonyole: | | |

Okufaayo okunoonya obujanjabi

31. Waliwo omuntu yenna ku mmwe eyali alwadde ku musujja gw'ensiri mu myezi omukaaga egiyise (Golola akabokisi kamu kokka akalaga ekyokuddamu ekituufu)

- | | | |
|---------|--------------------------|-----|
| Ye | <input type="checkbox"/> | (1) |
| Nedda | <input type="checkbox"/> | (2) |
| Simanyi | <input type="checkbox"/> | (3) |

32. Singa omuntu yenna mu maka gammwe oba ggwe kennyini mu ofuna obunero obulaga nga olina omussujja gw'ensiri, oyinza kufuna wa obujanjabi?

- | | | |
|--|--------------------------|-----|
| Mu ddwaliro / Kirikika | <input type="checkbox"/> | (1) |
| Eri omusawo ku kyalo | <input type="checkbox"/> | (2) |
| Eri omusawo owekinnannansi | <input type="checkbox"/> | (3) |
| Ku madsuuka agatunda eddagala
(<i>pharmacy</i>) | <input type="checkbox"/> | (4) |
| Nkozesa eddagala egganda | <input type="checkbox"/> | (5) |
| Teri gye ngenda kufuna buyambi | <input type="checkbox"/> | (6) |
| Simanyi | <input type="checkbox"/> | (7) |
| Engeri endala | <input type="checkbox"/> | (8) |

Nnyonyola engeri endala:

33. Olowooza kiyinza kukutwalira banga ki okunoonya obujanjabi?

- | | | |
|-------------------------------|--------------------------|-----|
| Lunaku lumu (ssaawa abiri 24) | <input type="checkbox"/> | (1) |
| Wakati w'ennaku 2-3 | <input type="checkbox"/> | (2) |
| Wkati w'ennaku 4-6 | <input type="checkbox"/> | (3) |
| Ennaku 7 nokusingawo | <input type="checkbox"/> | (4) |
| Simanyi | <input type="checkbox"/> | (5) |

34. Bwoba tosobodde kugenderawo kufuna bujanjabi mu ssaawa 24, okola otya?

35. Oli mumativu nekyo kyomanyi ku mussujja gw'ensiri? (Golola ekyo kyokka ekituufu)

- | | | |
|---------|--------------------------|-----|
| Ye | <input type="checkbox"/> | (1) |
| Nedda | <input type="checkbox"/> | (2) |
| Simanyi | <input type="checkbox"/> | (3) |

36. Bwoba toli mumativu nekitono kyomanyi ku mussujja gw'ensiri, biki ebirala byewandyetaaze okumanya?

- | | | |
|-------------------------------------|--------------------------|-----|
| Enzijanjabo y'omusujja ogwo | <input type="checkbox"/> | (1) |
| Engeri y'okwewala mu omusujja ogwo. | <input type="checkbox"/> | (2) |
| Engeri y'okuguziyizaamu | <input type="checkbox"/> | (3) |

- Obubonero kw'ogutegeerera (4)
- Engeri omussujja ogwo gyegulumamu (5)
- Obubaka bwonna obulala (6)
- Simanyi (7)
- Ebirala (8)

Ebirala binyonyole:

37. Ngeri ki gye wandiyagadde okutegeeramu ebyo by'oyagala okwongera okumanya ku musujja guno ogw'ensiri? (Golola byonna ebituufu)

- Okuyita mu benganda zaffe (eka) (1)
- Okuva ku baliraanwa (2)
- Ku ladiyo (3)
- Ku TV (4)
- Mu mpapula z'amawulire (5)
- Ku bipande / mu butabo (6)
- KLu ssomero (7)
- Ku kanisa/Kereziya (8)
- Ku mwami we LC/ Omuwandiisi w'eby'obulamu (9)
- Kubanyambi babasawo ku kyalo(VHT) (10)
- Ku ddwaliro / Kirinika (11)
- Ku basawo mu byalo byaffe (12)
- Ku ddwaliro /Kirinika (13)
- Ku maduuka agatunda eddagala / Abatambuza eddagala (14)
- Abalala (15)

Abalala ba nyonyole:

Endowooza z'abantu ku mussujja gw'ensiri

	Sikiriziganyizaako ddala nakyo	Sikiriziganya nakyo	Nzikiriziganya nakyo	Nzikiriziganyiza ddala nakyo
38. Nze ndowooza Omussujja gw'ensiri bulwadde osobola n'okutta omuntu era sibwamuzzanyo	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>

39. Omussujja gw'ensiri gusobola okusaasanyizibwa okuva ku muntu omu negukwaata omulala nga bwe guli ku kifuba	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
40. Ndownooza engeri esinga zonna ey'okwewalamu omussujja gw'ensiri kwe kwekuuma obutalumwa nsiri ezo.	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
Kati nkakasizza buli muntu asobolera ddala okukwaatibwa omussujja gw'ensiri	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
41. Nze ndownooza nti okusula mu katimba k'ensiri yemu ku ngeri omuntu gyasobola okwewalamu omussujja gw'ensiri	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
42. Nkakasa nga nsobola okwejanjaba singa nfuna omussujja gwensiri	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
43. Nze mu ndownooza eyange abaana abato n'abakyala abali embuto bebali mu katyabaga k'omussujja gw'ensiri	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
44. Ndownooza nti omuntu asobola okuwona yekka omussujja gw'ensiri wadde nga tagujanjabye	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
45. Singa omuntu afuna omussujja gw'ensiri abantu balina okwewala okumusemberera	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
46. Mba mu katyabaga ak'okufuna omussujja gw'ensiri singa nsuka nkola mu nnimiro oba mu kibira	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
47. Ndownooza kiba kyabulabe okumira eddagala ly'omussujja gw'ensiri notalimaliriza	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
48. Nsobola okugula eddagala eddagala ly'omussujja gw'ensiri mu malwaliro agatunda eddagala / Famasi okwejanjaba	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>

omussujja ogwo				
49. Ndowooza nti kikulu nnyo okugenda mu ddwaliro okwekebeza omusaayi okukakasa ekituufu singa otandika okwebuusuusa okuba n'omussujja gw'ensiri	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
50. Ngenda ne mpabulwa n'okufuna obujanjabi singa nfuna omussujja gw'ensiri	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>
51. Nze ndowooza nti kikulu nnyo okusooka okukebera eddagala ly'ogenda okukumira okukakasa nga ddala terinayitako nnaku	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>	[4] <input type="checkbox"/>

Enkola ez'okwekuumamu omussujja gw'ensiri

	Nkikola nnyo	Obw'olumu	Sikikola
52. Emirundi emeka gy'otera okusula mu katimba k'ensiri?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
53. Emirundi emeka abantu b'omumaka gammwe gyebasula mu katimba k'ensiri?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
54. Mirundi emeka gy'otera okukebera n'okuziba ebituli ku katimba ko akensiri	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
55. Mirungi emeka gy'okozesa ebizigo ebigoba ensiri oba okunyokeza obu coil okusobola okwewala ensiri munju?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
56. Emirundi emeka gy'ofuuyira eddagala eritta ensiri mu nnyumba yo?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
57. Emirundi emeka gy'olongoosa/ okulima ensiko eriraanye amaka gaffe?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
58. Emirundi emeka gyoggyawo agatatambula agalegama okumpi n'amaka gaffe	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>

59. Emirundi emeka gy'ogenda mu ddwaliro singa olwaala omussujja?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>
60. Emirundi emeka gy'okyalirwa ababeezi babasawo (VHTs) ku byalo byammwe?	[1] <input type="checkbox"/>	[2] <input type="checkbox"/>	[3] <input type="checkbox"/>

8.3 Consent Form

CONSENT FORM

Assessment of Community Knowledge, Attitudes and Practices (KAP) study on Malaria control and prevention in Nsaabwa Village, Mukono District

Good morning/afternoon/evening.

My name is Luyiga Faridah Mwanje. I am from Communication for Development Foundation Uganda (CDFU). I'm conducting a research about Knowledge, Attitudes and Practices (KAP) on Malaria in this area and will interview several people about Malaria issues.

The information you will give me will enable CDFU better understand the community beliefs, practices and needs in relation to Malaria so that it can design messages relevant to the needs of the people.

Participating in this research will benefit you indirectly; information gathered will help CDFU develop and design appropriate information resources to increase awareness about Malaria control and prevention, enable the community to recognize the signs and symptoms of Malaria and also know when to seek medical attention, to reduce Malaria incidence.

Your participation in this study is voluntary. If you do not want to participate in this research, feel free to say no. You are free not to answer any questions you may not be comfortable with. You may also stop the interview at any time.

If you have any questions about the survey, you can contact the principal investigator on 0772968685, email: fmluyiga@yahoo.com.

The answers you provide will be confidential and your anonymity will be ensured since they will be part of other interview responses from other members.

We will tape record the interview. We would like to share your story with others. Do you agree to participate in this research with the understanding that we might include your story in a written publication?

"I have read the consent form completely and voluntarily agree to participate in the study."

Name of interviewee (please print name): _____

Signed: _____ **Date:** _____ **Interviewer's initials:** _____

Please sign below if you are willing to have your photograph used in any presentation/publication. You may still participate in this study if you are not willing to have your photo published.

"I am willing to have my photograph published in materials used for the study."

Signed: _____ **Date:** _____ **Interviewer's initials:** _____

Please sign below if you are willing to have this interview recorded on videotape and shown to the public.

"I am willing to have this interview recorded and hereby give permission to disseminate the video as part of the KAP study."

Signed: _____
Date: _____

Interviewer's signature: _____ **Date:** _____

8.4 Men's Focus Group Discussion Guide

Assessment of Knowledge, Attitudes and Practices regarding Malaria Prevention and Control in Nsaabwa Village, Mukono District

MEN FOCUS GROUP DISCUSSION GUIDE

Greetings!!! Thank you for agreeing to take part in this interview.

We would like to know your knowledge, attitudes and extent of practices regarding Malaria in your community. Your responses will help us in designing interventions that will help prevent and control Malaria.

Please note that your responses will be treated as confidential, and no reference will be made to any individual when disseminating the information.

Thank you.

Theme 1: Sources of information

1. Where do you get information about Malaria? Which is your preferred source of information? Probe for different media like radio, TV, newspapers, community meetings, posters, VHT, Health workers, drug shops etc. Of the sources listed above, which are the most trusted sources of information? Why? How do they think they

could be expanded to serve them better in relation to the prevention/control of Malaria?

2. Is there any special programme/event that you prefer to attend or listen? List programme? How often do you get the information? Probe daily, weekly, monthly etc. When is the appropriate time for you to receive information about Malaria? Probe for time of a day and specific days in a week

Theme 2: Knowledge about Malaria

1. How do you know when you have Malaria? What do you use to cure Malaria? List treatment options mentioned and probe for self-medication before going to the health centre.
2. Is there any specific group of people who are vulnerable for Malaria in the community? Who are they? List them. Why are they vulnerable?

Theme 3: Resource allocation

1. If you have limited resources and have to choose between taking a sick child or wife suffering from Malaria to hospital and attending a social function, what would be your priority?

Theme 1: Attitudes on Malaria

2. Do you think there are people whose bodies are resistant to Malaria or those that do not get Malaria? If so, what type of people are they and what are the reasons for their resistance.

Theme 1: Practices on Malaria prevention

3. Do all members in your household have mosquito nets? If so, what are the benefits of using mosquito nets? If not why don't they have the nets? Who should be given priority to use a bed net?
4. In your opinion, what are the things you can do to protect yourself or your family from Malaria? Probe for Malaria preventive practices such as nets, repellents, insecticide, clearing bushes and stagnant water around house, spray house periodically. What do you think are the most effective methods for Malaria control and prevention?
5. Any other comments?

8.5 Women's Focus Group Discussion Guide

Assessment of Knowledge, Attitudes and Practices regarding Malaria Prevention and Control in Nsaabwa Village, Mukono District

Women (pregnant women and mothers with children below five years)

WOMEN FOCUS GROUP DISCUSSION GUIDE

Greetings!!! Thank you for agreeing to take part in this interview.

We would like to know your knowledge, attitudes and extent of practices regarding Malaria in your community. Your responses will help us in designing interventions that will help prevent and control Malaria.

Please note that your responses will be treated as confidential, and no reference will be made to any individual when disseminating the information.

Thank you.

Theme 1: Knowledge about Malaria

1. Pregnant women and children are some of the people perceived to be at risk of Malaria? Why?

2. How do you know when you or your child has Malaria? Probe for symptoms. What do you do when you first suspect Malaria? Where do you seek treatment? Probe for self-treatment. What do you do when it gets worse?
3. Did you visit a health centre during pregnancy? Probe for Antenatal Care (ANC). How many times should pregnant woman attend ANC.? What are the benefits of attending ANC? At what stage during pregnancy should a women visit a health center for ANC?
4. Do you know of any preventive treatment for Malaria during pregnancy? Do you think pregnant women should be given anti-Malaria tablets to prevent them from getting Malaria during pregnancy? What drugs/medications should pregnant women be given to prevent Malaria during pregnancy. What dosage?
5. Do you have special reasons for not seeking medical care? Probe for cost, preference.
6. Do you know when mosquitos get into the house and where they mainly stay while in the house?

Theme 2:Practices on Malaria

In your opinion, what are the things you can do to protect yourself or your family from Malaria? Probe for Malaria preventive practices such as nets, repellents, insecticide, clearing bushes and stagnant water around house, spray house periodically.

Theme 3:Attitudes toward Malaria

Who decides when to buy mosquito nets? Are there any challenges associated with bed net use? Do you ensure that all members of your family have mosquito nets over them when they sleep? Probe for any other comments?

8.6 CHW/VHT Focus Group Discussion Guide

Assessment of Knowledge, Attitudes and Practices regarding Malaria Prevention and Control in Nsaabwa Village, Mukono District

Community Health Worker (CHW)/Village Health Team (VHT)

CHW/VHT FOCUS GROUP DISCUSSION GUIDE

Greetings!!! Thank you for agreeing to take part in this interview.

We would like to know your knowledge, attitudes and extent of practices regarding Malaria in your community. Your responses will help us in designing interventions that will help prevent and control Malaria.

Please note that your responses will be treated as confidential, and no reference will be made to any individual when disseminating the information.

Thank you.

Theme 1: Sources of information about Malaria

- 1.** Have you received any training on Malaria? If not, why? If yes, what kind of training and who offered/facilitated it?

2. What are your sources of information about Malaria? What kind of information about Malaria do VHTs give to community? How can VHTs be facilitated to provide reliable information about Malaria prevention and control?

Theme 2: Knowledge about Malaria

3. Do you prescribe Malaria treatment? What is the best way of advising someone who has Malaria. When should someone seek treatment? Who do you think are more at risk of Malaria?
4. What is a local name for Malaria? Do people understand the benefits of preventing and treating Malaria? Who do you perceive to be most at risk and why?
5. What does the community perceive as the most effective method for Malaria vector control?
6. What do you think worsens Malaria in this community? What are the possible solutions to these problems? What can the community do to prevent and control Malaria? Are there specific times when Malaria is a problem?
7. What local groups and associations in this community contribute to the health and development of the community? Give examples of specific projects or activities. How can they be assisted to help the community more?

Theme 3: Attitude towards Malaria

1. Do people in your community use mosquito nets properly? Probe for hanging and when? Do you know the benefits of using mosquito nets? Where do they buy nets from? Who is responsible for monitoring net use and re- treating the nets? How can we promote a net culture? Probe what motivates utilization. What types of nets are preferred by the community eg, normal, ITN, round, rectangular, colours, pink, white green, etc. Are the chemicals used for treatment effective?
2. Does the community take Malaria as serious problem in the locality? How serious? Why? Probe if it is not considered as serious and why?
3. Have there been any interventions by NGOs, Govt to prevent and control Malaria? What are they? What are your views about Indoor Residual Spraying (IRS)? Probe for safety and any information they have heard about IRS. Define IRS.
4. For what type of illnesses does the community seek the traditional healer? Why? What are some of the consequences of using the healer?

5. How can we better organise as a community to improve Malaria prevention and control in our village? How can we make members more accountable to the community in relation to prevention activities?

8.7 Health Workers' Focus Group Discussion Guide

Assessment of Knowledge, Attitudes and Practices regarding Malaria Prevention and Control in Nsaabwa Village, Mukono District

HEALTH WORKER FOCUS GROUP DISCUSSION GUIDE

Greetings!!! Thank you for agreeing to take part in this interview.

We would like to know your knowledge, attitudes and extent of practices regarding Malaria in your community. Your responses will help us in designing interventions that will help prevent and control Malaria.

Please note that your responses will be treated as confidential, and no reference will be made to any individual when disseminating the information.

Thank you.

Theme 1: Sources of information

1. What are the signs and symptoms of Malaria? Who is more vulnerable to Malaria? Why? Do pregnant women receive preventive treatment for Malaria? Probe for dosage.
2. Do people take Malaria seriously? Do they come for treatment at the health center? Do they complete doses? How much does it cost to treat Malaria?
3. What Malaria drugs are used for treatment? Are drugs always available at the health centres? Who delivers the drugs to the health centres?

4. On average, how often do people seek treatment on Malaria?
5. What are the peoples preferred sources of receiving information about Malaria?
6. What are some of the causes of delay to seek treatment after onset of symptoms?
7. What do participants perceive as the most effective method for Malaria vector control and prevention?

8.8 Key Informant Interview Guide (General)

Assessment of Knowledge, Attitudes and Practices regarding Malaria Prevention and Control in Nsaabwa Village, Mukono District

KEY INFORMANT INTERVIEW GUIDE (GENERAL)

Name: _____

Position _____ of _____ Respondent:

Role _____ played _____ in _____ community _____ health

Gender of Respondent: Female Male

What are the general health problems in Nsaabwa village and the most common diseases amongst children and adults?

Do mosquitoes in Nsaabwa cause any problems? If so, what efforts have been made to eradicate them?

Does the community take Malaria as serious problem in the locality? How serious? Why? Probe if it is not considered as serious and why?

What are the main problems people have in getting care/help when they have Malaria?

Does the district have a health plan? Does it provide for Malaria prevention and control? Does it support community involvement?

Have there been any recent meetings or encounters between the community and district health staff? Give an idea of dates and discussions

Please tell us about any recent meetings, visits or encounters between the community and the district health staff.

What local groups, NGOs, CBOs, etc. in this community contribute to the health and development of the community? Give examples of specific projects or activities.

How can you better organise the community to improve Malaria prevention and control in Nsaabwa village?

In your view, how can we improve health services within Nsaabwa in general?

8.9 Key Informant Interview Guide (Health Personnel)

Assessment of Knowledge, Attitudes and Practices regarding Malaria Prevention and Control in Nsaabwa Village, Mukono District INTERVIEW GUIDE- HEALTH PERSONNEL

Q1. How do you see the health seeking behavior of your community?

Probe :

A. In your opinion where do people prefer to go when they have any health problem?

B. Where do people prefer to go when they suspect Malaria? Why? Probe for: what people commonly do when they have Malaria, self-treatment, traditional, healthcare, drug vendor, home remedies

C. How long it take for a person to seek for medical care after having Malaria symptoms?
If there is a delay, why delay?

D. Who gets to health facility immediately after Malaria symptoms? Why?
(Women, pregnant, children etc...)

E. In your opinion do people use Malaria treatment properly? Full dose if not why?

F. Is Malaria drug available all the time? If not why?

G. How much does a person cost him/her to get service for Malaria in your facility?

In your opinion is it expensive for the community to use medical service for Malaria?

H. What do you think of your contribution in Malaria prevention? Is there anything you are doing to motivate people to seek medical care early for Malaria?

8.10 Key Informant Interview Guide (Other Healers)

Assessment of Knowledge, Attitudes and Practices regarding Malaria Prevention and Control in Nsaabwa Village, Mukono District

INDIGENOUS HEALER /SPIRITUAL HEALER INTERVIEW GUIDE

Village: _____

Type: herbalist .diviner .spiritual .other _____

1. Please tell us how you got started working as a healer and when you started
2. What are the diseases you treat and which treatments do you use for them?
3. What are the common types of problems that people bring to you?

for adults

for children

from narrative, tick - Malaria/fever . cough .diarrhoea .convulsions

4. a. How many people have come to you for help in the past month?

b. How many were children below school age? _____

c. How many had fever/Malaria? _____

5. How do you determine what kind of illness a person has?
6. Specifically, how do you determine whether a person has Malaria/fever?
7. For those who come with Malaria/fever, generally how were they treated?

From narrative, please tick - herb teas .herb powders . incantations/prayers .sacrifices

. scarification .special/holy water . tablets

8. For those who come with convulsions, generally how were they treated?

From narrative, please tick - herb teas . herb powders . incantations/prayers .sacrifices

. scarification .special/holy water . tablets

9. Do you ever ask any of your patients/customers to go to hospital?

. yes .no a. if yes, for what reasons?

b. How many in past month?

10. For which diseases do you refer patients to a health centre? Why?

11. For which diseases do you never refer a patient to a health centre? Why?

12. Is there an association for healers like you in this area?

, if yes, what do they do?

13. If there a village health team here? .yes .no . don't know

if yes, are you a member? . yes .no

14. Have you ever attended any workshops/training programmes sponsored by the nearby hospital/clinic/DHS? If yes, please describe what you learned?

b. since the training, do staff from the clinic/DHS ever visit you and what did they do?

15. Do you have any suggestions on how the local health system could be improved and how indigenous/spiritual healers could make a contribution to these improvements?

8.11 Institutional Review Board Statement

8.12 UNCST Approval