Malaria Behavior Survey

Malawi 2021

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Acknowledgements

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Additional information about the MBS may be obtained from malariabehaviorsurvey.org.

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Acronyms

ACT	Artemisinin combination therapy
ANC	Antenatal care
aOR	Adjusted odds ratio
CHW	Community health worker
EA	Enumeration area
IPTp	Intermittent preventive treatment of malaria in pregnancy
ITN	Insecticide-treated net
MBS	Malaria Behavior Survey
MIS	Malaria Indicator Survey
NMCP	National Malaria Control Program
OR	Odds ratio
PMI	U.S. President's Malaria Initiative
RDT	Rapid diagnostic test
SBC	Social and behavior change
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Preface

The Ministry of Health through the National Malaria Control Program (NMCP) has for several years, been implementing World Health Organization approved interventions to control and eliminate malaria in Malawi. While significant progress has been made in reducing malaria mortality, it has been challenging to achieve the same for malaria incidence. Among the key factors contributing to slow progress in reducing malaria incidence has been a lack of community ownership and participation with resultant lack of positive behavior change among most Malawians. Due to this, malaria has remained a huge public health problem in Malawi, affecting a third of the population and claiming over 2,000 lives each year with pregnant women and under five children being the most affected. Successful malaria prevention is dependent on quality implementation of effective interventions like mass net distribution and indoor residual spraying and intermittent presumptive treatment of malaria in pregnancy (IPTp). In Malawi, these interventions have for a long time gone into the communities with little social and behavior change (SBC) focus leading to unsustainable reduction in malaria incidence.

The NMCP believes in partnership for successful delivery of its interventions; therefore it partnered with PMI/USAID through Breakthrough ACTION Malawi to support SBC interventions as key drivers to the reduction of malaria incidence in Malawi. To successfully implement SBC activities in Malawi, there was a need for both evidence-based messaging and expansion of SBC activities to include non-communication-based approaches that could address real issues affecting community adoption of positive behavior change towards malaria control, hence the Malaria Behavior Survey (MBS) conducted in 2021. Members of the NMCP, Breakthrough ACTION and PMI/USAID created an advisory group that reviewed and adopted the MBS protocol and contributed to the preparation and planning of the MBS data collection. The research firm Imani Development was contracted to carry out the MBS data collection through direct supervision by the NMCP and Breakthrough ACTION Malawi. The NMCP and Breakthrough ACTION Malawi led the data collection training to ensure efficient collection of accurate information. The purpose of the MBS was both to understand the socio-demographic and ideational determinants associated with the uptake of malaria interventions in Malawi and to determine appropriate program activities to address specific behavioral determinants of malaria.

The report provides malaria-related contextual data in addition to behavioral determinants at both the community and facility levels that will inform further analysis and research on issues to be addressed by the program and other partners implementing malaria control interventions. This includes providing data for standard malaria indicators used to understand and validate evidence-informed priorities for development of malaria control interventions, including health messages, and facilitating trend analyses of key behavioral outcomes. Key malaria interventions include distribution of insecticide-treated nets (ITNs), IPTp, and malaria case management for children under five. The MBS was conducted in all three regions of Malawi and almost every district, providing a nationally and regionally representative picture.

The NMCP is grateful to PMI/USAID for the financial support to the study, Breakthrough ACTION Malawi for their key role, John Hopkins School of Public Health, and all Malawians who participated in the successful implementation of the MBS. The result of this report will go a long way in supporting malaria SBC programming as well as future policy decisions.

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Executive Summary

The National Malaria Control Program (NMCP) continues to work in collaboration with major stakeholders including the United States Agency for International Development (USAID)/U.S. President's Malaria Initiative (PMI), Global Fund to fight AIDS, TB and Malaria, the World Health Organization (WHO), and the United Nations Children's Fund (UNICEF) to ensure proper malaria prevention and case management and distribution of critical malaria commodities in Malawi. Important interventions for the control of malaria in Malawi are intermittent preventive treatment of malaria in pregnancy (IPTp), the use of insecticide-treated nets (ITNs), indoor residual spraying, prompt care seeking for fever, testing with rapid diagnostic tests (RDTs), and appropriate treatment of confirmed, uncomplicated malaria with artemisinin combination therapy (ACT). Each of these interventions support malaria control and elimination efforts and also depend to varying degrees on human behavior.

Understanding populations' malaria-related knowledge, attitudes, and practices can be useful for improving social and behavior change (SBC) programs to further the goals of the Malawi NMCP. The objective of the Malaria Behavior Survey (MBS) is to provide a better understanding of the sociodemographic and psychosocial factors associated with malaria-related behavioral outcomes in Malawi and to inform SBC activities designed to improve behavioral outcomes for malaria. The psychosocial factors measured by the MBS align with the ideation model of communication and behavior change (see figure below) and correspond to cognitive, emotional, and social factors. The more these factors are in place, the greater the support for positive behavior change. The MBS was implemented in all three regions of Malawi, and 3,862 household heads, 1,304 men, and 4,181 women, were interviewed. Key survey findings include the following:

Household Characteristics

- Households in Malawi had a median of four residents and two sleeping rooms.
- Only 12% of households had electricity, while about a third of households were close to a public (34%) or private (30%) health facility or a pharmacy (31%).
- As an agrarian nation, most households in Malawi were in rural areas (88%) and owned land (80%) and livestock (54%), while fewer households had assets such as a radio (34%) or television (10%).

Population Characteristics

- Slightly more interviewed household members in Malawi were women (53%) or less than 18 years old (51%).
- Most survey respondents were Christian (90%) and married (85%), and more than half had no formal education (54%). Of those with an education more than half (59%) had a secondary education or higher

Cross-Cutting Ideational Determinants

- The overwhelming majority of participants (94%) perceived equitable gender norms related to malaria, and most respondents had comprehensive knowledge of malaria (71%) and perceived that they were susceptible to malaria (79%).

- About half of respondents had favorable perceptions regarding facility-based health workers (59%) or community-based health workers (50%). However, very few respondents (32%) perceived that malaria was severe or discussed malaria with their partner (24%) or with family and friends in the last six months (15%).

Case Management for Fever among Children under Five

- Seventy percent of caregivers of children under five with fever sought prompt and appropriate care the same day as the onset of fever or the next day from a health facility or from a community health worker (CHW) first.
- The only key ideational factor for prompt care seeking was correct knowledge.

Malaria in Pregnancy

- Forty-two percent of women attended antenatal care (ANC) in the first trimester of their last pregnancy, 69% attended four or more ANC visits, 60% received three or more doses of IPTp, and 83% received a mosquito net at an ANC visit.
- Seventy-two percent of women intend to attend ANC in the first trimester in their next pregnancy. The key ideational factors of this include correct knowledge and favorable attitudes.

Insecticide-Treated Net Use

- Fifty-five percent of people consistently sleep under their net every night. The key ideational factors include favorable attitudes towards nets, perceived malaria severity and susceptibility, supportive community norms, and self-efficacy.
- Fifty-seven percent of people hang up their nets when not in use. The key ideational factors include favorable attitudes towards nets, knowledge of malaria transmission, perceived malaria susceptibility, ITN efficacy, and supportive descriptive community norms.

Media Consumption

- About half (46%) of all respondents owned a mobile phone, while fewer respondents listened to the radio (43%) or watched TV (10%) at least once a week
- While 49% of respondents were able to complete the Life is Precious campaign slogan, only 28% reported seeing or hearing a malaria message during the six months preceding the survey.

Recommendations

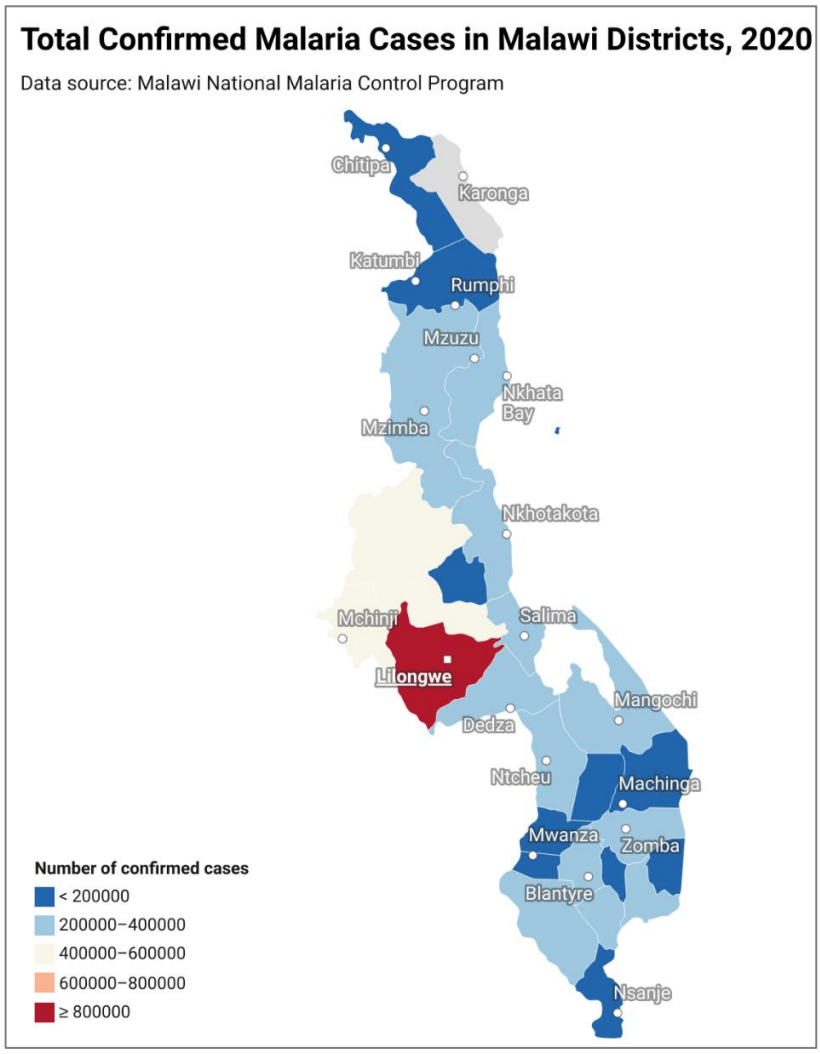
In view of the malaria transmission trends, cases, and ongoing interventions, the MBS is a critical resource to inform programmatic and policy decisions using a socio-ecological framework. Key recommendations based on stakeholder meetings including NMCP, PMI, Kamuzu University, local Non-Governmental Organizations, and others to synthesize the data in light of the current SBC/malaria programmatic and policy context in Malawi are summarized below:

	Case Management	Malaria in Pregnancy	ITN
Individual	● Reinforce proper care seeking behavior ● Empower clients to request services ● Provide complimentary messages on malaria severity	● Reinforce early and frequent ANC messages ● Address harmful cultural and traditional beliefs around ANC	● Provide pertinent routine ITN use messaging ● Reinforce consistent ITN use all night, every night, all year and care throughout the ITN life cycle
Community	● Work with community structures to identify health norms and goals ● Promote dialogue and trust with service providers	● Community engagement on ANC and IPTp through health workers and partners ● Scale up care groups ● Optimize community-based ANC services	● Engage on consistent net use norms ● Engage community leaders on ITN misuse ● Enable community mechanisms to support ITN distribution
Health provider	● Improve technical and interpersonal skills ● Adapt HSA recruitment to community needs ● Ensure adequate supply of commodities at all levels of healthcare	● Improve Attitudes towards ANC and IPC skills ● Ensure supportive supervision of HSA and other providers ● Ensure availability of commodities at all levels of healthcare ● Consider providing ANC on all days in facilities	● Promote net coverage and use through continuous distribution channels in health facilities
Policy	● Adapt Over the Counter Policy ● Adapt test track and treat policy ● Revisit community bylaws	● Revise male involvement model ● Scale up policies on updated IPTp, respectful care	● Continue ITN mass campaigns every 3 years and SBC materials throughout the ITN life cycle

1. Introduction

1.1 Context of Malaria in Malawi

Malawi is a landlocked country located in Southern Africa bordering Mozambique, Zambia, and Tanzania. The population was estimated to be 18,628,747 in 2019, with 67% of the population under 25 years old and 17% of the population under five years old. In addition, 33% of the population are women of child-bearing age. The average life expectancy is 64 years, and the average birth rate is 4.2 per woman. Under-five mortality was estimated to be 46 per 1,000 live births and maternal mortality at 5.7 per 1,000 [1]. Literacy rates were estimated in 2015 to be 70% for males and 55% for females [2]. Currently, Malawi is also contending with the COVID-19 pandemic, which has significantly affected commerce, public health, travel, and other aspects of life. Malawi experienced its first case of COVID-19 in March 2020 and has had a total of 394,547 suspected cases, 60,995 confirmed cases, and 2,229 deaths as of September 9, 2021 [3].



Malaria is the sixth highest cause of death in Malawi and remains endemic in Malawi, with an incidence rate of 398 per 1,000 per year [4]. The entire population is at risk of malaria, and children under five and pregnant women are more susceptible to malaria complications. In 2020, Malawi had 6,893,560 confirmed cases of malaria, with 41% of the total cases occurring in children under five. Key high-risk areas include the more humid low-lying areas, especially around the lakes. The central and southern regions have the highest rates of malaria transmission. The rainy season in Malawi runs from November to April, with the malaria season peaking at the end of April or May [5].

The 2017 Malaria Indicator Survey (MIS) data showed that 82% of households had at least one ITN, with 68% of children under five and 63% of pregnant women sleeping under nets. Prompt care-seeking for fever (within 24 hours of onset) in children under five was 32%, and 41% of women received two or

more doses of intermittent preventive treatment of malaria in pregnancy (IPTp) during their last pregnancy in the past two years. The national malaria prevalence in children aged under five significantly decreased by 19 percentage points from 43% in 2010 to 24% in 2017 [6].

Malaria Service Delivery and Commodities

The Malawi health care and malaria service delivery system is composed mainly of public institutions managed by the Ministry of Health (63%), and for-profit clinics and faith-based organizations account for 26% of health institutions [6]. Public health care services and some services delivered by faith-based organizations are free to the patient. In Malawi, essential health care services including all basic malaria interventions are provided (in line with the Sustainable Development Goals) by the government at no cost, including rapid diagnostic tests (RDTs), bed nets, treatment medications, and IPTp [4].

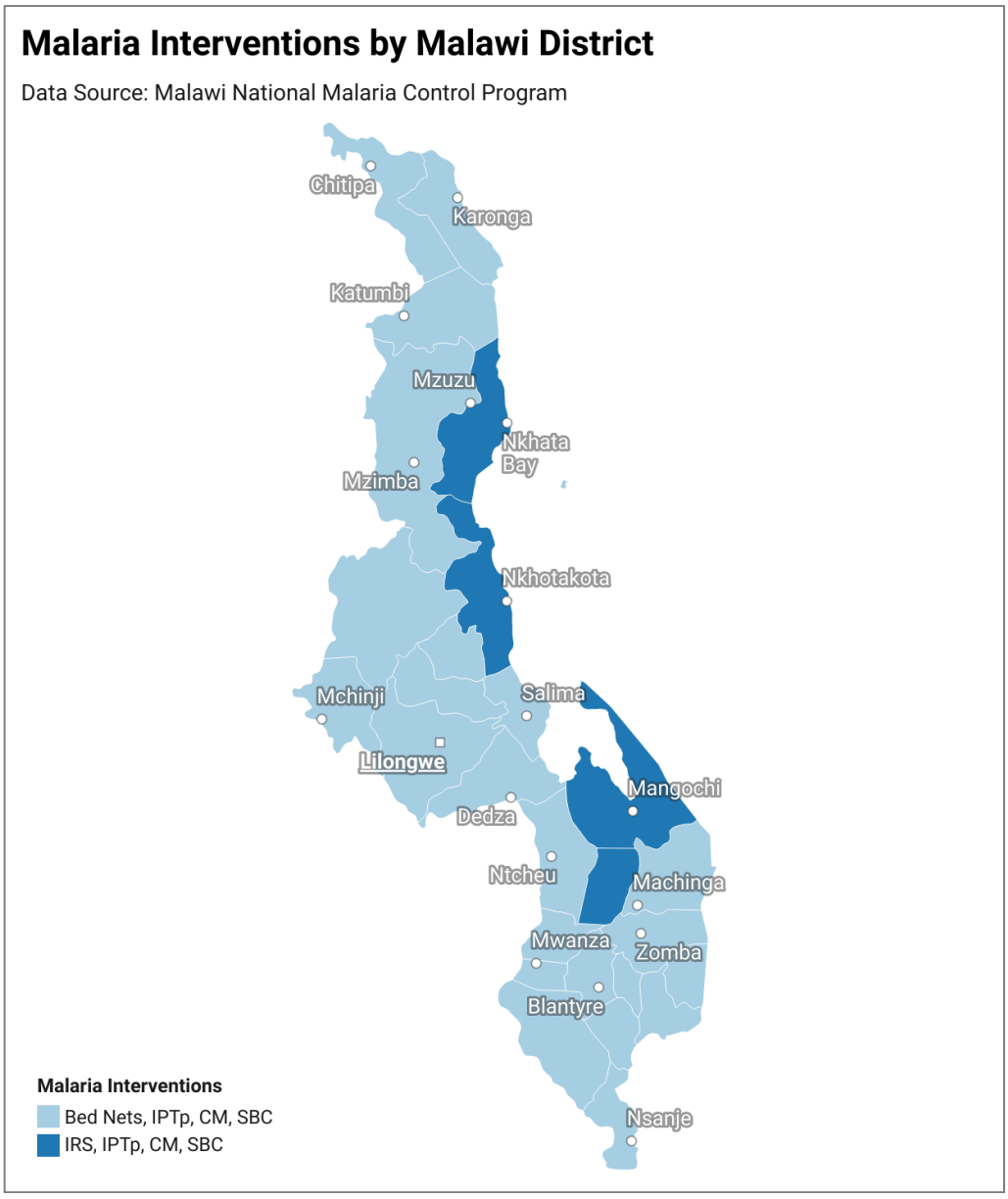
Public health institutions providing malaria services are classified as primary, secondary, and tertiary health facilities. Primary facilities such as village health clinics/health posts and health centers are the first point of malaria service delivery for most of the Malawian population. Here, patients can receive a malaria diagnosis as well as first-line treatment. At the health centers, pregnant women can access IPTp and bed nets at no charge [6]. In catchment communities, health surveillance assistants provide outreach services to community members.

Secondary facilities are district-level facilities that operate on a referral basis and can provide more comprehensive care for complicated malaria, and some provide microscopic testing. Lastly, tertiary facilities are the central hospitals and are used in severe cases of complicated malaria [6].

1.2 Malaria Interventions in Malawi

Since its establishment in 1984 under the Directorate of Preventative Health in the Ministry of Health, the National Malaria Control Program (NMCP) has made significant strides toward reducing the burden of malaria in Malawi. The NMCP, with support from stakeholders including the United States Agency for International Development (USAID)/U.S. President's Malaria Initiative (PMI), the Global Fund, the World Health Organization (WHO), and the United Nations Children's Fund (UNICEF), conducts malaria prevention and control activities including vector control (e.g., Indoor Residual Spraying (IRS), distribution and support for use of insecticide-treated nets (ITNs), case management (e.g., distribution of diagnostic and treatment commodities for uncomplicated and severe malaria, training and supportive supervision for health workers), malaria in pregnancy (e.g., distribution of commodities for intermittent preventive treatment of malaria in pregnancy (IPTp), and monitoring and surveillance.[4]. The Revised Malaria Strategic Plan of 2017–2022 created by the NMCP aims to reduce the incidence and mortality of Malaria by at least 50% from 2017 incidence by focusing on preventive and case management interventions, research, health promotion, and other activities. Regular mass bed net campaigns are conducted (most recently in 2018) across non-IRS districts in Malawi, and in some cases subsequent hang-up campaigns. Since the completion of the Malawi MBS data collection, the NMCP conducted an additional distribution campaign in 2021-2022. In addition, all pregnant women should receive an ITN during pregnancy for their protection as well as after birth for the protection of their newborn [4]. The government also enacts yearly indoor residual spraying campaigns in select high-burden districts, continuous monitoring of malaria commodities, dissemination of malaria treatment guidelines, and training of health workers. In addition, NMCP conducts the Malaria Indicator Survey (MIS) and implementation research including entomological studies using sentinel sites, malaria therapeutic

efficacy studies, and pilot projects focusing on community distribution of IPTp. The following figure shows a spatial distribution of malaria interventions in Malawi.



The NMCP is currently prioritizing SBC in malaria programs and has developed a National Malaria Communication Strategy (2015–2020) to increase the number of Malawians that take malaria prevention and control actions, resulting in:

- Increase in acceptance rate for indoor residual spraying
- Improve prompt care-seeking for febrile illness
- Increase the number of women who take three doses of IPTp
- Increase in care for and sleep under their bed nets

To date, the NMCP has been involved in several SBC and advocacy campaigns in Malawi including *Moyo ndi Mpamba, Usamalireni!* ("Life is precious, take care of it!"), and Zero Malaria Starts with Me. *Moyo*

ndi Mpamba, Usamalireni! was an aspirational campaign implemented from 2011 to 2016 that connected the idea of wellness to prosperity and encouraged Malawians to take steps to improve their own health and that of their families. The messages promoted by the campaign included both straightforward health information and as success stories that came straight from the communities where the campaign was implemented. The campaign involved coordinated implementation of various communication activities, including multiple radio programs, community outreach and mobilization, and family-friendly print materials. The Malawi Ministry of Health has dictated that all health programs implemented in collaboration with the government should bear the *Moyo ndi Mpamba* logo and brand. The ministry formalized this decision in the 2015–2020 Malawi National Health Communication Strategy [7].

1.3 Rationale for MBS Study and Relationship to MIS

Research increasingly demonstrates the effective role of SBC programs in increasing the prevalence of positive health behaviors related to malaria prevention and treatment. For example, SBC programs need to target the specific ideational factors that influence decisions related to malaria-related behaviors. Existing national and regional data, including Demographic and Health Surveys and MIS studies, report on the prevalence of relevant behavioral indicators but provide limited information on behavioral determinants.

The MBS provides representative data at the regional level with a focus on ideational factors that are not included in large national surveys. Such data can be used to:

- Estimate the prevalence of ideational factors of malaria behaviors
- Estimate the independent and combined associations of ideational factors and behaviors
- Identify ideational profiles based on underlying patterns across groups to examine how membership in ideational segments correlates to corresponding behaviors

These analyses will help malaria programs and policy makers create and prioritize audience segments and develop tailored SBC activities that are evidence based.

The NMCP and partners are committed to using SBC-related activities in their public health interventions. The MBS will also provide feedback on the effectiveness and recall of such campaigns including tagline recognition and sources of information. Understanding these behaviors and perceptions is key to providing targeted interventions and informing future national strategies such as the Zero Malaria Starts with Me Campaign, which seeks to enhance political, private sector, and community-level engagement and a grassroots movement in which people are empowered to take ownership of malaria prevention and control efforts.

The 2021 Malawi MIS was conducted during the same timeframe as the MBS using a similar sampling strategy and geographic range across all regions of Malawi. The MIS is a standalone household survey that measures several internationally recognized malaria indicators and has been conducted in almost thirty countries over the past 20 years.

The MIS and the MBS share several indicators including:

- Household ownership of ITNs
- Household member use of ITNs the previous night
- ITN Use-Access Ratio

- Prompt and appropriate care seeking for children under five with fever
- Average number of ANC visits made during the last pregnancy
- Average number of IPTp doses taken during the last pregnancy

While the MBS and MIS measure many of the same behaviors, the MBS focuses on measuring the psychosocial factors that are associated with the behaviors while the MIS captures structural factors, behaviors, as well as malaria incidence through mRDTs and Hemoglobin testing.

It is important to note that, like any survey, the data produced by the MIS and MBS are estimates, which are particularly useful when examining trends over periods of time and not as a singular point. While the MIS has been conducted in Malawi in 2012, 2014, and 2017 using the same standard methodology and allows for a comparison over time, this is the first iteration of the MBS in Malawi. While the MBS also collects data on behavioral factors, they are most useful for understanding the psychosocial factors associated with those behaviors. In this way, the MBS and MIS are two distinct but complementary surveys, where the primary value added by the MBS is the understanding of the psychosocial factors that support behavior change.

1.4 Goals and Objectives of the MBS

The goal of the MBS is two-fold. It is designed to:

1. Provide a better understanding of the sociodemographic and ideational characteristics associated with malaria-related behavioral outcomes in Malawi
2. Inform SBC activities designed to improve malaria-related ideational and behavioral outcomes to achieve these goals in Malawi

Specific objectives of the MBS include:

- Determine the ideational factors related to utilization of treated bed nets, uptake of IPTp, and malaria care-seeking and case management in children
- Understand reasons for not adopting malaria prevention and treatment behaviors
- Determine the focus of future programs designed to promote appropriate malaria prevention and treatment behaviors in Malawi

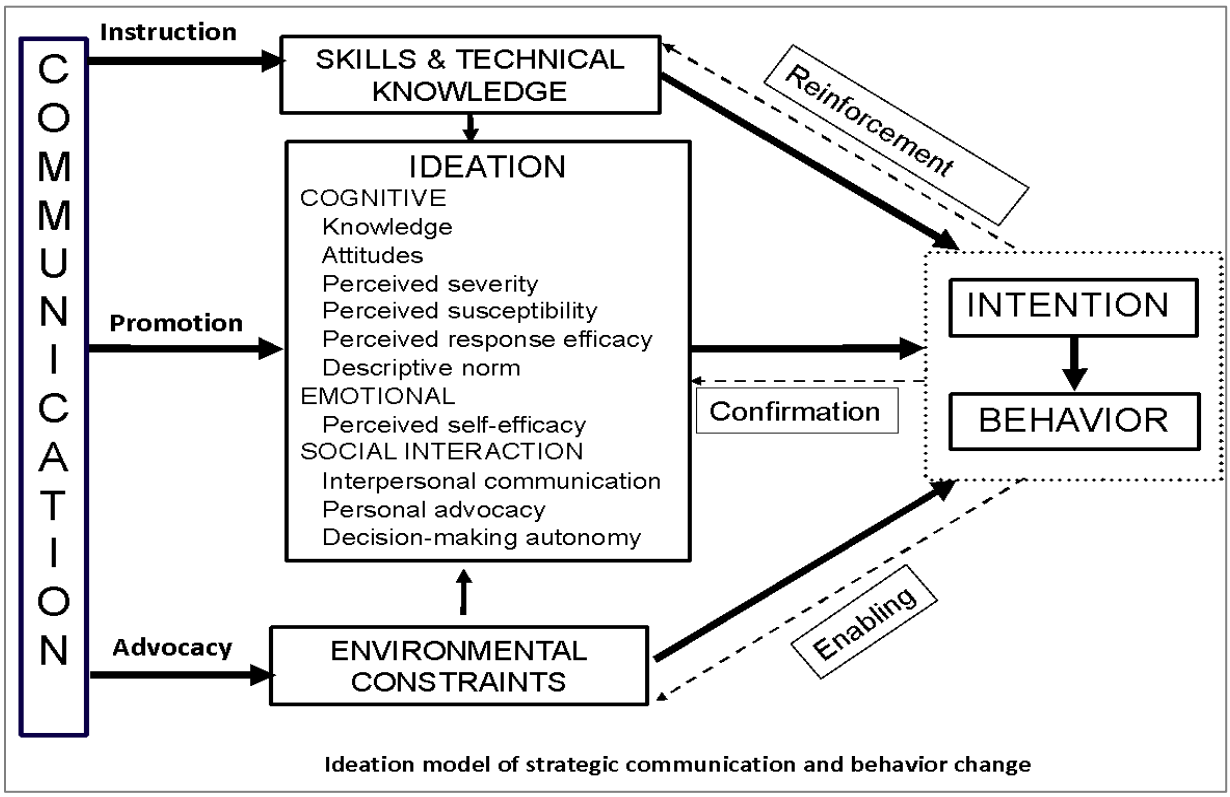
While understanding barriers is a specific objective of the MBS in general, sample sizes obtained for these barrier variables were typically too limited to make meaningful conclusions; those that were large enough are reported here.

To achieve these objectives, the Malawi MBS also assesses the prevalence of malaria-related behaviors. This assessment includes use of bed nets, uptake of IPTp, and prompt and appropriate care seeking for fever in children. While the MBS is powered to detect these behaviors at a regional and national level, these behaviors are primarily measured to assess their association with ideational factors.

1.5 Conceptual Model

The conceptual framework of the MBS is the ideational model for strategic communication and behavior change, a predictive model of behavior change that focuses on the multiple, interrelated psychosocial variables that commonly influence individual behavior [8]. As shown in the following figure, the ideation model recognizes that most behavioral decisions are driven by multiple psychosocial factors, often

simultaneously. The ideation model has three components, each of which comprises several elements: (i) cognitive elements, which include variables such as attitudes, beliefs, values, perceived risk, subjective norms, and self-image; (ii) emotional elements, which include emotional response, empathy, and self-efficacy variables; and (iii) social elements including social support and influence, spousal communication, and personal advocacy variables. These variables function at varying degrees like risk factors for disease, but in a positive way: the more ideational variables that apply to a person, the more likely that individual is to adopt the behavior. These ideational variables are also influenced by communication, be it through social interaction, mass media, or interpersonal communication. The factors work both individually and synergistically to influence health outcomes. Research has demonstrated the relationship between ideation and malaria behavior, including ITN use, IPTp, and care-seeking for children under five [9].



Ideation model of strategic communication and behavior change

Glossary of terms used in the MBS

- **Perceived susceptibility** is the belief that one is likely to be affected by a health problem.
- **Perceived severity** is the perception that the consequences of a condition are severe.
- **Perceived response efficacy** is the belief that a recommended action will help a person avoid the threat.
- **Perceived self-efficacy** is a belief in an individual's ability to take relevant actions.
- **Descriptive norms** are the perceptions of what other people do, while injunctive norms are the perceptions of what is approved or disapproved of by others.
- **Interpersonal communication** is the discussion with others regarding relevant topics.
- **Decision-making autonomy** is a person's active involvement in relevant decisions.

2. Methodology

This section describes methodological elements of the study, including the study design, sampling and data collection, analysis, and research ethics.

2.1 Survey Design

The MBS is a cross-sectional survey of randomly selected household heads, women, and men interviewed using structured questionnaires (one for each group of study participants). The study was national in scope and conducted in the Northern, Southern, and Central regions of Malawi. Participants were selected through a multistep process consisting of (i) probability proportional to size selection of the enumeration areas based on the population size; (ii) a random selection of eligible households; and (iii) selection of all eligible individuals within selected households. This process allows the study findings to be generalizable enough to inform programmatic activities to improve malaria-related ideational and behavioral outcomes. This also means that indicators provided in this report are estimations and should be interpreted as such.

2.2 Sampling

2.2.1 Sample Size and Justification

The sample size was estimated to measure relevant malaria-related outcomes related to net use, including caregivers' bed net use, net use among children, and prevalence of positive attitudes toward consistent use of bed nets. The prevalence of caregivers' bed net use was 56%, while the prevalence of net use among children was 68% based on the 2017 MIS. As there are no national estimates for positive attitudes toward consistent use of bed nets, we assumed this indicator to be 50%; this level of prevalence provided us with maximum variability and a sample size that was more than adequate. The following formula was applied to estimate the required sample size:

$$n = d \times \frac{z^2_{1-\frac{\alpha}{2}} * p(1-p)}{\delta^2 \times R_h \times R_i \times CF}$$

Where:

- n is the required sample of individuals (e.g., women) with the desired characteristics, per region.
- Z is the value Z corresponding to the desired level of confidence. A Z=1.96 is assumed, corresponding to 95% of the confidence level.
- d is the design effect due to deviation from simple random sampling, and it was assumed to be 2.0.
- p is the estimated (expected) indicator (e.g., percentage of children under five who slept under an ITN the previous night), and it was assumed to be 68% based on data from the 2017 MIS.
- δ represents the desired margin of error. For the calculation of the study sample size, it is assumed that δ = 5%.
- R_h is the response rate for households. It is assumed to be 90% for this parameter.
- R_i is the response rate for women in selected households. A value of 96% is assumed for this parameter.

- *CF* is the additional correction factor to account for household ownership of at least one net. It was assumed to be 82% based on data from the 2017 MIS.

To reach the desired sample size, a total of 62 clusters (21 households per cluster) were selected in each region for inclusion in the study for a final sample size of 1,302 per region. This sample size considered potential nonresponse at the household and individual levels. It also provided a representative sample at the regional levels and allowed for the calculation of a valid estimate of key indicators of malaria behavior. Based on the Malawi 2017 MIS, there is an average of one woman of reproductive age per household and every eligible woman was selected for the women's questionnaire. In a third of households, the study also selected the male partner of the woman of reproductive age to participate in the men's questionnaire. The unit of measure for the sample size is the household. The final sample size in all three regions was a maximum of 3,906 households, which included 3,906 household heads, 1,302 men, and 3,906 women (total number of eligible women).

While the 2021 MMIS used the same EAs and probability proportional size sample design, they employed different numbers of clusters (MBS:186, MMIS:150) and number of households sampled per cluster (MBS:21, MMIS: 25), although the total sample size was similar, with the MBS containing 3906 households to 3750 in the MMIS. The MMIS also oversampled urban areas while the MBS allocated clusters proportional to the percentage of urban and rural areas by region, which was approximately 15% urban/ 85% rural for each region.

2.2.2 Participant Inclusion and Exclusion

Criteria for included participants were the following:

- Age between 15 and 49 years for women and between 18 and 59 years for men (husbands/partners)
- Parental permission obtained for girls between the ages of 15 to 17
- Regular residents of the selected household
- Ability to communicate intelligibly
- Ability to communicate in English, Chichewa, or Tumbuka

Excluded participants were those

- Not aged between 15 and 49 years for women and not aged between 18 and 59 years for men (husbands/partners)
- Not a regular resident of the selected household
- Unable to understand the questions or to respond intelligibly to questions
- Unable to communicate in English, Chichewa, or Tumbuka

2.2.3 Participant Selection Process

Participants in the study were selected through a multistep process consisting of the successive and random selection of clusters, households, and individuals.

Selection of Clusters

The study team obtained a comprehensive list and sketch maps of clusters (enumeration areas [EAs]) for selected study EAs with the help of NMCP and the Malawi National Statistical Office. For each region, EAs were selected with a probability proportional to the size of the population or the number of households and stratified by urban/rural distribution.

In each selected EA, the study first obtained the approval of community leaders and updated the sketch map with the help of these leaders or local stakeholders from the Ministry of Health.

Selection of Households

The study team conducted a census of the households in the EA using a household listing form. For this survey, a household was defined as a group of people who regularly reside in the same dwelling units and share meals. Eligible households were those with a woman of reproductive age. Once household listing was complete, the study team randomly selected 21 households from the list of eligible households in the cluster. A replacement list of six households was included in case some households refused to participate in the survey or remained unavailable despite several attempts to reach them.

Selection of Individuals

Within each selected household, the interviewers determined the eligibility of the head of the household, obtained written informed consent, and then administered the household questionnaire. The interviewer used the household member list included in the household questionnaire to recruit, obtain written informed consent, and interview all women aged 15 to 49 individually. For unmarried women under 18 years old, parental consent was sought first. In one out of three households that agreed to participate in the survey, the interviewer also recruited, obtained written informed consent, and interviewed the spouse or partner of one of the eligible women. Of note, heads of household were either women of reproductive age or their male partners, depending on the composition of a household. Thus, an individual could have been interviewed more than once.

2.3 Data Collection and Analysis

2.3.1 Data Collection Tools

The household questionnaires covered household characteristics, ownership of assets, and a roster of all bed nets (used) in the house. Both women and men's questionnaires included modules assessing net use, care, and disposal; perceptions of health services; and ideational factors including knowledge, perceived severity, perceived vulnerability, perceived efficacy of prescribed responses, attitudes, perceived self-efficacy, norms, social interactions and influence, and emotional response related to malaria behaviors. Both questionnaires also explored exposure to malaria-related communication interventions. Of note, women's questionnaires also explored antenatal care (ANC) and receipt of IPTp among women who had a live birth within the past two years, as well as receipt of appropriate treatment for children who had a fever in the past two weeks. Given that ANC and IPTp outcomes are assessed among women with a pregnancy in the past two years, the MBS also includes questions on future intentions to receive ANC and IPTp as intermediate outcomes that can be linked with women's current ideational characteristics as of the time of the survey.

2.3.2 Data Collection Procedures and Treatment

Throughout data collection, appropriate COVID-19 prevention protocols were instituted in adherence to Malawi Ministry of Health guidelines, including:

- Daily temperature and COVID-19 symptom screening for all study staff during training and data collection
- Ensuring all participants wore a face mask during data collection wearing a mask properly

- COVID-19 symptom screening of all participants
- Regularly disinfecting hands using hand sanitizers and ensuring physical distancing of at least one meter.

2.3.3 Data Analysis Procedures

The ideational factors explored included correct knowledge, attitudes, perceptions of threat (i.e., severity and susceptibility), efficacy (response efficacy and self-efficacy), supportive community or gender norms, perceptions of service delivery (community and facility-based workers as well as health facilities in general), and interpersonal communication regarding malaria. These factors are measured with a composite score composed of several related questions that capture the multiple dimensions (based on behavior change theory) of each ideational factor and the behavior in question. The individual questions that make up the ideational factors, as well as their prevalence among participants, can be found in the tables located in the appendix, and a more thorough explanation of the construction of the specific ideational factors can be found in the Malaria Behavior Survey Analysis Plan [10].

Complete knowledge was defined as having correct responses to all the relevant knowledge questions. For questions assessing attitudes or perceptions, the variables were recoded as +1 to reflect a positive perception, −1 for a lack of positive attitude, and 0 for "don't know." For questions assessing self-efficacy, the variables were recoded as +1 if the participant answered that they could complete the action, -1 if they answered they could not, and 0 if they did not know. The scores for the questions were summed to obtain an index for positive perceptions/attitudes. Respondents with a score greater than the mid-score based on the number of questions asked were considered to have favorable perceptions or attitudes. Interpersonal communication was coded as "yes" if the respondent reported engaging in discussions related to malaria with a spouse/partner or family/friends.

Key outcomes were defined as follows:

- **ITN use**: whether the net was being used (from the roster) by a household member (from the household roster)
- **ITN access**: dividing the potential ITN users from the number of nets in the household by the number of de facto members for each household and determining the overall sample mean of that fraction
- **Prompt care-seeking**: the proportion of index children under five years old with fever in the past two weeks for whom treatment was sought the same day as fever onset or the next day
- **Appropriate care-seeking**: the proportion of index children under five years old with fever in the past two weeks who were taken to a facility or community health worker first.
- **ANC4 attendance**: the proportion of women with at least one child in the last two years who attended at least four ANC visits during their last pregnancy
- **Receipt of IPTp3**: the proportion of women with at least one child in the last 2 years who received three or more doses of IPTp during the last pregnancy
- **ANC4 Intention**: The proportion of women who intend to have a future pregnancy who intend to also attend four or more ANC visits in their next pregnancy
- **Early ANC Intention**: The proportion of women who intend to have a future pregnancy who also intend to not only attend ANC in their next pregnancy but attend within the first three months of that pregnancy

Cross-tabulations and multivariable regression analysis examined the relationships between sociodemographic characteristics, ideational factors, and the outcomes of interest. Variables included in the regression models were based on *a priori* knowledge and included sociodemographic characteristics and variables informed by the ideation model.

The MBS relies on a probability proportional to size sampling to ensure national and regional representation, which yields a multi-stage stratified cluster sample. The data is weighted based on the probability of selection at each stage (region, enumeration area, and household). There is also a different weight calculated based on respondents' sex, as men are only sampled in a third of households.

2.4 Research Ethics

Study protocols and tools received approval from the institutional review boards at the Johns Hopkins Bloomberg School of Public Health (Institutional Review Board #15731) and the Malawi National Health Sciences Research Committee (NHSRC) (Protocol# l9/ll/2447). All project staff received training on approved study protocols and research ethics. All study participants provided signed informed consent after trained data collectors explained the purpose of the survey, the types of questions that would be asked, the potential risks associated with participating in the survey, and the actions the study team would take to protect the confidentiality of the participants. In addition, data collectors explained to the participants that they did not have to participate in the study, they could decide at any point to discontinue their interview, and they did not need to answer any questions they did not want to. To protect the identity of participants, nicknames were used, when possible, instead of legal names. The household listing sheet in each EA was destroyed when data collection was complete in the corresponding cluster. Signed consent/assent forms were always kept in secure locations.

3. Results

The results of the MBS are presented in the following sections: sample description, cross-cutting ideational factors, case management for fever in children under five, malaria in pregnancy, ITNs, media consumption, and messages.

3.1 Sample Description

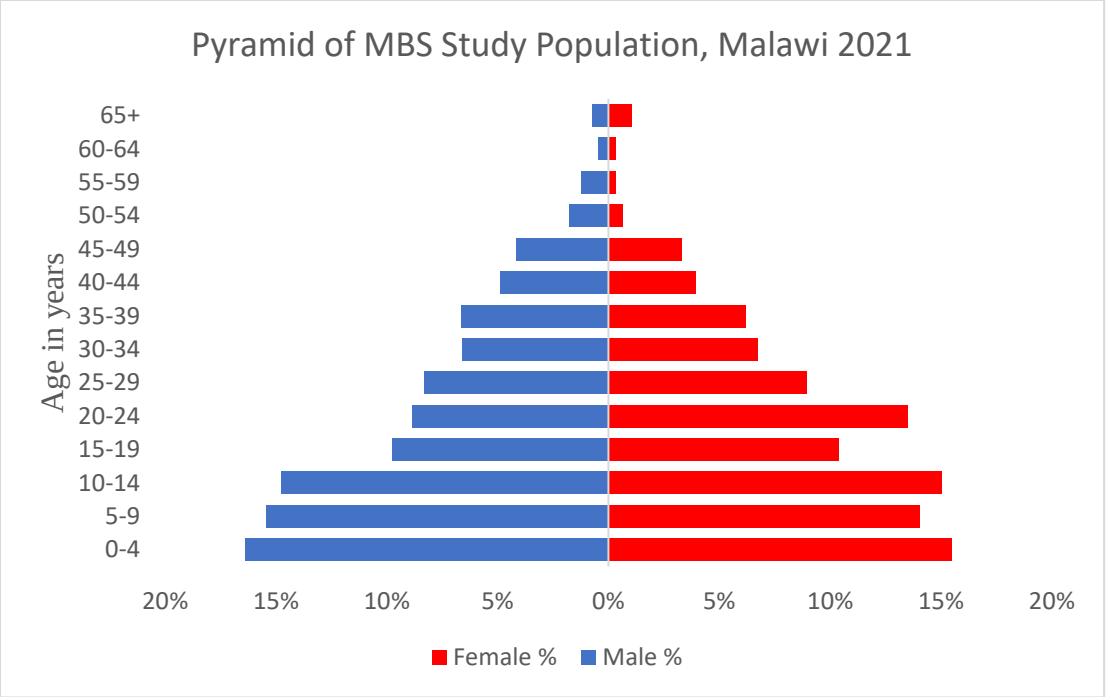
3.1.1 Household Characteristics

Household in Malawi had a median of four residents and two sleeping rooms. While most households had finished walls (83%), fewer households had finished roofs (55%) or floors (32%). Only about 12% of households had electricity, while about a third of households were close to a public (34%) or private (30%) health facility or a pharmacy (31%). As an agrarian nation, most households in Malawi were in rural areas (88%) and owned land (80%) and livestock (54%), while fewer households had assets such as a radio (34%) or television (10%). Some households had bicycles (31%) as a means of transport. Many households relied on simple mobile phones (60%) for communication, with only 13% of households owning smartphones.

Study Sample	
	3,862 households
	1,304 men
	4,181 women
	17,776 household members

3.1.2 Population Characteristics

The age and sex distribution of household members presented in the figure show a triangular population pyramid that reflects Malawi's growing population and a high dependence of the younger population on working-age people. Slightly more household members in Malawi were women (53%), and a slight majority were less than 18 years old (51%). Among the survey respondents specifically, most were female (75%) and aged 25 years or older (65%), reflecting the MBS sampling procedure to recruit mostly women of reproductive ages. Most survey respondents were Christian (90%) and married (85%) and had no formal education (54%).



3.1.3 Malaria in the context of the COVID-19 pandemic

Given the ongoing COVID-19 pandemic, female survey respondents were asked the degree to which the pandemic had influenced access and uptake of malaria related services. Respondents noted that COVID-19 had a very limited impact on malaria related behaviors, over 90% of female respondents stated that COVID-19 had no impact at all on most behaviors. The most affected behaviors were related to accessing care at health facilities, where a minority of participants stated COVID-19 had at least some impact on being able to pay for transportation to get health services (12%) and going to the facility then they need services (10%). Among women who were pregnant, 12% stated that COVID-19 had at least some impact on their ability to attend antenatal care.

3.1.4 Supplemental Information

Additional information on the following results is presented in the annex tables.

- Table 3.1.1: Housing characteristics
- Table 3.1.2: Ownership of assets and wealth quintile
- Table 3.1.3: Characteristics of household members
- Table 3.1.4: Sociodemographic characteristics of respondents

3.2 Cross-Cutting Ideational Determinants

This section highlights cross-cutting ideational factors related to malaria in Malawi. This includes comprehensive general knowledge of malaria (transmission, symptoms, and prevention), perceived threat (severity and susceptibility) of malaria, interpersonal communication regarding malaria, perceptions of health workers (CHWs and workers at health facilities), and perceived gender norms related to malaria.

Table 3.2.1 presents a summary of the cross-cutting ideational factors. Most respondents (71%) had comprehensive general knowledge of malaria (defined as knowing that fever is the main symptom, that mosquitos cause malaria, and listing at least one major malaria prevention measure), but the percentages were slightly lower among respondents who were male (67%), were adolescents aged 15–24 (66%), had no formal education (66%), and were members of households in the lowest wealth quintile (66%). Most respondents (79%) perceived that they were susceptible to malaria, and this was higher among respondents in the Central region (85%), but less frequent among respondents who were in the Southern region (75%) or lived in urban areas (74%) or among those who were adolescents (73%), had a secondary education (76%), or were members of households in the highest wealth quintile (75%). In contrast, very few respondents (32%) perceived that malaria was severe, particularly those in the Central region (27%) and those who were members of households in the lowest wealth quintile (27%). Perceived malaria severity was higher among respondents in the Southern region (39%), males (38%), and respondents with higher education (38%).

Ideational Determinants at a Glance	
Highly Prevalent (≥ 80%)	
	Perceived equitable gender norms
Less prevalent (≤60%)	
	Perceived severity
	Favorable perceptions of health workers
	Interpersonal communication

Among respondents with partners, partner communication about malaria was low, with only a quarter (24%) having discussed malaria with their partner in the last six months. Subgroups with lower rates of partner communication about malaria included respondents in the North (22%), female respondents (21%), adolescents (22%), respondents in urban areas (22%), and those who were uneducated (13%) or in the lowest wealth quintile (20%). In addition, among all respondents, interpersonal communication with family and friends about malaria in the last six months was very low (15%), particularly among respondents who were adolescents (12%), uneducated (13%), or in the lowest wealth quintile (11%).

Slightly over half of all respondents (59%) had favorable perceptions regarding facility-based health workers. The most notable differences were among subgroups of respondents in the Southern (64%) and North (55%) zones and among males (55%) with favorable perceptions towards facility-based health workers. In addition, half of all respondents (50%) had favorable perceptions regarding community-based health workers, and this was higher among respondents in the Central region (54%) but lower in the North (46%) and urban areas (43%). An overwhelming majority of participants (94%) perceived equitable gender norms related to malaria with minimal variation by respondent characteristics.

3.2.1 Supplemental Information

Additional information on the following indicators is presented in the annex.

- Table 3.2.2: Correct knowledge of malaria
- Table 3.2.3: Perceived susceptibility to malaria
- Table 3.2.4: Perceived severity of malaria
- Table 3.2.5: Interpersonal communication regarding malaria
- Table 3.2.6: Perceptions regarding facility-based health workers
- Table 3.2.7: Perceptions regarding community health workers
- Table 3.2.8: Gender norms related to malaria

Table 3.2.1 Summary of Cross Cutting Ideational Determinants								
Percentage of respondents who reported cross-cutting ideational factors related to malaria, by sociodemographic characteristics, Malawi 2021								
Characteristic	Comprehensive general knowledge	Perceived susceptibility	Perceived severity	Reported interpersonal communication with spouse or partner	Reported interpersonal communication with friends/family	Favorable perceptions of facility-based health workers	Favorable perceptions of community health workers	Perceive positive gender norms
Region								
Northern	73	77	31	22	15	55	46	95
Central	68	85	27	25	15	61	54	95
Southern	70	75	39	25	15	64	50	95
Sex								
Female	72	78	30	21	15	61	50	94
Male	67	82	38	33	16	55	49	95
Age								
15–24	66	73	32	22	12	60	51	94
25–34	74	81	34	25	17	59	48	96
35–44	73	84	28	25	16	58	50	94
≥45	67	82	33	26	18	58	50	93
Residence								
Urban	76	74	34	22	15	62	43	96
Rural	70	80	32	24	15	59	51	94
Education								
None	66	81	29	21	13	58	49	94
Primary	74	79	30	26	17	61	54	95
Secondary or more	78	76	38	29	18	60	48	97
Wealth quintile								
Lowest	66	83	27	20	11	59	52	93

Second	67	79	33	25	14	60	51	95
Middle	69	81	32	23	16	59	50	95
Fourth	74	79	31	26	17	58	48	95
Highest	77	75	35	26	18	61	49	95
Total (%)	**71**	**79**	**32**	**24**	**15**	**59**	**50**	**95**
Notes: N=5,845 overall respondents, N=4,693 with spouses/partners								

3.3 Malaria Case Management for Children Under Five Years Old

	Seventy percent of caregivers of children under five with fever sought prompt and appropriate care the same day as onset of a fever or the next day from a health facility or from a CHW first.
	Significant ideational factor: correct knowledge of malaria care and treatment

This section describes the ideational factors related to malaria case management for children under five, the prevalence of relevant behavior, and the associations between ideational factors and the behavior using logistic regression. Ideational factors related to malaria care-seeking and treatment explored in the MBS include knowledge, favorable attitudes, perceived response-efficacy, perceived self-efficacy, perceived supportive community norms, perceived equitable gender norms, favorable perceptions of health workers, involvement in decision-making, and interpersonal communication. The specific **case management behaviors** that were explored included **any care-seeking, appropriate** (in a health facility or from a CHW) and **prompt** (same or next day as the onset of fever) care-seeking. The assessed outcomes included malaria testing, confirmed cases of malaria, and the proportion of confirmed malaria cases given artemisinin combination therapy (ACT).

3.3.1 Ideational Determinants

Table 3.3.1a presents a summary of ideational factors related to case management for children under five years old. Over half of respondents (60%) had correct knowledge of malaria care-seeking and treatment. Correct knowledge was higher among respondents in the Southern regions (73%), but respondents who were in the North (51%), adolescents aged 15–24 (52%), and respondents in the lowest wealth quintile (57%) showed lower knowledge.

Many respondents (78%) had favorable attitudes related to care-seeking and treatment, although the rates were lower among respondents who were in the Southern region (72%), those who were uneducated (73%), and those in the lowest wealth quintile (72%). About two-thirds of respondents (63%) perceived response efficacy regarding malaria testing; subgroups with lower levels of perceived response efficacy were respondents in the Southern region (50%) and those with no formal education (59%). More respondents (74%) perceived response efficacy for malaria treatment compared with malaria testing, although this was notably lower among respondents who were in the North (66%).

Ideational Determinants at a Glance	
Highly Prevalent (≥ 80%)	
	Perceived self **efficacy**
	Perceived equitable gender norms
	Favorable perceptions of facility health workers
	Involvement in decision making
Less prevalent (≤60%)	
	Knowledge
	Favorable perceptions of community health workers

Most respondents perceived self-efficacy related to malaria treatment (80%), with minor variations by respondent characteristics.

About two-thirds of respondents (68%) perceived supportive descriptive community norms related to malaria testing and treatment. However, respondents who were adolescents (63%) or in urban areas (58%) had lower rates of perceived supportive norms. The overwhelming majority (95%) of respondents perceived equitable gender norms related to malaria with minimal variation across subgroups of respondents.

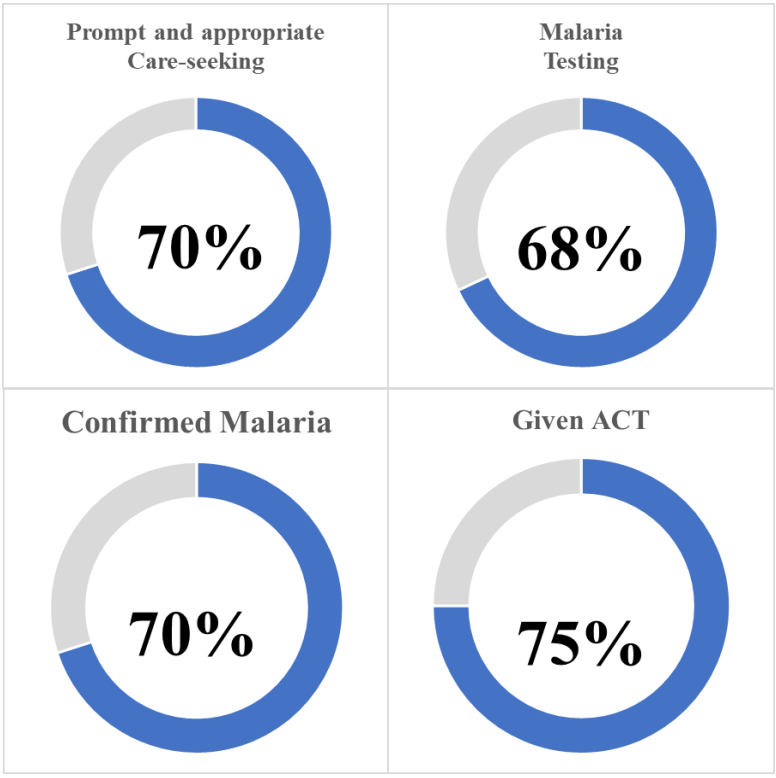
Many respondents (63%) had favorable perceptions of health facilities regarding malaria case management, although the proportion was notably lower among respondents who were in urban areas (56%). Only half (50%) of respondents had favorable perceptions of community-based workers, especially in urban areas (43%). In contrast, most respondents (93%) had favorable perceptions of facility health workers, with no major variations by respondents' characteristics.

Most respondents were involved in decision-making related to malaria care-seeking and treatment. Specifically, 84% of all respondents with partners noted that the decision to go to the health facility when a child had malaria was made by themselves or jointly with their partners. The percentage was somewhat lower among respondents who were adolescents aged 15–24 years old (77%). Similarly, 73% of all respondents with partners noted that the decision to purchase medicine when a child had a fever were made by themselves or jointly with their partners. Male respondents (83%) reported higher rates of decision-making autonomy, but lower rates were seen among women (69%) and adolescents (65%).

3.3.2 Relevant Behaviors and Outcomes

Female respondents who were caregivers of children under five were asked about relevant malaria case management behaviors and outcomes. About a third of caregivers (33%) noted that at least one of their children under five had an episode of fever in the two weeks preceding the survey. Subgroups of caregivers that reported lower rates of fever included those in urban areas (23%) and in the highest wealth quintile (26%).

Overall care-seeking rates were appreciable. Among caregivers who reported a recent episode of fever among their children, 83% of them sought care for the fever. Lower care-seeking rates occurred among caregivers in the Central region (78%) and in the highest wealth quintile (75%). Similarly, 80% of caregivers with feverish children practiced appropriate care-seeking (defined as seeking care from a health facility or from a CHW as a first recourse). Among caregivers that did not seek care for their child with fever, reasons cited included transportation issues (26%), lack of time to go to the facility (19%) and self-treatment of malaria (17%). Appropriate care-seeking was noted to be less prevalent among caregivers in the highest wealth quintile (72%). In addition, many caregivers (72%) practiced prompt (same day as the onset of fever or the next day) care-seeking.



Caregivers reported that a malaria test was done for more than two-thirds of the children with fever in the two weeks prior to the survey for whom care was sought. Specifically, among caregivers who reported a recent episode of fever in their children and sought care for them, 68% reported that their child was tested for malaria, and this was notably lower among caregivers in the highest wealth quintile (54%). Among caregivers who reported that their child was tested for malaria, 70% noted that the test result was positive. Positivity rates were lower among caregivers in the Southern region (59%) and in urban areas (34%). In addition, among respondents reporting confirmed malaria, most (75%) were given an ACT, with a higher rate among caregivers in the Southern region (95%) but a lower rate in the Northern region (55%) and highest wealth quintiles (52%). About two-thirds (66%) of caregivers who reported a positive malaria test for their child noted that they were given an ACT the same day as diagnosis.

3.3.3 Advanced Analysis

Logistic regression analysis was used to explore ideational factors related to prompt and appropriate care-seeking for children under five who have a fever. Prompt and appropriate care included care-seeking within one day of the onset of the child's fever from a health facility or from a CHW first. The ideational factors explored in this advanced analysis are listed in Table 3.3.1b.

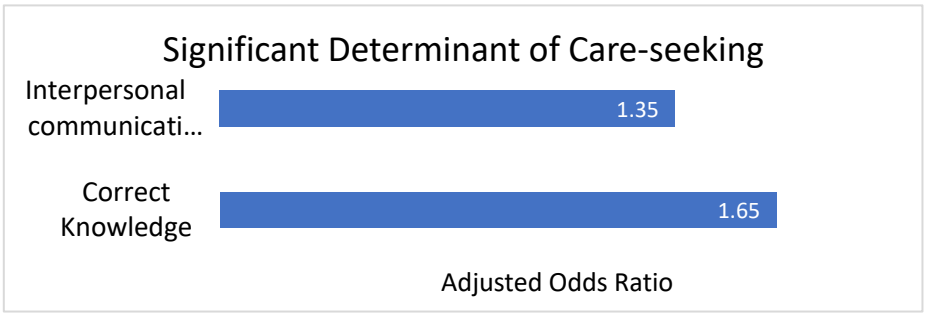


Table 3.3.1b also presents the results of the logistic regression exploring factors associated with prompt and appropriate care-seeking for children with fever in the past two weeks. The significant ideational determinants of intention for prompt and appropriate care-seeking were correct knowledge of malaria care and treatment (adjusted odds ratio [aOR] 1.65, 95% Confidence interval (CI) 1.22-2.23) and interpersonal communication about malaria with a spouse, partner, friend, or family member in the past six months (aOR 1.35, 95% CI 1.00 - 1.81). Of note, caregivers' sociodemographic characteristics were not associated with prompt and appropriate care-seeking.

3.3.4 Supplemental Information

Detailed information on the following indicators is presented in the annex.

- Table 3.3.2: Knowledge of malaria care-seeking and treatment
- Table 3.3.3: Attitudes toward malaria care-seeking and treatment
- Table 3.3.4a: Perceived response efficacy of malaria testing
- Table 3.3.4b: Perceived response efficacy of malaria treatment
- Table 3.3.5: Perceived self-efficacy for malaria testing and treatment
- Table 3.3.6: Gender norms related to malaria treatment
- Table 3.3.7: Perceived community norms regarding malaria testing and treatment
- Table 3.3.8a: Perceptions of health facilities regarding malaria care-seeking and treatment
- Table 3.3.8b: Perceptions of community health workers regarding malaria care-seeking and treatment
- Table 3.3.8c: Perceptions of facility health workers regarding malaria care-seeking and treatment
- Table 3.3.9: Decision-making for malaria care and treatment
- Table 3.3.10: Care-seeking and testing of children with fever in the past 2 weeks
- Table 3.3.11: Treatment of children with fever

Table 3.3.1a: Summary of Ideational Variables Related to Case Management for Children Under Five

Percentage of respondents who report cross-cutting ideational factors, by respondent sociodemographic characteristics, Malawi 2021

	Knowledge of care-seeking and treatment	Favorable attitude toward care-seeking and treatment	Perceived response-efficacy of malaria testing	Perceived response-efficacy of malaria treatment	Perceived self-efficacy for malaria testing and treatment	Perceived supportive descriptive community norms regarding malaria testing and treatment	Perceive equitable gender norms related to malaria treatment	Favorable perception of health facilities regarding care-seeking and treatment	Favorable perception of community-based health workers regarding care-seeking and treatment	Favorable perception of facility-based health workers regarding care-seeking and treatment	Involved in decision to go to the health facility when child has malaria	Involved in decision to purchase medicine when child is sick with fever
Region												
Northern	51	79	67	66	78	72	96	62	46	93	82	74
Central	61	81	69	84	83	66	95	62	54	92	86	72
Southern	73	72	50	76	79	65	95	66	50	93	85	72
Sex												
Female	61	79	63	74	79	69	95	64	50	93	83	69
Male	59	76	64	76	84	65	95	59	49	91	89	83
Age												
15–24	52	75	60	70	79	63	94	66	51	92	77	65
25–34	64	81	65	78	80	69	96	60	48	94	86	74
35–44	67	79	64	76	81	71	95	63	50	93	88	77
≥45	62	77	65	77	80	73	95	63	50	94	88	79
Residence												
Urban	60	82	65	77	84	58	95	56	43	91	87	73
Rural	60	78	63	74	79	69	95	64	51	93	84	72
Education												
None	58	73	59	73	78	68	94	64	49	92	83	71

Primary	65	81	64	75	83	71	96	66	54	94	84	74
≥Secondary	66	85	70	76	81	66	97	59	48	93	87	74
Wealth quintile												
Lowest	57	72	60	76	76	66	94	64	52	92	84	71
Second	61	78	60	77	77	68	95	66	51	53	83	72
Middle	64	77	58	73	81	70	95	62	50	93	87	75
Fourth	60	80	65	73	81	72	96	64	48	94	83	70
Highest	59	83	71	74	83	64	95	60	49	92	84	73
Total (%)	**60**	**78**	**63**	**74**	**80**	**68**	**95**	**63**	**50**	**93**	**84**	**73**

Notes: N=5,845 overall respondents, N=4,692 with spouses/partners for questions regarding decision making.

Table 3.3.1b: Sociodemographic characteristics of caregivers of children with a fever in the past two weeks			
Characteristic	**Prompt and appropriate care-seeking**		
	%	**aOR**	**%95 CI**
Region			
Northern	73	1.00	n/a
Central	66	0.73‡	0.50–1.06
Southern	70	0.69‡	0.47–1.01
Age			
15–24	70	1.00	n/a
25–34	68	0.76	0.55–1.06
35–44	72	1.10	0.71–1.70
≥45	72	1.48	0.56–3.91
Residence			
Urban (reference)	71	1.00	n/a
Rural	70	0.72	0.42–1.25
Education			
None (reference)	69	1.00	n/a
Primary	67	0.82	0.54–1.25
≥ Secondary	73	0.88	0.60–1.28
Household Wealth Quintile			
Lowest (reference)	71	1.00	n/a
Second	66	0.74	0.49–1.14
Middle	75	1.01	0.65–1.59
Fourth	69	0.98	0.61–1.55
Highest	65	0.81	0.47–1.39
Perceived severity of malaria			
No (reference)	69	1.00	n/a
Yes	71	0.90	0.65–1.24
Perceived susceptibility of malaria			
No (reference)	75	1.00	n/a
Yes	69	0.79	0.52–1.22
Talked about malaria with spouse/friends/family members			
No (reference)	67	1.00	n/a
Yes	73	1.35*	1.00–1.81

Knowledge of malaria care seeking and treatment			
No (reference)	63	1.00	n/a
Yes	74	1.65**	1.22–2.23
Favorable attitudes toward care seeking and treatment			
No (reference)	63	1.00	n/a
Yes	72	1.28	0.90–1.81
Care seeking and testing perceived as the norm in the community			
No (reference)	67	1.00	n/a
Yes	71	1.34‡	0.99–1.82
Perceive equitable gender norms related to malaria treatment			
No (reference)	74	1.00	n/a
Yes	69	0.62	0.29–1.34
Mentioned at least one incorrect method of malaria transmission			
No (reference)	72	1.00	n/a
Yes	59	0.76	0.52–1.12
Heard a message about malaria on the media			
No (reference)	68	1.00	n/a
Yes	73	1.12	0.80–1.57
Favorable perceptions of health facilities regarding care seeking and treatment			
No (reference)	72	1.00	n/a
Yes	68	0.81	0.58–1.13
Favorable perceptions of facility health workers regarding care seeking and treatment			
No (reference)	65	1.00	n/a
Yes	70	1.18	0.67–2.08
Favorable perceptions of community health workers regarding care seeking and treatment			
No (reference)	67	1.00	n/a
Yes	73	1.29	0.94–1.76

Notes:
Number of observations: 913 women with children under five with fever
‡p<0.1; *p<0.05; ** p<0.01; *** p<0.001.
Abbreviations: aOR: adjusted odds ratio; CI: confidence interval; n/a: not applicable.

3.4 Malaria in Pregnancy

	Among women who reported being pregnant in the two years prior to the study, **42% attended ANC early, 69% attended four or more ANC visits, 60% received three or more doses of IPTp and 83% received an ITN during pregnancy.**
	Seventy-two percent of women intend to attend ANC early in their next pregnancy. Significant ideational factors are: correct knowledge and favorable attitudes

This section describes the ideational factors related to malaria in pregnancy, the prevalence of relevant behavioral outcomes and intentions, as well as the associations between ideational factors and behavioral intentions using logistic regression. Ideational factors related to malaria in pregnancy explored in the MBS include knowledge, favorable attitudes, perceived severity, perceived response-efficacy, perceived self-efficacy (for men and women separately), perceived supportive community norms, perceived equitable gender norms, favorable perceptions of health workers, involvement in decision-making, and interpersonal communication. Relevant outcomes explored include ANC attendance and receipt of IPTp. The specific behavioral intentions explored included intention to attend ANC or receive IPTp in a future pregnancy.

3.4.1 Ideational Determinants

Table 3.4.1a presents a summary of ideational factors related to malaria in pregnancy including ANC and IPTp. Only a third of respondents (34%) had correct knowledge of IPTp. While this knowledge was higher among respondents in the Southern region (39%), correct knowledge was slightly lower among respondents who were in the Central region (29%), males (31%), and those with a secondary education (32%).

Over half of respondents (66%) had favorable attitudes related to IPTp, which was notably highest in the Central region (75%). Most respondents (84%) perceived malaria in pregnancy as severe, and while this was higher in the Southern region (91%), perceived severity was slightly lower among respondents who were adolescents (77%). Most respondents (93%) perceived IPTp to be efficacious, with minimal variation by respondent characteristics. Men's perceived self-efficacy to support their spouses to prevent malaria in pregnancy was high (85%), particularly among male respondents in the Northern region (91%), but lowest among adolescents aged 15–24 years (78%). The overwhelming majority of women (95%) perceived that IPTp was efficacious with no notable variation across respondent characteristics.

About three-quarters of all respondents perceived that at least four ANC visits (75%) or receipt of IPTp (69%) was the norm in their community, with no notable differences observed across subgroups of respondents. However, only about a quarter (28%) of respondents perceived that their community approved of IPTp, and this was lower among respondents in the Central region (21%) and those in the lowest wealth quintile (23%). Most respondents perceived equitable gender norms related to malaria (88%) particularly among respondents in urban areas (92%) and those in the highest wealth quintiles (91%).

Ideational Determinants at a Glance	
Highly Prevalent (≥ 80%)	
	Perceived severity of malaria in pregnancy
	Perceived response efficacy
	Perceived self efficacy
	Perceive equitable gender norms
	Involvement in decision making
Less prevalent (≤60%)	
	Knowledge
	Favorable attitudes towards facility-based workers
	Perceived supportive community norms

Many respondents (73%) had favorable perceptions of community-based health workers regarding their services related to malaria in pregnancy, although this was slightly lower among respondents who were in urban areas (69%). In contrast, fewer respondents (54%) had favorable perceptions of facility-based health workers, and noteworthy differences were seen among respondents in the Northern region (49%), male respondents (49%), and urban residents (61%).

Many respondents in partnerships were involved in decision-making related to ANC. Specifically, 81% of all respondents with partners noted that decisions regarding ANC were made by themselves or jointly with their partners. The rate was somewhat lower among respondents who were in the Northern region (76%) and among adolescents (77%). Over two-thirds (68%) of all respondents with partners noted that they discussed ANC with their partners in the six months preceding the survey. Most subgroups of respondents aligned with this trend, except those in the Central region (73%) and those in urban areas (73%).

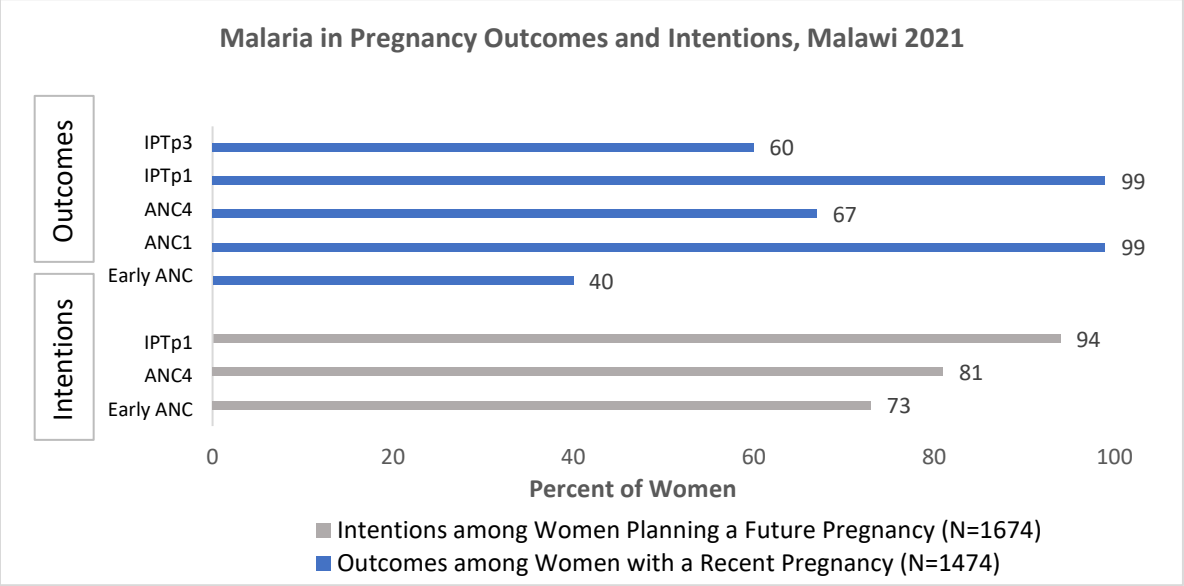
3.4.2 Relevant Behaviors and Intentions

ANC Attendance and Intention to Attend ANC

Only 42% of women with a recent pregnancy (in the two years preceding the survey) reported they attended their first ANC visit within the first three months of their pregnancy. The largest reported barrier to early ANC attendance was the participant not knowing they were pregnant (23%), while health facility distance (10%) and transportation costs (7%) were also mentioned at lower rates. While 99% of women with a recent pregnancy attended at least one ANC visit in their last pregnancy, only two-thirds (69%) of female respondents with a recent pregnancy noted that they attended at least four ANC visits in their last pregnancy. The rate was higher among respondents in the Northern region (74%) but lower among respondents in the Southern region (61%) and those aged 35–44 (56%). In addition, 72% of women noted that they were accompanied by their partner for at least one ANC visit, although it was less likely among women in urban areas (54%). Also, 83% of women with a recent pregnancy noted that they received an ITN during ANC visits, with 34% of those receiving an ITN reporting receiving it during their first trimester. Additionally, 62% of pregnant women who went to ANC within their first trimester received their net during the first trimester.

About three-quarters (73%) of all female respondents who plan to have another child in the future noted that they intend to attend their first ANC visit within their first trimester, although women with a primary education (65%) were less likely to have this intention. Eighty-one percent of all female

respondents who plan to have another child in the future stated that they intend to attend at least four ANC visits for that pregnancy; however, this intention was lower among women in the lowest wealth quintile (75%).



Receipt of IPTp and Intention to Use IPTp

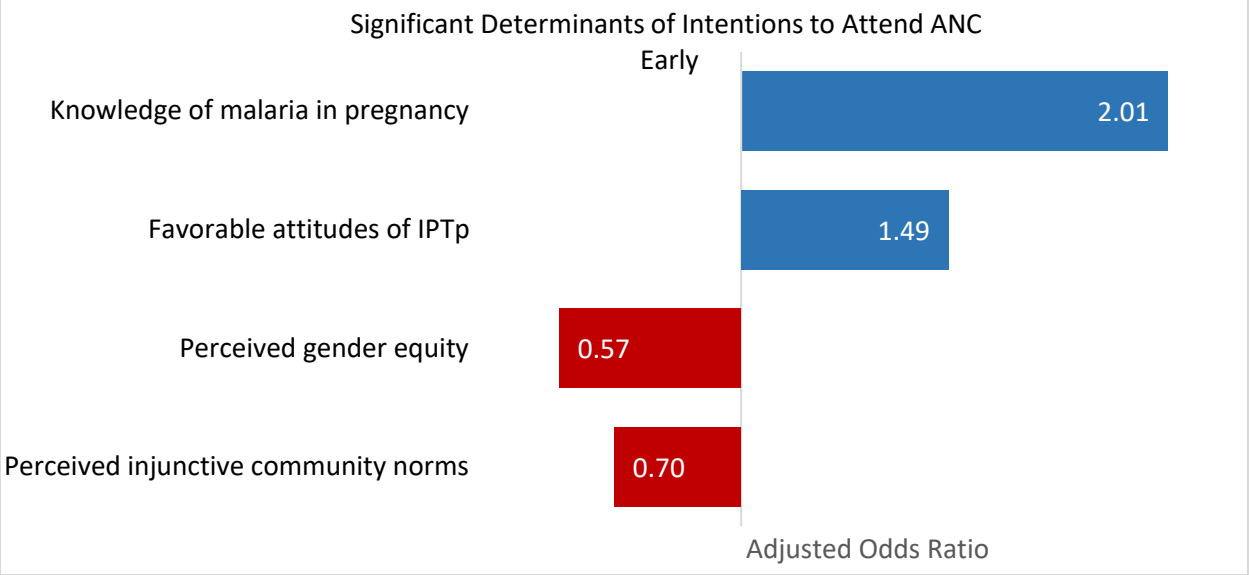
Of note, all women with a recent (in the two years preceding the survey) pregnancy noted that they took at least one dose of IPTp, while 86% took at least two doses. However, less than two-thirds (60%) noted that they received at least three doses of IPTp (IPTp3). Rates for IPTp were higher among female respondents who were adolescents aged 15–24 years (66%) and those with a primary level of education (68%). In addition, 18% of women received at least one IPTp dose from another source other than an ANC visit. Ninety-four percent of the women who planned to have a pregnancy in the future noted that they intended to get at least one dose of IPTp in their next pregnancy, with minimal variation by respondent characteristics.

3.4.3 Advanced Analysis

Logistic regression analysis was used to explore ideational factors related to intentions regarding malaria in pregnancy in a subsequent pregnancy. The key outcome explored for this regression analysis was the intention to attend ANC in the first trimester. When working with ideational determinants there exists a temporality issue in assessing past behavior such as previous ANC attendance with current ideational factors, so current intention to complete the behavior is used instead. Intention to attend at least four ANC visits and intention to use IPTp3 in a future pregnancy were not explored because they are already highly prevalent (>90%).

The logistic regression results are presented in Table 3.4.1b. Ideational determinants of intention for early ANC included correct knowledge and favorable attitudes. Specifically, the odds of intending to attend ANC early was two times higher for women with correct knowledge related to malaria in pregnancy than those without correct knowledge. Also, women with favorable attitudes toward IPTp had higher odds (aOR: 1.49) of intending to start ANC visits early in their next pregnancy. However, the

odds of intending to start ANC early were inexplicably lower among women with perceived injunctive norms on IPTp and those who perceived equitable gender norms regarding ANC (aOR: 0.70 and 0.57, respectively). Of note, women's sociodemographic characteristics were not associated with their



intentions to start ANC early.

3.4.4 Supplemental Information

Additional information on the following indicators is presented in the annex.

- Table 3.4.2: Knowledge of IPTp
- Table 3.4.3: Attitudes toward IPTp
- Table 3.4.4: Perceived severity of malaria in pregnancy
- Table 3.4.5: Perceived response efficacy of IPTp
- Table 3.4.6a: Perceived self-efficacy for IPTp—women
- Table 3.4.6b: Perceived self-efficacy for IPTp—men
- Table 3.4.7: Perceived community norms regarding IPTp
- Table 3.4.8: Perceived gender norms regarding malaria in pregnancy
- Table 3.4.9a: Perceptions of health workers regarding malaria in pregnancy
- Table 3.4.9b: Perceptions of facility-based health workers regarding malaria in pregnancy
- Table 3.4.10: Decision-making regarding ANC
- Table 3.4.11: Interpersonal communication regarding ANC
- Table 3.4.12: Intention to use IPTp
- Table 3.4.13: ANC attendance
- Table 3.4.14: Use of IPTp by women during pregnancy
- Table 3.4.15: Source of IPTp

Table 3.4.1a: Summary of Ideational Variables Related to Malaria in Pregnancy														
Percentage of respondents who report ideational factors by respondent sociodemographic characteristics, Malawi 2021														
Characteristic	Knowledge of IPTp recommendations	Favorable attitudes toward IPTp	Perceived malaria in pregnancy as severe	Perceived response-efficacy of IPTp	Men's perceived self-efficacy regarding IPTp	Women's perceived self-efficacy regarding IPTp	Perceived that most women have ≥4 ANC visits	Perceived that most women in their community take IPTp	Perceived that most people in community approve of IPTp	Perceived equitable gender norms regarding ANC	Favorable perceptions of CHWs	Favorable perceptions of facility-based health workers	Involved in decision-making regarding ANC	Discussed ANC attendance with spouse/ partner
Region														
Northern	35	60	77	92	91	96	76	69	34	90	72	49	76	66
Central	29	75	88	95	83	95	76	73	21	87	74	54	86	73
Southern	39	64	91	92	78	93	75	65	28	86	74	59	82	64
Sex														
Female	35	67	84	93	—	—	77	72	28	87	74	55	80	67
Male	31	63	84	92	—	—	69	57	28	89	72	49	83	70
Age														
15–24	33	60	77	89	78	92	71	62	28	87	73	51	77	68
25–34	36	70	87	94	87	97	77	72	28	88	75	58	81	72
35–44	35	69	89	96	86	96	79	74	30	88	72	51	85	65
≥45	33	66	88	93	83	94	79	71	24	86	73	53	82	60
Residence														
Urban	34	70	86	96	87	95	70	66	28	92	69	61	85	73
Rural	35	65	84	92	84	95	76	70	28	87	74	53	80	67
Education														
None	37	63	86	93	81	94	76	70	28	87	72	53	79	65
Primary	33	70	83	92	87	96	76	70	26	86	73	53	81	68
Secondary or more	32	69	82	93	88	95	74	68	30	90	76	54	85	73

Wealth quintile														
Lowest	32	64	85	93	80	94	74	69	23	87	73	55	83	68
Second	37	66	83	92	82	95	72	65	25	86	75	55	80	66
Middle	37	67	87	92	87	95	79	71	31	88	72	52	81	68
Fourth	34	67	84	92	85	95	78	72	31	86	74	53	81	68
Highest	32	66	83	95	89	95	74	68	30	91	72	53	80	69
Total (%)	**34**	**66**	**84**	**93**	**85**	**95**	**75**	**69**	**28**	**88**	**73**	**54**	**81**	**68**

Table 3.4.1b: Results of the logistic regression exploring factors associated with intention for early ANC			
Characteristic	**Early ANC**		
	%	**aOR**	**%95 CI**
Region			
Northern (reference)	70	1.00	n/a
Central	73	1.00	0.75–1.33
Southern	75	1.08	0.81–1.43
Age			
15–24	71	1.00	n/a
25–34	73	1.06	0.83–1.35
35–44	75	0.86	0.53–1.38
Residence			
Urban (reference)	74	1.00	n/a
Rural	72	0.90	0.63–1.28
Education			
None (reference)	76	1.00	n/a
Primary	65	0.76‡	0.56–1.03
Secondary or more	70	0.77‡	0.59–1.02
Household Wealth Quintile			
Lowest (reference)	71	1.00	n/a
Second	67	0.76‡	0.56–1.03
Middle	78	0.77‡	0.59–1.02
Fourth	70	0.76‡	0.56–1.03
Highest	74	0.77‡	0.59–1.02
Perceived severity of malaria			
No (reference)	73	1.00	n/a
Yes	71	0.92	0.72–1.18
Perceived susceptibility of malaria			
No (reference)	70	1.00	n/a
Yes	73	0.83	0.62–1.11
Talked about malaria with spouse/friends/family members			
No (reference)	72	1.00	n/a
Yes	73	1.31‡	0.99–1.72
Correct knowledge related to malaria in pregnancy			

No (reference)	67	1.00	n/a
Yes	81	2.01***	1.58–2.56
Favorable attitudes toward IPTp			
No (reference)	67	1.00	n/a
Yes	75	1.49**	1.17–1.90
Perceived severity of malaria in pregnancy			
No (reference)	68	1.00	n/a
Yes	73	1.06	0.77–1.46
Perceived response efficacy of IPTp			
No (reference)	60	1.00	n/a
Yes	73	1.04	0.64–1.68
ANC4 perceived as the norm in the community			
No (reference)	70	1.00	n/a
Yes	73	0.94	0.69–1.29
IPTp perceived as the norm in the community			
No (reference)	70	1.00	n/a
Yes	73	1.21	0.90–1.64
Perceived injunctive norms on IPTp			
No (reference)	74	1.00	n/a
Yes	68	0.70**	0.55–0.89
Perceived equitable gender norms regarding ANC			
No (reference)	81	1.00	n/a
Yes	71	0.57**	0.38–0.87
Favorable perceptions of CHWs			
No (reference)	71	1.00	n/a
Yes	72	1.27‡	0.96–1.68
Favorable perceptions of facility based health workers			
No (reference)	68	1.00	n/a
Yes	76	1.18	0.94–1.48
Involved in decision making regarding ANC			
No (reference)	70	1.00	n/a
Yes	74	0.94	0.70–1.26
Discussed ANC attendance with spouse/partner			
No (reference)	71	1.00	n/a
Yes	74	1.00	0.76–1.33
Notes:			

Number of observations: 1,674 women who intend to get pregnant again
‡p<0.1; *p<0.05; **p<0.01; ***p<0.001.
Abbreviations: aOR: adjusted odds ratio; CI: confidence interval; n/a: not applicable.

3.5 Insecticide-Treated Net Use and Care

Fifty-five percent of people consistently use their nets
The most important ideational factors were favorable attitudes, perceived malaria severity, susceptibility, supportive community norms, and self-efficacy.

Fifty-seven percent of people hang up their nets when not in use.
The significant ideational factors were favorable attitudes, knowledge of malaria transmission, perceived malaria susceptibility, ITN efficacy, and supportive descriptive community norms.

This section describes the ideational factors related to ITN use, the prevalence of relevant ITN outcomes, and the associations between ideational factors and relevant outcomes using logistic regression. Ideational factors related to ITN use explored in the MBS include knowledge, favorable attitudes toward ITN use and care, perceived response-efficacy, perceived self-efficacy, perceived supportive community norms, and perceived equitable gender norms. The relevant outcomes explored include household-level ITN ownership, population-level ITN access and use, ITN use-to-access ratio, characteristics and use of existing nets, net care, and consistent ITN use.

3.5.1 Ideational Determinants

Table 3.5.1a presents a summary of ideational factors related to ITN use. Most respondents had correct knowledge related to ITNs (90%), favorable attitudes specific to ITN care (93%), perceived self-efficacy (97%), and perceived gender norms (94%). For these factors, there were minimal variations across respondent characteristics.

Most respondents (82%) had favorable attitudes toward ITN use, and the rate was higher among respondents who were in urban areas (88%) and those with a secondary education (88%). However, less than two-thirds (61%) had perceived response efficacy related to ITN. Slightly higher rates of perceived response efficacy were seen among respondents in the Central region (65%) and those with a secondary education (69%). Among respondents who were uneducated (55%) or in the lowest wealth quintile (56%), lower rates of perceived response efficacy were observed.

In addition, about a third of respondents perceived supportive community norms regarding ITN use. Specifically, 38% of respondents perceived that at least half of their community members who had nets used them nightly. This perception was higher among respondents in the Southern region (42%) but lower in the Central region (33%). Similarly, only 30% of respondents perceived that at least half of their community members approved of people using a net every night, and this was lower among respondents in the Central region (22%).

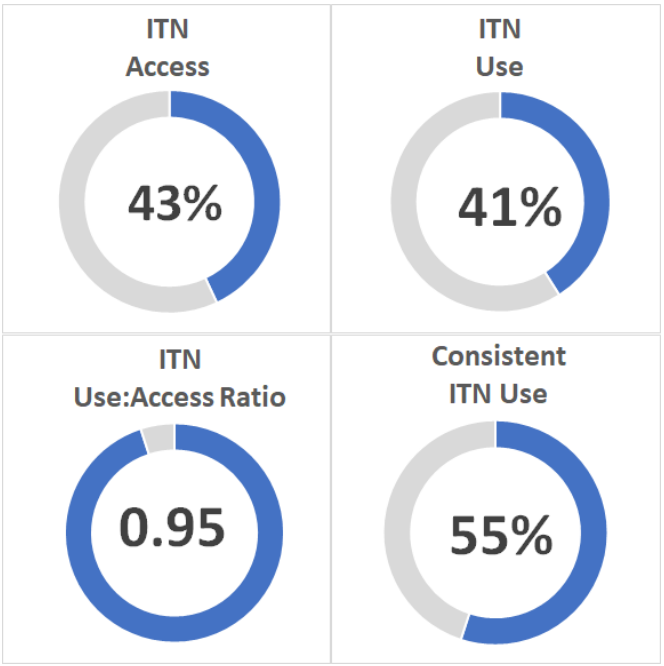
3.5.2 Relevant Behaviors and Outcomes

ITN Access and Use

Over half (60%) of households possessed at least one ITN at the time of interview, with the highest rate in the Southern region (71%) and the lowest in the Northern region (51%). In addition, household ownership of at least one ITN was higher in urban (67%) compared with rural areas (58%) and increased with wealth quintiles ranging from 51% in the lowest wealth quintile to 70% in the highest.

In contrast to household ownership of at least one ITN, only about a fifth (19%) of households had enough nets, which was defined as at least one net for every two people in the household. Like ownership of at least one ITN, households with enough nets were more common in the Southern region (26%) and in urban areas (25%) compared with rural (18%) areas. Also, this rate ranged from 13% in the lowest wealth quintile to 35% in the highest.

Population access to ITN (based on the assumption that a net can be used by two people in a household) was 43%. Across regions, ITN access ranged from 38% in the Northern region and 39% in the Central region to 54% in the Southern region. Also, ITN access increased from 31% among populations in the lowest wealth quintile to 61% in the highest.



Population ITN use was similar to access. Specifically, 41% of the population used an ITN the night preceding the survey. ITN use was highest among children under five years old (51%) and older adults (25 years and above), while other ages had lower use rates: 5- to 14-year-olds (31%) and 15- to 24-year-olds (36%). In addition, ITN use was higher among populations in the highest wealth quintile (51%) as well as in urban areas (49%) compared with rural (40%) areas, but it was similar between males (40%) and females (43%). Of note, ITN use was markedly higher among populations in households that had enough nets (89%) compared with those in households with less than one ITN per two people in the household (32%). As a result of the similarities between population-level ITN access and use, the use-to-access ratio was very high at 0.95. The use-to-access ratio was 0.91 in urban areas and 0.98 in rural areas. In addition, the use-to-access ratio was highest in the lowest wealth quintile (1.16) and decreased slightly with each increasing level of wealth to 0.82 in the highest wealth quintile.

More than half (55%) of the respondents surveyed noted that they used a net consistently, which was defined as every day of the week . Consistent net use was higher among respondents in urban areas (60%), the Southern region (64%), and the highest wealth quintile (62%). In contrast, consistent net use was lower in the Northern (47%) and the Central (57%) regions.

ITN Characteristics

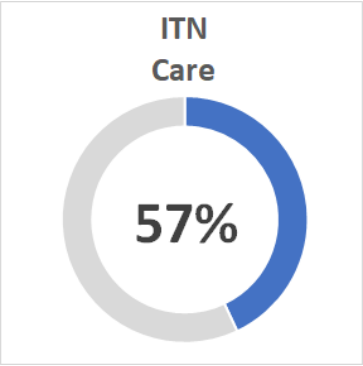
The overwhelming majority (98%) of nets identified in the net roster were ITNs (donor agencies typically procure only ITNs) versus untreated nets. Among all ITNs identified, 86% were used the previous night (83% in the Northern region, 84% in the Central region, and 91% in the Southern region). Similarly, 86% of all ITNs identified were reported as being used every day of the week preceding the survey (81% in the Northern region, 87% in the Central region, and 89% in the Southern region).

All ITNs identified were also reported to have been obtained for free. Sources of ITNs included mass distribution campaigns (51%), ANC visits (28%), birth/immunization visits (8%), and private shops (13%). In addition, many ITNs were less than 12 months old (38%), 13–24 months old (24%), or 25–36 months old (36%). Only 2% of nets were older than 36 months. In addition, most ITNs were green (65%), while others were white (16%), blue (12%), or a different color (7%).

ITN Care and Repurposing

ITN care rates in Malawi were appreciable. Specifically, about three-quarters (77%) of nets had been washed previously (Northern region, 62%; Central region, 78%; and Southern region, 89%). Of the nets that had been washed, detergents were the most common washing agent (64%), and nets were commonly dried in the shade (67%) or sun (32%).

Respondents also noted specific net care and repurposing actions. Specific actions respondents noted to care for their nets include rolling or tying up nets when not in use (57%), handling nets with care (13%), keeping away from children (17%), and washing nets gently (11%) or only when dirty (12%).



In addition, only 14% of all respondents noted that they have ever repurposed a net that was no longer useful for sleeping under. Among those who repurposed nets, most common uses were neutral repurposing and included protection for seedlings/crops (27%), as rope or for tying (38%), and other purposes (40%), while 11% practiced positive repurposing such as window screens or patching for other nets.

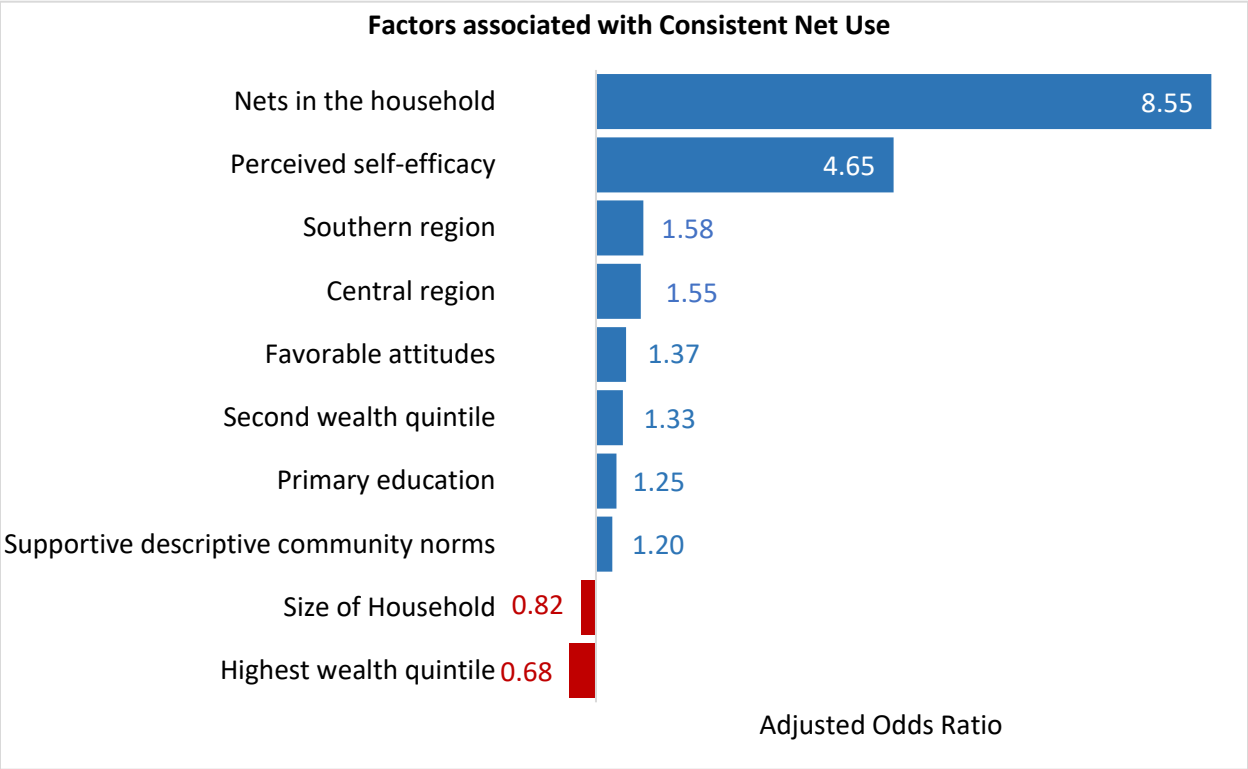
3.5.3 Advanced Analysis

Adjusted logistic regressions were used to explore ideational factors related to consistent ITN use as well as the specific ITN care behavior of rolling up ITNs when not in use.

Consistent ITN Use

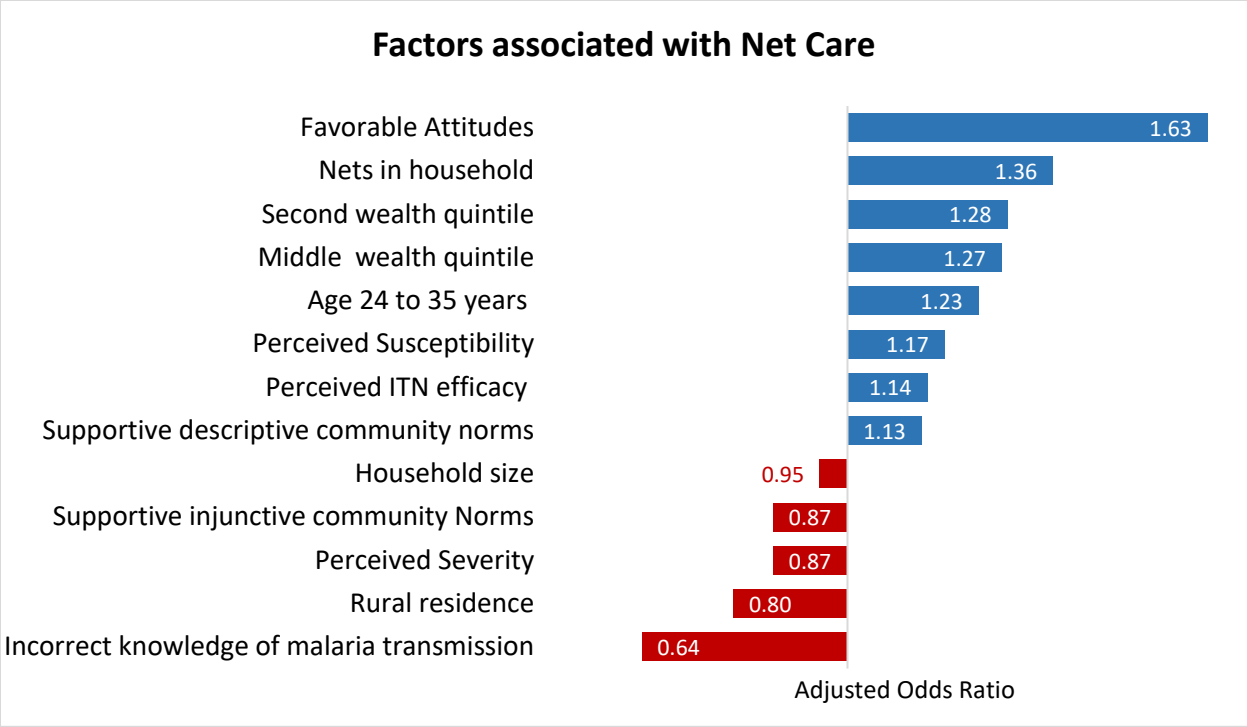
As shown in Table 3.5.1b, significantly higher odds ratios of consistent ITN use were observed for many ideational determinants related to ITN use including: perceived self-efficacy (4.65), supportive descriptive community norms (1.20), and favorable attitudes towards ITN use (1.37). In contrast, perceived severity of malaria was associated with reduced odds of using an ITN consistently (aOR: 0.86). Sociodemographic characteristics were also seen to be associated with consistent ITN use. The adjusted odds ratios of consistent ITN use were also higher among respondents in the Southern region (1.58) and the Central region (1.55) compared with residents in the Northern region (reference category). Respondents with primary (1.25) education had higher odds of consistent ITN use compared with those with no schooling. In addition, the odds of consistent ITN use were higher among respondents in the

second wealth quintile (aOR: 1.33) and lower among those in the highest wealth quintile (aOR: 0.68) as compared to the lowest wealth quintile.



ITN care

The ITN care behavior of hanging or tying up nets when not in use was significant for several ideational and sociodemographic determinants. Adjusted odds ratios were higher among respondents who had favorable attitudes related to ITN care (1.63) and those with perceived susceptibility to malaria (1.17), ITN efficacy (1.14), and supportive descriptive community norms (1.13). In addition, respondents with incorrect knowledge of malaria transmission were less likely to care for their nets (aOR: 0.64). However, perceived supportive injunctive community norms about ITN care and severity of malaria were inexplicably associated with reduced odds of practicing ITN care (aOR: 0.87 each). Other sociodemographic characteristics influencing ITN care included the number of nets in the household (aOR: 1.36), wealth quintile (aOR: 1.27–1.28), age (aOR: 1.23), household size (aOR: 0.95), and rural residence (aOR: 0.80).



3.5.4 Supplemental Information

Additional information on the following indicators is presented in the annex.

- Table 3.5.2: Knowledge of malaria prevention using mosquito nets
- Table 3.5.3a: Favorable attitudes toward ITNs
- Table 3.5.3b: Favorable attitudes toward ITN care
- Table 3.5.4: Perceived response efficacy of ITNs
- Table 3.5.5: Perceived self-efficacy to use ITNs
- Table 3.5.6a: Perceived community norms regarding ITNs
- Table 3.5.6b: Perceived gender norms regarding ITNs
- Table 3.5.7: Household possession of mosquito nets
- Table 3.5.8: Access to an ITN
- Table 3.5.9: Use of mosquito nets by persons in the household
- Table 3.5.10: ITN use access ratio
- Table 3.5.11: Use of existing ITNs
- Table 3.5.12: ITN characteristics
- Table 3.5.13: ITN care and repurposing
- Table 3.5.14: Consistent net use

Table 3.5.1a: Summary of Ideational Variables Related to ITN Use									
Percentage of respondents who report ITN ideational factors, by respondent sociodemographic characteristics, Malawi 2021 (N=5,485)									
Characteristic	Knowledge of malaria prevention using mosquito nets	Favorable attitudes toward ITNs	Favorable attitudes toward ITN care	Perceived response-efficacy of ITNs	Perceived self-efficacy to use ITNs	Perceived supportive descriptive community norms regarding ITNs	Perceived supportive injunctive community norms regarding ITNs	Perceived equitable gender norms related to malaria	Perceived equitable gender norms related to malaria
Region									
Northern	90	80	90	59	96	39	33	93	96
Central	88	84	97	65	97	33	22	94	97
Southern	92	81	95	59	97	42	34	94	97
Sex									
Female	90	81	94	60	97	39	29	94	96
Male	89	84	94	64	97	37	31	95	98
Age									
15–24	87	79	92	60	96	36	32	94	96
25–34	92	84	94	62	97	40	29	95	97
35–44	92	83	95	62	97	38	31	93	96
≥45	87	81	95	57	97	37	24	92	96
Residence									
Urban	93	88	96	60	97	38	28	95	99
Rural	90	81	94	61	97	38	30	94	96
Education									
None	87	78	92	55	96	37	29	93	96

Primary	93	84	96	65	97	41	29	94	97
Secondary or more	95	88	95	69	97	39	32	96	97
Wealth quintile									
Lowest	87	78	94	56	96	35	26	92	97
Second	88	79	94	57	96	38	28	93	96
Middle	92	81	96	61	97	40	32	94	97
Fourth	91	83	92	63	97	40	31	95	96
Highest	92	86	93	65	97	37	32	95	97
Total (%)	**90**	**82**	**94**	**61**	**97**	**38**	**30**	**94**	**97**

Table 3.5.1b: Logistic Regression Exploring Factors Associated With Consistent Net Use and Hanging Up Net When Not in Use						
Characteristic	**Consistent net use**			**Hanging up net when not in use**		
	%	**aOR**	**95% CI**	**%**	**aOR**	**%95 CI**
Region						
Northern (reference)	47	1.00	n/a	56	1.00	n/a
Central	57	1.55***	1.29–1.87	56	0.92	0.80–1.06
Southern	64	1.58***	1.31–1.91	61	1.06	0.92–1.22
Sex						
Male (reference)	55	1.00	n/a	60	1.00	n/a
Female	55	1.13	0.95–1.34	57	0.93	0.81–1.07
Age						
15–24	54	1.00	n/a	53	1.00	n/a
25–34	57	1.19+	0.99–1.42	61	1.23**	1.07–1.42
35–44	56	0.96	0.78–1.18	59	1.11	0.94–1.30
≥45	49	0.75+	0.56–1.01	54	0.91	0.74–1.13
Residence						
Urban	54	1.22+	0.97–1.53	57	0.80*	0.67–0.95
Rural	60	1.00	n/a	63	1.00	n/a
Education						
None (reference)	49	1.00	n/a	55	1.00	n/a
Primary	55	1.25*	1.02–1.52	61	1.02	0.88–1.19
Secondary or more	66	1.35**	1.12–1.63	60	0.89	0.77–1.03
Household Wealth Quintile						
Lowest (reference)	44	1.00	n/a	52	1.00	n/a
Second	55	1.33*	1.06–1.66	60	1.28**	1.07–1.53
Middle	56	1.19	0.95–1.49	59	1.27**	1.06–1.52

Fourth	56	1.21	0.96–1.53	56	1.11	0.93–1.34
Highest	62	0.68**	0.52–0.89	60	1.07	0.88–1.31
Attitudes favorable to the use of mosquito nets						
No (reference)	47	1.00	n/a	45	1.00	n/a
Yes	57	1.37**	1.13–1.68	60	1.63***	1.40–1.90
Perceived severity						
No (reference)	55	1.00	n/a	58	1.00	n/a
Yes	54	0.86+	0.73–1.00	57	0.87*	0.77–0.98
Perceived susceptibility						
No (reference)	49	1.00	n/a	53	1.00	n/a
Yes	57	1.19+	0.99–1.44	59	1.17*	1.02–1.35
Talked about malaria with spouse, family, or friends						
No (reference)	53	1.00	n/a	56	1.00	n/a
Yes	58	0.97	0.84–1.13	60	1.09	0.97–1.23
Perceived mosquito net effectiveness						
No (reference)	51	1.00	n/a	53	1.00	n/a
Yes	57	0.96	0.83–1.12	60	1.14*	1.01–1.28
Perceived self efficacy for mosquito net use						
No (reference)	28	1.00	n/a	48	1.00	n/a
Yes	56	4.65***	3.09–6.99	58	1.00	0.74–1.34
Use of mosquito nets perceived as the norm in the community						
No (reference)	53	1.00	n/a	57	1.00	n/a
Yes	59	1.20*	1.03–1.40	59	1.13*	1.00–1.27
Community members approve of mosquito net use						
No (reference)	55	1.00	n/a	59	1.00	n/a
Yes	56	0.92	0.79–1.08	54	0.87*	0.77–0.98
Mentioned at least one incorrect method of transmitting malaria						
No (reference)	56	1.00	n/a	59	1.00	n/a

Yes	45	0.84	0.67–1.05	44	0.64***	0.53–0.76
Heard a message about malaria on the media						
No (reference)	52	1.00	n/a	57	1.00	n/a
Yes	62	1.01	0.85–1.20	60	0.97	0.85–1.10
Household size	n/a	0.82***	0.79–0.86	n/a	0.95**	0.92–0.98
Number of ITNs	n/a	8.55***	7.61–9.60	n/a	1.36***	1.29–1.44
Number of observations	5484			4441		

Notes:
‡p<0.1; *p<0.05; **p<0.01; ***p<0.001.
Abbreviations: aOR: adjusted odds ratio; CI: confidence interval; n/a: not applicable.

3.6 Media Consumption and Message Exposure

3.6.1 Media Consumption

Table 3.6.1 presents a summary of variables related to media consumption and malaria messaging. Less than half (43%) of all participants listened to the radio at least once a week, with slightly higher rates observed among respondents in the Southern region (46%), male respondents (54%), those in urban areas (56%), those with secondary education (55%), and those in the highest wealth quintile (69%). TV viewing was much less common, with only 10% of participants watching TV at least once a week. This was more pronounced among respondents who were in urban areas (31%), those with secondary education (22%), and those in the highest wealth quintile (41%).

Media Access and Consumption at a Glance		
	Radio listenership	43%
	TV viewership	10%
	Mobile phone ownership	46%

About half (46%) of all respondents owned a mobile phone, especially among respondents who were men (64%), those aged 45 and older (54%), urban dwellers (68%), those with secondary education (69%), and those in the highest wealth quintile (78%). Of note, among all respondents with mobile phones, the majority (96%) noted that they could use chat, text, and emails on their devices, while lower proportions noted that their devices could send or receive audio files (41%), pictures (33%), or videos (31%).

3.6.2 Message Exposure and Recall

Only about a quarter (28%) of respondents stated they had seen or heard a malaria message in the last six months preceding the survey. Malaria message exposure was higher among respondents with secondary education (39%) and those in the highest wealth quintile (38%). About half (49%) of the respondents were able to complete the Life is Precious campaign slogan, particularly those living in the Northern region (65%) and those in the lowest wealth quintile (60%). However, only 27% were able to correctly identify the Life is Precious logo; the rate was highest among participants in urban areas (40%) and those with at least a secondary education (36%).

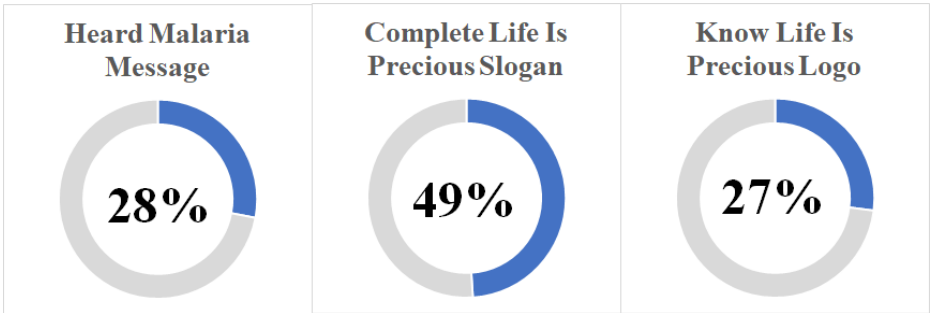


Table 3.6.1: Summary of Variables Related to Media Consumption						
Percentage of respondents who report media consumption factors, by respondent sociodemographic characteristics, Malawi 2021						
Characteristics	Listens to the radio at least once a week	Watches TV at least once a week	Mobile phone ownership	Completed a campaign slogan	Seen or heard a message about malaria in the past six months	Identified a campaign logo
Region						
Northern	37	12	49	65	25	19
Central	46	9	44	41	30	31
Southern	45	9	44	35	31	31
Sex						
Female	39	10	41	51	27	26
Male	54	12	64	38	34	27
Age						
15–24	37	7	37	49	23	28
25–34	47	12	51	43	31	29
35–44	43	10	49	52	31	24
≥45	45	12	54	56	28	21
Residence						
Urban	56	31	68	32	31	40
Rural	41	7	43	51	28	25
Education						
None	36	5	34	57	22	22
Primary	44	9	49	44	30	27
Secondary or more	55	22	69	34	39	36
Wealth quintile						
Lowest	18	1	12	60	18	23
Second	29	1	32	52	25	24
Middle	44	2	45	47	30	27
Fourth	48	4	59	44	29	28
Highest	69	41	78	41	38	31
Total (%)	**42**	**10**	**46**	**49**	**28**	**27**

3.6.3 Supplemental Information

Additional information on the following indicators is presented in the annex.

- Table 3.6.2: Radio listenership at least once a week
- Table 3.6.3: Preferred time to listen to the radio
- Table 3.6.4: Television viewership at least once a week
- Table 3.6.5: Preferred time to watch television
- Table 3.6.6: Mobile phone or tablet ownership
- Table 3.6.7: Exposure to malaria messages

4. Conclusions and Recommendations

Malaria control and elimination depend, in large part, on human behavior. Understanding populations' malaria-related knowledge, attitudes, and practices can be useful for improving SBC programs. In view of the malaria transmission trends, cases and ongoing interventions, the Malawi MBS is an essential resource to inform programmatic and policy decisions. This section discusses relevant and actionable implications of the MBS study results for Malawi. These recommendations were developed in collaboration with key stakeholders in malaria and SBC including NMCP, PMI, university members, local NGOs, Health Promotion Officers, and other members, and are reflective of the MBS data in addition to the current context of malaria and SBC programming in Malawi. Example SBC message topics are included in the Appendix.

4.1 Cross-Cutting Ideational Determinants

Among the cross-cutting ideational determinants, the MBS revealed moderately high levels of perceived susceptibility to malaria and low rates of perceived severity of malaria, indicating that while most people consider they remain at risk for malaria, there may also hold fatalistic views about malaria and feel it is a normal part of life or that it may not be a very serious condition. A limitation of note is that rates of perceived severity may be slightly underestimated specifically in regard to expectations of recovery from malaria due the topics explored by the survey questions. However, increasing the perception of severity is likely a plausible need given the low level measured (32% overall). Communication with partners, family or friends about malaria was low. Respondents also held moderately high levels of comprehensive general knowledge of malaria.

SBC Program and Policy Recommendations

Given the fact that a lot of attention is on the ongoing COVID-19 pandemic, SBC programs should strive to sustain awareness of malaria and its severity. Key messages should promote active conversation about malaria within households and communities and the fact that it still kills. Given the recent approval and eventual distribution of malaria vaccines, raising risk perceptions and perceived severity in conjunction with self-efficacy for prevention measures might be a beneficial focus for future SBC efforts to ensure the population adequately understands the importance of malaria prevention behaviors even with a vaccine.

4.2 Case Management

The MBS data demonstrated appreciable rates of malaria care seeking, testing and treatment rates in Malawi. Of note, prompt care seeking rates (81%) reported in the MBS are well above the NMCP 2022 target of 50%. Among care givers that did not seek care promptly, transportation was one of the largest barriers listed (26%), but also lack of time (19%) and self-treatment (17%) were reported. It can be noted that prompt and appropriate care seeking was significantly higher among respondents with correct knowledge related to case management. Prompt and appropriate care seeking was also positively associated with interpersonal communication with a spouse, family member, or friend about malaria. Perceptions of facility-based providers were more favorable than community-based providers that test and treat malaria. During the MBS dissemination and synthesis meetings, key stakeholders suggested that less favorable perceptions may be due to HSAs not always being accessible in their catchment

communities. Indeed, overall participants had lower perceptions of drug and test availability among HSAs (malaria medication: 44%, RDTs: 54%) than health facilities (malaria medication:66%, RDTs :80%).

Relevant policies and programs related to case management in Malawi include the national guidelines on malaria treatment whereby:

- All children with fever should be tested for malaria
- All children who are malaria positive should be treated with ACT
- Malaria testing and treatment services are free in all facilities and accessible to all communities
- Both facility and community (CHWs and HSAs) providers test and treat malaria effectively in children

SBC Program & Policy Recommendations

Summary Recommendations	
Individual 	Reinforce proper care seeking behavior
	Empower clients to request services
	Complementary messages on malaria severity
Community 	Community structures to identify health goals
	Promote dialogue and trust with providers
Health providers 	Improve technical and interpersonal skills
	Adapt HSA recruitment to community needs
	Ensure adequate supply of commodities
Policy 	Adapt Over the Counter Policy if possible
	Operationalize test track and treat policy
	Revisit community bylaws

SBC interventions to improve care-seeking and malaria case management should use a socio-ecological approach in designing and implementing relevant programs at the individual, community, health provider and policy levels. SBC interventions can be implemented along the service delivery continuum using the Circle of Care model, a framework for understanding how SBC interventions, particularly strategic communication, can be used along the service delivery continuum – before, during and after services [11].

Relevant SBC audiences related to case management include caregivers of children, community members and relevant community structures such as Village Health Development Committees. Health providers to be addressed with SBC interventions include health facility nurses and doctors, community health workers/HSAs that provide integrated management of childhood illnesses and run village health clinics providing testing and treatment, community-based distribution agents and volunteers who also work in communities and village health teams.

At the individual level, two factors significantly and positively associated with prompt and appropriate care-seeking for febrile children under five years old were correct knowledge about care-seeking and interpersonal communication with others about malaria. SBC efforts should address persisting

knowledge gaps, particularly on the meaning and importance of prompt and appropriate care seeking. Specifically, messages should emphasize prompt and appropriate care, empower clients to request testing for their children with fever or medications for children diagnosed with malaria and include complementary messages on severity of malaria and malaria prevention. Efforts should also focus on encouraging interpersonal communication with others regarding malaria. This includes, but is not limited to, interventions encouraging community dialogue about malaria, improving provider-based communication (whether CHWs or facility-based), and harnessing community groups using the community action cycle for malaria prevention.

While not significantly associated with care seeking in logistic regression, it is worth noting that perceived response efficacy for both malaria testing (63%) and malaria treatment (73%) were low-moderate with room for improvement. This lower perception for testing in particular as compared to treatment, may indicate different lived experiences with the two interventions. People may have moderate confidence in malaria medicines being able to treat malaria due to past positive experiences with ACTs and have lower confidence in malaria tests because they may not be convinced that a negative test result truly rules out malaria. Response efficacy for both malaria testing and treatment can be further reinforced through SBC. Building trust in these interventions can be done by using influential and trusted community messengers and encouraging people who have had positive experiences share their stories with their communities. Activities can demonstrate RDTs as the best method for knowing whether one has malaria, positioning malaria testing it as a norm among communities. Interventions that may also improve perceptions of response efficacy include improving provider confidence in RDTs, being role models for clients as they indicate their trust of a test when they chose to adhere to the result. Issues of trust can also be further unpacked through qualitative research.

Additional qualitative research may also seek to explore reasons for improper care seeking as well as barriers to appropriate and prompt care seeking and how they can be addressed with SBC. There was a large mix of barriers reported for prompt care seeking, including transport and self-medication, which should be explored more in depth. Such research should include participatory methods and design thinking such as human-centered design and behavioral economics.

At the provider level, SBC programs that aim to improve interpersonal communication and quality of care could improve individuals' perceptions of providers, which was particularly low for HSAs (50%). In addition, lack of access to services or commodities may inhibit prompt care seeking as many MBS respondents perceive that health facility providers, as well as HSAs, do not always have the necessary supplies for malaria testing and treatment. SBC programs should be complemented with supply chain management to ensure commodities such as RDTs and ACTs are always in supply. If the care-seeking behaviors that are promoted by SBC activities are met with stocked health facilities and HSAs, it can contribute to positive experiences and repeat care-seeking.

Additional policy considerations include the decentralization of the HSA recruitment processes to ensure HSAs are recruited from their own communities or provided with appropriate accommodations to ensure that they are always available to community members. Key stakeholders from the MBS dissemination and synthesis meeting highlighted the current over-the-counter policy in Malawi, which allows people to buy drugs without prescriptions and recommended exploring this impact on self-diagnosis and self-treatment. Finally, national scale adaptation and operationalization of a test, treat and track policy may be explored as a broader issue. This policy includes diagnosing suspected patients with RDT or microscopy (test), prompt and correct treatment with ACT (treat), and proper case registration (track).

4.3 Malaria in Pregnancy

MBS data demonstrated noteworthy gains related to the NCMP 2022 targets. Specifically, 67% and 60% of participants had attended at least four ANC visits or gotten at least 3 doses of IPTp respectively, above the 2022 targets of 60% for both indicators. Many female MBS participants noted that they intended to attend ANC early in their subsequent pregnancy and this was associated with knowledge and favorable attitudes towards ANC/IPTp.

Existing policies and programs related to malaria in pregnancy in Malawi include:

- ITNs are given for free during ANC and labor/delivery
- ANC/IPTp services are free
- New ANC/IPTp policy on respectful maternity care (though not at scale)
- Care group model of community-based care present in many districts
- Male involvement model for ANC in which women with partners are prioritized

Several structural barriers may impede greater and/or earlier ANC attendance in Malawi, and some of these barriers may exist in spite of, or as a result of, the above-mentioned policies. In Malawi, facility-based ANC clinics are held on specific days and any women seen around the clinic on those days are presumed to be pregnant. In addition, women with partners are prioritized at these clinics and seen quicker than those without partners due to the current male involvement model. In many districts, community leaders provide an authorization letter for women without partners to be able to seek ANC services and in several instances, women are charged for these authorization letters. Other relevant by-laws related to malaria in pregnancy include fines or denial of health services if a woman does not obtain ANC during the first three months of pregnancy, does not bring her husband to ANC visits, and/or does not attend ANC visits at all [12].

SBC Program and Policy Recommendations

Summary Recommendations	
Individual 	Reinforce early and frequent ANC messages
	Address harmful cultural and traditional beliefs on ANC
Community 	Engage communities on ANC and IPTp
	Scale up care groups
	Optimize community-based ANC services
Health provider 	Improve Attitudes towards care seeking and IPC
	Ensure supportive supervision of HSAs/other providers
	Ensure availability of commodities
	Consider providing ANC on all days in facilities
Policy 	Update/revise male involvement model
	Scale up policies on updated IPTp, respectful care

The Circle of Care model, which employs a socio-ecological approach, is also a useful resource in the design and implementation of ANC/IPTp interventions. Relevant SBC audiences at the individual level include women of childbearing age, pregnant women, and partners of pregnant women. Anecdotally, women might believe that early ANC attendance violates their desire to keep their pregnancy private

and may result in harm to the pregnancy. SBC interventions need to be cognizant of this consideration in the implementation of programs to address perceived barriers to early ANC, frequent ANC attendance and receipt of IPTp. Messages should reinforce the benefits of early and frequent ANC, including the opportunity to ask for and obtain an ITN, and address harmful cultural and traditional beliefs related to ANC/IPTp. Qualitative research to understand root causes of late or inadequate ANC/IPTp as well as human-centered design research to explore how to ensure the privacy of clients should be explored.

Relevant audiences at the community level include community leaders, Village Health Development Committees, care group promoters, community health action groups, and community-based distribution agents. SBC interventions should ensure community engagement to identify related objectives and implement supporting strategies to foster community norms related to ANC/IPTp. Community leaders and mechanisms should also work with care groups and integrate ANC with existing community based newborn care services. In addition, community leaders should engage in dialogue to consider updating and revising the male involvement model components that are inhibiting relevant ANC behavior such as removing stigma on women without partners or payment for authorization letters.

Relevant SBC interventions at the provider level should aim to improve perceptions of provider behavior, which was low for facility-based workers. Capacity strengthening programs should improve technical knowledge of the updated ANC/IPTp and respectful maternity care policies, attitudes, and interpersonal communication skills of service providers. SBC interventions should also ensure supportive supervision of community and facility-based providers as needed. In addition, complementary supply chain management is needed to ensure adequate supply of commodities.

Policy revisions may be needed to make the male involvement model more client friendly, scale up care group models and integrate ANC services with community-based newborn service provision.

4.4 Insecticide-Treated Net Use and Care

MBS data suggest that ITN access and use rates are well below the NMCP 2022 targets, presumably because the last ITN mass distribution campaign was in 2018. Population ITN access and use were 43% and 41% respectively, compared to the 80% target for 2022. Furthermore, only about half of all survey respondents reported consistent net use the preceding week or practice of net care behaviors. Favorable attitudes, perceived susceptibility, and supportive community norms were all associated with increased ITN use and care rates.

Existing policies and programs related to ITN use and care in Malawi include:

- ITNs are given for free during ANC and labor/delivery
- Recommendation for all Malawians to use ITNs all year round
- ITN mass distributions occurring every two to three years, in non-IRS districts
- Malaria SBC related to prevention, treatment, care, and MIP is incorporated in the household registration and distribution of ITNs
- National laws against small nets for fishing, which includes ITNs

SBC Program and Policy Recommendations

Summary Recommendations	
Individual 	Provide appropriate ITN campaign messaging
	Reinforce consistent ITN use
Community 	Engage on consistent net use norms
	Engage community leaders on harmful repurposing in line with NMCP definitions
	Enable community mechanisms to support ITN distribution
Health provider 	Promote net coverage through continuous distribution channels in facilities
Policy 	Continue ITN mass campaigns every 2-3 years

SBC communication strategies should be incorporated throughout the ITN lifecycle to ensure proper usage, storage, and cleaning. Relevant SBC audiences include all community members as they all should receive and use ITNs consistently as well as care for their nets. Furthermore, as many engage in farming, animal husbandry and fishing, they are key audiences for appropriate interventions to mitigate net misuse for fishing or protection of crops and animals. Relevant audiences also include pregnant women and clients of postnatal clinics who get ITNs from continuous distribution channels during ANC or at birth and household heads who ensure that their households are registered for mass campaigns. In addition, community leaders and mechanisms are key in ensuring community buy-in and logistical support for ITN mass distribution campaigns as well as facilitating supportive community norms related to ITN use and care.

The SBC model for ITN distribution provides useful guidance for designing and implementing relevant interventions [13]. It highlights the desired behaviors across the net lifecycle including net acquisition, use, care, and end of life.

SBC interventions related to net acquisition should highlight messages informing community members to register during the ITN mass distribution campaigns, attend ANC clinics as soon as they might be pregnant or request an ITN from their CHW or ANC clinic as appropriate. They should also be informed on how they can obtain ITNs from private sources as needed.

ITN use SBC should focus on the need for community members to sleep under an ITN every night, in both rainy and dry seasons and in both high and low transmission settings, regardless of ITN shape, size or color. To promote consistent ITN use, SBC programs can focus on those ideational factors significantly associated with consistent ITN use in regression analysis. Activities can seek to increase or maintain self-efficacy to use nets, favorable attitudes towards net use, and the perception that most people in the community sleep under nets consistently (descriptive community norm).

ITN care messages SBC should promote include tying up a net when not in use, handling nets gently, keeping nets tied up and out of reach from children when not in use, storing nets away from kitchens, and washing infrequently in a basin with mild soap. Misuse, clearly defined by the NMCP as any use of

an ITN for purposes other than its intended use as a bed net to protect against malaria infection, should be unequivocally denounced [14].

ITN end of life messages should focus on using old nets to patch holes in newer ones and repurposing nets in a way that does not misuse them. While net misuse was very low at only 2% of the sample, beneficial repurposing was also low (10%) and should be promoted through SBC materials designed in line with the RBM Partnership consensus statement on repurposing ITNs [15]. Human-centered design research is needed to empathize with community members' contexts and their drivers of misuse to explore how to sustainably reduce misuse, without negatively impacting livelihoods.

4.5 Media Consumption and Exposure

The low media access in Malawi suggested by the MBS data is somewhat unsurprising given its mostly rural context, with not much electricity access or television coverage. Recall of the "Life is Precious" campaign slogan and logo remain considerable.

SBC Program and Policy Recommendations

Community engagement and in-person communication channels that employ face to face approaches would be effective in reaching rural communities. Examples of entertaining and interactive activities include health bazaars or malaria roadshows which take place on market days or in local schools and include question and answer sessions, net hanging demonstrations, malaria testing stations, dissemination of brochures and flyers, music, and dance competitions as well as other activities to make the events fun and memorable.

In addition, local community radio stations can be leveraged as mass media channels to disseminate entertainment education messages such as radio drama series in rural settings. In urban settings, national radio, and television spots in addition to social media channels such as Facebook and WhatsApp may be more appropriate.

4.6 Implications for Future Research

Subsequent research should seek to address research gaps persisting after the MBS and also determine how the current gaps are addressed or persist following the uptake of these results into the next phase of SBC messaging nationwide. Suggested research approaches include quantitative, qualitative, human-centered design and behavioral economics methodologies as follows:

- Behavioral economics research understanding and addressing delays in and/or improper care seeking
- Human-centered design research on the root cause of the gap between having at least one versus at least four ANC visits or receiving at least one versus at least three doses of IPTp
- Quantitative evaluation of the ITN distribution campaign which includes a process or impact evaluation that also assesses how SBC was incorporated
- Human-centered design research to uncover key behaviors and determinants that drive ITN misuse at the individual and community level
- Qualitative research to promote relevant community norms related to care seeking, malaria in pregnancy, and ITN use

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Annex A: Suggested Message Themes

Suggested Message Themes for SBC Interventions		
Audience	**Determinants**	**Key Themes**
Case management for children under five		
Caregivers	Perceived severity	•Malaria is a serious condition
	Knowledge	•Seek care within 24 hours from community/facility provider
		•Prompt seeking results in quick resolution
		•Delayed seeking may lead to complications
	Testing and treatment	•Request a malaria test for your child with fever
		•Request ACT for child with malaria
Partners/ Influencers	Advocacy and support	•Support caregivers to seek care promptly
Communities	Perceived severity	• Malaria is a serious condition
		•Let's come together to end malaria
Malaria in Pregnancy		
Pregnant women	Response efficacy	•Early ANC is good!
	Knowledge	•Go for ANC as soon as you think you are pregnant
Partners/ Influencers	Support	•Take care of your woman
		•Support your woman
Communities	Advocacy	•Healthy children, happy communities
ITNs		
Community members	Behavior	•Get registered
		•ITN use for everyone, every night
	ITN care	•Repurpose not misuse
Communities	Community norms	•Healthy people, happy communities

Annex B: Data Tables

This annex provides all data tables for the 2021 Malawi MBS that were not included in the main body of the report. A brief description of the purpose of each table is provided. Data presented in these tables are often disaggregated by study region and/or respondent or household sociodemographic characteristics.

Data tables pertaining to the specific subsections can be found by utilizing the table of contents at the beginning of this report or the links below:

A.3.1 Sample Characteristics

This subsection of the Annex provides all data tables related to sample characteristics. The following tables may have been duplicated or referenced in the main body of the report.

Table 3.1.1: Housing Characteristics

Table 3.1.1 describes the distribution of selected household characteristics in the study, disaggregated by region.

Table 3.1.1: Housing Characteristics				
Percent distribution of selected household characteristics by region, Malawi 2021				
Characteristic	**Northern (N=1296)**	**Central (N=1302)**	**Southern (N=1264)**	**Total (N=3862)**
Average size of households	5	4	4	**4**
Average number of sleeping rooms	2	2	2	**2**
% of households with electricity	17	9	9	**12**
% of households near* a public health facility	35	31	37	**34**
% of households near* a private health facility	26	34	29	**30**
% of households near* a pharmacy	22	37	36	**31**
% of households with finished floors	46	22	25	**32**
% of households with finished roofs	67	41	57	**56**
% of households with finished walls	88	70	91	**83**
Note: **Near is defined as located 5 kilometers or less, less than 30 minutes on foot, or less than 10 minutes by car*				

Table 3.1.2: Ownership of assets and wealth quintile

Table 3.1.2 describes the distribution of household ownership of assets. This table also presents the proportion of wealth quintiles, disaggregated by region.

Table 3.1.2: Ownership of Assets and Wealth Quintile				
Percent distribution of household assets and wealth quintile by region, Malawi 2021				
Percent of households with assets	**Northern (N=1296)**	**Central (N=1302)**	**Southern (N=1264)**	**Total (N=3862)**
Radio	34	31	38	34
Television	13	9	7	10
Simple mobile phone	63	58	58	60
Smartphone	23	7	6	13
Bicycle	28	31	36	31
Land	82	79	79	80
Livestock	63	46	52	54

Wealth Quintile				
Lowest	12	33	17	21
Second	17	20	21	19
Third	19	17	26	21
Fourth	24	16	20	20
Highest	28	15	16	20

Table 3.1.3: Characteristics of household members

Table 3.1.3 describes the sociodemographic characteristics of household members in each region. These include member sex, residence, age distribution and distribution of household ownership of assets. This table lists the distribution of these characteristics for all household members listed during the household questionnaire and does not necessarily reflect only the characteristics of individuals interviewed. The data presented in this table is disaggregated by region.

Table 3.1.3: Characteristics of household members

Sociodemographic characteristics of household members by region, Malawi 2021

Characteristic	Northern (N=6487)	Central (N=5745)	Southern (N=5534)	Total (N=17766)
Sex				
Female	54	51	52	53
Male	46	49	48	47
Residence				
Urban	9	18	11	12
Rural	91	82	89	88
Age Distribution				
0–4	16	16	15	16
5–17	35	34	36	35
18 and above	49	50	49	49

Table 3.1.4: Sociodemographic characteristics of respondents

Table 3.1.4 describes the distribution of respondents by sociodemographic characteristics, including participant sex, age group, residence, and level of education. The data presented in this table is disaggregated by region.

Table 3.1.4: Sociodemographic characteristics of respondents

Percent distribution of respondents' sociodemographic characteristics by region, Malawi 2021

Characteristic	Northern (N=1934)	Central (N=1778)	Southern (N=1773)	Total (N=5485)
Sex				
Female	80	79	78	79
Male	20	21	22	21
Age				
15–24	37	32	30	33
25–34	30	34	33	32
35–44	23	24	28	25
≥45	10	10	9	10
Residence				
Urban	92	84	86	88
Rural	8	16	14	12
Education				
None	47	59	59	54
Primary	22	16	17	19
≥ Secondary	31	25	24	27
Christian				
No	2	7	26	10
Yes	98	93	74	90
Married				
No	18	13	15	15
Yes	82	87	85	85
Wealth Quintile				
Lowest	12	29	15	18
Lower	17	21	23	20
Middle	19	17	25	20
Higher	24	18	21	21
Highest	29	15	16	21

A.3.2 Cross-Cutting Ideational Determinants

This subsection of the Annex provides all data tables related to cross-cutting ideational factors. These include knowledge of malaria, perceived susceptibility and severity of malaria, gender norms related to malaria, perceptions regarding health workers and malaria, and interpersonal communication related to malaria. The tables herein summarize the prevalence of ideational factors and may be duplicative of tables in the main body of the report.

Table 3.2.2: Correct Knowledge of malaria

Table 3.2.2 (next page) summarizes respondents' level of knowledge of malaria. This includes the proportion of respondents who identified fever as the main symptom of malaria, who reported that malaria is caused by a mosquito bite; and who reported at least one major malaria prevention measure such as sleeping under a treated bed net every night. These data are presented according to respondent background characteristics and are disaggregated by region.

Table 3.2.2 Correct Knowledge of Malaria

Percent of respondents with correct malaria knowledge by region, Malawi 2021

Characteristic	Northern (N=1934)			Central (N=1778)			Southern (N=1773)			Total (=5485)		
	Know fever is the main symptom of malaria	Know malaria is caused by mosquito bite	Know at least one malaria major prevention measure	Know fever is a symptom of malaria	Know malaria is caused by mosquito bite	Know at least one malaria major prevention measure	Know fever is a symptom of malaria	Know malaria is caused by mosquito bite	Know at least one malaria major prevention measure	Know fever is a symptom of malaria	Know malaria is caused by mosquito bite	Know at least one malaria major prevention measure
Sex												
Female	85	87	90	80	88	89	82	90	93	83	88	91
Male	80	92	89	80	90	89	70	92	88	77	91	89
Age												
15–24	82	85	88	77	86	86	73	87	90	78	86	88
25–34	84	91	92	84	89	91	82	93	95	83	91	93
35–44	88	90	92	82	90	90	81	94	94	84	91	92
45 and	83	85	90	77	90	87	82	88	81	81	87	87

above												
Residence												
Urban	90	89	92	82	95	95	79	96	91	83	94	93
Rural	83	88	90	80	87	87	79	90	92	81	88	90
Education												
None	82	83	86	79	84	85	77	88	90	80	85	87
Primary	84	92	93	82	92	92	78	95	95	82	93	93
Secondary or higher	87	93	94	81	96	96	84	95	95	84	94	95
Wealth quintile												
Lowest	81	89	93	81	82	84	76	83	88	80	84	87
Second	82	86	89	76	84	86	80	88	91	79	86	89
Middle	83	85	90	75	92	92	76	92	93	78	90	92
Fourth	85	88	89	87	93	91	81	93	94	85	91	91
Highest	86	90	91	84	96	95	82	98	94	85	93	92
Total (%)	**84**	**88**	**90**	**80**	**88**	**89**	**79**	**91**	**92**	**81**	**88**	**90**

Table 3.2.3: Perceived susceptibility to malaria

Table 3.2.3 summarizes the distribution of perceived susceptibility to malaria, based on responses to specific statements. Results are presented by participant sociodemographic characteristics and are disaggregated by study region.

Table 3.2.3: Perceived susceptibility to Malaria				
Percent of respondents with specific perceived susceptibility to malaria by region, Malawi 2021				
Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
DISAGREE with the following statement: *People in this community only catch malaria during the rainy season.*	43	42	50	45
AGREE with the following statement: *Almost every year, a person in this community catches severe malaria.*	83	89	79	84
AGREE with the following statement: *When your child has a fever, you're almost always afraid it's malaria.*	86	90	83	86
AGREE with the following statement: *During the rainy season, you are afraid almost every day that a member of your family will suffer from malaria.*	81	85	78	82
Percent of respondents who perceive susceptibility to malaria	77	85	75	79
Sex				
Female	77	84	74	78
Male	79	88	80	82
Age				
15–24	72	79	70	73
25–34	79	87	76	81
35–44	82	89	81	84
≥45	81	87	77	82
Residence				
Urban	76	74	71	74
Rural	77	87	76	80
Education				
None	76	89	78	81

Primary	78	86	73	79
≥ Secondary	79	76	71	76
Wealth quintile				
Lowest	74	90	76	83
Second	77	83	77	79
Middle	79	85	81	81
Fourth	79	89	70	79
Highest	76	74	72	75

Table 3.2.4: Perceived severity of malaria

Table 3.2.4 presents the distribution of participants' perceived severity of malaria. One's level of perceived severity is based on their level of agreement with several statements. Results are presented by participant sociodemographic characteristics and are disaggregated by study region.

Table 3.2.4: Perceived severity of Malaria

Percent of respondents with perceived severity of malaria by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
DISAGREE with the following statement: *You are not afraid of malaria, because it can be treated easily.*	38	33	52	40
DISAGREE with the following statement: *Only weak children can die of malaria.*	59	41	51	51
AGREE with the following statement: *Each case of malaria can potentially lead to death.*	73	98	96	88
DISAGREE with the following statement: *When someone you know has malaria, you usually expect them to recover completely within a few days.*	23	18	20	20
Percent of respondents who perceive malaria severity	31	27	39	32
Sex				
Female	29	25	38	30
Male	39	34	42	38
Age				
15–24	31	28	38	32
25–34	31	31	43	34

35–44	28	22	35	28
≥45	34	26	39	33
Residence				
Urban	30	31	41	34
Rural	31	27	38	32
Education				
None	32	21	35	29
Primary	26	31	39	30
≥ Secondary	32	40	47	38
Wealth quintile				
Lowest	29	22	37	27
Second	32	28	40	33
Middle	29	28	37	32
Fourth	32	23	39	31
Highest	31	39	41	35

Table 3.2.5: Interpersonal communication regarding malaria

Table 3.2.5 presents data regarding participants' reporting of interpersonal communication regarding malaria in the six months prior to data collection. This includes reports of talking about malaria with one's spouse or one's friend/family member. Results are presented by participant sociodemographic characteristics and are disaggregated by study region.

Table 3.2.5: Interpersonal communication regarding Malaria

Percent of respondents reporting interpersonal communication regarding malaria by region, Malawi 2021

Characteristic	Northern		Central		Southern		Total	
	(N=1934)	(N=1602)	(N=1778)	(N=1568)	(N=1773)	(N=1523)	(N=5485)	(N=4693)
	% who talked about malaria with their spouse/partner in the previous six months	% who spoke of malaria with a friend or family member in the previous six months	% who talked about malaria with their spouse/partner in the previous six months	% who spoke of malaria with a friend or family member in the previous six months	% who talked about malaria with their spouse/partner in the previous six months	% who spoke of malaria with a friend or family member in the previous six months	% who talked about malaria with their spouse/partner in the previous six months	% who spoke of malaria with a friend or family member in the previous six months
Sex								
Female	20	16	22	14	22	15	21	15
Male	29	13	34	19	36	17	33	16
Age								
15–24	19	10	24	13	23	13	22	12
25–34	23	16	26	17	26	18	25	17
35–44	24	20	24	14	27	14	25	16
45 and above	26	19	26	18	28	16	26	18
Residence								
Urban	20	15	22	15	24	16	22	15
Rural	22	15	25	15	26	15	24	15
Education								
None	19	13	21	12	22	12	21	13
Primary	23	17	30	17	27	17	26	17

Secondary or higher	26	16	31	19	34	21	29	18
Wealth quintile								
Lowest	14	8	22	12	22	12	20	11
Second	29	15	24	14	21	13	25	14
Middle	22	20	20	15	27	12	23	16
Fourth	18	12	35	21	27	20	26	17
Highest	25	18	25	15	29	20	26	18
Total (%)	**22**	**15**	**25**	**15**	**25**	**15**	**24**	**15**

Table 3.2.6: Perceptions regarding facility-based health workers

Table 3.2.6 presents distribution of participants' perceptions of facility-based health workers. This includes health workers in general, health workers providing case management and those providing care for malaria in pregnancy. Results are presented by participant sociodemographic characteristics and are disaggregated by study region.

Table 3.2.6: Perceptions regarding Facility based Health Workers				
Percent distribution of perceptions of facility-based health workers, Malawi 2021				
Characteristic	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
Positive general perceptions towards health workers	88	87	84	87
Positive perceptions towards health workers providing case management	73	78	83	77
Positive perceptions towards health workers providing care for malaria in pregnancy	46	51	56	51
Positive general perceptions towards health workers	88	87	84	87
Percent of respondents with favorable perceptions regarding facility-based health workers	55	61	64	59
Sex				
Female	55	62	66	61
Male	52	56	56	55
Age				
15–24	56	63	64	60
25–34	54	58	66	59
35–44	55	60	61	58
≥45	49	66	62	58
Residence				
Urban	62	58	66	62
Rural	54	62	63	59
Education				
None	50	62	63	58
Primary	59	62	65	61
≥ Secondary	58	59	63	60
Wealth quintile				

Lowest	47	63	63	59
Second	55	63	62	60
Middle	54	60	62	59
Fourth	56	57	63	58
Highest	57	61	69	61

Table 3.2.7: Perceptions regarding community health workers

Table 3.2.7 presents distribution of participants' perceptions of community-based health workers. This includes community health workers in general, community health workers providing case management, and those providing care for malaria in pregnancy. Results are presented by participant sociodemographic characteristics and are disaggregated by study region.

Table 3.2.7: Perceptions regarding Community Health Workers

Percent distribution of perceptions of community health workers by region, Malawi 2021

Characteristic	Northern (N=1934)	Central (N=1778)	Southern (N=1773)	Total (N=5485)
Positive general perceptions towards health workers	75	79	77	77
Positive perceptions towards health workers providing case management	49	58	58	55
Positive perceptions towards health workers providing care for malaria in pregnancy	74	74	75	74
Percent of respondents with favorable perceptions regarding facility-based health workers	46	54	50	50
Sex				
Female	46	54	51	50
Male	46	52	49	49
Age				
15–24	47	56	52	51
25–34	46	49	51	48
35–44	45	56	50	50
≥45	47	57	46	50
Residence				
Urban	51	39	41	43
Rural	46	57	52	51
Education				
None	41	55	52	49

Primary	55	55	52	54
≥ Secondary	48	50	45	48
Wealth quintile				
Lowest	39	58	53	52
Second	47	53	52	51
Middle	50	52	49	50
Fourth	44	50	54	48
Highest	49	53	43	49

Table 3.2.8: Gender norms related to malaria

Table 3.2.8 presents distribution of participants' perceived gender norms related to malaria. One's reported gender norms are based on their agreement or disagreement with several statements. Results are presented by participant sociodemographic characteristics and are disaggregated by study region.

Table 3.2.8: Gender norms related to malaria

Percent distribution of perceived gender norms related to malaria, by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
DISAGREE with the following statement: *When there are not enough nets, it is more important that female children sleep under the available nets rather than male children.*	93	94	94	94
DISAGREE with the following statement: *When there are not enough nets, it is more important that male children sleep under the available nets rather than female children.*	96	97	97	97
AGREE with the following statement: *A pregnant woman should feel comfortable asking her husband/spouse to go to the health facility for a prenatal consultation.*	90	87	86	88
DISAGREE with the following statement: *When there is not enough money, it is more important that male children with fever get medicine rather than female children.*	97	97	96	97
DISAGREE with the following statement: *When there is not enough money, it is more important that female children with fever get medicine rather than male children.*	96	95	96	96
Percent of respondents who perceive positive gender norms related to malaria (characteristic)	95	95	95	95

Sex				
Female	94	95	95	94
Male	96	94	96	95
Age				
15–24	94	94	95	94
25–34	96	96	95	96
35–44	94	93	96	94
≥45	95	94	89	93
Residence				
Urban	96	96	98	96
Rural	94	94	94	94
Education				
None	94	94	93	94
Primary	94	94	97	95
≥ Secondary	96	97	96	97
Wealth quintile				
Lowest	96	92	94	93
Second	95	94	96	95
Middle	95	95	94	95
Fourth	95	96	95	95
Highest	93	98	96	95

A.3.3 Malaria Case Management for Children Under Five Years Old

This subsection of the Annex provides all data tables related to malaria care seeking and treatment, particularly for children under 5 years old. The following tables include data related to care seeking and treatment behavior as well as several ideational factors including knowledge, attitudes, perceived response efficacy, perceived self-efficacy, gender norms and perceived community norms. The tables may have been duplicated in the main body of the report.

Table 3.3.2: Knowledge of malaria care seeking and treatment

Table 3.3.2 presents respondent knowledge regarding malaria care-seeking and treatment. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.3.2 Knowledge of malaria care seeking and treatment

Percentage of respondents with specific knowledge of malaria care-seeking and treatment, according to background characteristics, Malawi 2021

Characteristic	Northern (N=1934)	Central (N=1778)	Southern (N=1773)	Total (N=5485)
Identified ACT as medicine that can be used to effectively treat malaria	65	79	95	78
Identified SAME DAY OR NEXT DAY as time where one should seek advice or treatment after a child under five years old develops a fever	95	98	97	97
Identified BLOOD TEST as the best way to know if someone has malaria.	80	78	78	79
Identified HEALTH FACILITY* as the best place to go in the community if one has malaria.	99	99	99	99
Total percent of respondents that have comprehensive knowledge of malaria care-seeking and treatment	**51**	**61**	**73**	**60**
Sex				
Female	51	62	73	61
Male	49	57	73	59
Age				
15–24	44	51	65	52
25–34	54	63	77	64
35–44	55	68	78	67
≥45	55	63	72	62
Residence				
Urban	37	67	70	60

Rural	52	59	74	60
Education				
None	47	58	69	58
Primary	60	61	80	65
≥ Secondary	50	66	79	62
Wealth quintile				
Lowest	51	58	60	57
Second	53	57	74	61
Middle	58	59	74	64
Fourth	46	65	78	60
Highest	48	68	77	59

* Includes the following places: Public medical sector, private medical sector, and community health worker. Excludes advice or treatment from a traditional practitioner, shop, market, and itinerant drug seller.

Table 3.3.3: Attitudes towards malaria care-seeking and treatment

Table 3.3.3 presents the distribution of favorable attitudes toward malaria care-seeking and treatment. Attitude favorability is calculated based on a participant's agreement or disagreement to several statements related to care-seeking and treatment. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.3.3: Attitudes towards malaria care seeking and treatment

Percent of respondents with specific attitudes towards malaria care-seeking and treatment by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *The health provider is always the best person to talk to when you think your child may have malaria.*	97	97	96	97
DISAGREE with the following statement: *One does not need to continue taking all the medicine doses against malaria if the patient is already cured.*	79	88	83	83
DISAGREE with the following statement: *A parent should ask for an injection from the health provider or community health worker if they think his/her child has malaria.*	68	60	55	62
DISAGREE with the following statement: *I prefer that my child receive the medicine to treat malaria by injection rather than swallow*	63	62	59	62

it.				
AGREE with the following statement: *A person should only take malaria medicine if a health provider says that his/her fever really is caused by malaria.*	96	94	95	95
DISAGREE with the following statement: *If a health provider says a person does not have malaria, the patient should ask for a malaria medication just in case s/he needs it.*	82	84	79	82
DISAGREE with the following statement: *When my child has a fever, it is better to start by giving him any malaria medicine I have at home.*	87	85	78	84
AGREE with the following statement: *It is important to take all the anti-malaria pills prescribed to ensure a complete recovery.*	93	94	93	93
DISAGREE with the following statement: *When my child has a fever, I do not go directly to the health facility, I first go elsewhere to buy him/her medicine.*	80	87	80	82
Percent of respondents with favorable attitudes towards malaria care-seeking and treatment	79	81	72	78
Sex				
Female	80	81	74	79
Male	77	83	66	76
Age				
15–24	76	78	70	75
25–34	83	82	77	81
35–44	81	83	71	79
≥45	77	82	69	77
Residence				
Urban	79	89	74	82
Rural	79	80	72	78
Education				
None	75	77	67	73
Primary	81	85	77	81
≥ Secondary	86	88	82	85
Wealth quintile				

Lowest	75	73	65	72
Second	76	80	77	78
Middle	80	83	67	77
Fourth	79	89	75	80
Highest	83	87	77	83

Table 3.3.4a: Perceived response efficacy of malaria testing

Table 3.3.4a presents the distribution of perceived response efficacy regarding malaria testing. Perceived response efficacy is calculated based on a participant's agreement or disagreement to several statements related to testing. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.3.4a: Perceived response efficacy of malaria testing

Percent of respondents with specific attitudes towards malaria care-seeking and treatment by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *A blood test for malaria is the only way to know if someone really has malaria or not.*	96	97	97	97
DISAGREE with the following statement: *A person should still take malaria medicine even if the malaria test result says that the fever is not due to malaria.*	79	84	76	80
DISAGREE with the following statement: *Parents can diagnose malaria by a person's symptoms just as well as a blood test for malaria.*	78	75	62	73
Percent of respondents with a high perceived response-efficacy of malaria testing (%)	67	69	50	63
Sex				
Female	67	70	49	63
Male	67	67	56	64
Age				
15–24	64	66	45	60
25–34	70	68	54	65
35–44	68	73	50	64
≥45	64	72	58	65
Residence				

Urban	65	73	53	65
Rural	67	68	50	63
Education				
None	62	66	48	59
Primary	65	69	56	64
≥ Secondary	74	77	53	70
Wealth quintile				
Lowest	59	67	46	60
Second	57	66	56	60
Middle	63	69	44	58
Fourth	70	69	53	65
Highest	75	78	54	71

Table 3.3.4b: Perceived response efficacy of malaria treatment.

Table 3.3.4b presents the distribution of perceived response efficacy regarding malaria treatment. Perceived response efficacy is calculated based on a participant's agreement or disagreement to several statements related to treatment. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.3.4b: Perceived response efficacy of malaria treatment

Percent distribution of specific response-efficacy of malaria treatment by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *The malaria drugs obtained from the health facilities are effective in treating malaria.*	95	96	93	95
DISAGREE with the following statement: *The malaria medicines that you buy in the market are as good as the ones distributed at the health facility.*	62	84	79	74
Percent of respondents with a high perceived response-efficacy of malaria treatment (%)	66	84	76	74
Sex				
Female	65	84	75	74
Male	68	85	77	76
Age				
15–24	62	77	73	70
25–34	67	87	80	78

35–44	69	89	72	76
≥45	71	82	79	77
Residence				
Urban	70	80	78	77
Rural	66	85	75	74
Education				
None	60	84	76	73
Primary	72	81	75	75
≥ Secondary	71	86	75	76
Wealth quintile				
Lowest	61	82	79	76
Second	65	84	82	77
Middle	68	85	68	73
Fourth	64	84	76	73
Highest	69	87	74	74

Table 3.3.5: Perceived self-efficacy for malaria testing and treatment

Table 3.3.5 presents the distribution of perceived self-efficacy regarding malaria testing. Perceived self-efficacy is calculated based on a participant's agreement or disagreement to several statements related to testing. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.3.5: Perceived self efficacy for malaria testing and treatment

Percent distribution of perceived self-efficacy for malaria testing and treatment by region, Malawi 2021

Percent of respondents that believe they could:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
Find the money to take your child to the health facility at the first sign of malaria.	76	78	73	76
Get permission from your husband or other family member to take your child to the health facility/health provider when your child has fever	82	92	93	89
Take your child to the health facility the same day or next day s/he develops a fever.	96	98	98	97
Request a blood test at the health facility when you think your child might have malaria.	87	93	92	90
Make sure your child takes the full dose of medicine that s/he is prescribed for malaria.	98	98	98	98
Find the money to pay for the medication the health provider recommends to treat malaria.	72	80	74	75

Percent of respondents with perceived self-efficacy for malaria testing and treatment (%)	78	83	79	80
Sex				
Female	77	81	78	79
Male	81	89	82	84
Age				
15–24	77	84	76	79
25–34	77	82	81	80
35–44	80	83	79	81
≥45	76	85	82	80
Residence				
Urban	79	92	79	84
Rural	78	81	79	79
Education				
None	77	81	76	78
Primary	80	85	85	83
≥ Secondary	78	87	82	81
Wealth quintile				
Lowest	76	77	75	76
Second	76	84	72	77
Middle	77	85	81	81
Fourth	75	86	86	81
Highest	81	89	79	83

Table 3.3.6: Gender norms related to malaria treatment

Table 3.3.6 presents the distribution of respondents who perceive equitable gender norms related to malaria treatment. Equitable gender norms are calculated based on a participant's agreement or disagreement to several statements related to malaria and gender. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.3.6: Gender norms related to malaria treatment

Percent distribution of perceived gender norms related to malaria, by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
DISAGREE with the following statement: *When there is not enough money, it is more important that male children with fever get*	97	97	96	97

medicine rather than female children.				
DISAGREE with the following statement: *When there is not enough money, it is more important that female children with fever get medicine rather than male children.*	96	95	96	96
Percent of respondents who perceive equitable gender norms related to malaria treatment	96	95	95	95
Female	96	95	95	95
Male	96	94	96	95
15–24	94	93	95	94
25–34	98	96	94	96
35–44	95	94	96	95
≥45	95	95	95	95
Urban	95	94	97	95
Rural	96	95	95	95
None	94	94	94	94
Primary	97	93	96	96
≥ Secondary	98	97	97	97
Lowest	96	93	94	94
Second	97	93	95	95
Middle	96	94	95	95
Fourth	96	97	96	96
Highest	95	97	96	95

Table 3.3.7: Perceived community norms regarding malaria testing and treatment

Table 3.3.7 presents the perceived community norms regarding malaria testing and treatment. Perceived community norms were assessed based on participants' responses to a series of questions asking about the proportion of members in their community who promptly take their own children to a health provider and/or approve of them (the respondent) taking this action.

Table 3.3.7: Perceived community norms regarding malaria testing and treatment

Percent distribution of perceived community norms regarding malaria testing and treatment, Malawi 2021 (N=5485)			
Characteristic	**Most people in the community take their children to a health provider on the same day or day after they develop a fever**	**Most children in the community taken to a health facility with fever get tested for malaria**	**Most people in the community approve of prompt care seeking for children with fever**
Region			
Northern	73	75	35
Central	62	77	20
Southern	63	75	28
Sex			
Female	68	76	29
Male	63	73	28
Age			
15–24	63	71	29
25–34	67	78	29
35–44	69	78	28
≥45	71	79	26
Residence			
Urban	56	69	25
Rural	68	77	29
Education			
None	67	76	28
Primary	71	77	26
≥ Secondary	63	74	30
Wealth quintile			
Lowest	64	76	22
Second	66	77	25
Middle	69	77	31
Fourth	70	78	33
Highest	64	71	30
Total (%)	**67**	**76**	**28**

Table 3.3.8a: Perceptions of health facilities regarding malaria care-seeking and treatment

Table 3.3.8a describes respondents' perceptions of health facilities, particularly considering malaria care-seeking and treatment. Favorable perceptions were assessed based on participants' responses to a

series of questions asking whether they agree or disagree with a statement. Results are presented by sociodemographic characteristics and study region.

Table 3.3.8a: Perceptions towards health facilities regarding malaria care seeking and treatment

Percent distribution of perceptions of health facilities by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	Northern (N=1934)	Central (N=1778)	Southern (N=1773)	Total (N=5485)
AGREE with the following statement: *Health facilities always have the medication to treat malaria.*	65	65	68	66
AGREE with the following statement: *Health facilities in this community always have the blood test kit to tell if a person has malaria*	75	81	86	80
Percent of respondents with favorable perceptions of health facilities regarding malaria care-seeking and treatment	62	62	66	63
Sex				
Female	63	63	67	64
Male	58	57	62	59
Age				
15–24	67	64	68	66
25–34	57	57	66	60
35–44	63	64	62	63
≥45	56	68	67	63
Residence				
Urban	73	48	53	56
Rural	61	64	68	64
Education				
None	59	65	67	64
Primary	70	60	67	66
≥ Secondary	62	55	60	59
Wealth quintile				
Lowest	51	66	72	64
Second	66	63	68	66
Middle	63	59	64	62
Fourth	64	60	66	64

Highest	62	56	59	60

Table 3.3.8b: Perceptions of facility health workers regarding malaria care-seeking and treatment

Table 3.3.8b describes respondents' perceptions of facility health workers, particularly considering malaria care-seeking and treatment. Favorable perceptions were assessed based on participants' responses to a series of questions asking whether they agree or disagree with a statement. Results are presented by sociodemographic characteristics and study region.

Table 3.3.8b: Perceptions towards facility based health workers regarding malaria care seeking and treatment				
Percent distribution of perceptions of facility health workers by region, Malawi 2021				
Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *Health providers in health facilities in this community treat their patients with respect.*	88	87	85	87
AGREE with the following statement: *Health providers at the health facilities in this community know how to treat malaria in children.*	86	91	96	90
DIAGREE with the following statement: *Health providers at the health facility in this community make parents pay for the medication to treat malaria in children less than five years old.*	93	93	92	93
DISAGREE with the following statement: *Health facility providers in your community make parents of children less than five years old pay for the blood test to see if the child has malaria.*	94	94	93	94
Percent with favorable perceptions of health facility workers regarding care-seeking/treatment	93	92	93	93
Sex				
Female	93	93	93	93
Male	92	90	92	91
Age				
15–24	91	92	93	92
25–34	95	92	94	94

35–44	92	92	94	93
≥45	96	94	89	94
Residence				
Urban	94	89	93	91
Rural	93	93	93	93
Education				
None	91	92	92	92
Primary	95	93	95	94
≥ Secondary	94	91	93	93
Wealth quintile				
Lowest	94	93	88	92
Second	94	93	93	93
Middle	93	93	92	93
Fourth	93	92	97	94
Highest	92	89	94	92

Table 3.3.8c: Perceptions of community health workers regarding malaria care-seeking and treatment

Table 3.3.8c describes respondents' perceptions of community health workers, particularly considering malaria care-seeking and treatment. Favorable perceptions were assessed based on participants' responses to a series of questions asking whether they agree or disagree with a statement. Results are presented by sociodemographic characteristics and study regions.

Table 3.3.8b: Perceptions towards community health workers regarding malaria care seeking and treatment

Percent distribution of perceptions of facility health workers by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *Community health workers always have the medication to treat malaria.*	43	46	44	44
AGREE with the following statement: *Community health workers in this community always have the blood test kit to tell if a person has malaria.*	47	57	59	54
AGREE with the following statement: *Community health workers in this community know how to treat malaria in children.*	72	76	79	75
DIAGREE with the following statement:	89	91	90	90

Community health workers in your community make parents pay for the medication to treat malaria in children less than five years old.				
DISAGREE with the following statement: *Community health workers in your community make parents of children less than five years old pay for the blood test to see if the child has malaria.*	91	92	92	92
Percent of respondents with favorable perceptions of CHWs:	46	54	50	50
Sex				
Female	46	54	51	50
Male	46	52	49	49
Age				
15–24	47	56	52	51
25–34	46	49	51	48
35–44	45	56	50	50
≥45	47	57	46	50
Residence				
Urban	51	39	41	43
Rural	46	57	52	51
Education				
None	41	55	52	49
Primary	55	55	52	54
≥ Secondary	48	50	45	48
Wealth quintile				
Lowest	39	58	53	52
Second	47	53	52	51
Middle	50	52	49	50
Fourth	44	50	54	48
Highest	49	53	43	49

Table 3.3.9: Decision-making for malaria care and treatment

Table 3.3.9 (next page) presents the distribution of decision-making regarding malaria care and treatment among respondents with partners/spouses. Results are presented by sociodemographic characteristics and study region and are disaggregated by the type of decision being made.

Table 3.3.9: Decision making for malaria care and treatment among respondents with spouses/partners

Percent distribution of decision-making for malaria care and treatment by region, Malawi 2021

Characteristics	Northern (N=1602)		Central (N=1568)		Southern (N=1522)		Total (N=4692)	
	Decision to go to the health facility when child has malaria	Decision to purchase medicine when child is sick with fever	Decision to go to the health facility when child has malaria	Decision to purchase medicine when child is sick with fever	Decision to go to the health facility when child has malaria	Decision to purchase medicine when child is sick with fever	Decisions to go to the health facility when child has malaria	Decision to purchase medicine when child is sick with fever
Sex								
Female	80	70	84	69	85	68	83	69
Male	90	85	90	82	87	83	89	83
Age								
15–24	73	65	80	66	80	63	77	65
25–34	86	78	87	73	86	71	86	74
35–44	85	74	89	77	90	80	88	77
45 and above	91	84	89	77	85	74	88	79
Residence								
Urban	85	72	87	75	88	72	87	73
Rural	82	74	85	72	85	71	84	72
Education								
None	79	72	85	71	85	70	83	71
Primary	84	75	84	74	86	75	84	74
Secondary or higher	85	76	89	73	86	73	87	74

Wealth quintile								
Lowest	81	70	85	74	84	67	84	71
Second	84	76	82	69	84	72	83	72
Middle	84	79	90	73	87	73	87	75
Fourth	79	68	86	70	87	73	83	70
Highest	82	75	88	75	84	69	84	73

Table 3.3.10: Care-seeking and testing of children with fever in the past 2 weeks

Table 3.3.10 presents the distribution of care-seeking and testing behavior for children under age 5 who presented with fever in the 2 weeks preceding the survey. This table also presents the percentage of children for whom advice or treatment was promptly sought, and those who had blood taken for testing. Data is presented according to child sociodemographic characteristics.

Table 3.3.10: Care seeking and testing of children with fever in the past 2 weeks

Percentage of children under age 5 with fever in the 2 weeks preceding the survey; and among children under age 5 with fever, percentage for whom advice or treatment was sought, percentage for whom advice or treatment was sought the same or next day following the onset of fever, and percentage who had blood taken from a finger or heel for testing, according to background characteristics, Malawi 2021

Characteristic	Children under 5	Children under age 5 with fever			
	Percentage with fever in the 2 weeks preceding the survey	Percentage for whom advice or treatment was sought*	Percentage for whom advice or treatment was sought from a health facility or community worker first*	Percentage for whom advice or treatment was sought the same or next day*	Percentage who had received a malaria test
Region					
Northern	32	86	80	76	66
Central	34	78	77	66	67
Southern	34	87	82	74	72
Age of mother					
15–24	33	83	80	71	66
25–34	32	84	81	71	69
35–44	34	82	77	77	68
≥45	35	82	82	72	82
Residence					
Urban	23	85	81	73	67
Rural	34	83	80	72	68
Wealth quintile					
Lowest	**41**	82	80	72	72
Second	33	85	81	70	74
Middle	34	91	87	78	71
Fourth	30	81	76	71	64
Highest	26	75	72	67	54
Total (%)	**33**	**83**	**80**	**72**	**68**

* Includes advice or treatment from the following sources: [PUBLIC MEDICAL SECTOR, PRIVATE MEDICAL

SECTOR, COMMUNITY HEALTH WORKER]. Excludes advice or treatment from a traditional practitioner, shop, market, and itinerant drug seller.

Table 3.3.11: Treatment of children with fever

Table 3.3.11 presents the percentage of children under 5 who had confirmed cases of malaria in the 2 weeks preceding the survey. This table also describes the percentage of these children receiving ACT and promptly (same or next day) receiving ACT. Data is presented according to child sociodemographic characteristics and study regions.

Table 3.3.11: Treatment of children with fever

Percentage of children under age 5 with confirmed malaria; and among children under age 5 with confirmed malaria, percentage receiving ACT and prompt ACT, according to sociodemographic characteristics, Malawi 2021

Characteristics	Children under age 5 tested for malaria	Children under age 5 with confirmed malaria	
	Percent with confirmed malaria	Percent receiving ACT	Percent receiving ACT promptly
Region			
Northern	72	55	45
Central	76	81	74
Southern	59	95	85
Age of mother			
15–24	67	74	64
25–34	68	80	68
35–44	73	72	68
≥45	98	57	49
Residence			
Urban	34	69	66
Rural	73	75	66
Wealth quintile			
Lowest	77	86	80
Second	71	69	56
Middle	69	73	62
Fourth	63	79	72
Highest	59	52	44
Total (%)	**70**	**75**	**66**

A.3.4 Malaria in Pregnancy

This subsection of the Annex provides all data tables related to media consumption and exposure to malaria messages. The following tables may have been duplicated or referenced in the main body of the report.

Table 3.4.2: Knowledge of Intermittent Presumptive Treatment in Pregnancy (IPTp)

Table 3.4.2 presents the percent distribution of respondents who are aware and have specific knowledge of IPTp. Data are presented by study region and disaggregated by participant sex, age group, and level of education as well as household residence type and wealth quintile. Participants reported knowledge related to the appropriate time to first seek antenatal care, the number of recommended check-ups during one pregnancy, and the number of times during pregnancy a woman should receive medicine to keep her from getting malaria.

Table 3.4.2: Knowledge of Intermittent Presumptive Treatment in Pregnancy (IPTp)

Percent distribution of respondents with specific knowledge of IPTp by region, Malawi 2021

Percent of respondents that correctly answer the following questions:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
When should a pregnant woman go for pregnancy care for the first time	51	39	60	50
How many times should a woman receive check-up during one pregnancy?	90	91	90	90
How many times during her pregnancy should a woman receive medicine to keep her from getting malaria?	78	81	75	78
Percent of respondents with comprehensive knowledge of IPTp	35	29	39	34
Sex				
Female	35	30	41	35
Male	35	24	35	31
Age				
15–24	34	27	38	33
25–34	38	31	40	36
35–44	34	29	42	35
≥45	35	27	37	33
Residence				
Urban	46	23	38	34
Rural	35	30	40	35
Education				
None	35	33	43	37

Primary	36	26	33	33
≥ Secondary	36	22	35	32
Wealth quintile				
Lowest	30	29	44	32
Second	38	33	42	37
Middle	38	31	39	37
Fourth	35	30	36	34
Highest	34	22	37	32

Table 3.4.3: Attitudes towards IPTp

Table 3.4.3 presents the distribution of favorable or unfavorable attitudes toward IPTp. Attitude favorability is calculated based on a participant's agreement or disagreement to several statements related to IPTp care-seeking and treatment. The data is presented according to respondent and household sociodemographic characteristics in each region.

Table 3.4.3: Attitudes towards IPTp

Percent of respondents with specific attitudes towards IPTp by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *It is okay for pregnant women to take the medicine to prevent malaria on an empty stomach.*	29	38	44	36
DISAGREE with the following statement: *Even if a woman thinks she may be pregnant, she should wait a few months before she sees a health provider.*	63	74	63	66
DISAGREE with the following statement: *A woman who has given birth before does not need to see a health provider as soon as she thinks she might be pregnant.*	85	87	81	84
AGREE with the following statement: *The medications given to pregnant women to prevent them from getting malaria are safe for them and their babies.*	89	91	87	89
AGREE with the following statement: *A pregnant woman must take several doses of the medicine to prevent malaria during pregnancy.*	86	94	91	90
Percent of respondents with favorable attitudes	60	75	64	66

towards IPTp				
Sex				
Female	60	76	65	67
Male	60	71	59	63
Age				
15–24	53	69	61	60
25–34	65	77	66	70
35–44	64	80	64	69
≥45	61	75	64	66
Residence				
Urban	52	85	65	70
Rural	61	73	63	65
Education				
None	56	73	59	63
Primary	67	74	69	70
≥ Secondary	61	80	70	69
Wealth quintile				
Lowest	61	69	54	64
Second	63	71	63	66
Middle	64	75	63	67
Fourth	57	80	70	67
Highest	57	85	67	66

Table 3.4.4: Perceived severity of malaria in pregnancy

Table 3.4.4 describes the percent of respondents who hold perceptions that malaria during pregnancy is severe. Perceived severity is calculated based on the respondents' agreement or disagreement with certain statements. Data are presented by study region and disaggregated by participant age, sex, and level of education, as well as household residence type and wealth.

Table 3.4.4: Perceived severity of malaria in pregnancy

Percent of respondents with specific perceived severity of malaria in pregnancy by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	Northern (N=1934)	Central (N=1778)	Southern (N=1773)	Total (N=5485)
AGREE with the following statement: *When a pregnant woman gets malaria, the effect on her and her unborn child is very serious.*	82	96	96	90

AGREE with the following statement: *Pregnant women are more likely to die from malaria compared to women who are not pregnant.*	82	88	91	86
Percent of respondents with perceived severity of malaria in pregnancy	77	88	91	84
Sex				
Female	77	89	90	84
Male	77	85	92	84
Age				
15–24	68	82	84	77
25–34	81	89	93	87
35–44	83	91	94	89
≥45	83	92	92	88
Residence				
Urban	74	90	91	86
Rural	77	87	91	84
Education				
None	78	90	91	86
Primary	77	86	90	83
≥ Secondary	76	84	89	82
Wealth quintile				
Lowest	75	87	92	85
Second	73	87	89	83
Middle	79	90	93	87
Fourth	78	88	90	84
Highest	79	87	89	83

Table 3.4.5: Perceived response efficacy of IPTp

Table 3.4.5 presents the distribution of perceived response-efficacy regarding IPTp. Perceived response-efficacy is calculated based on a participant's agreement or disagreement to several statements related to IPTp. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.4.5: Perceived response efficacy of IPTp

Percent distribution of specific response-efficacy of IPTp by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**

AGREE with the following statement: *Consulting health facility providers during pregnancy is a way to make sure the baby and mother are healthy.*	96	99	98	97
AGREE with the following statement: *The medicine given to pregnant women to prevent malaria works well to keep the mother healthy.*	93	96	95	95
AGREE with the following statement: *Pregnant women should still take the medicine that is meant to keep them from getting malaria even if they sleep under nets every night.*	94	96	94	94
Percent of respondents with perceived response-efficacy of IPTp	92	95	92	93
Sex				
Female	91	95	93	93
Male	93	92	91	92
Age				
15–24	87	92	90	89
25–34	93	97	92	94
35–44	96	96	96	96
≥45	95	92	93	93
Residence				
Urban	96	96	95	96
Rural	91	94	92	92
Education				
None	91	94	93	93
Primary	90	94	93	92
≥ Secondary	93	96	91	93
Wealth quintile				
Lowest	90	93	94	93
Second	91	94	91	92
Middle	89	94	93	92
Fourth	90	97	91	92
Highest	96	97	94	95

Table 3.4.6a: Perceived self-efficacy for IPTp- women

Table 3.4.6a presents the distribution of perceived self-efficacy regarding IPTp, specifically among women. Perceived self-efficacy is calculated based on a participant's agreement or disagreement to several statements related to IPTp care seeking and treatment. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.4.6a: Perceived self efficacy for IPTp women

Percent of respondents with perceived self-efficacy for IPTp among women by region, Malawi 2021

Percent of women that believe they can:	Northern (N=1400)	Central (N=1346)	Southern (N=1240)	Total (N=4181)
Go for antenatal care as soon as I think I might be pregnant	95	97	94	96
Convince my spouse to accompany me spouse/partner to the health facility for antenatal care	95	96	95	95
Go to at least four antenatal care appointments at the health facility	96	97	93	96
Go for antenatal care even if my religious leader does not agree	95	96	94	95
Take the medicine to prevent malaria at least three times during pregnancy	96	96	94	95
Request the medicine that helps to prevent malaria when I go for antenatal care	90	89	89	89
Percent of women with perceived self-efficacy for IPTp	**96**	95	93	95
Age				
15–24	93	93	90	92
25–34	98	97	94	97
35–44	97	96	95	96
≥45	94	94	96	94
Residence				
Urban	95	95	95	95
Rural	96	95	93	95
Education				
None	95	95	92	94
Primary	97	97	95	96
≥ Secondary	96	94	93	95
Wealth quintile				
Lowest	94	94	92	94

Second	97	95	92	95
Middle	96	95	94	95
Fourth	95	96	93	95
Highest	95	97	93	95

Table 3.4.6b: Perceived self-efficacy for IPTp-men

Table 3.4.6b presents the distribution of perceived self-efficacy regarding IPTp, specifically among men. Perceived self-efficacy is calculated based on a participant's agreement or disagreement to several statements related to IPTp. The data is presented according to respondent sociodemographic characteristics in each region.

Table 3.4.6b: Perceived self efficacy for IPTp men

Percent of respondents with perceived self-efficacy for IPTp among men by region, Malawi 2021

Percent of women that believe they can:	**Northern (N=440)**	**Central (N=432)**	**Southern (N=424)**	**Total (N=1304)**
Support my spouse/partner to go for antenatal care as soon as she thinks she might be pregnant.	98	97	90	95
Accompany my spouse to the health facility for antenatal care.	98	99	95	97
Support my spouse/partner to go for at least four antenatal care appointments at the health facility during pregnancy.	99	97	97	98
Support my spouse/partner to go for antenatal care even if my religious leader does not agree.	97	98	96	97
Support my spouse/partner to take the medicine to prevent malaria at least three times during pregnancy.	99	94	96	96
Support my spouse/partner to request the medicine that helps to prevent malaria when she goes for antenatal care.	96	90	91	92
Percent of men with perceived self-efficacy for IPTp	**91**	83	78	85
Age				
15–24	86	76	73	78
25–34	95	83	82	87
35–44	91	88	80	86
≥45	90	84	71	83
Residence				

Urban	96	89	78	87
Rural	91	82	78	84
Education				
None	89	82	73	81
Primary	92	80	85	87
≥ Secondary	94	88	81	88
Wealth quintile				
Lowest	95	83	58	80
Second	88	84	74	82
Middle	88	81	89	87
Fourth	91	82	78	85
Highest	95	86	81	89

Table 3.4.7: Perceived community norms regarding IPTp

Table 3.4.7 presents the perceived community norms regarding IPTp. Perceived community norms were assessed based on participants' responses to a series of questions asking about the proportion of women in their community who 1) go to antenatal care at least four times when pregnant; and 2) take medicine to prevent malaria when they are pregnant. Participants also reported whether they believe others in the community approve of women taking these actions.

Table 3.4.7: Perceived community norms regarding IPTp

Percent of respondents with perceived community norms regarding IPTp by region, Malawi 2021

Percent of respondents that perceive that:	*Most women in their community go to antenatal care at least four times when they are pregnant* *(N=5485)*	*Most women in your community take medicine to prevent malaria when they are pregnant* *(N=5485)*	*Most people in your community approve of pregnant women taking the medicine to prevent malaria* *(N=5485)*
Region			
Northern	76	69	34
Central	76	73	21
Southern	75	65	28
Sex			
Female	77	72	28
Male	69	57	28
Age			
15–24	71	62	28
25–34	77	72	28
35–44	79	74	30
≥45	79	71	24

Residence			
Urban	70	66	28
Rural	76	70	28
Wealth quintile			
Lowest	74	69	23
Second	72	65	25
Middle	79	71	31
Fourth	78	72	31
Highest	74	68	30
Percent of respondents with perceived community norms	75	69	28

Table 3.4.8: Perceived gender norms regarding malaria in pregnancy

Table 3.4.8 presents the distribution of equitable gender norms regarding ANC. Equitable gender norms were calculated based on a participant's reported perceptions. Data is presented by study region and is disaggregated by participant sex, age group, and level of education, as well as household residence type and wealth quintile.

Table 3.4.8: Perceived gender norms regarding malaria in pregnancy

Percent of respondents with equitable gender norms regarding ANC, by region, Malawi 2021

Percent of respondents that perceive that:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
A pregnant woman should feel comfortable asking her husband/spouse to go to the health facility for a prenatal consultation.	90	87	86	88
Sex				
Female	90	86	85	87
Male	91	89	87	89
Age				
15–24	88	86	86	87
25–34	90	89	86	88
35–44	92	87	86	88
≥45	93	82	80	86
Residence				
Urban	89	93	91	92
Rural	90	86	85	87
Education				
None	89	86	86	87

Primary	89	84	85	86
≥ Secondary	91	91	85	90
Wealth quintile				
Lowest	88	84	93	87
Second	89	84	85	86
Middle	91	91	84	88
Fourth	89	86	82	86
Highest	92	93	87	91

Table 3.4.9a: Perceptions of health workers regarding malaria in pregnancy

Table 3.4.9a summarizes the percept of respondents who hold favorable perceptions of community health workers regarding malaria in pregnancy, based on respondents' agreement with several statements. Data is presented by study region and disaggregated by respondent sex, age, level of education as well as household residence type and wealth quintile.

Table 3.4.9a: Perceptions of community based health workers regarding malaria in pregnancy

Percent of respondents with specific perceptions of community health workers by region, Malawi 2021

Percent of respondents that perceive that:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
In your community, providers at the health facility make pregnant women pay for SP/Fansidar/Maloxine, the medicine to prevent malaria.	88	90	89	89
Prenatal health providers in this community generally treat pregnant women with respect.	74	74	75	74
Percent of respondents with favorable perceptions of community health workers	72	74	74	73
Sex				
Female	73	74	74	74
Male	69	74	74	72
Age				
15–24	70	75	76	73
25–34	77	73	75	75
35–44	70	74	72	72
≥45	73	73	72	73
Residence				

Urban	67	68	72	69
Rural	73	75	74	74
Education				
None	67	73	75	72
Primary	75	72	70	73
≥ Secondary	77	75	75	76
Wealth quintile				
Lowest	60	75	82	73
Second	76	73	77	75
Middle	73	71	72	72
Fourth	73	77	74	74
Highest	73	71	67	72

Table 3.4.9b: Perceptions of facility-based health workers regarding malaria in pregnancy

Table 3.4.9b summarizes the percent of respondents who hold favorable perceptions of facility health workers regarding malaria in pregnancy, based on respondents' agreement or disagreement with several statements. Data is presented by study region and disaggregated by respondent sex, age, level of education as well as household residence type and wealth quintile.

Table 3.4.9b: Perceptions of facility based health workers regarding malaria in pregnancy

Percent of respondents with specific perceptions of facility health workers, by region, Malawi 2021

Percent of respondents that agree/disagree with the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *Health providers at the health facility in this community always offer the medicine to prevent malaria in pregnant women.*	80	67	74	74
DISAGREE with the following statement: *Health providers at the health facilities in this community always give pregnant women the medicine to prevent malaria only if she's eaten beforehand.*	43	50	51	48
DISAGREE with the following statement: *If a woman goes to the health facility during the first two months of her pregnancy, the health providers will send her away.*	65	78	76	72
DISAGREE with the following statement: *If a pregnant woman goes to the health facility without her husband/partner, the health providers will send her away.*	42	49	51	47

Percent of respondents with favorable perceptions of facility health workers	49	54	59	54
Sex				
Female	50	55	62	55
Male	47	51	49	49
Age				
15–24	46	51	59	51
25–34	55	58	63	58
35–44	46	53	56	51
≥45	52	54	52	53
Residence				
Urban	52	60	69	61
Rural	49	53	57	53
Education				
None	50	54	57	53
Primary	47	56	63	53
≥ Secondary	49	55	61	54
Wealth quintile				
Lowest	55	53	58	55
Second	51	55	59	55
Middle	48	51	56	52
Fourth	49	56	57	53
Highest	46	57	66	53

Table 3.4.10: Decision-making regarding antenatal care

Table 3.4.10 summarizes the distribution of respondents involved in decision-making concerning antenatal care. Results are presented by region and disaggregated by respondent sex, age, level of education, household residence type, and household wealth quintile.

Table 3.4.10: Decision making regarding antenatal care

Percent distribution of respondents involved in decision-making regarding antenatal care by region, Malawi 2021

Percent of respondents involved in decision-making regarding antenatal care	**Northern (N=1602)**	**Central (N=1568)**	**Southern (N=1522)**	**Total (N=4692)**
Sex				
Female	74	85	83	80
Male	82	88	80	83

Age				
15–24	72	81	79	77
25–34	78	86	79	81
35–44	78	90	88	85
≥45	78	87	83	82
Residence				
Urban	80	89	84	85
Rural	76	85	82	80
Education				
None	73	84	80	79
Primary	77	84	85	81
≥ Secondary	81	91	85	85
Wealth quintile				
Lowest	81	84	82	83
Second	76	87	78	80
Middle	78	82	83	81
Fourth	74	90	84	81
Highest	75	87	83	80
Total (%)	76	86	82	81

Table 3.4.11: Interpersonal communication regarding antenatal care

Table 3.4.11 describes interpersonal communication regarding antenatal care in each study region. Specifically, this table summarizes the distribution of respondents who reported discussing ANC with their spouse/partner. Data are disaggregated by sex, age, residence type, level of education, and household wealth quintile.

Table 3.4.11: Interpersonal communication regarding antenatal care

Percent distribution of respondents who discussed attending antenatal care with their spouse/ partner by region, Malawi 2021

Percent of respondents discussing antenatal care attendance with their spouse or partner	**Northern (N=1602)**	**Central (N=1568)**	**Southern (N=1522)**	**Total (N=4692)**
Sex				
Female	64	73	63	67
Male	71	74	66	70
Age				
15–24	63	73	69	68
25–34	69	79	67	72
35–44	66	71	57	65

≥45	63	58	57	60
Residence				
Urban	73	75	71	73
Rural	65	73	63	67
Education				
None	59	71	64	65
Primary	70	76	55	68
≥ Secondary	73	77	69	73
Wealth quintile				
Lowest	63	71	67	68
Second	61	73	65	66
Middle	70	72	61	68
Fourth	65	79	59	68
Highest	67	71	69	69
Total (%)	66	73	64	68

Table 3.4.12: Intention to use IPTp

Table 3.4.12 describes women's intention to use IPTp. This data only refers to women and the partners of women who reported that they intend to have children/more children. The table presents the distribution who intend to use IPTp in their next pregnancy. Data are presented by region and disaggregated according to respondent sex, age group, residence type, level of education, and household wealth quintile.

Table 3.4.12: Intention to use IPTp

Among women who intend to have more children, percent distribution of respondents who intend to use IPTp in next pregnancy by region, Malawi 2021

Percent of respondents who intend to use IPTp in next pregnancy	Northern (N=611)	Central (N=524)	Southern (N=539)	Total (N=1674)
Age				
15–24	88	94	96	92
25–34	95	97	100	97
35–44	99	100	99	100
≥45	88	94	96	92
Residence				
Urban	92	89	97	92
Rural	91	97	98	95
Education				
None	89	97	97	94

Primary	97	94	98	96
≥ Secondary	90	94	99	93
Wealth quintile				
Lowest	88	96	97	94
Second	86	96	96	92
Middle	97	96	99	97
Fourth	91	98	98	95
Highest	93	91	98	94
Total (%)	91	96	98	94

Table 3.4.12: Intention to use IPTp and attend ANC

Among women who intend to have more children, percent distribution of respondents who intend to use IPTp or access ANC services in next pregnancy by region, Malawi 2021

Characteristics	Northern (N=611)			Central (N=524)			Southern (N=539)			Total (N=1674)		
	% who intend to use IPTp in next pregnancy	% who intend to attend ANC first trimester	% who intend to attend at least 4 ANC visits	**% who intend to use IPTp in next pregnancy**	% who intend to attend ANC first trimester	% who intend to attend at least 4 ANC visits	**% who intend to use IPTp in next pregnancy**	% who intend to attend ANC first trimester	% who intend to attend at least 4 ANC visits	**% who intend to use IPTp in next pregnancy**	% who intend to attend ANC first trimester	% who intend to attend at least 4 ANC visits
Age												
15–24	88	70	83	94	71	82	96	73	78	92	71	82
25–34	95	71	78	97	76	83	100	72	75	97	73	79
35–44	99	61	87	100	77	93	99	86	85	100	75	87
Residence												
Urban	92	75	91	89	71	85	97	77	76	92	74	83
Rural	91	70	82	97	73	82	98	74	78	95	72	81
Education												
None	89	74	84	97	72	83	97	82	81	94	76	82
Primary	97	61	82	94	75	86	98	64	68	96	65	79
Secondary or higher	90	71	80	94	74	81	99	65	78	93	70	80
Wealth quintile												
Lowest	88	71	77	96	72	77	97	70	70	94	71	75
Second	86	69	89	96	63	88	96	66	79	92	67	86
Middle	97	71	82	96	78	91	99	85	85	97	78	85
Fourth	91	60	74	98	79	83	98	78	74	95	**70**	76

Highest	93	76	86	91	74	81	98	69	76	94	**74**	83
Total (%)	**91**	**70**	**82**	**96**	**73**	**83**	**98**	**75**	**78**	**94**	**72**	**81**

Table 3.4.13: Antenatal care attendance

Table 3.4.13 describes antenatal care attendance among women. All respondents for this table were women with a live birth in the past two years. Data presented includes the percentage of women who reported attending at least one ANC visit, attending at least four ANC visits, attending at least one ANC while accompanied by their spouse, and attending at least one ANC visit and receiving an ITN. Data are disaggregated by respondent age group, residence type, study region, and household wealth quintile.

Table 3.4.13: Antenatal care attendance

Among women who intend to have more children, percent distribution of respondents who intend to use IPTp in next pregnancy by region, Malawi 2021

Characteristics	Attending at least one antenatal visit	Attending at least four antenatal visits (N=1474)	Attending first antenatal visit in the first trimester of pregnancy (N=1474)	Attending at least one antenatal visit accompanied by their spouse (N=1474)	Attending at least one antenatal visit and receiving an ITN (N=1474))
Region					
Northern	98	74	44	72	84
Central	100	69	40	75	85
Southern	100	61	41	68	81
Age					
15–24	99	71	42	72	84
25–34	100	71	46	75	81
35–44	99	56	33	68	85
≥45	100	59	45	49	82
Residence					
Urban	99	70	39	54	87
Rural	99	69	42	74	83
Education					
None	99	66	40	74	82
Primary	99	71	42	68	90
≥ Secondary	99	74	45	70	82
Wealth quintile					
Lowest	99	64	35	73	82
Second	99	74	46	77	81
Middle	99	66	38	79	87
Fourth	99	69	45	68	81
Highest	99	71	46	63	85
Total (%)	**99**	**69**	**42**	**72**	**83**

Table 3.4.14: Use of intermittent preventive treatment (IPTp) by women during pregnancy

Table 3.4.14 summarizes IPTp use during pregnancy among women who have given birth in the 2 years preceding the survey. Only data of women are presented in this table. Data are disaggregated by participant age group, the number of ANC visits they attended during last pregnancy, household residence type, study region, participant level of education, and household wealth quintile.

Table 3.4.14 Use of IPTp by women during pregnancy

Percentage of women aged 15–49 with a live birth in the 2 years preceding the survey who, during the pregnancy that resulted in the last live birth, received one or more doses of SP/Fansidar, received two or more doses of SP/Fansidar, and received three or more doses of SP/Fansidar, according to background characteristics, Malawi 2021

Characteristics	Percentage who received one or more doses of SP/Fansidar (N=1403)	Percentage who received two or more doses of SP/Fansidar (N=1403)	Percentage who received three or more doses of SP/Fansidar (N=1403)
Region			
Northern	100	83	62
Central	100	87	63
Southern	99	89	56
Age			
15–24	100	87	66
25–34	100	86	58
35–44	99	84	46
≥45	100	56	30
Residence			
Urban	99	87	62
Rural	100	86	60
Education			
None	100	84	57
Primary	100	88	68
≥ Secondary	100	89	62
Wealth quintile			
Lowest	100	84	58
Second	100	88	63
Middle	100	86	52
Fourth	99	82	65
Highest	100	90	64
Number of ANC visits			
1–3	100	80	46
4+	100	88	66
Percent of women who received number of doses	100	86	60

of IPTp			

Table 3.4.15: Source of IPTp

Table 3.4.15 describes the common sources of IPTp among women who have given birth in the 2 years prior to the study. This table also specifies the percentage of women who received one or more doses of IPTp by sociodemographic characteristics. Data are disaggregated by participant age group, resident type, study region, and household wealth quintile.

Table 3.4.15: Source of IPTp

Source of IPTp among women with a live birth in the past two years, Malawi 2021

Characteristics	Percentage who received one or more doses of SP/ Fansidar (N=1403)	Sources of SP/Fansidar doses among those who received at least one dose (N=1401)		
		Antenatal care	Non antenatal visit at facility	Pharmacy
Region				
Northern	100	97	17	2
Central	100	98	16	2
Southern	99	100	15	2
Age				
15–24	100	97	17	2
25–34	100	98	16	2
35–44	99	100	15	2
≥45	100	100	10	0
Residence				
Urban	99	98	12	3
Rural	100	97	17	2
Education				
None	89	97	97	94
Primary	97	94	98	96
≥ Secondary	90	94	99	93
Wealth quintile				
Lowest	100	98	26	2
Second	100	97	17	1
Middle	100	97	12	3
Fourth	99	97	15	2
Highest	100	98	10	1
Total (%)	**100**	**97**	**16**	**2**

A.3.5 Insecticide-Treated Net Use

This subsection of the Annex provides all data tables related to ITN use. This includes data related to respondent knowledge; attitudes toward ITNs in general and ITN care; perceived response efficacy and perceived self-efficacy; perceived community norms and gender norms; household possession, access, and use of ITNs; ITN characteristics; ITN care and repurposing behavior; and consistent ITN use. The following tables or and figures may have been duplicated or referenced in the main body of the report.

Table 3.5.2: Knowledge of malaria prevention using mosquito nets

Table 3.5.2 presents distribution of participants' knowledge of malaria prevention using ITNs. Results are presented by participant characteristics and are disaggregated by study region.

Table 3.5.2: Knowledge of malaria prevention using ITNs

Percent of respondents with specific perceptions of facility health workers, by region, Malawi 2021

Characteristics	Northern (N=1934)	Central (N=1778)	Southern (N=1773)	Total (N=5485)
Sex				
Female	90	88	93	90
Male	89	89	88	89
Age				
15–24	87	86	90	87
25–34	92	91	95	92
35–44	91	90	94	92
≥45	90	87	81	87
Residence				
Urban	91	95	91	93
Rural	90	87	92	90
Education				
None	86	85	90	87
Primary	93	92	95	93
≥ Secondary	94	96	95	95
Wealth quintile				
Lowest	93	84	87	87
Second	89	85	90	88
Middle	90	92	93	92
Fourth	89	91	93	91
Highest	90	95	94	92
Total (%)	**90**	**89**	**91**	**90**

Table 3.5.3a: Favorable attitudes towards ITNs

Table 3.5.3a presents distribution of respondents' attitudes toward mosquito nets. This table specifies favorable attitudes toward ITNs based on agreement or disagreement with specific statements. Results are presented by participant characteristics and disaggregated by study region.

Table 3.5.3a: Favorable attitudes towards ITNs				
Percent of respondents with specific attitudes towards mosquito nets by region, Malawi 2021				
Percent of respondents with favorable attitudes to nets based on the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *It is easier to get a good night's sleep when I sleep under a mosquito net.*	98	97	99	98
DISAGREE with the following statement: *It is not easy to sleep under a net because every night you have to unfold it and cover the sleeping space.*	77	79	80	78
DISAGREE with the following statement: *I do not like sleeping under a mosquito net when the weather is too warm.*	75	78	79	77
DISAGREE with the following statement: *Sleeping under a net is an inconvenience for a couple that wants to make children.*	90	90	90	90
DISAGREE with the following statement: *The smell of the insecticide makes it uncomfortable for me to sleep under a mosquito net.*	81	80	74	79
AGREE with the following statement: *Mosquito nets are generally easy to use for sleeping.*	92	95	95	94
AGREE with the following statement: *Insecticide-treated nets do not pose a risk to one's health.*	75	90	75	80
AGREE with the following statement: *Mosquito nets are very useful.*	98	98	98	98
DISAGREE with the following statement: *More expensive mosquito nets are more effective than cheaper or free mosquito nets.*	60	68	72	66
Percent of respondents with favorable attitudes towards ITNs	**80**	84	81	82
Sex				

Female	79	84	80	81
Male	82	85	87	84
Age				
15–24	78	80	80	79
25–34	80	86	86	84
35–44	83	86	78	83
≥45	78	85	79	81
Residence				
Urban	90	91	84	88
Rural	79	83	81	81
Education				
None	75	80	78	78
Primary	82	86	84	84
≥ Secondary	86	93	86	88
Wealth quintile				
Lowest	76	77	84	78
Second	71	81	86	79
Middle	81	88	76	81
Fourth	82	88	81	83
Highest	85	93	81	86
Total (%)	**80**	**84**	**81**	**82**

Table 3.5.3b: Favorable attitudes towards ITN care

Table 3.5.3b presents distribution of participants' attitudes toward ITN care based on agreement or disagreement with specific statements. Results are presented by participant characteristics and disaggregated by study region.

Table 3.5.3b: Favorable attitudes towards ITN care

Percent of respondents with specific attitudes towards mosquito nets by region, Malawi 2021

Percent of respondents with favorable attitudes to ITN care based on the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
AGREE with the following statement: *There are actions I can take to help my mosquito net last long.*	93	93	86	91
AGREE with the following statement: *I can protect my family against malaria by taking care of my mosquito net.*	98	98	97	98
AGREE with the following statement:	78	82	79	80

Other people in this community take care of their mosquito nets.				
AGREE with the following statement: *I am confident I can fold or tie up the nets in my home every day after using them.*	97	98	97	97
AGREE with the following statement: *It is worth taking time to care for my mosquito net.*	98	99	96	98
AGREE with the following statement: *I am confident that I can prevent children from playing with the net.*	98	98	97	98
AGREE with the following statement: *An old net can still protect against malaria if it is well cared for.*	81	94	89	87
DISAGREE with the following statement: *Treated mosquito nets attract bed bugs and other insects.*	68	72	73	71
AGREE with the following statement: *I would use a net to sleep under regardless of its shape.*	76	93	88	85
Percent of respondents with favorable attitudes towards ITNs	90	97	95	94
Sex				
Female	90	97	95	94
Male	90	98	95	94
Age				
15–24	88	97	95	92
25–34	90	98	95	94
35–44	92	97	95	95
≥45	94	98	94	95
Residence				
Urban	94	97	97	96
Rural	90	97	95	94
Education				
None	86	97	94	92
Primary	94	98	95	96
≥ Secondary	93	97	97	95
Wealth quintile				

Lowest	90	97	90	94
Second	88	97	96	94
Middle	93	98	98	96
Fourth	88	98	93	92
Highest	92	95	95	93

Table 3.5.4: Perceived response efficacy of ITNs

Table 3.5.4 summarizes respondents' perceived response efficacy of ITNs based on their agreement or disagreement with certain statements. Results are presented by participant characteristics and are disaggregated by study region.

Table 3.5.4: Perceived response efficacy of ITNs

Percent of respondents with specific perceived response efficacy by region, Malawi 2021

Percent of respondents with perceived response efficacy based on the following statements:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
DISAGREE with the following statement: *Mosquito nets prevent mosquito bites only when used on a bed.*	72	75	70	72
DISAGREE with the following statement: *My chances of getting malaria are the same whether or not I sleep under a mosquito net.*	74	80	80	78
AGREE with the following statement: *Sleeping under a mosquito net every night is the best way to avoid getting malaria.*	98	98	98	98
Percent of respondents with perceived response efficacy of ITNs	59	65	59	61
Sex				
Female	58	63	59	60
Male	61	72	59	64
Age				
15–24	59	62	59	60
25–34	59	68	60	62
35–44	63	62	61	62
≥45	52	67	51	57
Residence				
Urban	45	71	59	60
Rural	60	63	59	61
Education				

None	50	61	55	55
Primary	63	69	64	65
≥ Secondary	70	71	66	69
Wealth quintile				
Lowest	51	59	56	56
Second	52	60	60	57
Middle	60	68	58	61
Fourth	61	69	62	63
Highest	64	73	59	65

Table 3.5.5: Perceived self-efficacy to use ITNs

Table 3.5.5 describes respondents' perceived self-efficacy to use ITNs based on their response to a series of questions asking whether they feel they could or could not take certain actions. Results are presented by participant characteristics and are disaggregated by study region.

Table 3.5.5: Perceived self efficacy to use ITNs

Percent distribution of respondents with specific self-efficacy to use ITNs by region, Malawi 2021

Percent of respondents that could do the following:	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**
Sleep under a mosquito net for the entire night when there are lots of mosquitoes.	99	99	99	99
Sleep under a mosquito net for the entire night when there are few mosquitoes.	95	96	96	96
Sleep under a mosquito net every night of the year.	94	96	95	95
Get all of your children to sleep under a mosquito net every night of the year.	96	97	98	97
Percent of respondents with perceived self-efficacy to use ITNs	96	97	97	97
Sex				
Female	96	97	97	97
Male	96	97	98	97
Age				
15–24	96	95	96	96
25–34	96	99	98	97
35–44	97	97	98	97
≥45	96	98	97	97
Residence				

Urban	94	97	99	97
Rural	96	97	97	97
Education				
None	96	97	97	96
Primary	96	96	99	97
≥ Secondary	96	98	97	97
Wealth quintile				
Lowest	96	96	96	96
Second	97	96	97	96
Middle	95	98	98	97
Fourth	96	99	99	97
Highest	97	98	96	97

Table 3.5.6a: Perceived community norms regarding ITNs

Table 3.5.6a describes respondents' perceived community norms regarding ITNs. Perceived community norms were assessed based on participants' responses to a series of questions asking about the proportion of members in their community who use nets and/or approve of them (the respondent) using nets every night. Results are presented by participant characteristics and are disaggregated by study region.

Table 3.5.6a: Perceived community norms regarding ITNs

Percent of respondents with perceived norms regarding ITN use by region, Malawi 2021

Characteristics	Northern (N=1934)		Central (N=1778)		Southern (N=1773)		Total (N=5485)	
	At least half of the community members who have nets use them nightly	At least half of the community members approve of using a net every night	At least half of the community members who have nets use them nightly	At least half of the community members approve of using a net every night	At least half of the community members who have nets use them nightly	At least half of the community members approve of using a net every night	At least half of the community members who have nets use them nightly	At least half of the community members approve of using a net every night
Sex								
Female	40	33	33	21	43	34	39	29
Male	38	34	32	25	40	35	37	31
Age								
15–24	36	37	34	25	40	31	36	32
25–34	46	32	33	21	43	35	40	29
35–44	38	34	31	21	44	37	38	31
45 and above	37	26	36	17	38	30	37	24
Residence								
Urban	39	38	36	20	40	30	38	28
Rural	39	33	32	22	42	35	38	30
Education								
None	39	30	31	22	41	36	37	29
Primary	38	37	39	18	48	28	41	29

Secondary or higher	40	36	35	24	40	33	39	32
Wealth quintile								
Lowest	42	30	33	23	34	28	35	26
Second	41	30	30	19	43	34	38	28
Middle	40	32	32	23	45	39	40	32
Fourth	41	36	36	20	45	33	40	31
Highest	36	35	36	23	39	32	37	32
Total (%)	**39**	**33**	**33**	**22**	**42**	**34**	**38**	**30**

Table 3.5.6b: Perceived gender norms regarding ITNs

Table 3.5.6b presents participants' perceived gender norms related to ITN use. One's reported gender norms are based on their agreement or disagreement with several statements. Results are presented by participant characteristics and are disaggregated by study region.

Table 3.5.6b: Perceived gender norms regarding ITNs

Percent of respondents with perceived equitable gender norms regarding ITN use by region, Malawi 2021

Percent of respondents who disagree with the following statements: ***When there are not enough nets…***	**Northern (N=1934)**		**Central (N=1778)**		**Southern (N=1773)**		**Total (N=5485)**	
	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children
Sex								
Female	93	96	94	97	94	97	94	96
Male	96	98	94	98	94	97	95	98
Age								
15–24	93	96	94	97	93	97	94	96

25–34	95	98	96	98	95	96	95	97
35–44	92	94	93	97	94	98	93	96
45 and above	91	97	94	96	92	93	92	96
Residence								
Urban	91	98	96	100	97	98	95	99
Rural	93	96	94	97	94	97	94	96
Education								
None	92	96	93	96	93	96	93	96
Primary	93	97	94	98	96	97	94	97
Secondary or higher	95	96	97	99	96	98	96	97
Wealth quintile								
Lowest	93	99	90	96	93	96	92	97
Second	91	96	95	96	94	97	93	96
Middle	95	96	95	98	94	97	94	97
Fourth	94	95	96	97	96	96	95	96
Highest	93	96	98	100	94	98	95	97
Total (%)	**93**	**96**	**94**	**97**	**94**	**97**	**94**	**97**

Table 3.5.7: Household possession of mosquito nets

Table 3.5.7 summarizes household possession of mosquito nets (treated or untreated). The data table specifies the percentage of households with at least one ITN in the household, and at least one ITN for every two persons who stayed in the household the previous night. Results are presented by residence, region, and household wealth quintile.

Table 3.5.7: Household possession of mosquito nets

Percentage of households with at least one insecticide-treated net (ITN); **and** percentage of households with at least one net and ITN per two persons, according to household characteristics, Malawi 2021 (N= 3862)

Characteristics	Percentage of households with at least one ITN*	Percentage of households with at least one ITN* for every two persons
Region		
Northern	51	17
Central	57	14
Southern	71	26
Residence		
Urban	67	25
Rural	58	18
Wealth quintile		
Lowest	51	13
Second	54	15
Middle	62	17
Fourth	62	16
Highest	70	35
Total (%)	60	19

* An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment.

Table 3.5.8: Access to an ITN

Table 3.5.8 describes the percentage of de facto population in each region with access to an ITN in the household. This percentage is interpreted as an indicator of access. Results are presented according to household characteristics and are disaggregated by study region.

Table 3.5.8: Access to an ITN

Fraction of the de facto population with access to an ITN in the household, according to household characteristics, Malawi 2021				
Percent of the de facto population with access to an ITN*	**Northern (N=6332)**	**Central (N=5677)**	**Southern (N=5416)**	**Total (N=17425)**
Residence				
Urban	51	54	57	54
Rural	36	35	54	41
Wealth quintile				
Lowest	23	32	36	31
Second	30	31	45	35
Middle	33	38	61	45
Fourth	35	39	47	40
Highest	52	62	79	61
Total (%)	38	39	54	43
* Percentage of de facto household population who could sleep under an ITN if each ITN in the household were used by up to two people.				

Table 3.5.9: Use of mosquito nets by persons in the household

Table 3.5.9 describes the percentage of de facto population in each region who slept under an ITN in the household the night before the survey. Results are presented according to participant characteristics and are disaggregated by study region.

Table 3.5.9: Use of ITNs by persons in the household				
Percentage of the de facto household population who slept the night before the survey under an ITN the night before the survey, according to background characteristics, Malawi 2021				
Percentage who slept under an ITN last night	**Northern (N=6332)**	**Central (N=5677)**	**Southern (N=5416)**	**Total (N=17425)**
Sex				
Female	33	38	49	40
Male	35	43	54	43
Age				
0–4	43	52	61	51
5–14	25	27	41	31
15–24	31	38	40	36
≥25	39	48	63	50
Residence				
Urban	45	47	57	49
Rural	33	40	51	40

Wealth quintile				
Lowest	28	37	42	36
Second	28	37	46	37
Middle	32	43	52	43
Fourth	33	41	46	39
Highest	41	51	72	51
Household ITN supply				
<1 net per 2 people	25	34	40	32
≥1 net per 2 people	84	90	93	89
Total (%)	**34**	**41**	**51**	**41**

Table 3.5.10: ITN Use Access Ratio

Table 3.5.10 presents the ITN Use Access Ratio in each region, according to household characteristics. Results are disaggregated by study region.

Table 3.5.10: ITN Use Access Ratio

ITN use access ratio, according to background characteristics, Malawi 2021

ITN use access ratio	Northern	Central	Southern	Total
Residence				
Urban	0.88	0.87	1.00	0.91
Rural	0.92	1.14	0.94	0.98
Wealth quintile				
Lowest	1.22	1.16	1.17	1.16
Second	0.93	1.19	1.02	1.06
Middle	0.97	1.13	0.85	0.96
Fourth	0.94	1.05	0.98	0.98
Highest	0.79	0.82	0.91	0.84
Total (ratio)	**0.89**	**1.05**	**0.94**	**0.95**

Table 3.5.11: Use of existing ITNs

Table 3.5.11 illustrates the percentage of ITNs that were used the previous night, and those that were used every night in the week prior to the survey, according to household characteristics. Results are disaggregated by study region.

Table 3.5.11: Use of existing ITNs

Percentage of ITNs used the previous night and every night, by background characteristics, Malawi 2021

Characteristics	Northern (N=1441)		Central (N=1167)		Southern (N=1424)		Total (N=4032)	
	% of ITNs used the previous night	% of ITNs used every night of the previous week	% of ITNs used the previous night	% of ITNs used every night of the previous week	% of ITNs used the previous night	% of ITNs used every night of the previous week	% of ITNs used the previous night	% of ITNs used every night of the previous week
Residence								
Urban	85	82	78	83	91	85	83	83
Rural	82	81	86	88	91	90	87	86
Wealth quintile								
Lowest	89	89	82	84	91	87	86	86
Second	80	83	84	88	86	86	84	86
Middle	85	81	92	92	92	90	90	89
Fourth	85	82	86	87	91	88	87	85
Highest	80	79	81	86	93	91	84	84
Total (%)	**83**	**81**	**84**	**87**	**91**	**89**	**86**	**86**

Table 3.5.12: ITN characteristics

Table 3.5.12 presents the percentage of ITNs with specific characteristics, according to net characteristics. Results are disaggregated by study region.

Table 3.5.12: ITN Characteristics				
Percentage of nets and ITNs with specific characteristics, by region Malawi 2021				
	Northern (N=1441)	**Central (N=1167)**	**Southern (N=1424)**	**Total (N=4032)**
% of nets that are ITN*	99	95	99	98
% of ITNs obtained for free	100	99	100	100
Source of ITN				
Mass distribution campaign	52	48	52	51
Antenatal consultation (ANC)	26	28	31	28
Immunization	10	11	3	8
Age of ITN				
<12 months	38	39	39	38
12–24 months	18	28	27	24
25–36 months	43	31	33	36
>36 months	2	2	1	2
Color of ITN				
White	21	19	9	16
Blue	14	16	9	12
Green	58	60	74	65
Other color	8	5	8	7
* An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment.				

Table 3.5.13a: ITN care

Table 3.5.13a describes ITN care, according to care and repurposing characteristics. Results are disaggregated by study region.

Table 3.5.13a: ITN Care				
Care of ITNs, by region Malawi 2021				
	Northern (N=1420)	**Central (N=1113)**	**Southern (N=1410)**	**Total (N=3943)**
% of ITNS ever washed	62	78	89	77
Product used to wash ITN	**Northern (N=968)**	**Central (N=855)**	**Southern (N=1220)**	**Total (N=3043)**

Soap	31	21	21	23
Powder soap/liquid soap	54	69	67	64
Other	4	1	0	1
Nothing	11	10	12	11
Where ITN was dried				
Out in the shade	52	70	73	67
Out in the sun	47	29	25	32
Other	1	1	2	1

Table 3.5.13b: Net care repurposing

Table 3.5.13b describes net repurposing practices, according to care and repurposing characteristics. Results are disaggregated by study region.

Table 3.5.13b: Net Care and Repurposing				
Care and Repurposing of ITNs by region, Malawi 2021				
Net care and repurposing actions	**Northern (N=1441)**	**Central (N=1167)**	**Southern (N=1424)**	**Total (N=4032)**
% of respondents engaging in any net care	94	93	90	92
Roll up or tie when not in use	66	76	70	70
Handle nets with care	22	12	18	18
Wash gently	16	13	10	13
% of respondents who repurpose nets	**11**	14	19	14
Specific repurposing actions	**Northern (N=285)**	**Central (N=256)**	**Southern (N=317)**	**Total (N=858)**
Protection for seedlings/crops	31	28	24	27
Curtains or window screen	19	3	9	10
Rope or tying	27	48	39	38
Other purpose	38	38	44	40

Table 3.5.14: Consistent Net Use

Table 3.5.14 presents the percent of respondents who used an ITN every night of the week preceding the survey, according to respondent characteristics.

Table 3.5.14 Consistent net use the previous week				
Percent of respondents who used an ITN every night of the week preceding the survey, according to respondent characteristics, Malawi 2021				
Characteristics	**Northern (N=1934)**	**Central (N=1778)**	**Southern (N=1773)**	**Total (N=5485)**

Sex				
Female	47	57	64	55
Male	47	57	63	55
Age				
15–24	49	55	61	54
25–34	47	60	67	57
35–44	48	56	65	56
≥45	40	54	57	49
Residence				
Urban	56	62	60	60
Rural	46	56	64	54
Education				
None	40	52	57	49
Primary	50	53	66	55
≥ Secondary	56	72	78	66
Wealth quintile				
Lowest	33	49	46	44
Second	49	52	63	55
Middle	47	58	63	56
Fourth	42	62	72	56
Highest	56	70	70	62
Total (%)	**47**	**57**	**64**	**55**

A.3.6 Media Consumption and Message Exposure

This subsection of the Annex provides all data tables related to media consumption and exposure to malaria messages. The following tables may have been duplicated or referenced in the main body of the report.

Table 3.6.2: Radio listenership at least once a week

Table 3.6.2 describes the distribution of radio listenership. It includes data from all respondents as well as respondents in households that own a radio. The data presented in this table is disaggregated by region.

Table 3.6.2: Radio Listenership at Least Once a Week

Percent distribution of radio listenership at least once a week among all respondents and respondents in households with a radio by region, Malawi 2021

Characteristics	Northern		Central		Southern		Total	
	All respondents (N=1934)	Respondents in households with a radio (N=674)	All respondents (N=1778)	Respondents in households with a radio (N=580)	All respondents (N=1773)	Respondents in households with a radio (N=669)	All respondents (N=5485)	Respondents in households with a radio (N=1923)
Sex								
Female	35	72	43	86	42	81	39	79
Male	47	76	58	94	58	90	54	86
Age								
15–24	32	67	39	86	44	79	37	76
25–34	46	78	51	89	42	83	47	83
35–44	34	69	46	85	50	85	43	80
45 and above	38	79	52	95	49	87	45	87
Residence								
Urban	36	72	44	89	44	82	41	80
Rural	53	79	57	86	56	90	56	85
Education								
None	29	69	38	85	41	81	36	79
Primary	39	71	50	89	48	87	44	80
Secondary or higher	49	76	63	91	54	85	55	83
Wealth quintile								
Lowest	16	63	21	84	15	77	18	79
Second	21	72	39	89	28	83	29	83
Middle	31	67	52	86	52	86	44	80
Fourth	36	66	59	86	57	78	48	77
Highest	62	77	83	91	72	86	69	83

Total (%)	**37**	**73**	**46**	**88**	**45**	**83**	**42**	**80**

Table 3.6.3: Preferred time to listen to radio

Table 3.6.3 summarizes respondents' preferred time to listen to the radio. It includes data by study region, respondent sex, respondent age, respondent level of education, and household wealth quintile. The data presented in this table is disaggregated by certain times at which one can listen to the radio.

Table 3.6.3: Preferred time to listen to radio

Preferred time to listen to radio, Malawi 2021 (N=2441)

Characteristics	Early in the morning	End of morning	Afternoon	Early in the evening	End of evening	Night
Region						
Northern	6	17	16	47	13	0
Central	5	15	30	40	9	0
Southern	6	19	23	45	8	0
Sex						
Female	5	17	23	45	10	0
Male	7	17	23	43	11	0
Age						
15–24	4	20	23	42	10	0
25–34	7	17	20	44	11	0
35–44	5	14	24	47	9	0
≥45	5	18	27	41	9	0
Residence						
Urban	10	20	20	38	11	1
Rural	5	17	23	45	10	0
Education						
None	5	18	26	40	10	0
Primary	5	18	25	43	9	0
≥ Secondary	7	14	17	50	11	0
Wealth quintile						
Lowest	4	19	37	38	2	0
Second	3	17	25	46	9	0
Middle	5	16	24	43	12	0
Fourth	5	19	25	40	11	0
Highest	8	16	16	49	11	1
Total (%)	6	17	23	44	10	0

Table 3.6.4: Television viewership at least once a week

Table 3.6.4 describes the distribution of television listenership. It includes data from all respondents as well as respondents in households that own a radio. The data presented in this table is disaggregated by region.

Table 3.6.4: Television Viewership at Least Once a Week

Percent distribution of television viewership at least once a week among all respondents and respondents in households with a television by region, Malawi 2021

Characteristics	Northern		Central		Southern		Total	
	All respondents (N=1934)	Respondents in households with a television (N=290)	All respondents (N=1778)	Respondents in households with a television (N=153)	All respondents (N=1773)	Respondents in households with a television (N=157)	All respondents (N=5485)	Respondents in households with a television (N=600)
Sex								
Female	12	72	8	80	8	71	10	74
Male	13	78	11	86	11	77	12	80
Age								
15–24	11	76	5	69	5	54	7	71
25–34	15	73	12	79	10	76	12	75
35–44	11	69	10	86	9	71	10	74
45 and above	13	76	11	99	13	100	12	87
Residence								
Urban	10	70	5	84	6	67	7	71
Rural	38	88	31	79	26	80	31	82
Education								
None	7	73	4	70	4	45	5	65
Primary	11	70	6	74	9	70	9	71
Secondary or higher	22	75	24	85	20	87	22	80

Wealth quintile								
Lowest	2	0	1	0	1	0	1	0
Second	0	0	1	0	1	0	1	0
Middle	2	0	2	62	2	0	2	62
Fourth	4	69	3	44	6	0	4	38
Highest	38	73	50	82	40	75	41	76
Total (%)	**12**	**73**	**9**	**81**	**9**	**72**	**10**	**75**

Table 3.6.5: Preferred time to watch television

Table 3.6.5 summarizes respondents' preferred time to watch television. It includes data by study region, respondent sex, respondent age, respondent level of education, and household wealth quintile. The data presented in this table is disaggregated by certain times at which one can watch television.

Table 3.6.5: Preferred time to watch television						
Preferred time to watch television, Malawi 2021 (N=621)						
Characteristics	**Early in the morning**	**End of morning**	**Afternoon**	**Early in the evening**	**End of evening**	**Night**
Region						
Northern	2	4	18	48	28	0
Central	8	14	15	43	19	1
Southern	2	9	25	45	20	0
Sex						
Female	3	8	22	44	23	0
Male	5	7	10	54	24	0
Age						
15–24	3	11	22	45	19	0
25–34	3	10	15	46	26	0
35–44	6	4	21	44	24	1
≥45	2	2	19	56	21	0
Residence						
Urban	5	10	20	43	21	0
Rural	3	7	18	48	24	0
Education						
None	3	9	28	38	22	0
Primary	5	11	14	58	11	0
≥ Secondary	3	7	16	46	27	0
Wealth quintile						
Lowest	0	0	38	59	3	0
Second	1	13	44	28	13	0
Middle	3	17	36	32	13	0
Fourth	2	6	26	54	11	0
Highest	4	8	16	46	26	0
Total (%)	**4**	**8**	**19**	**46**	**23**	**0**

Table 3.6.6: Mobile phone or tablet ownership

Table 3.6.6 describes the distribution of ownership of mobile phones or tablets by respondent sociodemographic characteristics, including participant sex, age group, residence, level of education, and household wealth quintile. The presented data is disaggregated by region.

Table 3.6.6: Mobile phone or tablet ownership

Percent distribution of mobile phone or tablet ownership among all respondents by region, Malawi 2021

Characteristics	Northern (N=1934)	Central (N=1778)	Southern (N=1772)	Total (N=5484)
Sex				
Female	45	39	38	41
Male	63	63	66	64
Age				
15–24	41	35	33	37
25–34	54	50	47	51
35–44	51	47	50	49
≥45	58	49	56	54
Residence				
Urban	47	39	41	43
Rural	65	73	64	68
Education				
None	35	32	35	34
Primary	50	50	44	49
≥ Secondary	69	70	67	69
Wealth quintile				
Lowest	11	13	10	12
Second	27	38	30	32
Middle	40	52	44	45
Fourth	58	62	58	59
Highest	75	86	78	78
Total (%)	**49**	**44**	**44**	**46**

Table 3.6.7: Exposure to malaria messages

Table 3.6.7 describes the percentage of respondents who have been exposed to malaria messages, specifically through identification of a campaign logo for Life is Precious and completing the Life is Precious slogan. Data presents exposure rates by participant sociodemographic characteristics, including participant sex, age group, residence, level of education, and household wealth quintile. It is disaggregated by study region.

Table 3.6.7: Exposure to malaria messages in past six months

Percent distribution of television viewership at least once a week among all respondents and respondents in households with a television by region, Malawi 2021

Characteristics	Northern (N=1934)			Central (N=1778)			Southern (N=1773)			Total (N=5485)		
	Participant could complete a campaign slogan	Participant seen or heard malaria message in past six months	Participant identified campaign logo	**Participant could complete a campaign slogan**	Participant seen or heard malaria message in past six months	Participant identified campaign logo	**Participant could complete a campaign slogan**	Participant seen or heard malaria message in past six months	Participant identified campaign logo	**Participant could complete a campaign slogan**	Participant seen or heard malaria message in past six months	Participant identified campaign logo
Sex												
Female	67	24	20	44	27	31	38	30	30	51	27	26
Male	56	26	18	29	40	32	23	36	34	38	34	27
Age												
15–24	68	19	20	40	26	31	29	27	36	49	23	28
25–34	59	31	21	37	31	36	30	32	32	43	31	29
35–44	67	26	18	43	33	26	44	35	28	52	31	24
45 and above	68	26	14	50	31	32	42	29	18	56	28	21
Residence												
Urban	66	24	18	43	30	29	36	31	30	51	28	25
Rural	45	32	34	26	29	44	30	32	41	32	31	40

Education												
None	76	16	14	51	23	27	44	28	25	57	22	22
Primary	63	27	24	33	32	26	24	33	32	44	30	27
Secondary or higher	49	36	24	22	45	46	19	37	45	34	39	36
Wealth quintile												
Lowest	**79**	14	17	57	21	25	45	17	24	60	18	23
Second	74	17	14	44	34	28	37	24	29	52	25	24
Middle	67	22	19	33	31	36	37	36	27	47	30	27
Fourth	63	24	21	26	30	34	31	38	32	44	29	28
Highest	54	36	22	28	42	39	24	38	44	41	38	31
Total (%)	**65**	**25**	**19**	**41**	**30**	**31**	**35**	**31**	**31**	**49**	**28**	**27**