GOVERNMENT OF MALAWI

Support for Service Delivery Integration – Communication (SSDI-Communication)

Findings from the 2012 Baseline Survey of 15 Districts in Malawi

USAID FROM THE AMERICAN PEOPLE

SSDI SUPPORT FOR SERVICE DELIVERY INTEGRATION

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Note: The contents of this report are the responsibility of SSDI-Communication staff and do not necessarily reflect the views of USAID or the Government of the United States.

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Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ART	Anti Retroviral Therapy
CBO	Community Based Organization
CCP	Center for Communication Programs
CHAM	Christian Health Association of Malawi
CHW	Community Health Worker
CSR	Centre for Social Research
CZ	Central Zone
DH	District Hospital
DHO	District Health Office(r)
EHP	Essential Health Package
FBO	Faith Based Organization
FGD	Focus Group Discussion
FP	Family Planning
GVH	Group Village Head
HC	Health Center
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HSA	Health Surveillance Assistant
IRS	Indoor Residual Spraying
JHU	Johns Hopkins University
KII	Key Informant Interview
LA	Lumefantrine Artemether
LAM	Lactational Amenorrhea Method
LLIN	Longer-Lasting Insecticide-treated Net
MBC	Malawi Broadcasting Corporation
NAC	National AIDS Commission
NGO	Non-Governmental Organization
NHSRC	National Health Sciences Research Committee
NSO	National Statistical Office
ORS	Oral Rehydration Solution
SBCC	Social and Behavior Change Communication
SEZ	South East Zone
SSDI	Support for Service Delivery Integration
SSDI-C	Support for Service Delivery Integration - Communication
STI	Sexually Transmitted Infection
SWZ	South West Zone
TA	Traditional Authority
TOR	Terms of Reference
USAID	United States Agency for International Development
VDC	Village Development Committee
VH	Village Head
VSL	Village Savings and Loans (village bank)

Executive Summary

Overview

This survey was conducted to measure levels of predictors of positive health practices, particularly knowledge, self-efficacy, risk perceptions, social normative perceptions as well as to establish baseline measures against which to measure change in key health practices across a broad range of health areas as well as in the area of health communication. It is anticipated that these findings will provide meaningful insight that can contribute to the design, development, implementation and evaluation of the resulting communication interventions.

Methodology

This study relied on a stratified random sampling design, weighted by population with 15 intervention and 4 control districts. Within each selected district, enumeration areas (EAs) were randomly selected and, within each, households were randomly chosen. Respondents within households were chosen through a stratified random selection process based on sex; in the event that more than one eligible respondent resided therein, selection relied on a KISH grid.

Key Findings

Knowledge

Wash

- Three-quarters of respondents noted that improper hand washing can cause diarrhea, and about half mentioned that it is associated with cholera transmission.

Malaria

- Almost all respondents knew that malaria is caused by mosquito bites; insecticide-treated bed nets were considered highly efficacious.

Contraception

- Knowledge of at least one contraceptive method is almost universal among respondents; injectables, male condoms, and oral pills were the most-mentioned methods.

Maternal and Child Health

- Overall, knowledge of danger signs associated with pregnancy was very low; approximately one fifth of respondents were unaware of any danger signs associated with pregnancy and childbirth – whether for the child or the mother.

HIV Transmission

- The majority of respondents believed that they could reduce their risk of contracting HIV/AIDS to a great extent through abstinence, faithfulness and condom use; more than nine out of ten respondents noted that mother to child transmission of HIV could be prevented.

Attitudes, Efficacy and Social Norms

Contraception & Fertility Desires

- Overall approval of family planning (FP) is almost universal.
- Over 90% of married respondents report that both they and their partners approve of contraception.
- Over 80% were very confident they could use a method of contraception consistently if they did not want to get pregnant (efficacy).
- About three-quarters of respondents believe that others they know use contraception.
- The majority of respondents indicated that they would ideally want 4-6 children (55%).

Child Health

- 95% of mothers of U5 children reported high levels of efficacy regarding their ability to breastfeed their infant for the first 6 months of life without feeding him/her anything else by mouth.
- Only about a third recognized the need to take a child with fever to a health facility within 48 hours of the onset of fever.

Malaria

- Four out of five respondents reported high efficacy to have their children sleep under a bed net every night of the year.
- Yet only a third of respondents believe that bed nets are "very safe."

HIV Prevention

- The majority of respondents (74% of women and 78% of men)did not believe that male circumcision was an effective method in reducing HIV risk.
- Less than 20% of respondents think that "most" people they know use a condom every time they have sex with a casual partner.

Gender equity

- More than 80% of men and women believe a woman has the right to tell men to use condoms and nearly 95% believe that decisions on family size should be mutual.
- Women express less equitable views than do men.

Communication

Contraception, Child Health, Malaria, HIV/AIDS

- Over the previous six months, respondents reported discussing the following with at least one person (most often a friend):
  - Contraceptive methods (23%)
  - Ways to prevent and treat diarrhea (21%)
  - How to prevent and treat a fever or a cough (18%)
  - Malaria prevention/treatment (30%)
  - HIV/AIDS (44%).
- Men were more likely to communicate with someone about all of the above-mentioned topics.

Health Behaviors

WASH

- About 90% reported washing their hands after using the toilet, 80% before handling food, but less than 20% after cleaning a defecating child.

Malaria

- Under-5 children in two-thirds of households slept under an insecticide-treated net the night before the survey.
- About three-quarters of mothers sought medical assistance for a child with fever.

Contraceptive Use

- Two-thirds of respondents reported ever use of contraceptives; more than half reported current use with higher rates among men than women.
- Rates of condom use were comparatively low, with less than one-quarter of men and a tenth of women reporting condom use at last sex.

Maternal and Child Health

- Two-thirds of respondents reported ever using contraceptives; more than half reported current use with higher rates among men than women.
- Rates of condom use were comparatively low, with less than one-quarter of men and a tenth of women reporting condom use at last sex.

HIV/AIDS

- Approximately 22% of males and 3% of females reported having more than one partner (concurrent or sequential) in the previous 12 months.

Community Health

- Most serious problems facing their communities: Male and female respondents alike identified lack of safe drinking water as the foremost barrier to good health, followed by poverty, lack of food, inadequate healthcare services and illnesses.

Information sources

- Health care providers were identified by respondents as their main source of health information, followed by community health workers and radio. Men were about 4 times more likely to mention radio than were women.

Selected Recommendations

WASH

- Emphasize the importance of hand washing after cleaning up a child that has defecated; also before preparing food.
- Promote the elimination of open defecation at the community level.
- With access to clean water identified as respondents' most pressing concern at the community level, communicate ways to treat water, encourage community efforts.

Malaria

- Re-emphasize prevention; 20% still don't use bed nets for under-5 children and a similar, even larger percentage of adults, including pregnant women, fail to use nets consistently.
- Disseminate messages regarding the safety of LLINs given that only about a third of respondents believe they are "very safe".
- Encourage parents/guardians to take their children to be tested for malaria if a fever persists as long as 24 hours.
- Address the issue of lack of bed net supply.

Contraception

- Encourage communication about contraception and family size.
- Ensure that contraceptive supplies are available before promoting FP.

Maternal and Child Health

- Danger signs of pregnancy are inadequately understood. Focus campaign messages on this important topic targeting both women and men; include birth planning and steps that families and communities should take when danger signs are present.
- Promote antenatal visits in the first trimester, since most women report their first visit in the second trimester.

HIV/AIDS

- Given the relatively low levels of condom use with casual partners, emphasize that correct and consistent condom use is a highly efficacious way to avoid HIV.
- Continue to promote voluntary medical male circumcision as a way to reduce HIV risk.

Gender norms & interpersonal communication

- Levels of communication are low -- especially between spouses -- about key health topics. Therefore communication should be encouraged by, enabled through, and modeled in communication messages and programs.

INFORMATION SOURCES

- Continue working with Zodiak Broadcasting Station, Malawi Broadcasting Corporation Radio 1 and 2 to reach the majority of target population.
- Continue to work with health care providers and community health workers to disseminate health information as they are trusted sources.
- Build capacity of volunteers to cover all the six health topics.

Chapter one

Introduction and Survey Participant Characteristics

Background

National Context

Malawi is a country located in sub-Saharan Africa south of the equator. The country is divided into five health zones: North, Central East, Central West, South East and South West. There are 28 districts in the country. Administratively, districts are subdivided into traditional authorities (TAs), presided over by chiefs. The TA is composed of villages, which are the smallest administrative units, and the Village Head presides over the village.

According to the 2008 Population and Housing Census, the population in Malawi is estimated at 13.1 million, with an intercensal population growth rate of 2.8 percent per year. Population density increased from 105 persons per square kilometer in 1998 to 139 persons per square kilometer in 2008 (NSO, 2008).

Life expectancy at birth in Malawi is estimated at 52.3 years for women and 49.6 years for men (NSO, 2008). According to the Malawi Demographic and Health Survey (MDHS) in 2004 and 2010 there was a decrease in under-5 mortality rate from 133 deaths per 1,000 live births in 2000-2004 to 112 deaths per 1,000 live births in 2005-2010 (NSO and ORC Macro, 2005, and NSO and ICF Macro, 2011). The maternal mortality ratio has also declined from 984 deaths per 100,000 live births in 1998-2004 (NSO and ORC Macro, 2005) to 675 deaths per 100,000 live births in 2004-2010 (NSO and ICF Macro, 2011).

Malaria is endemic throughout Malawi and continues to be a major public health problem. It is the leading cause of morbidity and mortality in children under 5 and among pregnant women. It is estimated that Malawi experiences about 6 million episodes of malaria annually (HMIS, 2011).

Malnutrition among children remains high in Malawi though it has declined since 2004. The stunting rate has declined from 53 percent in 2004 to 47 percent in 2010. Anemia prevalence among children has declined from 73 percent in 2004 to 63 percent in 2010 (NSO and ICF Macro, 2011).

SSDI-Communication Project: Life is Precious – Take Care of it!

SSDI-Communication is a social and behavior change communication (SBCC) project that promotes normative and behavior change in a range of health areas including Maternal Neonatal and Child Health (MNCH), Family Planning, Nutrition, Malaria, Water, Sanitation and Hygiene (WASH) and HIV/AIDS. This broad range of health topics will be woven together with the overarching theme "Life is Precious." Thus, all activities will be associated with the foundational understanding that "Moyo ndi Mpamba – Usamalireni" (Life is precious – Take care of it!) whether it is a matter of deciding when to have a child or how to improve child health outcomes, when to seek antenatal care or how to reduce the risk of HIV transmission, among other health-related concerns.

The Johns Hopkins Bloomberg School of Public Health Center for Communication Programs (JHU.CCP) implements the project in partnership with Save the Children International (SCI) and several local organizations including CRECCOM, YONECO, Story Workshop, Galaxy Media and the University of Malawi. Funded by USAID, the project began on September 16, 2011 and will run through September 15, 2016. An important feature of this project is that it is one among three allied projects that collectively form USAID's Support for Service Delivery Integration (SSDI) program. The other two projects focus on service delivery (SSDI-Services) and policy and systems strengthening (SSDI-Systems). SSDI-Services is an important collaborator on the project as SSDI-Communication behavior change strategies and SSDI-Services mobilization strategies build on one another.

The goal of all three Cooperative Agreements that constitute USAID's SSDI program, including SSDI-Communication, is to contribute to progress in three critical areas:

The goal of all three Cooperative Agreements that constitute USAID's SSDI program, including SSDI-Communication, is to contribute to progress in three critical areas:

I. Reducing the total fertility rate and population growth, which is essential for attaining broad-based economic growth;
II. Lowering the risk of HIV/AIDS to mitigate the enormous impact on human resources and productivity; and
III. Lowering maternal, infant and under-five mortality rates.

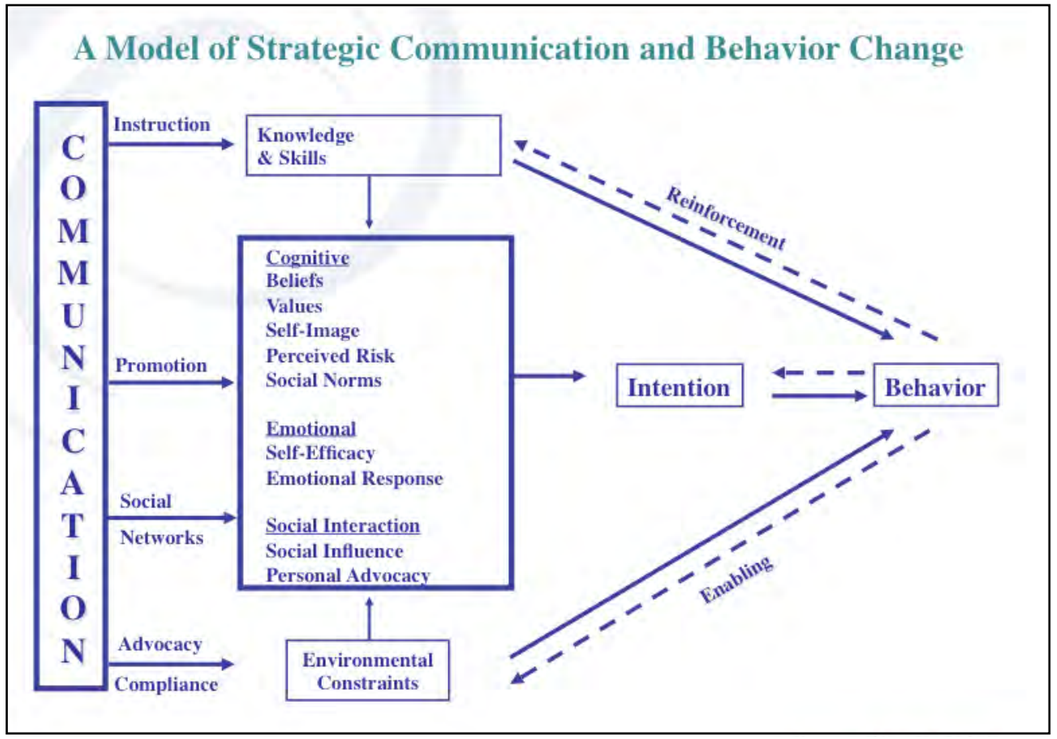
Objectives of the Baseline Survey

The primary objectives of this survey are:

- Assess baseline levels of predictors of positive health practices (including knowledge, attitudes, self-efficacy, risk perceptions, normative perceptions);
- Measure baseline measures of key health practices (including with respect to family planning, antenatal care, perinatal care, child health, nutrition, bed net use, vaccinations, VCT, abstinence, condom use, etc.);
- Provide data to inform communication interventions, and
- Establish baseline measures against which to measure change over time.

Conceptual Framework

Research demonstrates that communication interventions can introduce and promote new ways of thinking about specific health topics and specific health behaviors by influencing knowledge, attitudes, self-efficacy, social norms and communication. This understanding underpins the conceptual framework, presented below, that informs SSDI-Communication. Therefore the findings in this report are organized according to the conceptual framework.



Methodology

Sampling

We used a stratified random sampling design, weighted by population, with 15 intervention and 4 control districts (see Table 1.1, next page). Within each selected district, we randomly chose Enumeration Areas (EAs). From the selected EAs, we randomly chose households, and from each selected household, we chose one respondent for inclusion in the study. Respondents within households were chosen through a stratified random selection process based on sex. When more than one eligible respondent lived in a household, random selection was conducted using a KISH grid.

Field team

Supervisors and interviewers from CSR, a consultancy firm based in Zomba, collected the data. The CSR team together with JHU staff conducted a week-long training for the field staff team of interviewers and supervisors in September 2012. The training focused on survey methods, interview techniques and research ethics. Neighboring villages within Zomba District were identified to pilot test the survey instrument.

Data Entry and Analysis

Data was entered using CSPro. Statistical analyses were conducted using STATA version 12. Statistical significance was determined through Chi-square tests for differences in proportions and through ANOVA for differences in means. Multivariate regression analysis was conducted to examine relationships between intermediate and outcome variables, controlling for potential confounders.

Table 1.1.
Sampled Traditional Authorities (TAs) by Intervention and Control Sites

Zone	Intervention district						Control District
North	**Chitipa** Kameme	**Karonga** Kyungu Wasambo Mwirang'ombe	Karonga Town				**Nkhata-bay** Mkondowe Fukamalaza Kabunduli
Central East	**Dowa** Mkukula Chakhaza	**Kasungu** Kawamba Chilowamatambe M'nyanja	**Salima** Khombedza Karonga Maganga Kambalame	**Nkhotakota** Mwansambo Nkhotakota Town			**Ntchisi** Kasakula Nthondo
Central West	**Lilongwe** Chitekwere, Tsabango Chitukula, Chiseka Kalolo Kabudula	Chadza Mazengera Khongoni Area 7 Area 58					**Dedza** Kamenya Gwaza Tambala Pemba Dedza Town
South East	**Balaka**	**Zomba** Chikowi	**Machinga** Kawinga Liwonde Sitola Ngokwe Liwonde Town	**Mangochi** Mponda Chowe Mbwana Nyambi Makanjira Katuli	**Phalombe**	**Mulanje** Chikumbu Laston Njema	
South West	**Chikhwawa** Ngabu Makhwira Lundu Chikhwawa Boma	**Nsanje** Malemia Tengani					**Chiradzulu** Chitera Kadewere

Results

Background Characteristics of the Sample

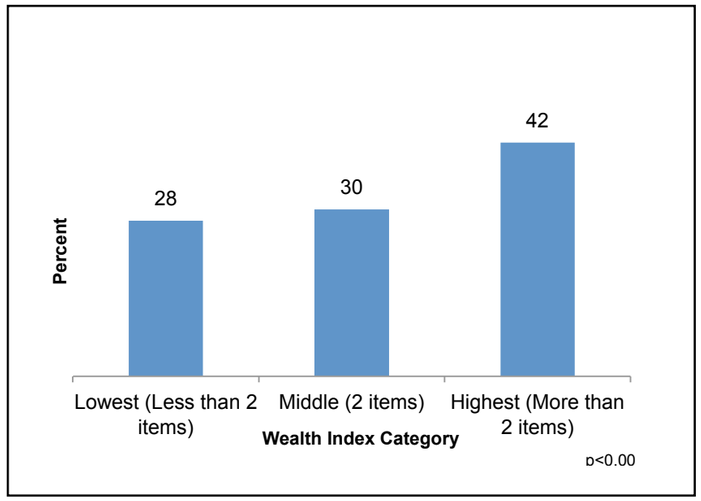
The total sample comprised 2233 respondents; 1099 men and 1134 women (see Table 1.2). Among the total sample, women averaged 30 and men 31 years of age (range 16 – 60 years of age, with 13% being 45 years of age or older). More than two-thirds of the total sample are married. There were significant differences between men and women regarding the level of education completed, with men averaging higher levels of education. Only seven percent of the total sample had completed secondary or any post secondary education. About 74% of respondents were Protestants or Catholics, and 23% were Muslims. Zonal-level data is given in Appendix 1, Table 1(a).

As noted above, the sample included respondents from both intervention and control districts. Since this is the baseline study, differences between the districts are not presented. Midterm and endline evaluation reports will compare and contrast differences between control and intervention sites at baseline and at midterm/endline to draw conclusions about programmatic effects.

Table 1.2
Percent distribution of background characteristics of participants, by sex

Characteristic	Men (N=1,099)	Women (N=1,134)	Total (N=2,233)
Age (Years)*			
16-24	34.3	36.9	35.6
25-34	31.8	34.7	33.2
35-44	18.6	17.8	17.8
45-60	15.1	11.2	13.1
Don't Know	0.3	0.3	0.3
Education***			
Never attended school	8.6	14.3	11.5
Attended primary school	51.7	61.0	56.4
Completed primary/Some secondary	31.1	19.9	25.4
Completed secondary/Any post secondary	8.6	4.8	6.6
Residence			
Rural	90.9	92.1	91.5
Urban	9.1	7.9	8.5
Religion****			
Catholic	15.3	15.3	15.3
Protestant	57.3	59.8	58.6
Muslim	21.8	23.5	22.7
Other	0.8	0.3	0.5
Not Religious	4.8	1.2	3.0
Marital Status****			
Single	21.2	14.3	17.7
In a relationship	5.4	1.5	3.4
Married	70.9	73.5	72.2
Formerly married or separated	2.6	10.8	6.7

Note: Significance comparing men and women. Statistically significant where **** p<0.0001 ***p<0.001, *p<0.05.



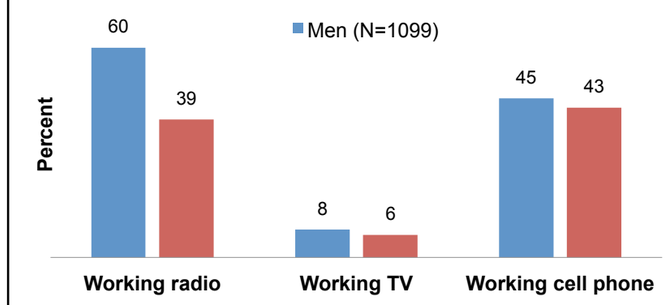
Graph 1.1 Percent Distribution of Wealth Index (N=2,233)

Respondents were asked about their type of toilet and their source of drinking water. Data on main sources of drinking water , by sex and in zones, are to be found in Appendix 2 Tables 2 (b) and (c). In order to construct a wealth index, respondents were given one point for ownership of each of the following ten items or facilities: electricity, radio, TV, cell phone, landline phone, refrigerator, bicycle, car/motorcycle, potable water source (piped, public tap or borehole) and adequate sewage disposal (flush toilet or ventilated improved pit latrine).The data were split into three groups: "lowest," representing participants who possess less than two of the ten

items, "middle," representing participants who possess two items, and "highest," representing participants who possess more than two items (see Graph 1.1). The fact that ownership of only three of these items placed the respondent's household in the highest wealth category indicates this is a population of extremely modest means.

With respect to ownership of communication devices (Graph 1.2), 60% of men but only 40% of women reported that their household has a working radio (p<0.0001), about 43% of both reported that the household has a cell phone and only 7% indicated television ownership. Zonal-level data and data by sex is given in Appendix1, Tables 1(b) and 1(c).

Graph 1.2 Household ownership of communication devices, by sex



Difference between men and women significant for radio ownership only: p<0.0001

Chapter two

Water, Sanitation and Hygiene (Wash)

Knowledge and Attitudes

The consequences for not washing hands that were most frequently reported by men and women were that one may get diarrhea, cholera, and/or worms (as shown in Table 2.1). The two most commonly reported consequences for not washing hands were similar across the zones. The most commonly cited reason that some people don't wash their hands is that they don't know better (see Table 2.1). Again, similar results were found by zone (see Appendix 2 Table 2(a).

Table 2.1
Percent distribution of hand washing knowledge and reasons for not washing hands, by sex

Knowledge and Reasons	Men (N=1,099)	Women (N=1,134)	Total (N=2,233)
Consequences for not washing hands			
Nothing/Don't know***	1.8	6.1	4.0
May get diarrhea	77.5	76.1	76.8
May get cholera**	52.0	45.3	48.6
May get worms**	4.8	8.0	6.4
Other	4.7	5.9	5.3
Reasons for why some people do not wash their hands			
No water/soap/ash available	17.0	15.6	16.3
Doesn't know better	71.2	62.6	66.8
Others might think they're too cautious	0.5	0.18	0.3
Other	7.6	15.7	11.7
Don't know	3.8	5.9	4.9

*Note:*Significance comparing men and women. Statistically significant where *p<0.05, **p<0.01, ***p<0.001, p<0.0001.

Water Treatment

Of the total sample, only 21% of participants treated their water in the past two weeks. Among those who reported that they treat their water, the most popular method of treatment was waterguard (liquid), used by 12% of all respondents, and 60% of respondents who treated their water in the past two weeks (. As shown in Graph 2.1 below, differences varied significantly across the zones (p<0.0001), with about 15% of respondents from the Central East and South East compared with 9% in the North reporting such usage. (Please note that the graph presents findings for all the respondents, not only those who treat their water.) Very few respondents reported use of PUR (sachet), filtration, straining through a cloth, and water filters (ceramic, composite, etc.), and nobody used solar disinfection. There were no statistical differences by sex in water treatment method except with respect to the use of MoH stock chlorine bleach (Appendix2).

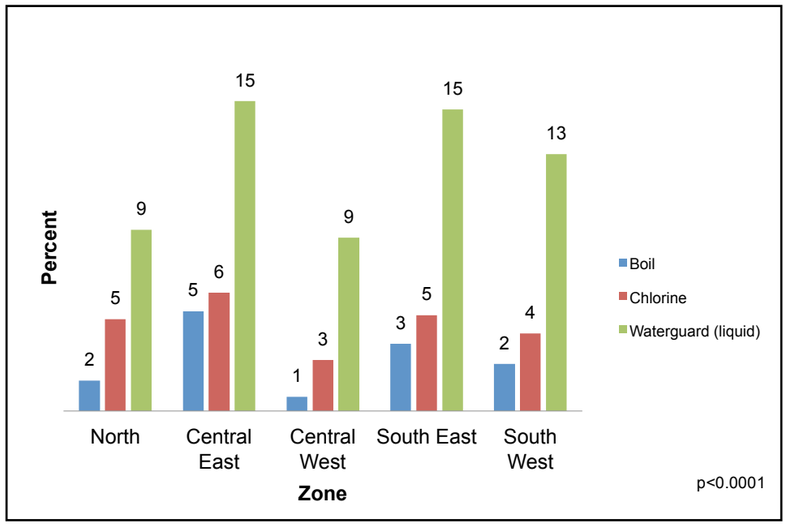
Hand-washing behaviors

Among all participants, most (57%) reported that they wash their hands using soap and water, while 41% use water only, with 2% using water and ash (Graph 2.2). Compared with women, men were more likely to report using only water to clean their hands (48% and 52% of 915 participants, respectively; p<0.01). Women were more likely than men to report using soap and water as their main resources for washing their hands (49% and 51%, respectively; p<0.01.The least used method of washing hands was water and ash, which was reported by only 42 participants, about three-quarters of whom were men.

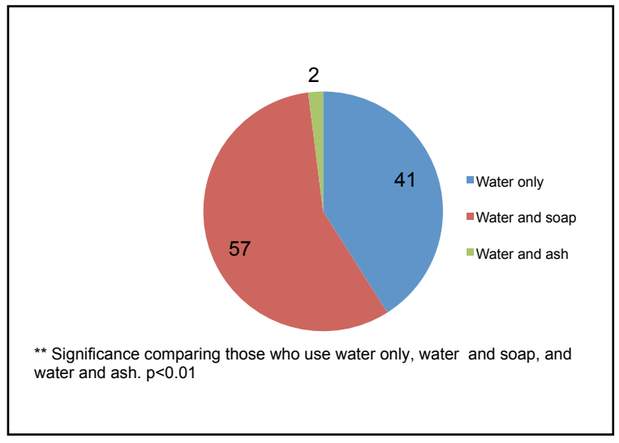
Comparing data by zone, the Central West zone, where more than half of participants use water only, is the only zone in which the majority of participants did not report soap and water as the main resources for hand washing (see Graph2.3). Again, use of water and ash to wash hands represented a small fraction of respondents (3% or less per zone).

With respect to when they washed their hands, respondents were most likely to report washing their hands "after using the toilet" and "before eating," with 89% or more of both men and women reporting that they washed their hands after using the toilet, and 80% or more of both men and women reporting hand washing before eating (see Graph 2.4). A little over half the respondents (56%) reported washing hands before handling food. Less than 20% of respondents reported hand washing after cleaning a child's bottom, with women more than ten times as likely to report this practice; this may be more a reflection of whether the respondent has a young child or is engaged with cleaning a child that had defecated than with hygienic behaviors.

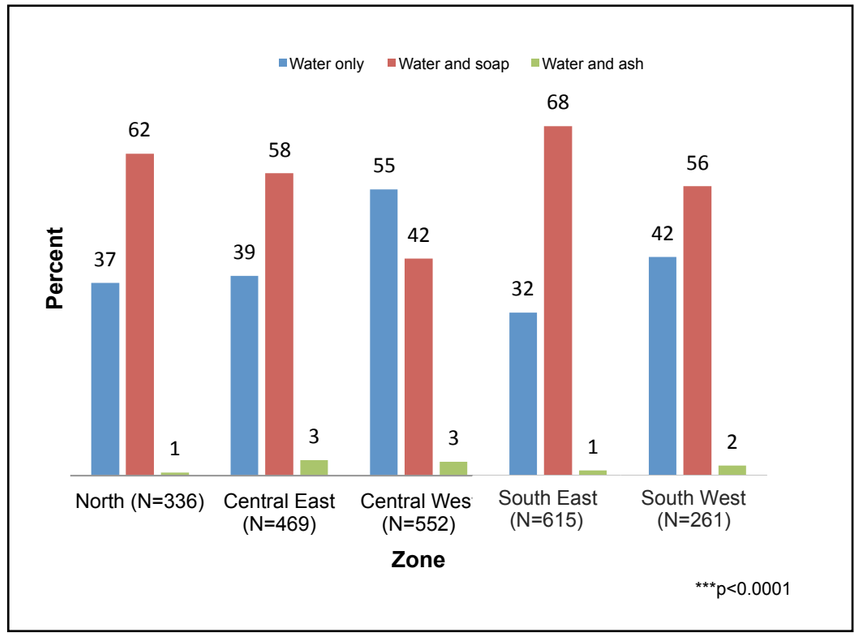
When comparing zones, it is apparent that the same trend appears for each zone, with the majority of participants from each zone stating that they wash their hands after using the toilet, and the second most common reason to wash their hands being before eating, the third being before handling food, and the last being before cleaning a child's bottom. Approximately 90% or greater of participants from each zone reported that they washed their hands after using the toilet.



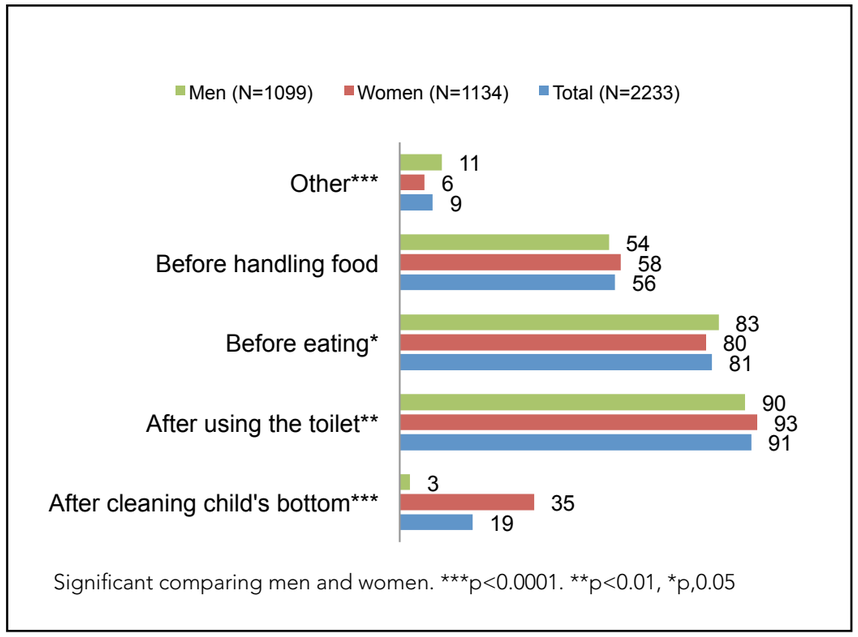
Graph 2.1 Percent Distribution of Participants' Selected Method of Treating Water in the Past Two Weeks, by Zone (N=2,233)



*Graph 2.2 Percent distribution of resources used to wash hands by participants** (N=2,233)*

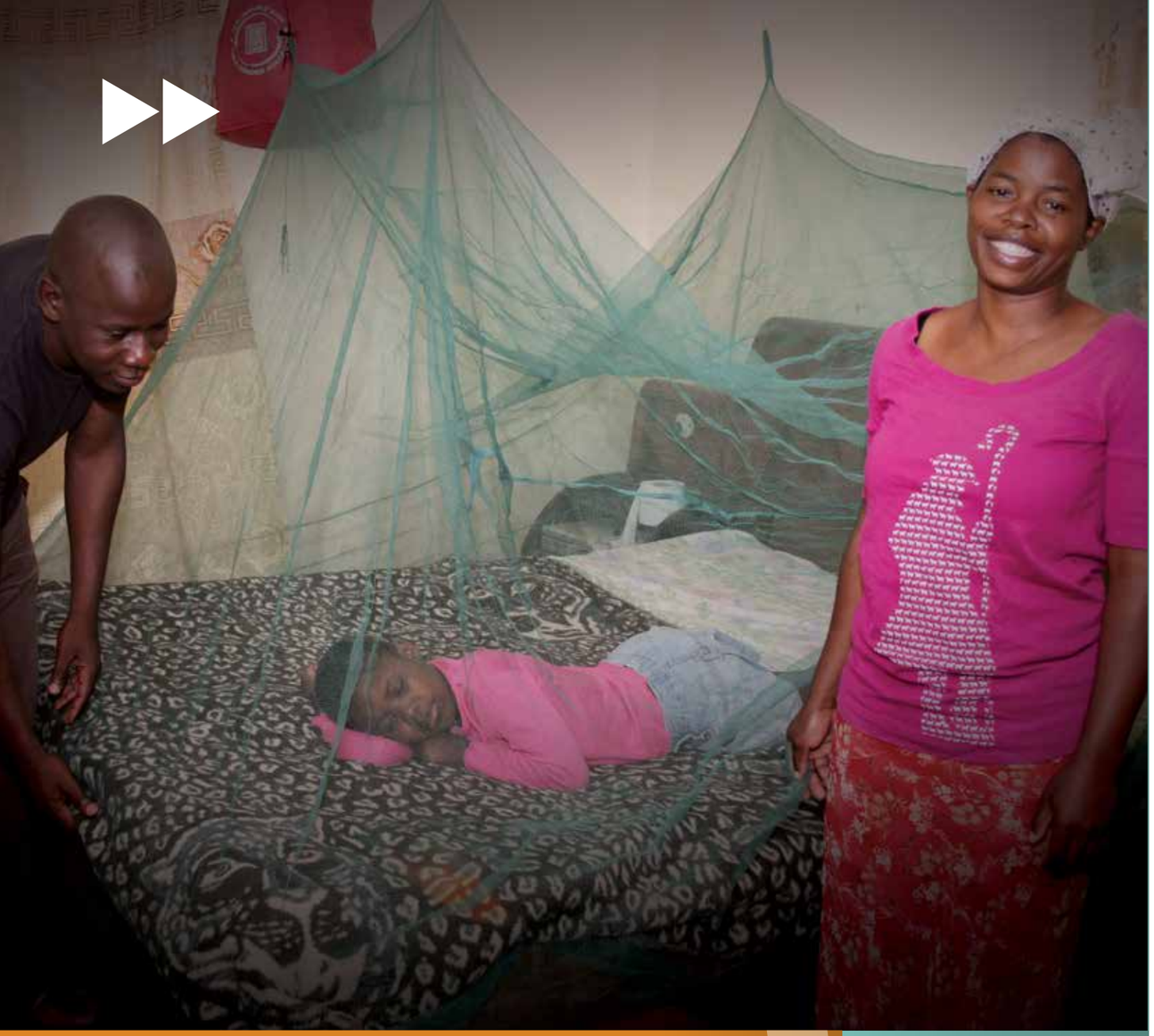


*Graph 2.3 Percent distribution of resources used to wash hands, by zone****



Graph 2.4 Percent distribution of handwashing behavior of participants, by sex

Additional data by sex and zone regarding handwashing and water treatment can be found in Appendix 2.



Chapter three

Malaria

Malaria knowledge

Knowledge of malaria transmission, prevention, symptoms and treatment was high.

Causes of malaria: **95% of respondents indicated that malaria was caused by mosquito bites.** Responses suggesting other ways of becoming ill with malaria were rare; the most common being drinking unclean water (3%) and drinking mosquito larvae or eggs (2%). *See Appendix 3 Table 3(a) for data by sex.*

Prevention of malaria: The understanding that something can be done to protect oneself and one's family from malaria was almost universal, as seen in Table 3.1. With respect to prevention, over 90% of the respondents mentioned mosquito nets and/or ITNs; close to 45% of respondents specifically mentioned the use of insecticide-treated nets (ITNs), with men significantly more likely to do so than women (p<0.01). *Appendix 3 Table 3(b) gives a breakdown of this data by zone.*

Table 3.1
Percent of respondents who spontaneously mentioned specific ways to protect against malaria, by sex

	Men (N=1,097)	Women (N=1,132)	Total (N=2,229)
Things I can do to protect myself or my family from malaria:			
Nothing can be done*	0.6	1.5	1.0
Use mosquito nets	67.1	65.6	66.3
Use insecticide-treated nets (ITN)**	47.3	41.7	44.4
Use of either ITN or mosquito net***(mentioned either ITN, mosquito net or both)	96.2	91.2	93.6
Use insect repellent	2.3	1.8	2.0
Use aerosol insect killer**	3.3	1.5	2.4
Use anti-mosquito coils	2.7	3.4	3.1
Clearing bushes around the house***	28.4	21.5	24.9
Burn cow dung to keep mosquitoes away	3.0	2.5	2.7
Spray the house periodically***	2.9	0.4	1.6
Use mosquito screens in the house***	3.0	1.1	2.0
Get rid of stagnant water around the house***	20.6	14.8	17.7
Other	6.8	6.7	6.7
Don't know	1.3	1.4	1.4

*Note:*Significance comparing men and women. Statistically significant where *p<0.05,**p<0.01, ***p<0.001, ****p<0.0001

Malaria knowledge and attitudes: Respondents were also asked to state their level of agreement or disagreement with a series of statements listed in Table 3.2, where the percentages of those who agree or strongly agree with the statements are presented. Over 90% of respondents agreed with all but a few statements. The two statements for which respondents were least likely to give the desired response were:

1. People in this community only get malaria during the rainy season. While the desired response would be to disagree or strongly disagree, only about half gave this response. (The response was reversed for purposes of this analysis.)
2. Only weak children can die from malaria. Again, the desired response would have been to disagree or strongly disagree, but only about 20% of men and 40% of women gave this response. (Again, the response was reversed for this analysis.)

Appendix 3 Table 3(c) gives data by sex in greater detail and Table 3(d) gives zonal data,

Table 3.2
Malaria-related knowledge and attitudes, by sex

Strongly/Somewhat agree	Men (N=1,099)	Women (N=1,133)	Total (N=2,232)
Only weak children can die from malaria*** (reversed)	68.2	50.8	59.4
Malaria becomes more dangerous after a woman becomes pregnant**	96.7	98.9	97.8
People in this community only get malaria during the rainy season*** (reversed)	49.1	37.8	43.4
Malaria can slow a child's growth***	91.2	93.6	92.4
Malaria can prevent people from working and earning money***	95.1	97.5	96.3
Malaria can prevent children from attending school***	95.1	98.3	96.7
Treating malaria can be expensive***	74.0	61.0	67.4
Malaria can harm a child's brain development	92.4	94.0	93.2
When I take medicine for malaria, it is important to finish all the pills even after I feel better***	96.6	99.0	97.9

*Note:*Significance comparing men and women. Statistically significant where *p<0.05, **p<0.01, ***p<0.001, p<0.0001.

Malaria symptoms and treatment seeking: The three most commonly mentioned symptoms of malaria were fever (83%), nausea/vomiting (50%) and weakness (34%). It is worth noting that these were not prompted but were spontaneous responses. Appendix 3 Tables 3(e) and 3(f) give data by sex and zone.

Respondents were most likely to report that a person with malaria should be taken to a health professional if they have convulsions/fits and severe vomiting (Table 3.3). Men were more likely than women to suggest medical attention for convulsions or fits (p<0.01) and women were more likely to suggest medical attention for severe vomiting (p<0.001). Appendix 3 Table 3(g) gives data by zone.

Table 3.3
Signs that a person sick with malaria should be taken to see a health professional, by sex

Symptoms	Men (N=1,099)	Women (N=1,123)	Total (N=2,222)
Convulsions/Fits**	61.9	55.6	58.7
Too weak to sit up*	33.6	38.0	35.8
Severe vomiting***	46.7	64.2	55.5
Severe diarrhea***	12.0	20.8	16.4
Sick with fever for two or more days	30.4	30.4	30.4
Not being able to eat or drink***	10.8	5.7	8.2
Other*	10.5	7.7	9.1
Don't know***	2.3	0.4	1.3

*Note:*Significance comparing men and women. Statistically significant where *p<0.05, **p<0.01, ***p<0.001, p<0.0001.

A clear majority of respondents (84%) identified artemether/lumefantrine (Coartem or LA) as the best medicine to treat a child that is sick with malaria. Only 11% mentioned Quinine and less than 4% said Fansidar. Only a few men and no women mentioned herbal remedies. *Appendix 3 Table 3(g) gives zonal data.*

Malaria communication

Over the past six months, 34% of men and 26% of women (p<0.001) have discussed ways to prevent and treat malaria with others. Communication about malaria varied greatly by zone (p<0.0001), with 61% in the North and 20% in the Central West reporting such conversations *Appendix 3Table 3(i) gives zonal data in full.*

Perceptions of net effectiveness and safety

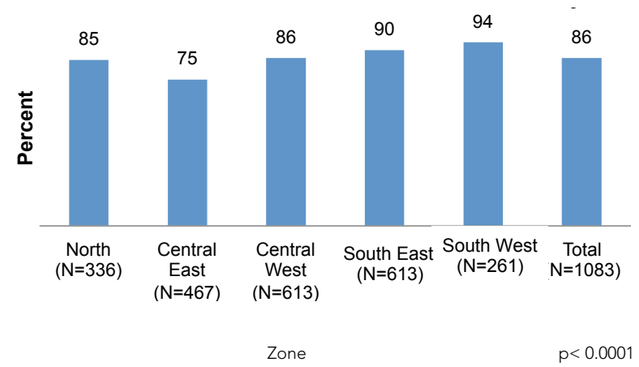
While 93% of respondents reported that mosquito nets treated with insecticide are very effective, only 36% of respondents reported that they were very safe (44% of men and 27% of women). Instead, 44% of respondents (29% of men and 58% of women) indicated that they believed insecticide-treated nets to be neither safe nor unsafe. Appendix 3 Table 3(h) gives zonal data.

Efficacy to use bed nets consistently

Respondents also reported high self-efficacy to use nets every night and to ensure that their children slept under a net every night. When asked how confident they were that they could sleep under a net every night of the year, 79% of men and 85% of women (p<0.0001) reported that they were very confident that they could do so. *Zonal data in Appendix 3 Table 3(j).*

In terms of children sleeping under nets, 81% of men and 90% of women (p<0.0001) reported that they were very confident that they could arrange for their child/children to sleep under a mosquito net every night during the year. As shown in Graph 3.1, this varied significantly by zone, ranging from a low of 75% in Central East to a high of 94% in South West.

Graph 3.1 Percent of adults with under-5 children who are very confident that they could have their children sleep under a bed net every night



In addition, nearly half of respondents (44%) spontaneously mentioned that one way they could protect themselves or their families from malaria was to use ITNs.

Respondents' efficacy to obtain ITNs is quite high; 82% of both men and women reported that they could get an insecticide treated net at the health clinic.

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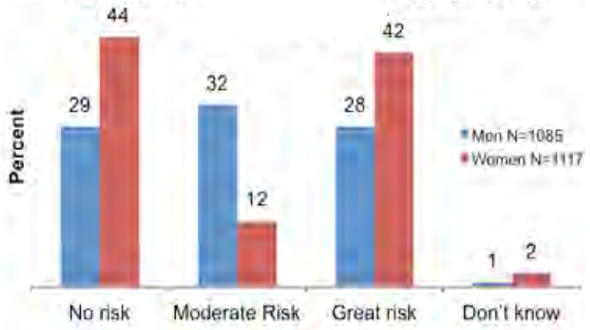
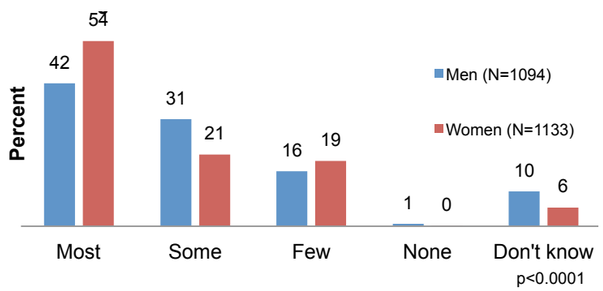
Graph 3.2 Perceived Risk of Contracting Malaria of Respondent Fails to Take Protective Action, by Sex



Perceived risk

Perception of malaria risk varied throughout the sample and differed significantly by sex. Graph 3.2 demonstrates the perceived risk of contracting malaria if no preventive action is taken, by sex. Women were more likely than men to report both that they were at great risk, as well as at no risk. Comparing across zones, the percent who felt they were at no risk in this respect is as follows: North, 39.6%; Central East, 33.3%; Central West, 38.5%; South East, 33.4% and South West, 41.6% ($p<0.0001$).

Graph 3.3 Descriptive norm: Perception regarding how many other families have children sleeping under a net every night



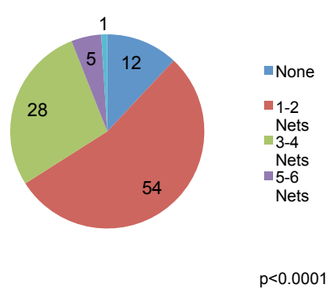
Norms on bed net use

Descriptive norms, or the perception of whether one's peers perform a certain behavior, were varied in terms of children sleeping regularly under a net. Overall, respondents indicated that most (48%) or some (26%) other families that they know arrange for their children to sleep under a net (Graph 3.3).Compared with men, women were more likely to think that "most" have their children sleep under a bed night every night. *Zonal data is in Appendix 3 Table 3(k).*

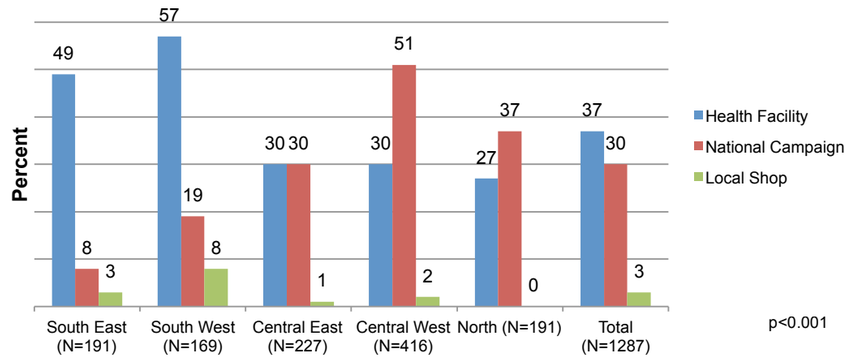
Mosquito Net Ownership

Of the total sample, 12% reported not having any mosquito nets in their homes, while 54% indicated that they have one to two mosquito nets in their household and more than a third have three or more nets (see Graph3.4). Among the zones, respondents in the South East zone were most likely to report having no mosquito nets in their home. The mean numbers of nets per respondent (reported as any net/ITNs) were: North: 2.6/1.9); Central East (2.2/1.8); Central West(2.3/2.1); South East (1.8/1.5) and South West (1.9/1.8); (differences significant, $p<0.001$). Interestingly, those who perceive themselves to be at moderate or high levels of risk of contracting malaria if they took no preventive action, on average, had two nets per household, while those with no perceived risk had 2.4 nets per household. Furthermore, as reported above, efficacy to use nets was highest in the South East and South West, yet net ownership was lowest in these zones

Graph 3.4 Percent distribution of bed nets per household (N=2,232)



Graph 3.5 Percent Distribution of Where Respondents Obtained ITNs, by Zone



More than half of respondents (58%) reported that they had obtained an ITN in the past two months. As shown in Graph 3.5, of these respondents, 51% received it from a health facility and 43% received it during a national campaign; less than 4% reported that they purchased the net. Comparisons by zone illustrate that participants from the South East and the South West were more likely to obtain a mosquito net from a health facility, while participants from the Central West and North were more likely to obtain a mosquito net through the national bed net campaign. Participants from the Central East were equally as likely to obtain their mosquito net from either a health facility or the national bed net campaign.

Bed Net Use

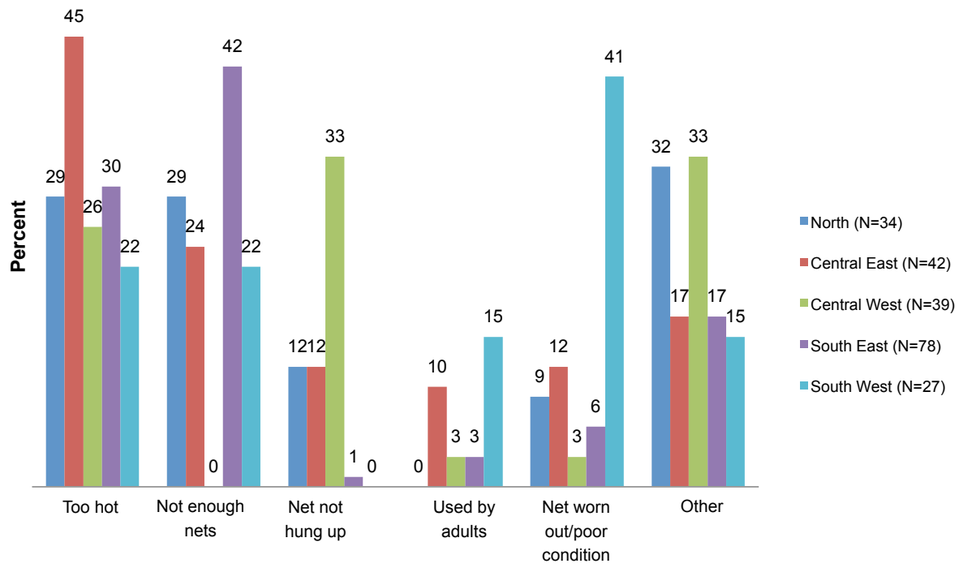
Among currently pregnant women (n=88), 86% reported that they sleep under a bed net every night. Among women who had a child in the past five years (n=651), 73% slept under a bed net every night. Of those who slept under a bed net, 83% (or 67% of all women in this group) reported that they slept under an ITN. Nearly one in five never slept under a bed net during their last pregnancy. Of all under-5 children who live in the surveyed households, 67% slept under an ITN the night prior to the survey. (close to 75% slept under any type of bed net).

Bed net use

- *Currently pregnant: 86% sleep under a bed net every night*
- *Women with pregnancy in last 5 years: 73% slept under a bed net every night and 67% under an ITN*
- *Under-5 children: 67% of under-5 children slept under an insecticide-treated net the night before the interview*

When asked why children younger than five did not sleep under a net, the primary two reasons reported were because it was too hot or there were not enough nets. The data suggest that participants' responses regarding the primary reasons for non-use of mosquito nets for children younger than five varies widely by zone (see Graph 3.6): Central East zone reported that it was too hot; South East respondents pointed to insufficient nets in the household; Central West respondents indicated the net was not hung up, and in the South West the primary reason was that the net was worn out/in poor condition.

Graph 3.6 Percent distribution of reasons why children younger than 5 years did not sleep under a net, by zone



Note: Percentages do not total 100 because the reasonss
representing less that 10 percent of the participants sampled by zone are not shown in this graph
*** Statistically significant where p<0.0001

Behavior: Treatment of children with a fever

Around 35% of respondents with under-5 children indicated that their children had had a fever in the past two weeks. Of these mothers, three-quarters took their children to see someone for their fever, and in 86% of these cases the first place children were taken was a government facility. About three-quarters of children were tested, and of those, 70% tested positive for malaria. More than 96% of infants taken to a clinic were given medication for fever (usually either Panadol or LA) whether or not they tested positive for malaria. Of these women, 54% gave their infants less than usual amounts of food when the fever occurred.

Medication for fever

- *73% of the mothers whose child had a fever had the infant tested for malaria.*
- *Of those, 70% tested positive for malaria.*
- *90% of those who tested positive were given medicine to treat the malaria.*
- *Of those infants that tested positive for malaria and were given medication, 55% were given LA, and 73% finished their medication regimen.*

Malaria prevention practices among mothers

About 90% of women who gave birth in the past five years took tablets or any medication to protect them from malaria. About three-quarters of mothers sleep under a mosquito net during last pregnancy, a fifth of mothers never sleep under a mosquito net during last pregnancy. Of these women who sleep under a bed net, 83% use insecticide treated nets, 13% use ordinary nets.

Zonal level data is given in Appendix 3 Table 3 (i).

Chapter Four

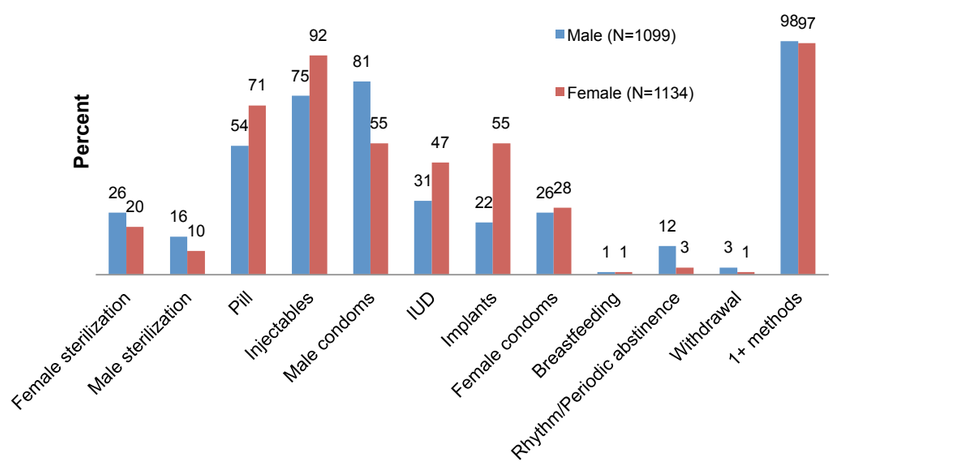
Fertility preferences and Contraceptive use

Family Planning

Knowledge

Knowledge of at least one family planning method is almost universal among the respondents, with 99% of men and women reporting such knowledge (Graph 4.1). Injectables (84%), male condoms (68%), IUDs (39%) and implants (39%) were the most commonly cited forms of contraception. Significantly more men (81%) were aware of male condoms than women were (55%), and many more women were aware of injectables (92%) and implants (55%) than men were (75% and 22%, respectively).

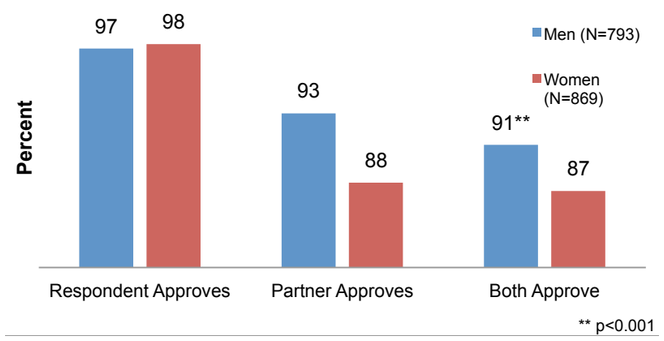
Graph 4.1 Awareness of family planning methods, by sex



Approval and Social Norms

Among couples in union, contraceptive use was widely accepted, with over 97% of all men and women approving couples' use of contraceptives, as shown in Graph 4.2. Nearly 93% of men and 88% of women indicated that their partners approve of family planning (FP) methods. Close to nine in ten respondents reported that both they and their partners approve of FP, although men (90%) reported higher couple approval rates than did women at 87% (p<0.001). Among all respondents, the approval rate was also high at about 95%.

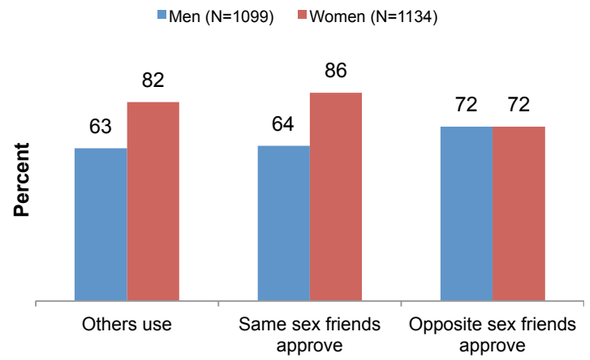
Graph 4.2 Percent approval of contraception among couples in union, by sex



With respect to descriptive norms – or perceptions regarding contraceptive use by others – women compared to men were more likely to think that "most" or "some" of their acquaintances use contraception (82% and 63%, respectively) as shown in Graph 4.3. Although approval of contraception is almost universal among men and women (as previously discussed), male respondents thought that only 64% of men and 72% of women approve of FP. Women perceived higher same-sex approval of contraception than did men.

Similarly, 68% of men and 80% of women (74% overall) reported that "most" or "some" of their loved ones would approve of the respondent's use of contraception (injunctive norm).

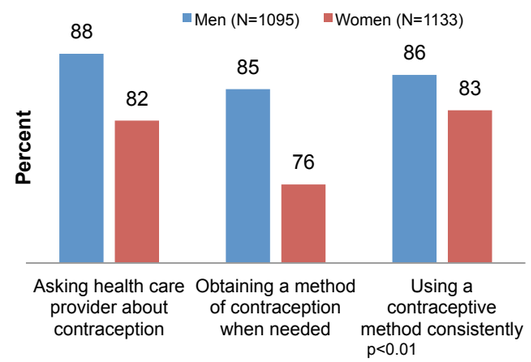
Graph 4.3 Perceptions of the use and approval of contraception by others, by sex



FP Communication

Just 25% of men and 22% of women (p=0.05) reported talking with anyone about family planning in the six months prior to the survey. Of those, 43% of men and only 13% of women said they spoke with a partner about contraception in that time period (n=276 men, 245 women; p<0.0001.

Graph 4.4 Contraceptive self-efficacy, by sex



Efficacy

The majority (85%) of respondents were confident that they could ask a healthcare provider about contraception (Graph 4.4). About 83% of respondents were very confident that they could obtain a method of contraception when they need one. Moreover, about 84% were very confident they could use a method of contraception consistently if they did not want a pregnancy.

They also expressed high levels of efficacy with respect to being able to discuss contraception with a partner and in their ability to convince their partner to use contraception (see insert). Despite this, only 23% of respondents who are married or in union had talked about FP with their partner over the six months.

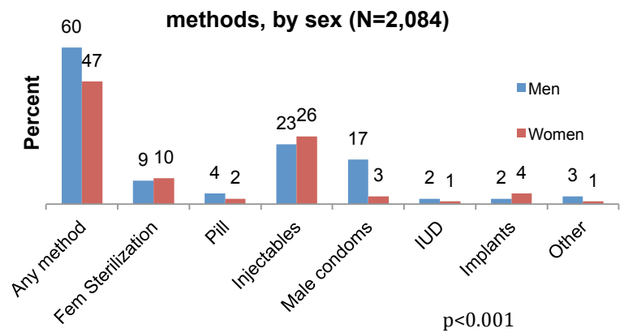
Efficacy to use and communicate about contraception with partner

- 90% of men and 86% of women were confident that they could talk about FP with their partner,
  - Yet, in the past six months just 25% of respondents had spoken with anyone about FP and
  - Only 13% of men and 4% of women currently in a relationship reported such conversations.
- 89% of men and 82% of women felt confident that they could convince a partner to use contraception.

Contraceptive use

Ever use of contraception among the respondents was 71% among women and 74% among men(see Appendix 4 Table 4 (a) for detailed data by sex and zone). Of those who had ever used a method, men were most likely to report using male condoms (34%) followed by their partners' use of injectables.

Graph 4.5 Current use of contraceptive methods, by sex (N=2,084)



About 47% of women and 60% of men report current use of a contraceptive method. In Graph 4.5, any method use is shown together with specific methods as a proportion of all sexually active respondents.The most commonly used methods are injectables, followed by condoms and female sterilization (all differences: p<0.0001). Only two women reported use of the female condom and only two men reported that they had had a vasectomy (9 women reported that their husbands/partners had been vasectomized.) Among current users (n=502), 55% of women and 38% of men report relying on injectables.

When asked where they had obtained their current method, respondents reported as follows: government hospital (20%); government health facility (43%); health surveillance assistant (10%); community-based distributor (5%); FP clinic (4%); Shop/Boutique (12%); other (6%).

Among current non-users (n=736), the primary reasons for not using contraception are related to real or perceived insusceptibility to pregnancy as fully 54% of men and women reported, as reasons for non-use, that they are not married, not having sex and/or are only having infrequent sex; close to 19% reported menopause/ infecundity/sub-fecundity as the primary reasons; and 12% reported that the respondent or respondent's spouse was breast feeding (no significant differences between the sexes; full data is given in Appendix 4 Table 4 (b). Zonal dataon reasons for non-use among current users who do not want more children for 2 or more years is to be found in Appendix 4 Table 4 (c).

Unmet need

Women with unmet need are defined as those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children (unmet need for limiting) or wanting to delay the birth of their next child (unmet need for spacing). This also includes pregnant women who did not want their current pregnancy at this time (unmet need for spacing) or did not want the pregnancy at all (unmet need for limiting). About 12% of the female respondents met the criteria for unmet need for spacing and 15% for limiting.

Among women who are married or have a partner*:

- *12.4% have an unmet need for spacing*
- *15% have an unmet need for limiting*
- *Differences across zones are not statistically significant*

**Does not include women who are infecund, subfecund, menopausal or reported that they are not having sex*

For female respondents who were pregnant at the time they were interviewed (n=57), 45% wanted a child at the time they became pregnant, 42% wanted a child later, and 13% did not want another child at all. Unmet need for limiting, therefore, was much higher among this group than among the sample as a whole, but the number of women in this group is too small for purposes of generalization. For those who wanted a child later or did not want a child, the main reasons were economic reasons (21%), the female respondent's health condition (15%), and that the female respondent's husband wanted to wait (15%).

Intention to use contraceptives

Among all respondents, 88% of men and 80% of women intend to use contraception in the future (see Table 4.1). Never users of contraception were less likely to report no intention of future FP use, but men were more likely than women to state an intention to rely on contraception in the future (76% and 61%, respectively) as shown in Table 4.1 (below).

Among individuals who do not intend to use contraception in the future, the primary reasons are related to menopause/infecundity (28% men, 43% women, p<0.01), not married/not having sex (22% men, 20% women), health concerns/fear of side effects/interferes with body (12% men, 14% women), respondent/partner/religion opposes (13% men, 2% women).

Table 4.1
Intention to use contraception in the future and reasons for not intending to use contraception in the future, by sex

Intention to use contraception in the future	**Men**	**Women**	**Total**
Among all respondents*	(N=934)	(N=993)	(N=1,927)
	87.7	80.2	83.8
Among never users*	N=272	N=376	N=648
	76.1	60.6	67.1
Reasons for not intending to use contraception in the future:	**Men** (N=105)	**Women** (N=164)	**Total** (N=269)
Unmarried	12.4	12.2	12.3
Not having sex/Infrequent sex	9.5	7.9	8.6
Menopausal/Hysterectomy	27.6	38.4	34.2
Sub-fecund/Infecund	10.5	14.6	12.0
Respondent opposed	6.7	1.2	3.4
Husband/Partner opposed	2.9	0.6	1.5
Religious prohibition	3.8	0.6	1.9
Knows no method	2.9	0.6	1.5
Knows no source	3.8	0.6	1.9
Health concerns	2.9	1.2	1.9
Fear of side effects	5.7	11.6	9.3
Interferes with body processes	3.8	1.2	2.2
Other	4.8	7.9	6.7

Note: Reasons with less than 1% response are not reported in the table. Differences between men and women significant where *p<0.0001

Appendix 4 Table 4 (d) gives a zonal breakdown on reasons given for not intending to use contraception in the future.

Desired family size

Within the last year, around half (53%) of the respondents discussed family size with their partners. The majority of respondents indicated that they would ideally want 4-6 children as seen in Graph 4.6 (below).

Mean number of years recommended between births*

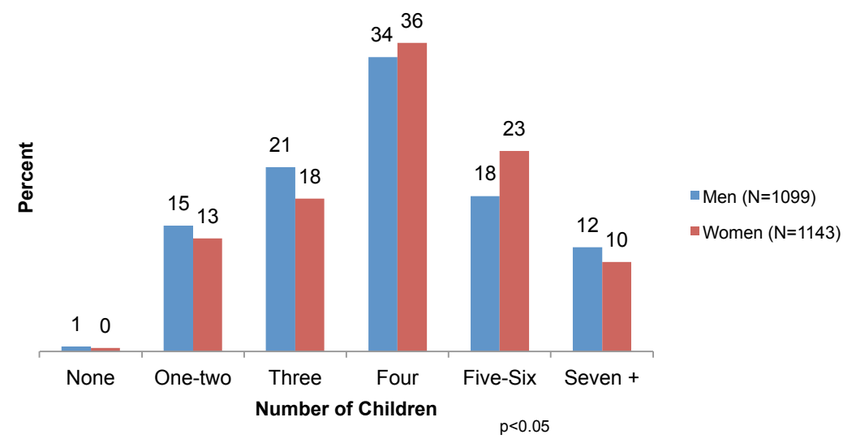
- *Men: 3.3 years*
- *Women: 3.7 years*

**Differences significant (p<0.001)*

Based on respondents' reports, partner agreement regarding total number of children wanted was around 62%. Interestingly, of all men and women who are currently in a relationship, only 9% of men and 3% of women reported discussing both family size and family planning in the past six months.

With respect to timing between pregnancies, about half of respondents suggested that 2-3 years between births is preferable. The most popular reasons for waiting more than two years between births are: to give the mother time to rest and recover (66%), for healthier children (41%) and to allow parents more time to take care of their children (39%).

Graph 4.6 Percent Distribution of Ideal Number of Children, by Sex



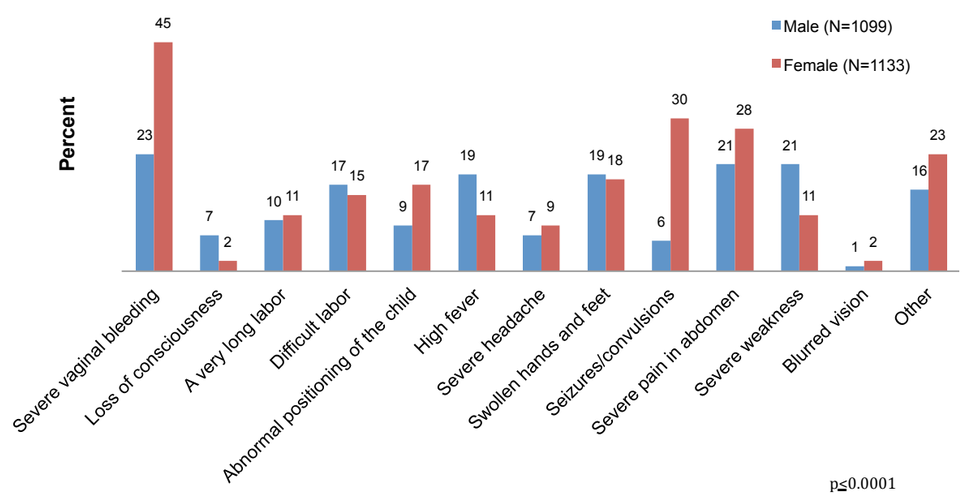
Chapter Five

Mother, Child Health & Family Health

Pregnancy-related knowledge and attitudes

Many respondents, particularly women, indicated that among other signs, severe vaginal bleeding was an indication that a pregnancy may be in danger (Graph 5.1). Other commonly reported signs included severe weakness (16%) and severe pain in the abdomen (25%). The responses varied significantly by zone, but no zone was systematically lower than others on knowledge of danger signs.

Graph 5.1 Signs that indicate an at-risk pregnancy, by sex



With respect to danger signs after birth, severe vaginal bleeding (52%) was also the most commonly cited danger sign that would require attention in a health facility. This was followed by anemia or excessive fatigue (29%) and failure to deliver the placenta (17%). However, approximately one fifth of respondents were unaware of any danger signs associated with pregnancy and childbirth – whether for the child or the mother. Detailed findings on knowledge of pregnancy-related dangers and postnatal risks by zone are presented in Appendix 5 Table 5 (a).

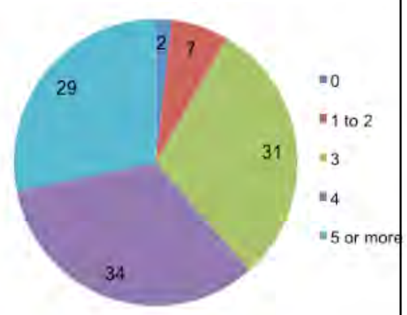
Antenatal Care

Among the respondents, 651 women had a child aged five years or younger; these mothers were asked about peri-natal care for their youngest child. Of those women, 98% received antenatal care. This did not vary by zone. Nearly 62% had four or more antenatal visits (see Graph 5.2).

When asked what services they received during the antenatal visits, mothers of under-5 children reported the following:

- 98% were weighed;
- 88% had their blood pressure measured;
- 35% had urine samples taken;
- 89% had blood samples taken;
- 93% had HIV tests; and
- 99% of those tested (n=596) got the results.

Graph 5.2 Percent Distribution of Number of Antenatal Visists among Women with Under-5 Children (N=651)



These services did not vary by zone other than with respect to having had their urine tested.

During their most recent pregnancy, mothers of under-5 children (n=651) reported the following:

- 94% had a tetanus shot;
- 86% took iron tablets or syrup, of whom 77% took most or all that was prescribed;
- 74% were told about mother-to-child transmission of HIV/AIDS, and
- 67% were told about complications they might face during pregnancy and/or childbirth, of whom 98% were told what to do should any danger signs appear.

Childbirth

Among mothers with under-5 children, 87% reported that at the delivery of their last child they received assistance from a trained medical professional. Of these, 68% were attended by a midwife or nurse,4% by a nursing aide,10% by a medical assistant or clinical officer and5% by a doctor.

The most recent delivery took place in the following locations: government hospital (23%); government health facility (44%); government health post (6%); CHAM hospital (11%); private hospital/clinic/midwife's practice (6%); respondents' home (6%); TBA's home (2%); other (2%).
Within 0-5 hours of giving birth, over 95% of these mothers had their child's health checked by a trained medical professional. A zonal breakdown can be found in Appendix 5 Table 5 (b).

Postpartum care

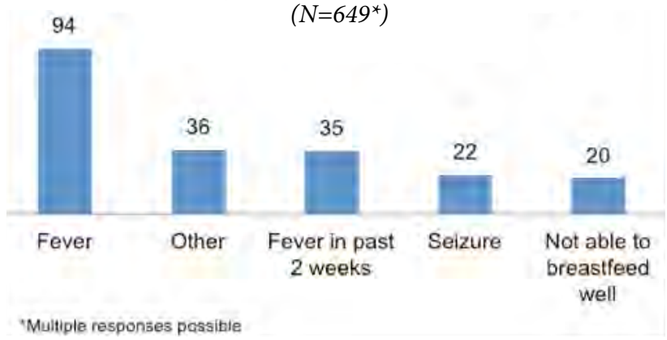
When mothers of under-5 children were asked what symptoms would motivate them to take their infants to a health facility right away, 94% said a fever, 22% said seizures or shaking and 20% said troubles with breastfeeding (Graph 5.3).

With respect to the kind of basic care a newborn requires immediately after birth, this group of mothers spontaneously mentioned the following:

- 79% immediate and exclusive breast feeding;
- 76% dry and wrap;
- 8% care to the eyes;
- 17% care to the cord; and
- 11% putting the baby skin to skin.

Zonal data can be found in Appendix 5 Table 5 (c).

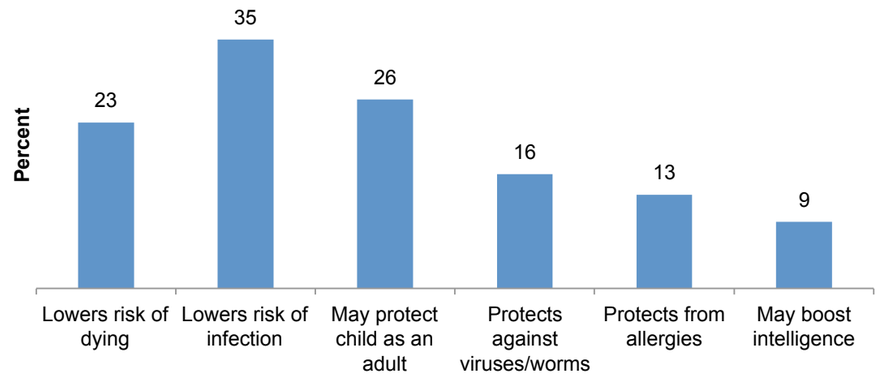
Graph 53 Main Reasons Cited for Why a Mother Would Take Infant to a Health Facility Immediately (N=649)*



Breastfeeding

Knowledge and Attitudes

Graph 5.4 Percent of mothers with under-5 children who knew of specific breastfeeding benefits (N=651)



About 82% of mothers who had had a pregnancy in the past six years knew of at least one breastfeeding benefit for the infant; only 4% knew of three or more. Graph 5.4 shows the main benefits for the baby that the women spontaneously identified, including lowering the risks of infection and protection against stomach viruses/worms. Zonal level data can be found in Appendix 5 Table 5 (d).

Also, 33% recognized some benefits that accrue to the mother, including longer postpartum amenorrhea (24%), possible reduction in the mother's stress levels (9%), higher postpartum weight loss (6%), and that it may lower the risk of some types of cancer (3%). Over 95% of this group strongly agreed that "breastfeeding for the first 6 months is very beneficial for my infant."

Barriers

When asked what reason a mother might not exclusively breastfeed her infant for 6 months, 52% said work and lack of time, 35% of respondents said insufficient milk, and 27% said inverted nipples.

Efficacy

Efficacy to breastfeed was very high with 95% of this group reporting that they were "very confident" that they could breastfeed their infant for the first 6 months of life without feeding him/her anything else by mouth.

Breastfeeding practices

Of those who breastfed their child within hours of giving birth (n=646), 86% started breastfeeding their children after zero to one hour. During the first 3 days of life, 94% of respondents said that their child was not given anything other than breast milk to drink. (Data regarding exclusive breastfeeding were not collected.)
Among mothers with children younger than 2 years of age, 94% are currently breastfeeding their child.

Among mothers with children younger than 2 years of age, 94% are currently breastfeeding

Immunizations

About 96% of this group of respondents took their infants to get their immunizations. (Due to questionnaire limitations, data were not collected on the entire set of required immunizations, so this is does not necessarily mean that immunizations were up-to-date for 96% of infants living in the surveyed households.) When asked why a mother "might not have her child immunized," 71% could think of no reason. Among the mothers who indicated that there are reasons a mother might not want to have her infant immunized, 39% said one reason was that a mother might not know about the benefits and 20% said that it could be because the clinic is too far away. (Zonal level data in Appendix 5 Table 5 (e)).

Health-related interpersonal communication

According to the respondents, communication with others about diarrhea, fever and malaria did not occur frequently; less than half of respondents had discussed any of these topics over the previous six months (see Appendix 5 Table 5 (f)for zonal-level data). Of these topics, respondents were most likely to talk about malaria prevention, followed by diarrhea prevention and how to handle a fever or cough (see insert). Respondents were mostly likely to discuss these topics with a friend.

Communication with others about child health over the past six months

- *34% of men and 27% of women reported talking with others about malaria prevention ($p<0.001$);*
- *23% of men and 19% of women talked about diarrhea prevention ($p<0.05$)*
- *18% discussed how to handle a fever or a cough*
- *In all cases, about 50% said they talked with a friend about this topic*

Diarrhea

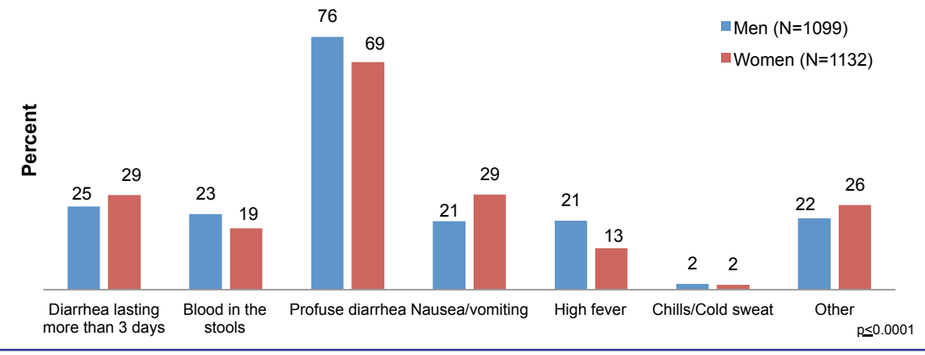
Diarrheal disease knowledge

Most respondents had a high level of knowledge about diarrheal disease and its prevention and treatment. Survey respondents mentioned the following three behaviors as the primary ways to prevent diarrheal disease:

- washing hands after defecation (68%),
- washing hands before eating (46%), and
- always using the toilets/latrines for defecation (40%).

In addition, in the event that a child developed diarrhea, 80% of respondents indicated that the child should be taken to a health professional, and 60% said they should be treated with a packet of ORS (Oral Rehydration Solution). Men mentioned taking the child to a health professional more commonly than women ($p<0.0001$), while women were more likely to report the use of ORS. Graph 5.5 (below) displays the responses from men and women regarding when to take a child to the doctor to be treated for diarrhea. Most respondents indicated that profuse diarrhea was a major sign that medical help should be sought.

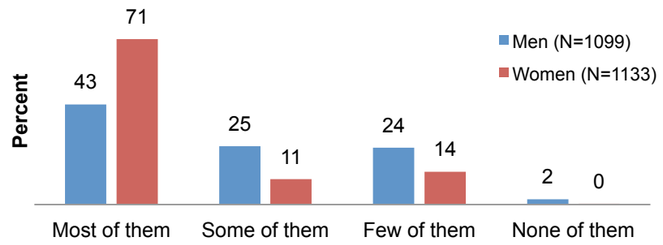
Graph 5.5 Signs that child with diarrhea should be taken to a doctor



Diarrheal disease attitudes and norms

Respondents were asked about descriptive and injunctive norms related to the treatment of diarrheal disease with ORS and zinc tablets. While most respondents believed that others in the community provided ORS to a child with diarrhea (see Graph 5.6), very few indicated that other families provided zinc tablets. In fact, 63% of those who responded indicated that they didn't know, or were unsure, about the use of zinc.

Graph 5.6 Percent of respondents who believe that their acquaintances provide ORS to a child with diarrhea, by sex



In terms of injunctive norms, or the perception that others would approve of the respondent's use of ORS to treat diarrhea, this pattern was repeated, with 58% of respondents reporting that families that they know would approve of giving ORS to a child with diarrhea. However, when asked if they would approve of providing zinc to a child with diarrhea, 65% reported that they didn't know.

Treatment of Diarrhea

Of the women with under-5 children, 21% reported that their youngest child had diarrhea in the past 2 weeks. Of these (n=135), 40% gave the child less than usual to drink, 40% the same amount and only 14% reported giving them more than usual. More than 85% of the women indicated that the reason for giving them less than usual or nothing to drink was that the child wouldn't take anything.

Two-thirds of the women took the child with diarrhea to see someone for medical attention. Of these, 61% took the child to a government health center, 12% to a government hospital and 10% to a CHAM hospital. Of those who didn't take the child for help (n=45), only 11% said it was due to distance.
Nearly 65% reported that they gave or their child was given ORS; only 3% reported use of zinc tablets.
Full zonal data on diarrhea can be found in Appendix 5 Table 5 (g).

Food consumption

Pregnant and breastfeeding women were asked what food they had consumed during the previous day. Because there were only 88 pregnant women in the sample (Appendix 5, Table 5 (h)), the numbers are too small to present at the zonal level. Therefore, we present zonal data only for breastfeeding women (n=397; see Appendix 5, Table 5 (i)). During the day prior to the survey, the foods most likely to be consumed by breastfeeding women were grains (91%), dark and leafy vegetables (67%), animal protein (51%), vegetable sources of protein (beans, peas, nuts, etc. at 40%), oils/fats (35%), mangoes, pawpaw (27%), fruits and vegetables (25%), and root vegetables (24%). Only 15% consumed yellow/orange vegetables, 14% dairy products, and 8% eggs.

Mothers of under-5 children were asked what they had fed their youngest child the previous day. Nsima and other grains were eaten by 92% of children followed by mangoes/pawpaw (62%), vegetable protein sources such as beans, lentils or nuts (45%), fats (40%), roots or tubers (33%), other fruits and vegetables (29%), dairy products (28%), eggs (26%), sugary foods (21%); only 13% had a source of animal protein other than eggs or dairy. Zonal data are presented in Appendix 5, Table 5 (j).

Table 5.1
Percent of under-5 children fed various types of food the day prior to the survey, Malawi

	Age in years					
Type of food	<1	1	2	3	4	Total (N=561)
Milk, cheese, yogurt, other dairy****	40.59	37.57	17.32	17.11	14.71	27.99
Nsima, bread, rice, millet, sorghum or other food made from grains****	78.22	93.12	94.49	97.37	98.53	91.98
Irish potato, cassava, sweet potato (white fleshed), yam or other foods from roots or tubers****	13.86	30.16	40.94	47.37	38.24	32.98
Pumpkin, squash, sweet potato (orange fleshed), yams, or other that are yellow or orange inside**	4.95	9.52	14.96	22.37	14.71	12.30
Dark and leafy vegetables (Mustard, rape, amaranth)	5.94	9.52	10.24	9.21	8.82	8.91
Ripe mangoes, paw paw (or other local vitamin A rich fruits)****	41.58	63.49	63.78	76.32	66.18	61.68
Other fruits or vegetables****	12.87	26.46	37.01	38.16	32.35	28.70
Eggs**	16.83	24.87	26.77	44.74	25.00	26.56
Meat, poultry, fish, or shellfish (and organ meats)*	10.89	10.05	9.45	17.11	23.53	12.66
Foods made from beans, peas, lentils or nuts	34.65	47.09	50.39	48.68	41.18	45.10
Oil, fats, butter, or foods made with these**	26.73	37.04	45.67	47.37	48.53	39.93
Sugary foods such as cakes, chocolates, sweets, biscuits	12.87	21.69	18.11	28.95	25.00	20.68

*p<0.05; **p<0.01; ***p<0.001; ****p<0.0001

Overall, the respondents and their children seem to have a carbohydrate-heavy diet, but 76% of breastfeeding women and 72% of U5 children consumed some type of protein – whether from dairy, eggs, meat/fish, or beans/nuts (data not shown). Compared to breastfeeding women living in the same zones, U5 children were more likely to have been fed dairy products, mangoes/pawpaws, eggs and sugary foods, but less likely to have consumed animal protein (51% of women compared with 13% of children), dark and leafy vegetables (67% compared with 9%). It would be useful to explore the reasons for this; if it is a matter of cultural traditions or beliefs, messaging could be developed to encourage families to feed children animal protein and dark, leafy vegetables.

Chapter six

HIV / AIDS

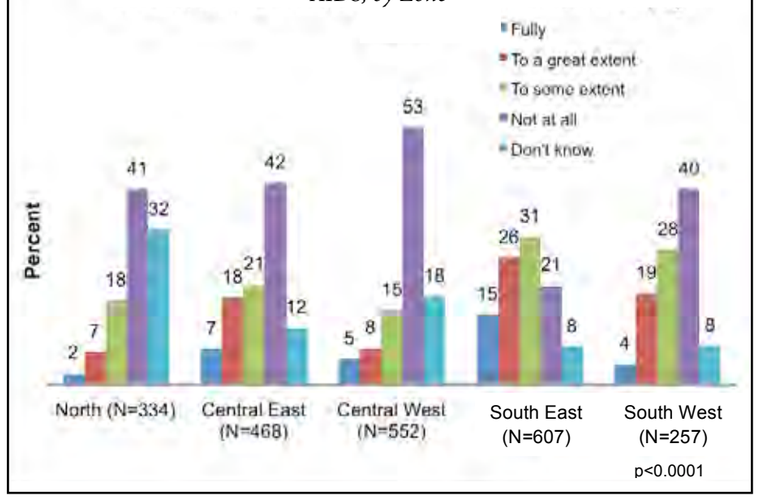
Knowledge

Of the total sample, less than one percent had never heard of HIV/AIDS. Among those who had heard of AIDS, women were significantly more likely than men (p<0.001)to state that:

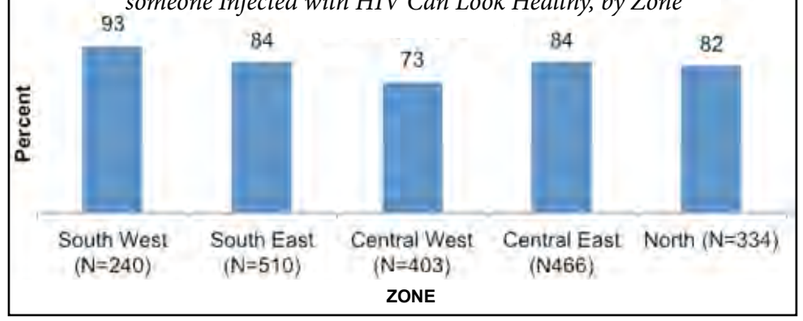
- theythink people can reduce their risk of contracting HIV/AIDS to "a great extent" (86%) or "fully" (80%) by not having sex at all;
- by having sex with only one sexual partner (81% of women, 78% of men), or
- by using a condom every time one has sex (65% of women, 59% of men).

The majority of respondents (74% of women, 78% of men, p<0.001) did not believe that male circumcision was an effective method in reducing HIV risk, as shown in Graph 6.1. Only in the South Eastdid the proportion who recognized that male circumcision protects "to a great extent" rise to 26%. It is worth noting that BRIDGE II is active in generating demand and strengthening these services in South East and South West zones.

Graph 6.1 Percent Distribution of Participants' Perceptions of the Degree to which Male Circumcision Serves as a Protective Method Against HIV / AIDS, by Zone



Graph 6.2 Percent Distribution of Participants' Perception that someone Infected with HIV Can Look Healthy, by Zone



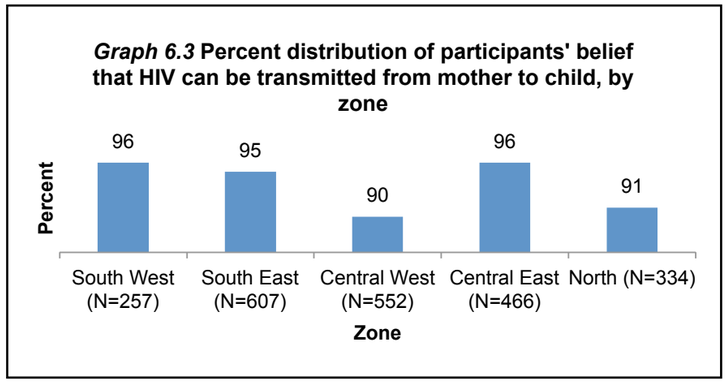
More than 80% of men and women reported that it is possible for a person infected with HIV to look healthy, though this varied widely by zone with only 73% agreeing with this statement in the Central West and 93% in the South West (Graph 6.2).

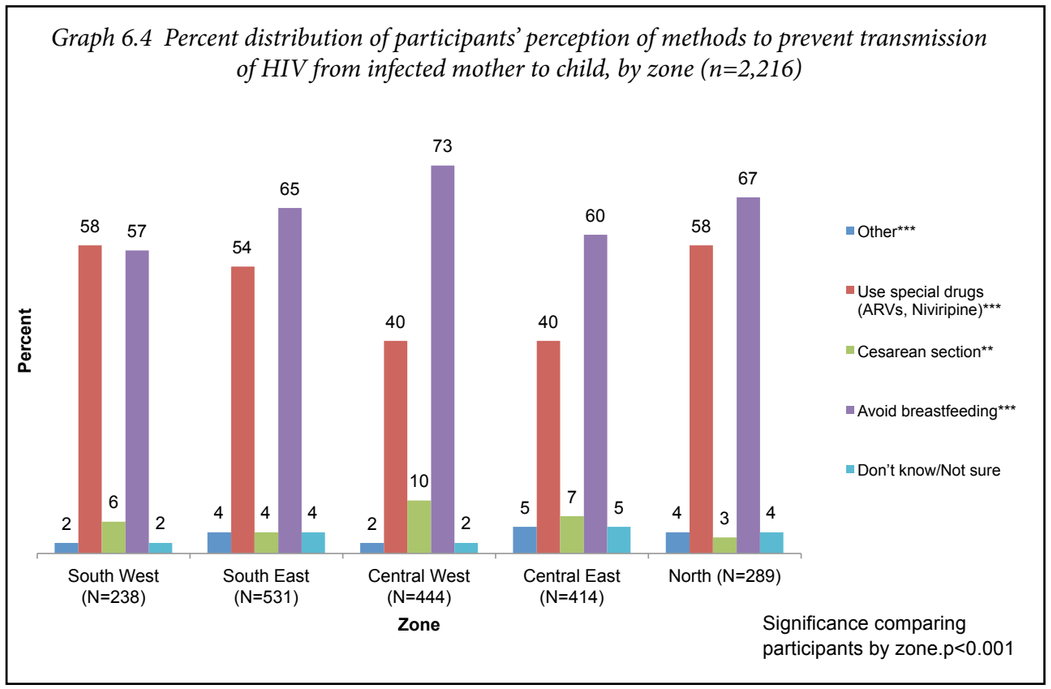
More than 92% of both men and women indicated that HIV can be transmitted from mother to child (data not shown). Comparing by zones, there were statistically significant differences between participants from different zones (see Graph 6.3).

The majority of participants believed that mother to child transmission of HIV could be prevented: 89% of participants in the Central West; 92% of participants in the South East; 93% of participants in the Central East; 95% of participants in the North; and 97% of participants in the South West. When asked how to prevent HIV

BRIDGE II is a 5-year HIV/AIDS prevention project, following on from the 6-year BRIDGE project. BRIDGE II aims to promote normative behavior change and increase HIV preventive behavior among adults in Malawi.

mother to child transmission, the two main responses were to avoid breastfeeding (stated by more than 53% of participants per zone) and to use special drugs, e.g. ARVs, Nevirapine (stated by 40% or more of the participants per zone) (see Graph 6.4).



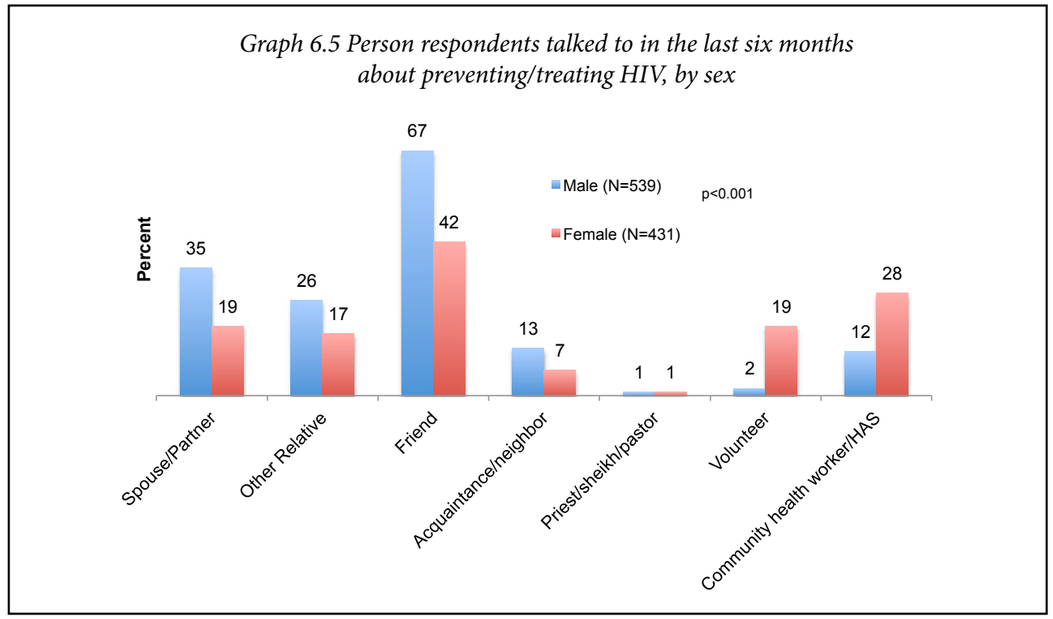


HIV Communication

About 44% of respondents indicated that over the past six months they had discussed HIV prevention and/or treatment with at least one other person. Men were more likely than women to report such conversations (p<0.001). Respondents were most likely to discuss this topic with friends, followed by spouse/partner, other relative, and a CHW/HSA, in that order as shown in Graph 6.5. Zonal data is shown in Appendix 6 Table 6 (a).

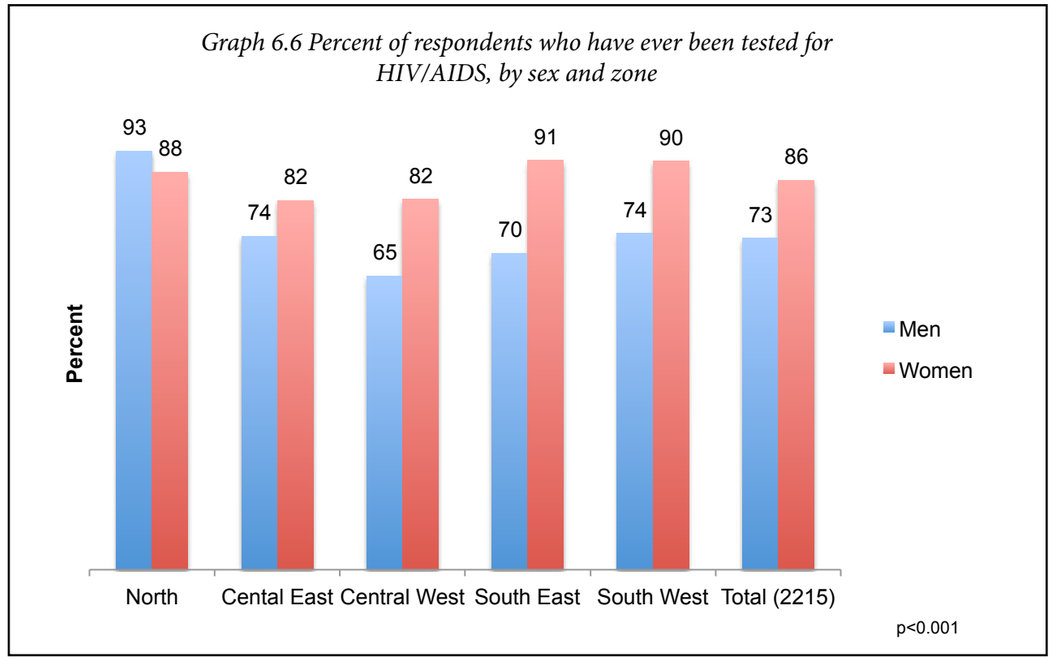
HIV Testing

More than two-thirds of the men and women sampled had been tested for HIV -73% of men and 86% of women, as seen in Graph 6.6. A significant variation is seen among those who have been tested for HIV when reviewing the data by zone, ranging from 65% in the Central West to93% in the North among men, and for women from 82% in Central East and Central West to 90% and over in the South East and South West (p<0.001).Over 50% of those who had been tested ineach zone indicated that their most recent HIV test was within the past



6 months, and all but 12% had been tested within the past 3 years. The mean number of months since the last HIV test varied from 5.6 months in the Central West to 7.5 months in the North for those who had been tested within the past 3 years.

Participants from all zones stated that it would be easy to get tested for HIV in the next two weeks, with each zone having 95% or more of their sample agreeing to this statement. Of the very small percentage of participants who found it at all difficult to get tested, the most commonly cited reason was the fear of knowing the results. More detailed data on HIV testing can be found in Appendix 6 Table 6 (b).



Chapter seven

Sexual Behaviour

Sexual Debut

The sexual debut of respondents was in line with findings from the MDHS, with the mean sexual debut age for men reported at 16.2 years, and for women it was 16.1 years. However, there was a large difference between the mean age of the respondent's partner by sex at sexual debut (men said their partner was 15.1, while women said their partner was 21.1 years, p<0.001). Respondents were asked whether they had undergone ritual or cultural sexual debut (chinamwali or kuchotsa fumbi); rates were highest in the South West (18.4%) and South East (14%) zones, as can be seen in Appendix 7 Table 7(a).

Sexual Partners

Approximately 22% of men and 3% of women reported having more than one partner in the previous 12 months (p<0.001). (The questionnaire did not include questions to ascertain concurrency.)

Condom Use

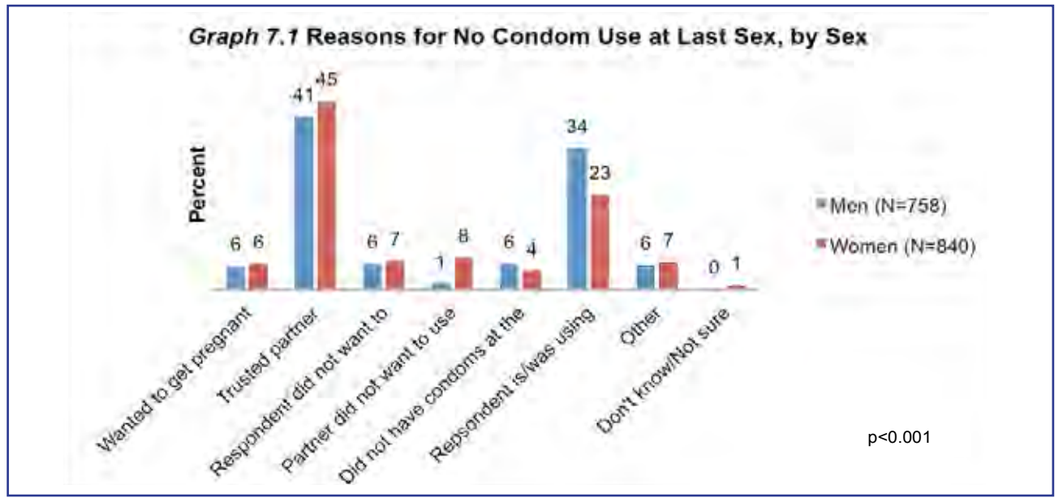
Rates of condom use at last sex among respondents were comparatively low, with less than 25% of men and less than 10% of women reporting using a condom at last sex (p<0.001). Among those that reported more than one sexual partner in the previous 12 months (N=297), only 32% reported that they used a condom every time (men: 36%, women: 8%, p<0.001).

Barriers to condom use

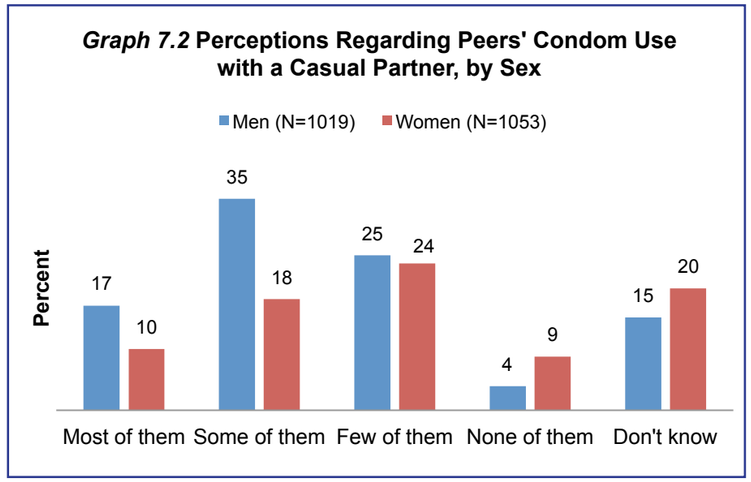
The top two reasons respondents did not use a condom at last sex were that they trusted their partner, and they used a different "method of contraception" – whether to prevent pregnancy, STIs or both is not knowable from the series of questions. Graph 7.1 illustrates reasons given for not using a condom at last sex, by sex. Access to condoms was not a major barrier, as more than 75% of men and women said it was easy to access to condoms. Zonal data can be found in Appendix 7 Table 7(b).

Descriptive norms pertaining to condom use with a casual partner

Descriptive norms, or the perception of whether one's peers are engaging in a certain behavior, were varied regarding condom use with a casual partner.



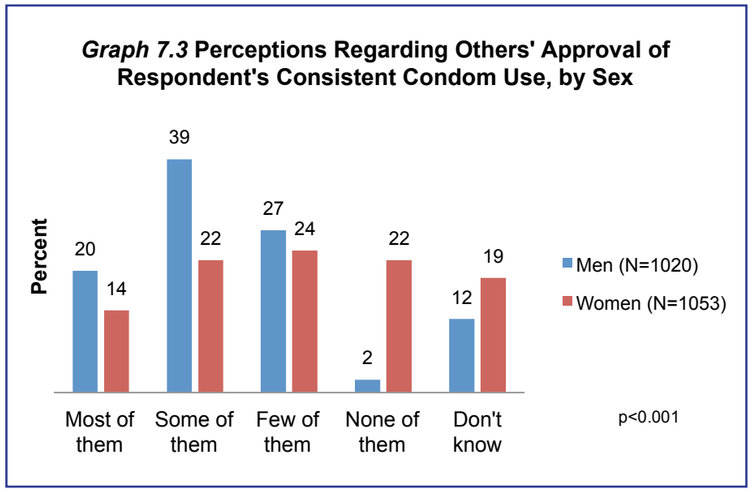
Almost 20% of women did not know whether or not their peers used a condom while having casual sex, and approximately 35% of men believed that only some of their peers used a condom while having casual sex (Graph 7.2, with zonal data in Appendix 7 Table 7(b)).

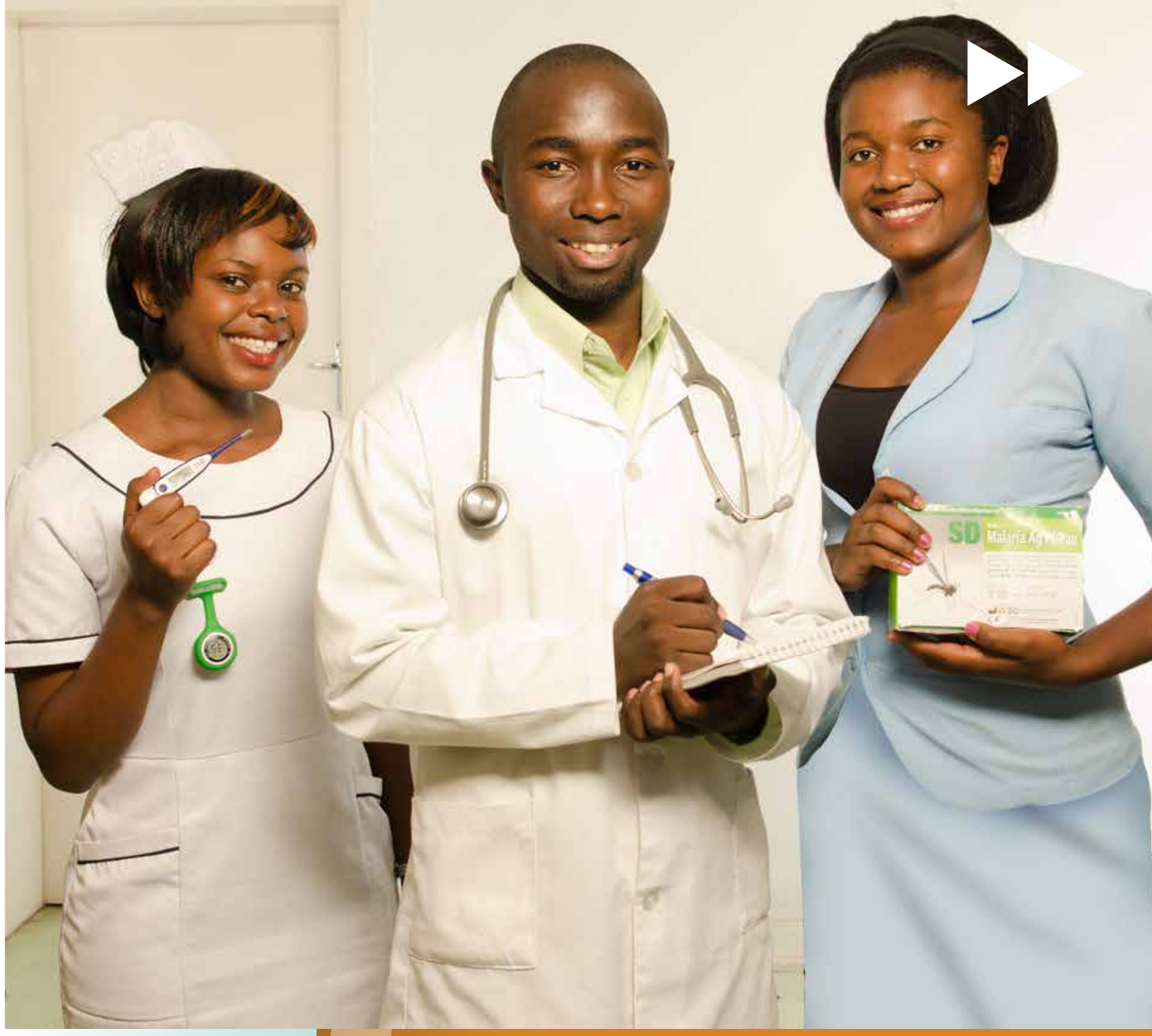


Injunctive norms pertaining to consistent condom use

Injunctive norms, or the perception of peer approval of a certain behavior, were varied regarding consistent condom use. While approximately 18% of women believed that some of their peers would approve of consistent condom use, twice as many men believed that (Graph 7.3).

Multivariate regression analysis was applied to predict condom use at last sex (controlling for age, sex, educational attainment and wealth). It was found that both descriptive ($p<0.05$) and injunctive social norms ($p<0.05$) were predictive of condom use at last sex. Age was negatively associated with condom use, while educational attainment and wealth were positively associated.





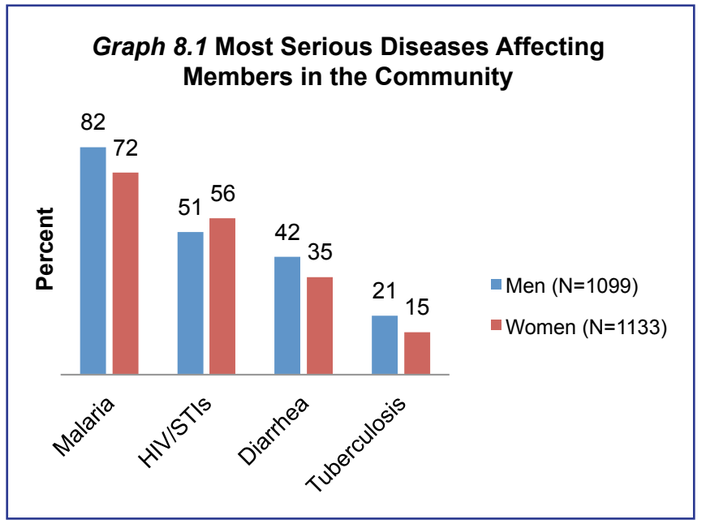
Chapter Eight

Community Health & Community Capacity

Most serious health problems

Respondents were asked to name the most serious diseases or illnesses that affect their communities. Their responses were unprompted. The most commonly mentioned illnesses were malaria, HIV/AIDSSTIs, diarrhea, tuberculosis and cholera, in that order (Graph 8.1). As highlighted here, men and women reported these illnesses in the same order, though the percentages varied significantly. Data by zone is to be found in Appendix 8 Table 8(a).

When asked to identify the most serious illness, however, men were most likely to mention malaria and women most likely to single out HIV/AIDS/STIs as shown in the box to the left. A zonal breakdown is given in Appendix 8 Table 8(b).



Single most serious illness*

- *Malaria (40% men, 29% women, 35% total)*
- *HIV/AIDS/STIs (34% men, 45% women, 35% total)*

** Differences significant, p<0.01*

With respect to the most serious problems facing their communities, men and women alike identified lack of safe drinking water as the topmost barrier to good health. Poverty and lack of food, which are closely associated, were second and third, for men, and women cited lack of food before poverty. Respondents identified access to adequate healthcare services and illnesses as their fourth and fifth most serious health concerns.

Table 8.1
Five most serious problems affecting the community

Men (N=1,099)	Women (N=1,133)
1. Lack of safe drinking water	1. Lack of safe drinking water
2. Poverty	2. Lack of food/malnutrition
3. Lack of food/malnutrition	3. Poverty
4. Lack or inadequate health services	4. Lack of inadequate health services
5. Health problems such as malaria, HIV	5. Health problems such as malaria, HIV

Responsibility for solving community problems

When asked who should solve community problems, respondents gave more than one response. They were most likely to point to the central government (77%); about 40% of both male and female respondents thought that community members are responsible to help solve problems that affect them, and 27% pointed to local officials. Non-governmental and community-based organizations were also mentioned by more than 10% of respondents.

Community Capacity

Who should solve community problems?

- *National government*
- *People in the community*
- *Local authorities*
- *Non-governmental organizations*
- *Community-based organizations*

Community capacity was measured for six domains: Social cohesion, Collective efficacy, Conflict management, Leadership, Effective leadership and Community participation. Each domain had four to six associated sub-domains or indicators. (The domains and associated indicators were developed, validated, and applied inan evaluation of a 5-year project in Zambia (Underwood et al., 2012)). Respondents were read a list of questions – one per indicator – with which they were to register their level of agreement, from "strongly agree" to "strongly disagree". Findings are presented in Table 8.2.

Because respondents often have an "acquiescence bias", or a tendency to agree with the interviewer, some of the questions were written so that a positive response would be to "disagree" or "strongly disagree." Therefore the negatively worded sentences were reversed, before measuring, and these findings are presented separately, in Table 8.3. In the aforementioned study, Principal Components Analysis (PCA) found that, after reversing the negatively worded sentences, all the indicators loaded on a single factor, accounting for 60% of the variance.

In this study, PCA and Cronbach's alpha (α) tests were used to develop and assess the scales created to measure the community capacity domains after reversing the negatively phrased sentences. In the current study, two factors emerged – one that included most of the positively phrased sentences and a second that included most of the negatively phrased sentences; together they account for 85% of the variance. Therefore, we will report on the two factors independently.

Guide to the six domains:

- ***Social cohesion*** measures the extent that individuals in a community are able to work together towards a perceived common good.
- ***Collective efficacy*** measures the extent to which a target group shares a belief in its joint capability to attain goals and accomplish tasks. It is anticipated that a community's collective efficacy would influence the group's dialogue, goal setting, collective effort and especially their persistence when faced with various barriers to collective action.
- ***Conflict management*** measures the extent to which target communities are able to handle conflicts fairly.
- ***Leadership*** measures the extent to which communities have leaders that engage all members of the community.
- Effective leadership measures leaders' capacity to facilitate collective action by encouraging participation in community meetings, setting goals and objectives, developing a plan for community activities, and assigning tasks fairly.
- ***Self-efficacy / community participation*** measures the extent to which respondents believe that their participation makes a difference and that they have the necessary skills for, and can contribute to, solving problems in their communities.

Table 8.2.
Percent of respondents who "strongly agree" or "agree" with the following statements (the higher the levels of agreement, the higher the level of overall community capacity)

Strongly agree/Agree with the following:	Men (N=1,099)	Women (N=1,132)	Total (N=2,231)
Social cohesion			
There are strong relationships between people in this community**	78.0	80.7	79.4
People in this community are always able to discuss problems that affect everyone	83.6	80.2	81.8
Collective efficacy			
Whenever our community undertakes a project, we know that we will all work hard until it is accomplished**	84.6	89.0	86.8
As members of this community, we are able to tackle the most difficult situations because we are all committed to the same collective goals	82.1	81.7	81.9
If people in this community work together, we can find solutions to many of our problems**	91.0	88.8	89.9
Conflict management			
When conflicts or disagreements arise between community members, they are always resolved quickly***	86.1	88.4	87.3
When conflicts or disagreements arise between community members, other community members get involved to help resolve the issue*	82.4	80.4	81.4
Leadership			
There are women leaders in our community	76.7	79.8	78.3
Our leaders listen to input from everyone in the community when making a decision	70.7	71.9	71.3
Our leaders always lead by example*	74.5	75.4	74.9
There are young leaders in our community**	79.1	83.9	81.5
Effective leadership			
Our leaders set goals for community activities	81.4	80.7	81.0
Our leaders assign tasks fairly***	71.4	71.1	71.3
Our leaders are good at obtaining money from organizations outside the community to support community activities	59.7	56.0	57.8
Self-efficacy			
Whenever a community problem arises, I have a lot of confidence that I will be able to contribute to solving the problem if I work with other people in my community**	90.3	90.7	90.5
I have the skills, knowledge and ability to help solve problems facing the community***	89.4	82.9	86.1
I believe that my participation in community activities can help our community achieve its goals	91.9	89.0	90.4

Note: Differences between men and women significant; * p≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001

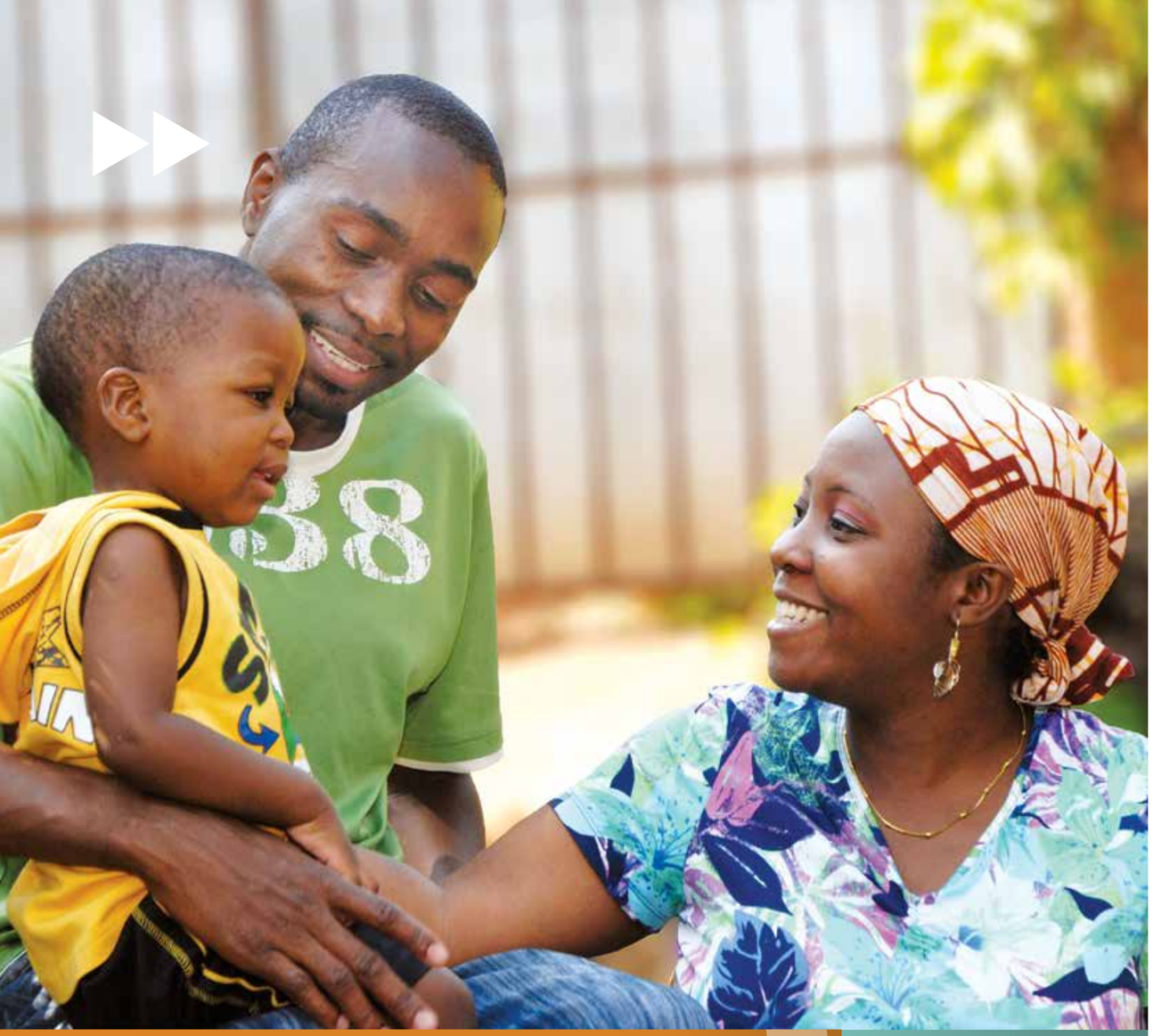
Overall, respondents indicated high levels of agreement with the positively phrased statements about social cohesion, collective efficacy, conflict management and self efficacy, with about 80% or more in agreement with the associated indicators (as seen in Table 8.2, above). Overall, attitudes toward the leadership were also positive, except for the statement that leaders are good at securing funds from outside sources, which garnered only 60% agreement.

Table 8.3 shows that respondents were much less likely to agree or strongly agree with the negatively worded sentences. Yet, it is instructive to note that the level of agreement with negative statements is higher than would have been anticipated given the very high levels of agreement with positively phrased sentences. For example, about a third of respondents indicated that there is low social cohesion About 40% of community members expressed low levels of confidence in their community's ability to solve problems over 50% indicated that feuds were ongoing and about a third were critical of their leadership.

Table 8.3.
Percent of respondents who "strongly agree" or "agree" with the following statements (the higher the levels of agreement, the lower the level of overall community capacity)

Strongly agree/Agree with the following:	Men (N=1,099)	Women (N=1,132)	Total (N=2,231)
Social cohesion			
People in this community tend not to trust one another	33.8	33.4	36.2
People in this community to do not help each other in times of need	33.4	33.6	33.5
Collective efficacy			
Whenever a community problem arises, I am not at all confident that community members would be able to solve it***	48.5	36.5	42.4
Conflict management			
People in this community usually have trouble dealing with conflict***	49.4	34.1	41.6
There are people in the community who have been feuding for a long time	58.3	48.8	53.5
Leadership			
Our leaders do not treat all people in the community equally	36.9	36.6	36.8
Our leaders are not very good at resolving disagreements between people in this community***	39.6	30.1	34.8
Effective leadership			
Our leaders always turn to the same people in the community to participate in community meetings***	52.9	52.9	52.9
Our leaders don't usually have a plan for community activities***	41.0	26.2	33.4

The fact that all statements were not correlated after reversing scores on negative statements is a matter of concern. There are several possibilities that should be explored. The first is that double negatives are difficult for people to understand. Another is that the translations were not sufficiently nuanced. Another possibility is that there is a strong acquiescence bias among respondents and the items in the second factor – i.e. the negatively phrased statements – constitute a better measure of community capacity. Solving this puzzle will require further analysis and, likely, a separate study.



Chapter Nine

Gender Norms

Empirical evidence demonstrates that inequitable gender constructs have detrimental consequences that are both personal and political. These consequences can limit the life chances of individual men and women, affect communities, and influence outcomes across the social ecological framework. Inequitable gender norms impair the health of women, men and children (Kawachi, Kennedy, Gupta, &Prothrow-Stith, 1999), hinder poverty reduction (Beneria 1995), limit girls' access to schooling (Klassen, 2002)and contribute to ongoing violence against women (Heise, Ellsberg, &Gottemoeller, 1999). Given this important role of gender constructs, gender-equitable beliefs and practices will be woven into SSDI-Communication interventions.

The survey needed to include questions about some key gender norms, such as decision-making within the household. To assess normative gender beliefs, 11 gender-related questions were read to respondents, who were then asked to indicate whether they "strongly agree, agree, disagree or strongly disagree" with each statement. Table 9.1 reports the percentages of respondents who "strongly agree" or "agree" with each of the 11 statements.

Table 9.1
Percent of respondents who agree or strongly agree with gender-equity statements, by sex

Strongly agree/agree with the following:	Men (N=1,094)	Women (N=1,131)	Total (N=2,225)
Important decisions in the family should be made by men only ****	64.4	78.1	71.3
A married woman should be allowed to work outside the home if she so desires.****	87.0	94.4	90.8
Household chores are for women only, even if the woman works outside the house****	30.5	51.6	41.2
Both men and women should decide on the number of children they should have ****	92.7	96.3	94.5
It is up to the woman, not the man to be careful and avoid unwanted pregnancies ****	37.4	65.2	51.6
Women have the right to tell men to use condoms****	82.6	84.7	83.7
A typical man needs more than one woman to be sexually satisfied ****	15.1	11.9	13.5
A man has the right to force his wife to have intercourse ****	20.2	35.7	28.1
Women as well as men in the family should have the right to inherit land and property****	35.6	27.7	31.6
A man has the right to beat his wife if she is disrespectful ****	13.6	7.9	10.7
Women should get involved in politics****	85.7	85.2	85.5

*Note:*Differences between men and women significant; * p≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

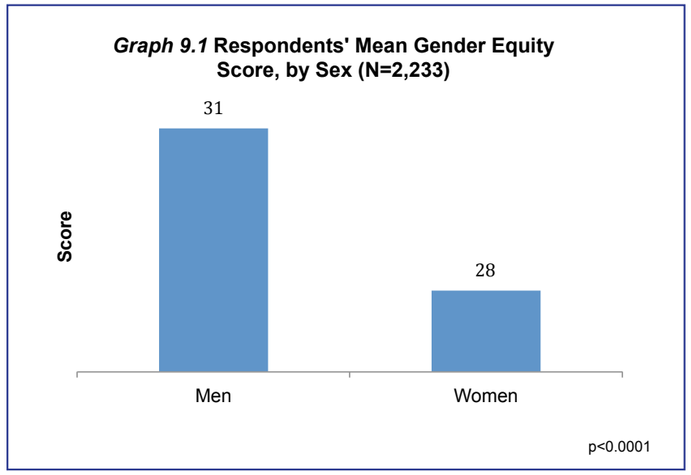
A quick review of Table 9.1 shows that women hold less gender equitable norms, on average, than is true of men. More than 80% of men and women believe that a woman has the right to tell men to use condoms and that women should be involved in public life, whether in politics or in the workforce; nearly 95% believe that decisions on family size should be mutual. Yet three-quarters of women and two-thirds of men indicated that men alone should make important family-related decisions. The results also indicate that other barriers to gender equity persist, such as: it is women's responsibility to avoid unwanted pregnancies (65% women, 37% men), that women should have the right to inherit land and property (36% men, 28% women), and that men have the right to force their wives to have sex (20% men, 36% women); all differences were significant (p<0.0001). Zonal-level data for gender-equity statements are available in Appendix 9 Table 9(a).

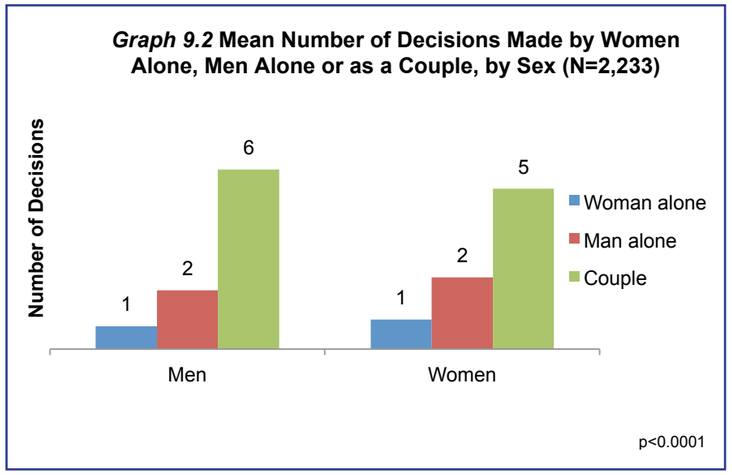
To examine this issue more systematically, we created a gender equity scale by giving respondents the following 0-4 points, with 0 for "strongly disagree," 1 for "disagree," 2 for "neither agree nor disagree," 3 for "agree" and 4 for "strongly agree." Negative statements were reversed before applying scores. As shown in Graph 9.1, on average, men scored significantly higher than did women on the gender equity scale, though the overall differences of just over two points with a range of 0-44 doesn't seem to be particularly meaningful from a programmatic perspective. There were no significant differences in the mean gender equity score at the zonal level.

We also assessed gender equity through the lens of participation in decision-making. Respondents were asked which of the following decisions are made by the wife/female partner alone, the husband/male partner alone, the couple together or by someone else:

- Spending the respondent's income
- Spending the partner's income
- Healthcare for the respondent
- Healthcare for female children
- Healthcare for male children
- Major household purchases
- Daily household needs
- Visits to family and relatives

We created three separate scores: one for the number of decisions made by the man alone, one by the woman alone and another for decisions made jointly by the couple. As seen in Graph 9.2, most decisions were reported to be mutual, with men reporting that 5.5 of the 8 decisions were made jointly and 4.9 by women alone (differences significant, p<0.0001). Women reported that men make more decisions alone than men reported that they make alone (2.2 and 1.8, respectively). On average, respondents reported that women make less than one of the eight decisions alone. For more detailed findings on decision-making by zone, see Appendix 9 Table 9(b).





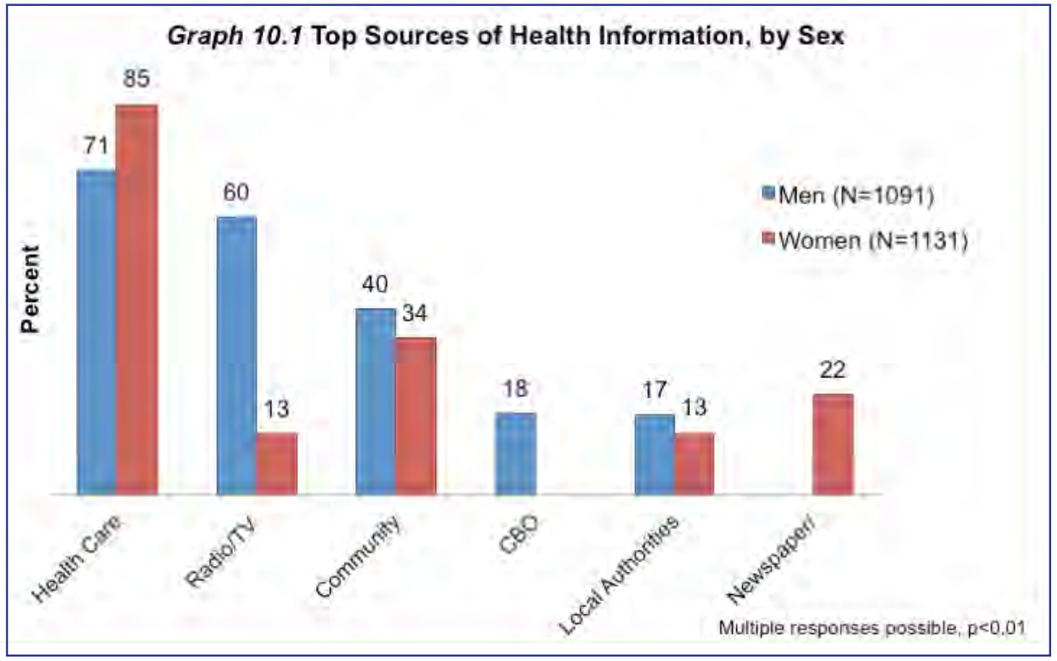
Chapter Ten

Information Sources

There are many sources of health information in Malawi. Health facilities, radio programs, and newspapers are the most common sources. The survey included questions to establish the major sources of health information. It further aimed to understand how household socio-economic status, culture, age and residence affect access to health information. Finally, the survey explored the question of who is more likely to access health information from a particular source.

Major and most trusted sources of health information

Health care providers (doctors, nurses, midwifes, medical officers) are the major sources of health information according to 78% of respondents (71% of men, 85% of women; p<0.001). Community health workers (37%) and the radio (36%) were also identified as important sources. As seen in Graph 10.1, while nearly two thirds of men reported radio as an important source, only one in ten women mentioned it. This confirms other research that has found that men are more likely to own and/or control access to the household's radio.



There were significant differences by zone in this respect: Over 90% of respondents in the Northern zone compared with two-thirds of respondents in the South West indicated that health care providers were their top source for health information (p <0.0001). Full zonal data are given in Appendix 10 Tables 10(a) and 10(b).

Listening frequency and common radio stations

Slightly less than half of the respondents listen to radio everyday of the week, a fifth of them less than once a week. Differences between men and women are highly significant with 60% of men but less than 40% of women listening every day. While only 11% of men report that they never listen to the radio, 33% of women never listen to it (see Table 10.1). Zonal data are given in Appendix 10 Table (c).

Zodiak Broadcasting Station (ZBC), Malawi Broadcasting Corporation Radio 1 and 2 are the most listened to radio stations according to the survey, with 72%, 67% and 63% respectively. Considering age, the data show that Zodiak is popular across all age groups; that older people are more likely to listen to MBC Radio 1 while MBC Radio 2 is more appealing to young audiences (data not shown). It is noteworthy that religious radio stations have a good listenership, particularly Radio Maria, which is listened to by about 30% of respondents and Radio Islam at 15%. Appendix 10 Table 10(d) gives a breakdown by zone.

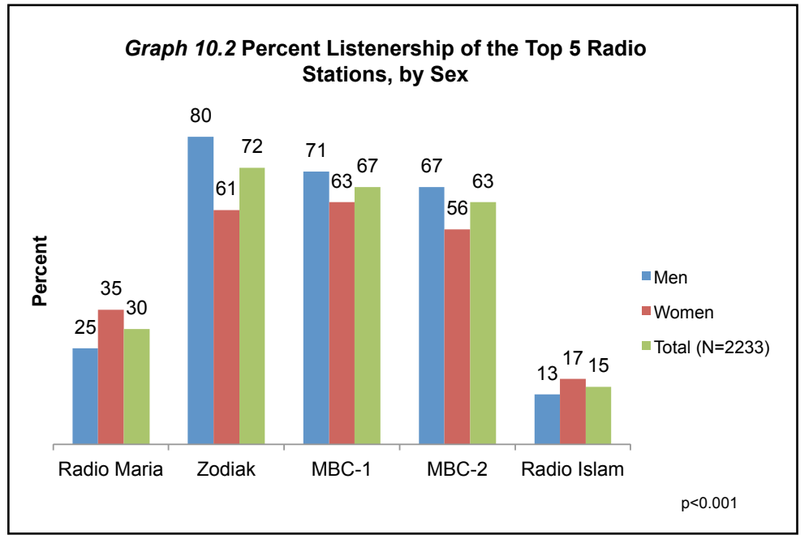


Table 10.1
Percentage distribution of radio listenership among respondents, by sex

Frequency of listening to the radio	Men (N=1,092)	Women (N=1,131)	Total (N=2,223)
Never	10.9	33.2	22.3
1-2 times a week	3.3	3.0	3.2
3-4 times a week	6.0	3.4	4.7
5-6 times a week	1.1	0.9	1.0
Everyday	60.2	37.7	48.7
Less than once a week	18.5	21.8	20.2

*Note:*Differences between men and women significant; ****p<0.0001

Most popular radio programs

News and current affairs (66%), health programs (59%), music programs (53%), and religious programs (52%) are the programs that most people listen to. More men (62%) than women (54%) listened to health programs. Men are more likely to listen to political commentary, business reports, educational programs and agricultural programs than women. This might suggest that men have more free time to listen to a variety of radio programs than women. Further research is required to understand how gender roles may affect the ability to listen to a radio program. Table 10.2shows the most listened to programs by sex; Appendix 10 Table 10(e) shows listening habits by zone.

Table 10.2 *Most often listened to programs, by sex*			
What type of radio programs do you listen to most often?	**Men** (N=967)	**Women** (N=755)	**Total** (N=1,722)
News and Current****	75.28	53.51	65.74
Sports****	44.57	27.55	37.11
Religious programs****	45.29	60.40	51.92
Music programs*	55.64	50.60	53.43
Women's programs****	16.86	32.05	23.52
Health programs****	62.36	53.91	58.65
Business reports****	10.55	3.58	7.49
Political commentary****	24.20	8.48	17.31
Educational programs****	20.06	6.75	14.23
Agricultural programs****	37.75	19.47	29.73
Other	12.31	3.05	8.25
*Note:*Differences between men and women significant: * p≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001			

Cheni Cheni Nchiti? program

The survey wanted to establish the coverage and popularity of Cheni Cheni Nchiti? (What is the reality?) radio program produced by BRIDGE II project. SSDI wanted to expand the program beyond the current topic of HIV and AIDS to include the other five health areas. The data show that 56% (72% men and 40% women) of respondents have heard of the Cheni Cheni Nchiti? program. Nearly 80% of that group has listened to the program, with women more likely to have heard it than men (P<0.01). Nearly two-fifths of respondents listened to the program weekly and 34% twice a week. Of those who listen to the program, 74% find the program to be very interesting, slightly below a fifth find it not at all interesting. Listenership by zone can be found in Appendix 10 Table 10 (f).

Messages on LLINs

During the implementation of the survey, the Government of Malawi was conducting universal mosquito net distribution across the country. In order to support the Government efforts, SSDI-Communication was requested to run radio spots on LLINs. The spots aimed to inform the target audience on the benefits of LLINs. The survey included some questions to estimate the coverage of radio in reaching the population.

About half of the respondents who heard of LLINs for preventing malaria heard it from the radio, another 23% from community meetings and over a tenth from friends or relatives. Only about 1% heard this message from the church/mosque. Full data by zone on sources of information on LLINs are given in Appendix 10 Table 10(g).

Chapter Eleven

Recommendations

These findings demonstrate that a solid foundation for improving health-related knowledge, attitudes, social norms, efficacy, behaviors and – ultimately – outcomes, has been built in Malawi. While there is much to improve, there is also much to celebrate. High levels of knowledge about many key health areas are evident in the data. While personal approval for positive health practices is also relatively high, social norms that support good health practices remain an area for improvement.

The findings in this report support the following recommendations:

WASH

- Emphasize the importance of hand washing after cleaning a child that has defecated; also hand washing before preparing food.
- Explore the option of using ash (or natural herbs/spices with antiseptic properties) when soap is not available.
- Promote the elimination of open defecation at the community level.
- With access to clean water identified as respondents' most pressing concern at the community level, communicate ways to treat water, and encourage community efforts.

MALARIA

- Re-emphasize prevention - 20% of adults still do not use bed nets for under-5 children and a similar, even larger percentage, including pregnant women, fail to use nets consistently.
- Encourage parents/guardians to take their children to be tested for malaria if a fever persists as long as 24 hours.
- Barriers to care: Address transportation availability and cost; address drug outages at clinics.
- Issues of bed net discomfort and safety concerns: Continue messages about the need to air out new ITNs, and that LLINs are safe.
- Address the issue of lack of bed net supply.

FERTILITY PREFERENCES

- Encourage communication about contraception and family size.
- Ensure that contraceptive supplies are available before promoting FP.
- Advocate for tubal ligation and vasectomy for individuals who have achieved their desired family size.

MOTHER AND CHILD HEALTH

- Danger signs of pregnancy are inadequately understood; focus campaign messages on this important topic targeting both women and men.
- Promote antenatal visits in the first trimester as most women report their first visit in the second trimester.

HIV/AIDS

- Emphasize that using condoms correctly and consistently is a highly efficacious way to avoid HIV.
- Continue to promote male circumcision as a way to reduce HIV risk.
- More community mobilization on couple HTC and male involvement in PMTCT.

COMMUNITY HEALTH /COMMUNITY CAPACITY

- Build on the 40% of respondents who said the community was responsible, at least in part, for solving their problems.
- Strengthen community efficacy to solve problems through community mobilization efforts that build capacity and generate successes.

GENDER NORMS & INTERPERSONAL COMMUNICATION

- Ensure that interventions reinforce gender equitable practices, especially concerning couple joint decision making, which seems to be fairly prevalent, and the elimination of gender-based violence.
- Levels of communication, especially spousal/partner communication, about key health topics is low, so should be encouraged by, enabled through and modeled in communication messages and programs.

INFORMATION SOURCES

- Continue working with Zodiak Broadcasting Station, Malawi Broadcasting Corporation Radio 1 and 2 to reach the majority of target population.
- Continue to work with health care providers and community health workers to disseminate health information and promote services.
- Build capacity of volunteers to cover all the six health topics.
- Stimulate couple communication about a range of health issues through creative radio programming and other channels.
- Incorporate health messages in religious and women's programs, both of which are popular among women.

Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design. Cambridge,* MA: Harvard University Press. ISBN 0-674-22457-4.

Institute of Medicine. *Promoting Health: Intervention Strategies from Social and Behavioral Sciences.* Washington, DC: National Academy Press; 2001. Committee on Capitalizing on Social Science and Behavioral Science Research to Improve the Public's Health.

Link, Bruce G. and Jo Phelan. *Social Conditions As Fundamental Causes of Disease*
Journal of Health and Social Behavior, 35, Extra Issue: Forty Years of Medical Sociology: The State of the Art and Directions for the Future (1995), pp. 80-94.

National Statistical Office (NSO) and ICF Macro. 2005 &2011.Malawi Demographic and Health Survey 2004 & 2010. Zomba, Malawi, and Calverton, Maryland, USA: NSO and ICF Macro.

Underwood, C., Boulay, M., Snetro-Plewman, G., Macwan'gi, M., Vijayaraghavan, J., Namfukwe, M. & Marsh, D. *Community Capacity as Means to Improved Health Practices and an End in Itself: Evidence from a Multi-Stage Study.* International quarterly of community health education *33, no. 2 (2012): 105-127.*

Appendix 1: Demographic characteristics of participants

Table 1 (a)
Percent distribution of background characteristics of participants, by zone

Characteristics	North (N=336)	Central East (N=469)	Central West (N=552)	South East (N=615)	South West (N=261)	Total (N=2,233)
Age (Years)**						
16-24	25.0	36.0	39.0	38.2	35.2	35.6
25-34	41.7	30.5	31.2	31.2	36.4	33.2
35-44	18.5	18.8	17.0	18.4	15.3	17.8
45-60	14.9	14.3	12.9	12.0	11.9	13.1
Don't Know	0	0.4	0	0.2	1.2	0.3
Education****						
Never attended school	4.2	10.2	12.9	13.2	16.5	11.5
Attended primary school	50.0	56.1	60.3	59.7	49.4	56.4
Completed primary/Some secondary	38.7	25.0	20.7	24.7	21.1	25.4
Completed secondary/Any post secondary	7.1	8.7	6.2	2.4	13.0	6.6
Residence****						
Rural	93.8	95.1	85.0	93.2	92.0	91.5
Urban	6.3	4.9	15.0	6.8	8.1	8.5
Religion****						
Catholic	10.1	11.3	29.4	7.5	17.6	15.3
Protestant	87.5	71.6	57.4	27.8	72.8	58.6
Muslim	1.2	13.4	4.4	64.6	6.9	22.7
Other	0	0.2	1.6	0.2	0.4	0.5
Not Religious	1.2	3.4	7.3	0	2.3	3.0
MaritalStatus****						
Single	9.5	12.4	18.3	22.9	24.1	17.7
In a relationship	5.4	7.0	3.6	0.5	0.8	3.4
Married	78.6	72.9	71.6	68.8	72.0	72.2
Formerly married or separated	6.6	7.7	6.5	7.8	3.1	6.7

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 1 (b)
Distribution of household items, by sex

Household items	Men (N=1,099)	Women (N=1,134)	Total (N=2,233)
Electricity	5.9	4.9	5.4
Koloboyi	18.7	20.8	19.8
Paraffin lamp	78.5	78.4	78.5
Radio****	69.3	48.3	58.7
Working Radio****	59.8	39.3	49.4
TV	10.1	8.4	9.2
Working TV	7.9	6.4	7.2
Cell Phone	45.4	42.7	44.0
Computer	1.5	0.7	1.1
Landline Phone*	1.4	0.4	0.9
Refrigerator	3.9	3.0	3.5
Bed with matress****	43.4	34.5	38.9
Sleeping Mat	93.6	91.7	92.7
Sofa set	11.4	12.1	11.7
Table and chairs****	46.2	31.7	38.8
Bicycle****	56.7	3.0	29.4
Oxcart****	2.6	46.3	24.8
Motorcycle/Car	2.3	2.1	2.2

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 1(c)
Distribution of household items, by zone

Household items	North (N=336)	Central East (N=469)	Central West (N=552)	South East (N=615)	South West (N=261)	Total (N=2,233)
Electricity****	4.2	6.8	4.5	2.0	14.6	5.4
Koloboyi***	19.1	17.9	16.1	25.5	18.4	19.8
Paraffin lamp****	65.5	84.4	81.3	81.5	71.3	78.5
Radio****	65.8	61.6	53.1	59.0	55.2	58.7
Working Radio****	55.1	56.3	39.1	49.1	52.1	49.4
TV****	10.1	8.7	6.5	8.78	15.7	9.2
Working TV****	7.7	7.3	4.5	6.0	14.6	7.2
Cell Phone****	59.2	45.2	33.7	43.1	46.4	44.0
Computer	0.3	1.5	1.6	0.3	1.9	1.1
Landline Phone*	0.3	1.76	0.9	0.2	1.9	0.9
Refrigerator****	1.2	4.1	2.4	1.6	11.9	3.5
Bed with matress****	67.0	30.5	19.6	48.1	36.8	38.9
Sleeping Mat****	93.5	93.4	94.4	93.2	85.4	92.7
Sofa set****	15.8	12.8	10.1	7.0	19.2	11.7
Table and chairs****	55.4	33.7	34.1	38.7	37.2	38.8
Bicycle	28.6	27.5	29.4	31.7	28.7	29.4
Oxcart	25.9	22.4	25.0	26.5	23.4	24.8
Motorcycle/Car	1.5	3.4	1.8	1.6	3.1	2.2

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Appendix 2: Water sources, hand washing and sanitation

Table 2 (a)
Percent distribution of participants' hand washing beliefs and behaviors, by zone

	North (N=336)	Central East (N=469)	Central West (N=552)	South East (N=615)	South West (N=261)	Total (N=2,233)
Consequences of not washing hands ****						
Nothing/Don't know	5.4	1.1	1.8	8.1	2.3	4.0
May get diarrhea	78.6	69.9	80.1	75.6	82.8	76.8
May get cholera	20.8	63.3	57.6	38.9	61.7	48.4
May get worms	3.0	4.0	5.4	8.1	13.4	6.5
Reasons why some people do not wash their hands ****						
No water/soap/ash available	22.0	15.5	14.3	16.4	9.2	15.1
Doesn't know better	60.4	68.0	72.1	61.6	74.0	66.8
Other	13.4	11.0	11.1	15.8	10.3	11.7
Don't know	4.2	5.5	2.5	6.2	6.5	4.9
Hand washing behaviors						
Before handling food****	61.9	65.6	50.5	43.8	71.3	56.0
Before eating****	89.0	80.1	73.7	83.9	82.8	81.2
After using the toilet*	95.5	90.4	90.8	89.9	92.3	91.4
After cleaning a child's bottom****	17.6	16.5	13.4	23.1	27.6	19.0

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 2 (b)
Distribution of main source of drinking water, by sex

Water source****	Men (N=1,099)	Women (N=1,134)	Total (N=2,233)
Piped into dwelling	2.7	3.4	3.1
Piped into yard/plot	6.8	4.3	5.6
Public tap/stand pipe	4.7	5.9	5.3
Tube well or borehole	64.9	65.9	65.4
Protected well	4.7	5.4	5.1
Unprotected well	11.5	9.5	10.5
Protected spring	0.3	0	0.1
Unprotected spring	1.6	0.3	0.9
Surface water	2.7	5.0	3.9

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 2 (c)
Distribution of main source of drinking water, by zone

Water source****	North (N=336)	Central East (N=469)	Central West (N=552)	South East (N=615)	South West (N=261)	Total (N=2,233)
Piped into dwelling	0.0	3.0	3.8	0.3	12.3	3.1
Piped into yard/plot	5.4	6.0	5.1	5.0	7.3	5.6
Public tap/stand pipe	6.9	3.4	1.7	9.1	5.8	5.3
Tube well or borehole	76.2	61.8	54.9	71.2	66.3	65.4
Protected well	2.4	4.9	12.9	1.1	1.5	5.1
Unprotected well	5.7	12.2	15.6	10.7	2.3	10.5
Protected spring	0.0	0.4	0.0	0.2	0.0	0.1
Unprotected spring	0.3	0.0	2.2	1.3	0.0	0.9
Surface water	3.3	8.1	25.0	26.5	23.4	24.8

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Appendix 3: Malaria findings

Table 3 (a)
Knowledge of malaria, by sex

	Men (N=1,097)	Women (N=1,132)	Total (N=2,229)
Respondent's opinion about how a person gets sick with malaria			
Don't know/Not sure	1.8	1.8	1.8
Mosquito bites **	93.4	96.1	94.8
Drinking mosquito eggs/larvae***	3.8	0.6	2.2
Drinking unclean water ***	4.0	1.6	2.8
Eating immature mangoes/sugarcane **	0.8	0.1	0.5
Bathing in cold water *	2.6	1.3	2.0
Other	2.6	4.1	3.4

Table 3 (b)
Knowledge of malaria, by zone

	North (N=336)	Central East (N=468)	Central West (N=551)	South East (N=613)	South West (N=261)	Total (N=2,229)
Things done by respondent to protect self or family from malaria						
Nothing can be done	0.3	1.1	0.7	1.8	0.8	1.0
Use mosquito nets ****	40.2	78.2	50.5	79.0	82.4	66.3
Use insecticide-treated nets****	70.8	30.3	57.4	31.8	37.9	44.4
Use insect repellent **	0.6	1.5	2.2	1.8	5.0	2.0
Use aerosol insect killer***	1.2	3.2	1.5	1.6	6.1	2.4
Use anti-mosquito coils	2.7	3.9	1.8	2.8	5.4	3.1
Clearing bushes around the house***	31.3	18.4	28.3	20.9	30.7	24.9
Burn cow dung to keep mosquitoes away***	0.6	1.3	4.9	2.3	4.6	2.7
Spray the house periodically***	0.3	1.5	0.5	0.5	8.4	1.6
Use mosquito screens in the house***	0.3	2.8	0.2	1.1	8.8	2.0
Get rid of stagnant water around the house***	9.2	18.0	16.0	18.1	30.7	17.7
Other***	13.4	7.3	6.0	5.2	2.3	6.7
Don't know	1.5	1.1	0.7	2.3	0.8	1.4

Table 3 (c)
Malaria-related knowledge and attitudes, by sex

	Men (N=1,099)	Women (N=1,133)	Total (N=2,232)
Only weak children can die from malaria* **			
Strongly/Somewhat agree	68.2	50.8	59.4
Don't know/Not sure	9.7	6.4	8.0
Strongly/Somewhat disagree	22.2	42.8	32.7
People in this community only get malaria during the rainy season* **			
Strongly/Somewhat agree	49.1	37.8	43.4
Don't know/Not sure	8.1	6.6	7.4
Strongly/Somewhat disagree	42.8	55.6	49.3
Malaria becomes more dangerous after a woman becomes pregnant **			
Strongly/Somewhat agree	96.7	98.9	97.8
Don't know/Not sure	2.0	0.9	1.4
Strongly/Somewhat disagree	1.3	0.3	0.8
Malaria can slow a child's growth* **			
Strongly/Somewhat agree	91.2	93.6	92.4
Don't know/Not sure	5.6	2.1	3.8
Strongly/Somewhat disagree	3.3	4.3	3.8
Malaria can prevent people from working and earning money* **			
Strongly/Somewhat agree	95.1	97.5	96.3
Don't know/Not sure	3.5	0.7	2.1
Strongly/somewhat disagree	1.5	1.8	1.6
Malaria can prevent children from attending school* **			
Strongly/Somewhat agree	95.1	98.3	96.7
Don't know/Not sure	3.3	1.1	2.2
Strongly/somewhat disagree	1.6	0.6	1.1
Treating malaria can be expensive* **			
Strongly/Somewhat agree	74.0	61.0	67.4
Don't know/Not sure	7.7	7.2	7.4
Strongly/somewhat disagree	18.3	31.9	25.2
Malaria can harm a child's brain development			
Strongly/Somewhat agree	92.4	94.0	93.2
Don't know/Not sure	5.1	3.8	4.4
Strongly/Somewhat disagree	2.6	2.2	2.4
When I take medicine for malaria, it is important to finish all the pills even after I feel better* **			
Strongly/Somewhat agree	96.6	99.0	97.9
Don't know/Not sure	2.2	0.7	1.4
Strongly/Somewhat disagree	1.2	0.3	0.7

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 3 (d)
Level of agreement with statements about malaria, by zone

	North (N=336)	Central East (N=468)	Central West (N=552)	South East (N=616)	South West (N=261)	Total (N=2,233)
People in this community only get malaria during the rainy season* **						
Strongly/Somewhat agree	39.0	32.9	57.3	44.6	35.3	43.4
Don't know/Not sure	15.2	5.1	6.0	7.8	3.1	7.3
Strongly/Somewhat disagree	45.8	62.0	36.8	47.4	61.7	49.3
Malaria becomes more dangerous after a woman becomes pregnant **						
Strongly/Somewhat agree	100.0	95.7	97.5	97.9	98.9	97.8
Don't know/Not sure	0.0	3.0	1.5	1.6	0.0	1.4
Strongly/Somewhat disagree	0.0	1.3	1.1	0.3	1.2	0.8
Only weak children can die from malaria* **						
Strongly/Somewhat agree	33.3	48.5	73.6	70.0	57.1	59.3
Don't know/Not sure	14.0	7.5	6.2	5.8	10.0	8.0
Strongly/Somewhat disagree	52.7	44.0	20.3	24.0	33.0	32.7
Malaria can slow a child's growth* **						
Strongly/Somewhat agree	88.1	91.7	96.2	92.5	90.4	92.3
Don't know/Not sure	5.1	3.9	2.2	3.7	5.8	3.8
Strongly/Somewhat disagree	6.9	4.5	1.6	3.6	3.8	3.1
Malaria can prevent people from working and earning money* **						
Strongly/Somewhat agree	97.0	92.5	99.1	97.4	93.5	96.3
Don't know/Not sure	0.6	2.4	0.9	2.0	6.1	2.1
Strongly/somewhat disagree	2.4	5.1	0.0	0.5	0.4	1.6
Malaria can prevent children from attending school* **						
Strongly/Somewhat agree	99.1	93.6	98.0	97.4	94.6	97.0
Don't know/Not sure	0.3	3.0	1.5	2.0	5.0	2.2
Strongly/somewhat disagree	0.6	3.4	0.5	0.5	0.4	1.1
Treating malaria can be expensive* **						
Strongly/Somewhat agree	66.1	70.5	68.5	66.6	62.8	67.4
Don't know/Not sure	7.4	5.6	10.9	6.8	5.0	7.4
Strongly/Somewhat disagree	26.5	23.9	20.7	26.5	32.2	25.2
Malaria can harm a child's brain development						
Strongly/Somewhat agree	88.4	89.7	95.3	94.0	98.9	93.2
Don't know/Not sure	8.3	6.6	2.9	3.4	1.2	4.4
Strongly/Somewhat disagree	3.3	3.6	1.8	2.4	0.0	2.4
When I take medicine for malaria, it is important to finish all the pills even after I feel better* **						
Strongly/Somewhat agree	99.7	93.8	97.8	99.0	99.6	97.8
Don't know/Not sure	0.3	4.1	1.1	0.7	0.4	1.4
Strongly/Somewhat disagree	0.0	2.1	1.1	0.0	0.0	0.7

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 3 (e)
Signs that a person with malaria may show, by sex

	Men (N=1,099)	Women (N=1,124)	Total (N=2,223)
Fever***	79.4	85.4	82.5
Headaches*	32.7	27.9	30.3
Weakness/Tiredness***	39.0	28.0	33.5
Nausea/Vomiting***	43.7	56.0	49.9
Stomach Pain***	5.2	9.6	7.4
Pain in the joints	23.0	22.9	22.9
Loss of Appetite*	10.3	7.7	9.0
Sweating***	10.7	3.6	7.1
Other	26.1	23.7	24.9

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 3 (f)
Signs that a person with malaria may show, by zone

	North (N=333)	Central East (N=468)	Central West (N=550)	South East (N=615)	South West (N=257)	Total (N=2,223)
Fever***	89.2	79.5	84.9	75.9	89.5	82.5
Headaches***	42.3	28.0	17.6	33.3	38.5	30.3
Weakness/Tiredness***	35.4	26.1	44.7	26.8	36.2	33.5
Nausea/Vomiting***	66.1	38.0	48.7	49.3	54.5	49.9
Stomach Pain	5.4	7.1	6.2	9.4	8.6	7.4
Pain in the joints***	16.5	20.5	16.9	30.6	30.4	22.9
Loss of Appetite***	14.4	5.1	5.3	8.3	18.3	9.0
Sweating	9.9	7.9	7.1	4.4	8.2	7.1
Other	18.3	25.4	14.2	42.3	13.6	24.9

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 3 (g)
Signs that a person sick with malaria should be taken to see a health professional, by zone

	North (N=333)	Central East (N=468)	Central West (N=550)	South East (N=614)	South West (N=257)	Total (N=2,222)
Convulsions/Fits***	71.2	45.1	57.6	64.3	56.0	58.7
Too weak to sit up***	23.4	36.1	32.7	37.8	53.3	35.8
Severe vomiting***	59.2	49.4	51.8	56.2	68.5	55.5
Severe diarrhea	7.8	13.0	10.6	23.9	28.4	16.4
Sick with fever for two or more days***	16.2	39.5	26.9	34.4	30.4	30.4
Not being able to eat or drink***	7.5	5.8	4.6	9.0	19.8	8.2
Other***	5.7	12.6	6.7	11.9	5.1	9.1
Don't know	0.9	1.1	1.6	1.3	1.6	1.3
The best medicine to treat a child who is sick with malaria						
Fansidar***	13.1	6.0	20.5	6.5	8.1	11.0
Chloroquine	0.6	1.1	0.9	0.8	0.4	0.8
Metakelfin**	0.3	1.3	0.2	0.0	0.0	0.4
Mefloquine	0.6	0.6	0.4	0.3	0.4	0.5
Artemether/Lumefantrine	88.7	84.4	73.7	88.1	87.4	83.8

(Coartem)***						
Quinine	8.9	11.5	12.9	9.4	9.2	10.6
Herbal remedies	0.0	0.2	0.4	0.0	0.0	0.13
Other***	25.9	35.0	36.5	21.3	19.9	28.5
Whether respondents have ever heard of mosquito nets that are treated with Insecticide to be more effective against mosquitoes	83.9	93.8	92.6	89.7	77.0	90.0

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001
(Note: this is a percentage of those who did not mention nets as a malaria prevention option)

Table 3 (h)
Safety of mosquito nets treated with insecticides ***, by zone

	North (N=321)	Central East (N=447)	Central West (N=536)	South East (N=575)	South West (N=242)	Total (N=2,121)
Very safe	35.8	28.0	53.5	28.5	29.3	35.9
Somewhat safe	4.7	9.2	3.4	6.3	2.5	5.5
Neither safe nor unsafe	49.2	41.8	27.2	52.2	57.9	43.9
Somewhat unsafe	4.7	12.1	7.3	5.7	6.6	7.4
Very unsafe	1.3	6.9	7.6	3.7	1.7	4.8
Don't know/Not sure	4.4	2.0	0.9	3.7	2.1	2.6
Mosquito nets treated with insecticides are very effective* **						
Yes	96.0	82.8	94.6	94.8	97.1	92.7
Insecticide-treated mosquito nets are very easy to get* **						
Yes	89.1	74.1	90.1	81.2	87.6	83.9

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 3 (i)
Treatment of a feverish child by women with an under-5 child, by zone

	North (N=100)	Central East (N=135)	Central West (N=148)	South East (N=180)	South West (N=84)	Total (N=647)
Child had fever in the past 2 weeks*:	35.0	37.8	23.7	39.4	44.1	35.4
Amount of food infant was given when fever occurred*:**	(N=35)	(N=51)	(N=36)	(N=71)	(N=37)	(N=230)
Less than usual	45.7	43.1	47.2	59.2	75.7	54.4
The same amount	25.7	47.1	38.9	36.6	21.6	35.2
More than usual	2.9	3.9	0.0	1.4	2.7	2.2
Nothing to eat	25.7	5.9	13.9	2.8	0.0	8.3
	(N=35)	(N=51)	(N=36)	(N=71)	(N=37)	(N=230)
Brought my infant to see someone for his/her fever:	88.6	78.4	69.4	77.5	83.8	79.1
The first place I took my infant for care was:	(N=31)	(N=38)	(N=25)	(N=57)	(N=31)	(N=182)

Table 3 (i)
Treatment of a feverish child by women with an under-5 child, by zone

Government facility	87.1	89.5	92.0	87.7	74.2	86.3
Cham hospital/Private hospital/clinic	9.7	10.5	8.0	12.3	19.4	12.1
Other	3.2	0.0	0.0	0.0	6.5	1.7
	(N=32)	(N=40)	(N=25)	(N=57)	(N=32)	(N=186)
My infant was tested for malaria:	87.5	55.0	84.0	75.4	68.8	73.1
	(N=28)	(N=22)	(N=21)	(N=44)	(N=22)	(N=137)
The results of the malaria were positive:	75.0	81.8	71.4	68.2	54.6	70.1
	(N=34)	(N=51)	(N=36)	(N=71)	(N=36)	(N=228)
My infant was given something to take care of his/her fever:	100.0	98.0	88.9	95.8	97.2	96.1
My infant was given:	(N=35)	(N=50)	(N=32)	(N=68)	(N=36)	(N=221)
Fansidar	0.0	0.0	0.0	0.0	2.8	0.5
Choloroquine	0.0	0.0	0.0	0.0	0.0	0.0
Metakelfin	0.0	0.0	0.0	1.5	0.0	0.5
Mefloquine	0.0	0.0	0.0	0.0	0.0	0.0
La (Artemether/Lumefantrine/ coartem)	54.3	70.0	50.0	48.5	50.0	54.8
Quinine	0.0	6.0	9.4	2.9	2.8	4.1
Aspirin*	2.9	6.0	18.8	7.4	19.4	10.0
Panadol	74.3	76.0	56.3	64.7	72.2	68.8
Herbal Remedies	0.0	0.0	0.0	0.0	2.8	0.5
Other*	40.0	20.0	12.5	27.9	38.9	27.6
The medication was given for malaria:	60.0	72.0	65.6	51.5	55.6	60.2
My infant took all the medication**:	82.9	76.0	75.0	63.2	77.8	73.3

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 3 (j)
Malaria prevention practices of women who gave birth in the past five years

	North (N=101)	Central East (N=136)	Central West (N=148)	South East (N=182)	South West (N=84)	Total (N=651)
Took tablets or any medication to protect myself from malaria:	84.2	92.7	87.2	94.0	89.3	90.0
Frequency of sleeping under a mosquito net during last pregnancy*:**	(N=101)	(N=136)	(N=148)	(N=182)	(N=84)	(N=651)
Every night	87.1	84.6	69.6	57.1	78.6	73.1
Most nights	4.0	0.7	6.1	10.4	1.2	5.2
Some nights	2.0	0.7	0.7	7.1	1.2	2.8
Never	6.9	14.0	23.7	25.3	19.1	18.9
Type of net used while pregnant***:	(N=94)	(N=117)	(N=113)	(N=136)	(N=67)	(N=527)
Ordinary net	30.9	7.7	5.3	16.9	2,5	13.3
Had been treated with insecticide	69.2	81.2	92.9	79.4	92.5	82.5
Don't know/Not sure	0.0	7.7	0.9	2.2	0.0	4.2

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Appendix 4: Fertility preferences and contraceptive use

Table 4 (a)
Ever used contraception

	Men (N=1,022)	Women (N=1,062)	Total (N=2,084)
Ever Used Contraception	74.2	70.7	72.4
Female sterilization	8.6	8.7	8.6
Male sterilization*	0.2	0.9	0.5
Oral pills	8.4	9.5	9.0
Injectables****	32.4	54.7	43.8
Male condoms****	34.3	7.6	20.7
IUDs	2.0	2.3	2.1
Implants	2.5	4.0	3.3
Female condoms	0.8	0.4	0.6
Breastfeeding (LAM)	0.4	0.2	0.3
Rhythm/Periodic abstinence****	4.7	1.0	2.8
Withdrawal*	1.1	0.3	0.7
Other*	2.0	0.9	1.4

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 4 (b)
Reasons for non-use of contraception where purchased

	Men (N=203)	Women (N=451)	Total (N=654)
Unmarried	11.8	9.3	10.1
Not having sex	29.7	31.7	31.1
Infrequent sex	6.0	3.8	4.5
Respondent/Partner menopausal/hysterectomy	11.4	15.5	14.3
Sub fecund/Infecund	6.5	9.3	8.4
Respondent/Partner postpartum amenorrheic**	0.5	4.9	3.5
Respondent/partner breastfeeding	11.9	15.3	14.3
Respondent opposed	1.5	2.0	1.8
Partner opposed*	2.5	0.7	1.2
Religious prohibition	1.5	0.2	0.6
Knows no method***	6.0	1.3	2.8
Knows no source*	1.0	0.0	0.3
Health Concerns	0.5	2.4	1.8
Fear of side effects	4.5	5.8	5.4
Interferes with body's processes	1.5	1.1	1.2
Inconvenient to use	0.5	1.1	0.9
Lack of access/Too far	0.0	1.1	0.8
Costs too much	0.5	0.7	0.6
Other reason*	10.0	17.1	14.9

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 4 (c)
Reasons for non-use of contraception among current users who do not want more children for 2 or more years

	North (N=96)	Central East (N=135)	Central West (N=137)	South East (N=218)	South West (N=68)	Total (N=654)
Unmarried*	13.5	10.4	4.4	9.6	17.7	10.1
Not having sex	37.5	29.9	24.8	34.4	26.5	31.1
Infrequent sex	6.3	1.5	8.0	3.2	4.4	4.5
Respondent/Partner menopausal/hysterectomy**	8.3	23.3	10.2	13.8	14.7	14.3
Sub fecund/Infecund**	6.3	9.0	2.2	13.3	7.4	8.4
Respondent/partner postpartum amenorrheic***	0.0	4.5	8.8	1.8	1.5	3.5
Respondent/partner breastfeeding**	9.4	18.1	18.3	8.7	23.5	14.3
Respondent opposed	0.0	2.3	4.4	0.9	1.5	1.8
Partner opposed	1.0	0.8	2.2	0.5	2.9	1.2
Religious prohibition	0.0	0.0	0.7	0.5	2.9	0.6
Knows no method	1.0	0.8	2.2	4.1	5.9	2.8
Knows no source	0.0	0.0	0.0	0.9	0.0	0.3
Health concerns	2.1	2.3	0.0	3.2	0.0	1.8
Fear of side effects	5.2	6.8	7.3	4.6	1.5	5.4
Interferes with body's processes	0.0	2.3	0.7	1.4	1.5	1.2
Inconvenient to use	0.0	2.3	0.7	0.9	0.0	0.9
Lack of access/too far*	0.0	0.0	2.9	0.5	0.0	0.8
Costs too much	0.0	0.8	0.0	1.4	0.0	0.6
Other reason**	27.1	14.3	10.2	13.8	11.8	14.9

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 4 (d)
Reasons for no intention to use contraception in the future*

	North (N=32)	Central East (N=52)	Central West (N=41)	South East (N=86)	South West (N=36)	Total (N=247)
Not married	0.0	1.9	4.9	9.3	16.7	6.9
Not having/Infrequent sex	15.6	9.6	12.2	5.8	5.6	8.9
Menopausal/Hysterectomy	25.0	50.0	36.6	37.2	30.6	37.3
Sub fecund/Infecund	9.4	15.4	7.3	23.3	2.8	14.2
Respondent opposed	0.0	3.9	7.3	1.2	8.3	3.6
Husband/partner opposed	3.1	5.8	0.0	0.0	0.0	1.6
Religious prohibition	0.0	0.0	4.9	2.3	2.8	2.0
Knows no method	0.0	0.0	2.4	0.0	5.6	1.2
Knows no source	3.1	0.0	0.0	2.3	2.8	1.6
Health concerns	3.1	3.9	2.4	0.0	2.8	2.0
Fear of side effects	12.5	7.7	19.5	4.7	8.3	9.3
Interferes with body	3.1	0.0	0.0	2.3	5.6	2.0
Inconvenient to use	3.1	0.0	0.0	0.0	2.8	0.8
Costs too much	0.0	0.0	0.0	1.2	2.8	0.8
Other	21.9	1.9	2.4	9.3	2.8	7.3

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Appendix 5. Mother, child health and family health, by zone

Table 5 (a)
Peri-natal danger signs, by zone

	North (N=336)	Central East (N=468)	Central West (N=552)	South East (N=615)	South West (N=261)	Total (N=2,232)
The signs and symptoms that indicate that a pregnancy may be in danger:						
Severe vaginal bleeding***	50.3	36.8	31.2	23.3	39.5	34.0
Loss of consciousness***	3.9	2.4	9.4	2.1	5.8	4.7
A very long labor***	18.2	6.2	9.6	8.1	12.6	10.1
Difficult labor***	29.5	10.7	20.7	10.9	11.9	16.2
Abnormal positioning of the child***	19.1	7.3	16.9	10.9	11.9	13.0
High fever***	19.9	10.5	11.1	15.5	20.7	14.6
Severe headache	8.9	7.3	6.5	7.6	10.7	7.8
Swollen hands and feet	19.1	16.0	18.5	17.4	21.5	18.1
Seizures/convulsions***	4.5	1.5	4.9	3.6	10.7	4.4
Severe pain in abdomen***	27.1	24.8	17.9	24.1	35.6	24.5
Severe weakness***	25.0	12.6	14.0	16.3	12.6	15.8
Blurred vision	1.5	2.4	2.2	1.5	0.0	1.7
Other***	18.8	18.8	10.9	29.3	16.9	19.5
Don't know/Not sure***	8.9	16.2	19.4	25.2	32.6	20.3
The danger signs or other alarms soon after birth would require attention in a health facility:						
Severe vaginal bleeding***	72.3	62.4	36.2	45.9	51.7	51.6
Loss of consciousness***	1.2	2.6	9.4	2.0	2.7	3.9
Anemia/excessive fatigue***	28.0	32.5	34.6	25.7	23.8	29.4
Tetanus**	0.6	3.2	1.5	4.2	2.3	2.6
Placenta doesn't come out***	12.8	11.5	11.8	20.0	35.6	16.9
Vaginal discharge with bad odor***	4.8	1.9	2.0	8.5	18.4	6.1
High fever***	19.1	7.3	11.4	9.9	10.0	11.1
Severe headache	7.7	6.8	6.7	5.9	8.4	6.9
Swollen hands and feet**	8.9	8.1	13.2	10.2	15.7	11.0
Seizures/convulsions***	5.6	1.9	4.5	2.4	8.4	4.1
Difficulty breathing***	12.8	4.3	6.5	3.3	3.1	5.7
Severe vomiting***	11.9	2.6	3.8	4.2	2.3	4.7
Blurred vision**	1.2	2.4	0.9	0.3	0.0	1.0
Other***	10.1	8.8	6.2	14.3	4.6	9.4
Don't know/Not sure***	10.1	13.9	18.3	26.3	31.4	19.9

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (b)
Birthing-related outcomes of most recent birth among women who gave birth in the past 5 years

	North (N=101)	Central East (N=136)	Central West (N=148)	South East (N=182)	South West (N=82)	Total (N=649)
Person who helped with delivery of my last child:**						
Doctor	9.9	0.7	3.4	6.0	9.8	5.4
Midwife/Nurse	67.3	69.9	74.3	65.4	59.8	68.0
Medical assistant/Clinical officer	10.9	12.5	7.4	10.4	11.0	10.3
Nursing Aide	2.0	2.9	1.4	7.1	4.9	3.9
Traditional birth attendant	2.0	9.6	6.8	2.2	1.2	4.6
Relative/friend	5.0	2.9	5.4	6.6	9.8	5.7
Other	1.0	0.0	0.7	0.0	2.4	0.6
Nobody	2.0	1.5	0.7	2.2	1.2	1.5
How long after delivery did someone first check on your newborn baby's health ***	(N=9)	(N=60)	(N=93)	(N=96)	(N=48)	(N=306)
0-5 hours	88.9	98.3	93.6	94.8	95.8	95.2
6 or more hours	11.1	1.7	6.5	5.2	4.2	4.8
Person who checked your health when you were checked*:**	(N=76)	(N=91)	(N=145)	(N=142)	(N=65)	(N=607)
Doctor/clinical/medical officer	23.7	13.2	15.2	30.3	29.2	24.6
Nurse/midwife/auxiliary midwife/community health officer/nurse	72.4	71.4	71.0	68.3	63.1	66.4
Other	4.0	15.4	13.8	1.4	7.7	9.0

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (c)
Care for, and efficacy to provide care to, a newborn, by zone

	North (N=100)	Central East (N=136)	Central West (N=148)	South East (N=182)	South West (N=84)	Total (N=650)
Basic care that can be offered immediately to infant:						
Breastfeeding***	88.0	66.9	73.7	77.5	97.6	78.6
Dry and wrap***	93.0	74.3	50.0	83.5	91.7	76.5
Care to the eyes**	8.0	11.8	13.5	3.9	3.6	8.3
Care to the cord*	17.0	14.7	25.0	13.7	13.1	16.9
Putting the baby skin to skin***	8.0	3.7	5.4	12.6	29.8	10.6
Other	3.0	3.7	1.4	6.6	2.4	3.7
Doesn't know*	1.0	5.2	1.4	0.6	0	1.7
	(N=100)	(N=135)	(N=147)	(N=180)	(N=84)	(N=646)
Very confident I will be able to offer appropriate care to a newborn immediately after delivery*:	98.0	92.6	96.6	95.6	100	96.1
Symptoms that would make me bring my infant to a health facility right away:	(N=100)	(N=138)	(N=147)	(N=182)	(N=84)	(N=649)
Fever	97.0	0.7	94.6	94.0	95.2	93.5
Seizure/Shaking***	27.0	19.1	13.6	19.2	39.3	21.7
Not eating***	29.0	15.4	10.9	5.5	21.4	14.5
Not able to breastfeed well***	17.0	17.7	8.2	28.6	28.6	19.9
Drinking poorly	3.0	8.1	3.4	5.0	7.1	5.2
Getting sicker/Very sick	2.0	3.7	5.4	7.7	8.3	5.6
Not getting better	13.0	11.0	7.5	6.6	7.1	8.8
Faster breathing	12.0	14.0	9.5	13.7	15.5	12.8
Difficult breathing	4.0	5.2	0.0	3.3	4.8	3.2
Chest in-drawing	11.0	1.5	1.4	2.2	2.4	3.2
Other	47.0	40.4	30.6	36.8	23.8	36.1
Doesn't know	6.0	0.7	2.7	3.9	3.6	3.2

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (d)
Breastfeeding practices, knowledge, beliefs, and efficacy among women who gave birth in the past 5 years (for youngest child only)

	North (N=95)	Central East (N=135)	Central West (N=142)	South East (N=172)	South West (N=82)	Total (N=626)
Length of time after birth of first breastfeeding child, Hours***:						
0-1 hours	85.3	96.3	80.3	79.7	87.8	86.3
2-3 hours	10.5	2.2	16.2	11.6	9.8	10.2
4 or more hours	4.2	1.5	3.5	8.7	2.4	4.5
Days*:	(N=0)	(N=1)	(N=5)	(N=9)	(N=1)	(N=16)
0-3 days	--	100.0	40.0	100.0	100.0	81.25
4 or more days	--	0.0	60.0	0.0	0.0	18.8
	(N=100)	(N=136)	(N=146)	(N=180)	(N=84)	(N=646)
During first 3 days of birth, child was not given anything other than breast milk to drink**:	100.0	96.3	91.8	87.8	96.4	93.5
	(N=101)	(N=136)	(N=148)	(N=180)	(N=84)	(N=649)
Breastfeeding for the first 6 months is very beneficial for my infant:	95.1	93.4	94.6	96.1	97.6	95.2
A benefit for my infant while exclusively breastfeeding him/her for the first 6 months is that it:	(N=95)	(N=132)	(N=143)	(N=179)	(N=83)	(N=632)
Protects against stomach viruses/worms***	45.3	6.1	18.2	9.5	8.4	16.0
Lowers infant's risk of dying***	30.2	22.7	46.2	11.7	1.2	23.2
May protect against disease when child becomes an adult***	32.6	35.6	30.8	19.0	13.3	26.4
Lowers the risk of infections***	40.0	27.3	18.9	43.0	50.6	34.8
Protects baby from developing allergies*	6.3	18.9	15.4	13.4	7.2	13.1
May boost child's intelligence***	19.0	3.8	3.5	7.8	20.5	9.3
A benefit for myself while exclusively breastfeeding my infant for the first 6 months is that:						
Longer postpartum amenorrhea***	20.0	25.0	16.1	20.7	48.2	24.1
Higher postpartum weight loss for mother***	3.2	12.9	4.9	4.6	0.0	5.6
May lower the risk of some types of cancer	3.2	4.6	4.2	3.4	0.0	3.3
Can reduce mother's stress levels***	1.1	6.8	2.1	7.8	33.7	8.7
Other***	5.3	16.7	0.0	25.1	9.6	12.7
Reason mother might not exclusively breastfeed her infant for 6 months	(N=100)	(N=136)	(N=148)	(N=182)	(N=84)	(N=650)

Table 5 (d)
Breastfeeding practices, knowledge, beliefs, and efficacy among women who gave birth in the past 5 years (for youngest child only)

It is not customary in our community to exclusively breastfeed for 6 months	0.0	0.0	2.0	0.6	1.2	0.8
Insufficient milk	40.0	42.7	33.1	35.2	16.7	34.6
Has inverted nipples*	15.0	27.2	28.4	33.5	23.8	26.9
Mother is ill, cannot breastfeed	1.0	5.2	4.1	5.0	0.0	3.5
Works and doesn't have time***	33.0	28.7	56.1	64.8	73.8	51.5
Is not comfortable breastfeeding	0.0	2.2	0.7	1.7	0.0	1.1
Doctor's advice (child is not gaining weight/is faltering)***	0.0	8.1	16.9	0.6	0.0	5.7
Doctor tells her to give infant solid food**	1.0	0.7	6.1	2.2	0.0	2.3
Her mother/relatives don't approve*	0.0	0.0	2.0	0.0	0.0	0.5
Other	12.0	11.8	4.1	12.6	8.3	9.9
Don't know	17.0	9.6	10.1	7.7	13.1	11.0
	(N=100)	(N=136)	(N=148)	(N=182)	(N=84)	(N=650)
Very confident that I can breastfeed my infant for the first 6 months without feeding him/her anything else by mouth:	93.0	98.5	94.6	93.4	100.0	95.5
Age of last child when I first started giving him/her semi-solid food:	(N=20)	(N=56)	(N=87)	(N=96)	(N=35)	(N=294)
4 Months or less	5.0	7.1	5.8	3.1	0.0	4.4
5-8 Months	95.0	89.3	93.1	96.9	100.0	94.6
9-12 Months	0.0	3.6	0.0	0.0	0.0	0.7
Has not received food yet	0.0	0.0	1.2	0.0	0.0	0.3

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (e)
Immunization practices and beliefs among mothers with under-5 child, by zone

	North (N=101)	**Central East** (N=134)	**Central West** (N=148)	**South East** (N=181)	**South West** (N=84)	**Total** (N=648)
My infant was taken to get his/her immunization shots:	95.1	95.5	93.9	98.3	96.4	96.0
There are reasons that a mother would not have her infant immunized:	26.7	23.0	38.5	32.8	16.7	29.0
Reasons a mother might not have her child immunized	(N=27)	(N=31)	(N=57)	(N=60)	(N=14)	(N=189)
Clinic is too far away*	25.9	16.1	31.6	13.3	0.0	20.1
Doesn't know about benefits	22.2	41.9	36.8	48.3	28.6	38.6
Religious prohibitions*	11.1	9.7	19.3	8.3	42.9	14.8
Doesn't know where to go	0.0	0.0	0.0	0.0	0.0	0.0
Thinks can't afford	0.0	0.0	0.0	5.0	0.0	1.6
Husband/Family doesn't approve	0.0	0.0	0.0	0.0	0.0	0.0
Can't afford transport	3.7	6.5	1.8	1.7	0.0	2.7
Doesn't have transport	0.0	3.2	0.0	1.7	0.0	1.1
Shortage of vaccines	14.8	22.6	22.8	8.3	7.1	15.9
Other	48.2	25.8	19.3	31.7	42.9	30.2
Don't know/Not sure	7.4	3.2	1.8	1.7	0.0	2.7

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (f)
Communication about child-health topics, by zone

	North (N=336)	Central East (N=468)	Central West (N=552)	South East (N=615)	South West (N=261)	Total (N=2,232)
Talked with someone in the last six months about ways to prevent and treat diarrhea***	35.7	22.0	14.1	20.0	19.5	21.3
Person talked with: ***(Note: of those who reported yes to previous question)***	(N=120)	(N=103)	(N=78)	(N=123)	(N=51)	(N=475)
Spouse/partner***	39.2	4.9	25.6	13.0	7.8	19.4
Other relative	23.3	15.5	14.1	22.0	21.6	19.6
Friend	49.2	52.4	51.3	47.2	39.2	48.6
Acquaintance/neighbor	5.8	12.6	3.9	7.3	11.8	8.0
Priest/sheikh/pastor	0.0	1.9	0.0	0.0	0.0	0.4
Volunteer	13.3	11.7	6.4	17.9	11.8	12.8
Community health worker/HSA*	14.2	25.2	19.2	17.9	33.3	20.4
Other*	0.8	9.7	3.9	5.7	9.8	5.5
	(N=336)	(N=468)	(N=552)	(N=616)	(N=261)	(N=2,233)
Talked with someone in the last six months about ways to prevent and treat fever or cough***	33.3	21.6	12.9	13.6	15.7	18.3
Person talked with: ***(Note: of those who reported yes to previous question)***	(N=113)	(N=101)	(N=71)	(N=84)	(N=41)	(N=410)
Spouse/partner***	38.1	9.9	24.0	13.1	12.2	21.0
Other relative	29.5	23.8	25.4	21.4	22.0	24.9
Friend	51.8	53.5	46.5	47.6	53.7	50.6
Acquaintance/neighbor	7.1	6.9	1.4	2.4	9.8	5.4
Priest/sheikh/pastor	1.8	1.0	0.0	0.0	0.0	0.7
Volunteer**	4.5	6.9	1.4	15.5	9.8	7.3
Community health worker/HSA	17.0	20.8	12.7	15.5	22.0	17.4
Other	4.5	5.0	8.5	6.0	9.8	6.1

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (g)
Diarrhea-related knowledge, efficacy to treat, and social norms regarding treatment, by zone

	North (N=336)	Central East (N=462)	Central West (N=546)	South East (N=601)	South West (N=257)	Total (N=2,202)
Things I can do to protect myself or my family from getting diarrhea						
Nothing can be done*	0.3	0.0	1.1	1.6	0.4	0.8
Boil drinking water	28.6	32.3	34.3	31.2	35.5	32.3
Always use toilets/latrines for defecation***	55.6	32.3	33.9	36.4	57.9	40.4
Wash hands after defecation***	79.9	61.0	69.7	61.0	74.9	67.6
Wash hands before preparing a meal***	32.8	34.9	36.9	38.2	55.6	38.4
Wash hands before eating***	58.7	32.5	49.4	45.7	49.4	46.2
Not eating unwashed fruits and vegetables***	2.1	12.2	11.0	16.0	24.3	12.8
Not eating cold food*	7.3	12.4	9.9	6.6	8.5	9.0
Keeping cooked food covered*	38.3	30.6	29.5	34.9	35.5	33.2
Other***	22.8	32.1	12.5	31.7	20.5	24.4
Don't know	2.4	2.1	1.6	1.5	1.5	1.8
The best ways to treat a child who has diarrhea	(N=329)	(N=461)	(N=545)	(N=602)	(N=259)	(N=2,196)
Don't know/Not sure	1.2	0.9	1.1	1.0	2.3	1.2
Take child to a health professional	74.2	80.3	76.3	85.2	84.6	80.2
Black tea/herbal tea	0.6	0.4	0.7	1.7	1.5	1.0
Rice water/rice***	11.6	4.1	7.5	7.3	15.8	8.3
Give recommended home solution***	42.3	18.9	13.4	20.9	27.4	22.6
Give breast milk if possible***	3.0	3.3	3.9	5.7	16.2	5.6
Treat with ORS packet***	63.8	58.4	69.4	49.0	66.4	60.3
Treat with new (low osmolarity) ORS packet***	1.2	4.1	5.9	3.0	1.2	3.5
Zinc tablets/Zincfant	0.3	0.9	0.7	0.3	0.0	0.5
Other	1.8	7.4	4.8	7.8	3.1	5.5
The signs that a child with diarrhea should be taken to see a doctor or a nurse:	(N=336)	(N=468)	(N=552)	(N=615)	(N=260)	(N=2,231)
Diarrhea lasting more than three days***	32.4	30.1	21.7	21.5	36.9	26.8
Blood in the stools**	19.4	24.2	18.7	17.2	27.7	20.6
Profuse diarrhea**	70.2	67.5	71.6	77.2	74.6	72.4
Nausea/vomiting	20.8	22.0	24.3	30.1	22.7	24.7
High fever***	35.7	10.0	14.3	13.2	16.9	16.6
Chills/cold sweat*	0.9	1.9	1.1	1.3	3.9	1.6
Other***	10.7	34.6	19.8	28.3	17.3	23.6
Don't know/Not sure	0.9	0.2	0.2	0.1	1.5	0.7
Among the families that you know, do you think that most of them, some of them, few of them or none of them give ORS to a child who has diarrhea?* **	(N=336)	(N=468)	(N=552)	(N=615)	(N=261)	(N=2,232)
Most of them	57.7	49.8	51.3	57.9	78.9	57.0
Some of them	20.2	22.4	19.0	16.1	8.1	17.8
Few of them	19.1	22.7	20.8	19.0	10.0	19.2

Table 5 (g)
Diarrhea-related knowledge, efficacy to treat, and social norms regarding treatment, by zone

None of them	0.9	1.3	1.8	1.1	1.2	1.3
Don't know/Not sure	2.1	3.9	7.1	5.7	1.9	4.7
Among the families that you know, do you think that most of them, some of them, few of them or none of them give zinc tablets to a child who has diarrhea?* **	(N=336)	(N=468)	(N=552)	(N=615)	(N=261)	(N=2,232)
Most of them	3.3	10.7	9.8	14.8	9.2	10.3
Some of them	6.0	7.9	5.6	10.6	6.9	7.7
Few of them	5.1	13.3	7.6	15.8	7.3	10.6
None of them	1.5	13.7	3.3	10.1	18.4	8.8
Don't know/Not sure	84.2	54.5	73.7	48.8	58.2	62.6
Among the families that you know, do you think that most of them, some of them, few of them or none of them approve of families who give ORS to a child with diarrhea?* **	(N=336)	(N=468)	(N=552)	(N=613)	(N=261)	(N=2,230)
Most of them	63.7	55.6	56.0	56.1	63.6	58.0
Some of them	17.9	16.2	17.8	22.8	23.8	19.6
Few of them	12.2	22.2	18.1	14.4	10.0	16.1
None of them	1.2	1.7	1.3	1.0	0.4	1.2
Don't know/Not sure	5.1	4.3	6.9	5.7	2.3	5.2
Among the families you know, do you think that most of them, some of them, few of them or none of them would approve of families who give zinc tablets to a child who has diarrhea?* **	(N=335)	(N=468)	(N=552)	(N=615)	(N=261)	(N=2,231)
Most of them	5.4	11.1	10.3	13.7	8.1	10.4
Some of them	6.3	9.0	4.7	11.5	8.4	8.2
Few of them	4.8	12.4	8.3	15.8	6.1	10.4
None of them	0.3	12.6	2.5	7.8	8.8	6.5
Don't know/Not sure	83.3	54.9	74.1	51.2	68.6	64.5
The signs that a child with diarrhea should be taken to see a doctor or nurse	(N=336)	(N=468)	(N=552)	(N=615)	(N=260)	(N=2,231)
Don't know/Not sure	0.9	0.2	0.2	1.1	1.5	0.7
Diarrhea lasting more than three days***	32.4	30.1	21.7	21.5	36.9	26.8
Blood in stools**	19.4	24.2	18.7	17.2	27.7	20.6
Profuse diarrhea**	70.2	67.5	71.6	77.2	74.6	72.4
Nausea/Vomiting**	20.8	22.0	24.3	30.1	22.7	24.7
High fever***	35.7	10.0	14.3	13.2	16.9	16.6
Chills/Cold Sweat*	0.9	1.9	1.1	1.3	3.9	1.6
Other***	10.7	34.6	19.8	28.3	17.3	23.6
The nearest place where a person can get Zinc tablets* **	(N=335)	(N=468)	(N=552)	(N=615)	(N=261)	(N=2,231)
Health facility	14.6	28.9	21.4	48.9	43.3	32.1
Community based organization	0.0	0.9	0.2	0.0	0.0	0.2
Local shop	0.3	8.3	0.4	2.9	1.9	2.9
Health surveillance assistant	0.9	3.4	4.0	2.8	2.7	2.9
Pharmacy	0.0	0.0	0.0	0.2	0.0	0.0

Table 5 (g)
Diarrhea-related knowledge, efficacy to treat, and social norms regarding treatment, by zone

Other	0.6	0.4	0.4	1.0	0.0	0.5
Don't know/Not sure	83.3	58.1	73.7	44.2	52.1	61.2

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (h)
Foods consumed by pregnant women the day and night prior to the survey*

	Total (N=88)
Milk, cheese, yogurt, other dairy	13.6
Nsima, bread, rice, millet, sorghum or other foods made from grain	100
Irish potatoes, cassava sweet potato or other foods from roots or tubers	39.8
Pumpkin, squash, sweet potato or other such foods that are yellow or orange inside	18.2
Any dark and leafy vegetables	70.5
Ripe mangoes, pawpaw	38.6
Any kind of fruits or vegetables	29.6
Eggs	18.2
Any kind of meat, poultry, fish or shellfish (and organ meats)	45.5
Any foods made from beans, peas, lentils or nuts	38.6
Any oil, fats, butter or foods made from these	43.2
Sugary foods such as cakes, chocolates, sweets or biscuits	12.5
Note: There were too few pregnant women to present data by zones.	

Note: Sample too small to present by zones
*p≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (i)
Foods consumed by breastfeeding women during the day and night prior to the survey, by zone

	North (N=66)	Central East (N=78)	Central West (N=94)	South East (N=98)	South West (N=61)	Total (N=397)
Milk, cheese, yogurt, other dairy****	31.8	12.8	3.2	10.2	18.0	13.9
Nsima, bread, rice, millet, sorghum or other foods made from grain	95.5	97.4	96.8	96.9	100.0	97.2
Irish potatoes, cassava sweet potato or other foods from roots or tubers****	43.9	34.6	6.5	14.3	33.3	24.3
Pumpkin, squash, sweet potato or other such foods that are yellow or orange inside****	30.3	19.2	4.3	8.2	18.3	14.7
Any dark and leafy vegetables****	80.3	74.4	77.4	44.9	63.3	67.1
Ripe mangoes, pawpaw**	34.9	37.2	12.9	23.5	31.7	26.8
Any kind of fruits or vegetables****	24.2	44.9	16.1	16.3	26.7	24.8
Eggs**	18.2	5.1	2.2	6.1	13.3	8.1
Any kind of meat, poultry, fish or shellfish (and organ meats)**	50.0	51.3	35.5	61.2	60.0	51.1
Any foods made from beans, peas, lentils or nuts****	37.9	42.3	18.28	42.9	65.0	39.5
Any oil, fats, butter or foods made from these****	42.4	39.7	14.0	47.0	35.0	35.2
Sugary foods such as cakes, chocolates, sweets or biscuits**	1.5	16.7	2.2	9.2	11.7	8.1

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 5 (j)
Foods consumed by youngest child (under 5) during the day and night prior to the survey, by zone

	North (N=83)	Central East (N=121)	Central West (N=129)	South East (N=160)	South West (N=69)	Total (N=562)
Milk, cheese, yogurt, other dairy****	44.6	21.5	9.3	30.6	47.8	27.9
Nsima, bread, rice, millet, sorghum or other foods made from grain*	88.0	94.2	96.1	88.1	94.2	92.0
Irish potatoes, cassava sweet potato or other foods from roots or tubers***	36.1	47.9	25.6	26.3	31.9	32.9
Pumpkin, squash, sweet potato or other such foods that are yellow or orange inside**	12.1	19.8	7.0	7.5	20.3	12.3
Any dark and leafy vegetables **	9.6	10.7	2.3	7.5	20.3	8.9
Ripe mangoes, pawpaw****	62.7	68.6	69.8	44.4	73.9	61.7
Any kind of fruits or vegetables****	32.5	32.2	14.0	25.0	53.6	28.7
Eggs****	21.7	44.6	19.4	19.34	30.4	26.5
Any kind of meat, poultry, fish or shellfish (and organ meats)**	22.9	12.4	7.0	9.4	18.8	12.6
Any foods made from beans, peas, lentils or nuts****	44.6	42.2	30.2	51.3	63.8	45.0
Any oil, fats, butter or foods made from these****	42.2	46.3	16.3	52.5	40.6	39.9
Sugary foods such as cakes, chocolates, sweets or biscuits****	10.8	28.1	7.8	25.0	33.3	20.6

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Appendix 6: HIV/AIDS

Table 6 (a)
HIV-related communication, by zone

	North (N=336)	**Central East** (N=468)	**Central West** (N=552)	**South East** (N=615)	**South West** (N=261)	**Total** (N=2,232)
Talked with someone in the last six months about ways to prevent being infected with HIV	61.6	43.4	35.1	40.8	44.1	43.5
Person talked with: *(Note: of those who reported yes to previous question)*	(N=207)	(N=203)	(N=194)	(N=251)	(N=115)	(N=970)
Spouse/partner***	53.1	16.8	24.2	25.1	14.8	27.9
Other relative*	28.0	21.2	18.0	24.3	14.8	22.1
Friend*	65.2	56.2	52.1	54.2	47.8	55.8
Acquaintance/neighbor***	13.5	20.2	4.6	4.8	7.8	10.2
Priest/sheikh/pastor	1.0	1.5	0.0	1.2	1.7	1.0
Volunteer***	8.2	6.9	2.6	17.1	11.3	9.5
Community health worker/HSA	23.7	17.7	16.0	18.3	20.9	19.2
Other	10.6	8.4	11.3	9.2	14.8	10.4

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 6 (b)
HIV testing

	North (N=220)	Central East (N=331)	Central West (N=386)	South East (N=377)	South West (N=113)	Total (N=1,427)
Have you ever been tested for HIV****	85.5	69.2	61.9	68.4	62.0	69.0
Period of last HIV test	(N=303)	(N=366)	(N=405)	(N=489)	(N=215)	(N=1,778)
0-9 month ago	63.7	63.7	66.7	58.1	69.3	63.5
10-19 months ago	18.8	18.0	17.3	20.9	18.6	18.8
20-29 months ago	4.3	4.4	2.0	4.7	3.7	3.8
30-36 months ago	0.0	0.8	0.0	0.4	0.0	0.3
More than 3 years ago	11.2	12.0	13.6	14.5	7.9	12.4
Not sure /don't remember	2.0	1.1	0.5	1.4	0.5	1.1
Difficulty/Ease of getting tested in the next couple of weeks	(N=293)	(N=361)	(N=395)	(N=477)	(N=212)	(N=1,738)
Very difficult	0.3	0.6	0.5	0.8	0.5	0.5
A bit difficult	1.0	2.8	0.5	1.7	0.5	1.3
Easy	98.3	96.4	98.7	97.5	99.1	98.0
Don't know/Not sure	0.3	0.3	0.3	0.0	0.0	0.2
Obstacles to getting tested for HIV	(N=11)	(N=18)	(N=18)	(N=20)	(N=9)	(N=76)
Don't know where to go	0.0	0.0	5.6	10.0	22.2	6.6
Test site too far	9.1	44.4	5.6	30.0	22.2	23.7
Can't pay for tests	0.0	0.0	11.1	5.0	0.0	4.0
Embarrassed or ashamed	18.2	0.0	33.3	5.0	0.0	11.8
Fear to know results	63.6	27.8	22.2	20.0	33.3	30.3
Spouse against it	0.0	0.0	0.0	5.0	0.0	1.3
No test kits available	0.0	16.7	5.6	5.0	0.0	6.6
Other	9.1	11.1	16.7	20.0	22.2	15.8

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Appendix 7: Sexual behavior

Table 7 (a)
Respondents who underwent ritual or cultural sexual debut (chinamwali or kuchotsafumbi) ****

	North (N=323)	Central East (N=439)	Central West (N=489)	South East (N=580)	South West (N=244)	Total (N=2,075)
Yes	2.5	6.6	4.9	14.0	18.4	9.0
Don't remember/Not sure	0.0	0.0	0.2	0.3	0.0	0.1

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 7(b)
Condom usage

	North (N=295)	Central East (N=399)	Central West (N=442)	South East (N=522)	South West (N=232)	Total (N=1,890)
Use of condom during last sexual encounter ***	19.7	14.0	11.3	15.9	20.7	15.6
Reason for not using condom during last sexual encounter ****	(N=237)	(N=343)	(N=393)	(N=440)	(N=185)	(N=1,598)
Wanted to get pregnant	8.4	5.8	7.9	4.1	2.7	5.9
Trusted partner	24.1	46.9	27.7	50.2	76.2	43.1
Respondent did not want to use	9.3	5.3	9.7	5.5	0.5	6.5
Partner did not want to use	3.4	2.9	5.9	6.8	2.2	4.7
Did not have condoms	3.4	2.6	5.1	10.0	1.1	5.2
Was using another method	40.1	31.8	39.7	13.6	14.1	27.9
Other	10.1	4.7	3.8	8.9	3.2	6.3
Don't know/ Not sure	1.3	0.0	0.3	0.9	0.0	0.5
Respondent's access to condoms	(N=296)	(N=399)	(N=444)	(N=532)	(N=232)	(N=1,894)
Easy	84.8	78.7	71.0	74.8	84.1	77.4
Difficult	11.8	16.3	21.0	23.3	13.4	18.3
Impossible	0.3	3.5	4.1	1.0	0.4	2.1
Don't know/Not sure	3.0	1.5	4.1	1.0	2.2	2.3
Usage of condoms in every sexual encounter by men known to the respondents ****	(N=324)	(N=440)	(N=486)	(N=578)	(N=244)	(N=2,072)
Most of them	11.1	23.4	10.3	10.2	13.5	13.6
Some of them	42.3	28.9	19.8	24.1	19.3	26.4
Few of them	10.2	22.7	38.7	26.3	16.4	24.8
None of them	1.2	5.2	6.6	10.2	6.2	6.4
Don't know/ Not sure	30.3	14.3	20.6	15.4	6.6	17.7
Don't know anyone who has sex with non-regular partners	4.9	5.5	4.1	13.8	38.1	11.3

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Appendix 8: Community health and community capacity

Table 8 (a)
Most serious health problems affecting community members

	North (N=336)	Central East (N=466)	Central West (N=551)	South East (N=609)	South West (N=258)	Total (N=2,220)
Malaria*	80.7	73.4	75.1	80.1	75.2	77.0
Diarrhea****	30.4	34.1	35.6	44.0	50.8	38.6
Cholera****	3.0	9.0	7.4	15.4	29.1	11.8
Schistosomiasis /Bilharzia****	0.0	1.7	0.5	3.0	0.4	1.4
Sleeping sickness	0.0	0.2	0.4	0.0	0.4	0.2
Typhoid fever*	0.3	0.4	1.5	0.2	0.0	0.5
Tuberculosis**	20.5	22.5	17.6	14.5	17.4	18.2
HIV/AIDS/STIs****	63.1	45.7	50.3	52.1	66.7	53.7
Malnutrition***	0.9	1.1	2.4	0.5	3.9	1.5
Parasites	0.0	0.4	0.9	1.0	1.2	0.7
Cancer****	2.38	6.9	8.4	2.8	3.5	5.1
Other****	23.5	24.7	15.4	18.9	10.9	19.0

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 8 (b)
The single most serious health problem affecting communities, by zone*

	North (N=267)	Central East (N=363)	Central West (N=398)	South East (N=494)	South West (N=208)	Total (N=1,730)
Malaria	36.3	37.2	30.2	39.1	27.9	34.9
Diarrhea	6.7	9.4	11.1	11.7	9.1	10.0
Cholera	0.4	4.4	3.8	5.7	16.4	5.4
Schistosomiasis /Birharzia	0.0	0.3	0.3	0.6	0.0	0.3
Tuberculosis	1.5	3.9	7.0	1.4	1.9	3.3
HIV/AIDS/STIS	50.2	33.6	37.7	37.9	40.4	39.1
Malnutrition	0.0	0.8	0.0	0.0	0.0	0.2
Parasites	0.0	0.3	0.0	0.0	0.0	0.1
Cancer	1.5	5.2	6.0	0.4	1.0	3.0
Other	3.4	5.0	4.0	3.0	3.4	3.8
Don't Know/Not sure	0.0	0.0	0.0	0.2	0.0	0.1

* p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Appendix 9: Gender norms

Table 9 (a)
Respondents' concurrence with some common gender beliefs

	North (N=336)	Central East (N=469)	Central West (N=552)	South East (N=608)	South West (N=260)	Total (N=2,225)
Important decisions of the household should be made by men only****						
Agree	71.4	68.0	70.1	74.2	73.1	71.3
Not sure	5.4	2.6	7.4	1.6	1.9	3.9
Disagree	23.2	29.4	22.5	24.2	25.0	24.8
Household chores are for women only not for men even if the women are working outside the home ****						
Agree	29.5	45.6	50.0	41.1	30.0	41.2
Not sure	4.8	8.1	4.2	2.8	6.5	5.0
Disagree	65.8	46.3	45.8	56.1	63.5	53.8
It should be the responsibility of a man and woman together to decide how many children they should have****						
Agree	98.5	89.1	94.8	95.9	95.4	94.5
Not sure	0.3	4.3	1.5	1.8	1.9	2.0
Disagree	1.2	6.6	3.8	2.3	2.7	3.5
It is up to the woman not the man to avoid getting unwanted pregnancies****						
Agree	46.1	61.2	45.3	54.9	46.5	51.6
Not sure	9.5	8.1	8.5	5.1	14.6	8.4
Disagree	44.4	30.7	46.2	40.0	38.9	40.1
Women have the right to tell men to use condoms****						
Agree	89.6	78.9	79.9	87.3	84.2	83.7
Not sure	5.1	3.8	9.8	2.6	1.9	4.9
Disagree	5.4	17.3	10.3	10.0	13.9	11.4
A typical man needs more than one woman to be sexually satisfied****						
Agree	7.1	13.0	9.6	22.4	10.0	13.5
Not sure	1.8	3.2	2.2	2.8	0.8	2.3
Disagree	91.1	83.8	88.2	74.8	89.2	84.2
A man has the right to force his wife to have sexual intercourse****						
Agree	22.6	31.1	24.1	31.1	31.2	28.1
Not sure	4.5	5.3	6.5	1.2	1.5	3.9
Disagree	72.9	63.5	69.4	67.8	67.3	68.0
Women as well as men in the family should have the right to inherit land and property***						
Agree	28.9	38.8	25.7	32.7	31.5	31.6
Not sure	7.1	7.7	6.3	5.3	7.3	6.6
Disagree	64.0	53.5	67.9	62.0	61.2	61.9
A man has the right to beat his wife if she is disrespectful in front of other people****	(N=336)	(N=469)	(N=552)	(N=607)	(N=260)	(N=2,224)
Agree	10.7	11.9	6.0	16.3	5.4	10.7
Not sure	0.6	3.0	2.0	1.2	0.8	1.6

Table 9 (a) *Respondents' concurrence with some common gender beliefs*						
Disagree	88.7	85.1	92.0	82.5	93.9	87.7
Women should get involved in politics****						
Agree	75.6	83.6	90.0	84.0	95.4	85.5
Not sure	4.2	4.9	3.6	3.6	0.4	3.6
Disagree	20.2	11.5	6.3	12.4	4.2	10.9
*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001						

Table 9(b) *Usual maker of household decisions*	North (N=336)	Central East (N=469)	Central West (N=551)	South East (N=611)	South West (N=261)	Total (N=2,228)
Health care decisions****						
Respondent/ Wife/ Woman	7.1	13.9	8.5	5.1	2.3	7.8
Husband/ Partner/ man	7.4	25.8	22.5	21.4	14.6	19.7
Wife & husband or partner	85.4	60.1	68.8	73.3	82.8	72.4
Other	0.0	0.2	0.2	0.2	0.4	0.2
Health care decisions for female children ****	(N=336)	(N=469)	(N=551)	(N=610)	(N=261)	(N=2,227)
Respondent/ Wife/Woman	42.0	33.3	32.7	34.4	13.8	32.5
Husband/ Partner/man	2.1	19.8	8.2	9.0	7.3	9.8
Wife & husband or partner	56.0	46.9	59.2	56.4	78.9	57.7
Other	0.0	0.0	0.0	0.2	0.0	0.0
Health care decisions for male children ****						
Husband/ Partner/man	44.4	45.0	36.8	41.2	18.4	38.7
Wife & husband or partner	54.5	47.8	60.3	56.2	80.1	58.0
How money earned will be used ****						
Respondent/ Wife/Woman	1.2	3.2	2.7	2.1	1.5	2.3
Husband/ Partner/man	22.3	45.0	37.6	35.2	23.5	34.5
Wife & husband or partner	76.5	51.8	59.7	62.7	75.0	63.2
How earnings should be used****						
Respondent/ Wife/Woman	8.0	10.2	5.1	3.4	2.3	5.8
Husband/ Partner/man	17.3	43.1	33.2	29.6	21.1	30.8
Wife & husband or partner	74.7	46.7	61.7	66.9	73.6	63.3
Major household purchases****						
Respondent/ Wife/Woman	3.9	9.4	2.9	2.5	1.2	4.1
Husband/ Partner/man	31.9	40.5	34.5	32.0	20.7	33.1
Wife & husband or partner	64.3	50.1	62.6	65.6	78.2	62.9

Table 9(b) *Usual maker of household decisions*	North (N=336)	Central East (N=469)	Central West (N=551)	South East (N=611)	South West (N=261)	Total (N=2,228)
Daily household needs****						
Respondent/ Wife/Woman	24.7	19.8	16.3	18.5	6.5	17.8
Husband/ Partner/man	10.7	27.7	18.2	20.2	12.3	18.9
Wife & husband or partner	64.6	52.5	65.3	61.2	81.2	63.2
Other	0	0	0.2	0.2	0	0.1
Visits to family or relatives****						
Respondent/ Wife/Woman	6.9	12.2	2.5	3.1	2.3	5.3
Husband/ Partner/man	8.0	22.6	16.0	21.0	7.7	16.6

Table 9(b) *Usual maker of household decisions*	North (N=336)	Central East (N=469)	Central West (N=551)	South East (N=611)	South West (N=261)	Total (N=2,228)
Wife & husband or partner	85.1	65.3	81.5	75.9	90.0	78.1
*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001						

Appendix 10: Information sources

Table 10(a)
Source of HIV/AIDS, FP and other health information

	North (N=336)	Central East (N=469)	Central West (N=552)	South East (N=606)	South West (N=259)	Total (N=2,222)
Don't get health information	1.2	0.2	0.4	0.0	0.8	0.4
	(N=333)	(N=468)	(N=550)	(N=606)	(N=257)	(N=2,214)
Health care providers	90.1	87.8	76.9	72.8	59.5	78.1
Traditional birth attendant	2.1	1.1	1.3	3.0	1.2	1.8
Local authorities ****	10.2	10.9	16.6	16.2	23.4	15.1
Community Health Worker/HSA? ****	38.1	46.8	25.3	38.3	41.3	37.2
Pharmacist, Drug/Shop Keeper *	0.0	0.0	0.0	0.7	0.0	0.2
Store/Shop Keeper	0.0	0.2	0.2	0.3	0.4	0.2
Mobile vendor	0.0	0.2	0.2	0.3	0.8	0.3
Women's organization	1.8	2.8	1.5	2.3	2.3	2.1
Community based organization	14.4	8.8	12.0	14.4	12.5	12.4
Church/Mosque ***	15.6	8.3	8.9	9.2	14.8	10.6
Radio/Television ****	46.9	22.4	42.9	38.3	29.2	36.3
Newspapers/Magazines *	16.8	15.0	11.1	11.4	16.3	13.5
Friends/Relatives ***	11.7	4.5	8.7	7.4	4.7	7.5
Volunteers **	5.7	7.3	8.6	7.3	1.2	6.6
Other ****	7.8	4.7	7.6	9.9	27.6	10.0

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 10(b)
Most trusted source of information for HIV/AIDS, malaria, family planning or other health related issues ****

	North (N=333)	Central East (N=468)	Central West (N=550)	South East (N=576)	South West (N=256)	Total (N=2,183)
Don't trust any source	0.0	0.2	0.9	0.5	0.0	0.4
Doctor /Nurse or Midwife	77.2	79.3	75.8	50.0	49.6	66.9
TBA	0.0	0.2	0.4	0.2	0.4	0.2
Local authorities	0.3	0.6	1.5	1.4	0.8	1.0
CHW	5.4	12.0	8.4	13.7	14.5	10.8
Women's organization	0.6	0.2	0.2	0.2	0.0	0.2
CBO	0.6	1.1	1.5	3.1	0.0	0.7
Church/Mosque	0.3	0.2	0.9	0.9	0.4	0.6
Radio/TV	13.8	3.2	5.1	21.0	3.9	10.1
Newspapers/ Magazines	0.0	0.0	0.0	0.0	0.4	0.1
Friends/ Relatives	0.6	2.6	3.5	1.6	0.8	2.0
Other	1.2	0.4	1.8	7.3	28.5	6.0
Don't know/Not sure	0.0	0.0	0.2	0.2	0.8	0.2

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 10(c)
Number of days respondents listened to the radio in a week ****

	North (N=336)	Central East (N=469)	Central West (N=552)	South East (N=606)	South West (N=260)	Total (N=2,223)
Never	18.2	16.0	32.1	19.3	25.0	22.3
Once a week	1.2	0.6	2.2	1.0	0.4	1.2
Twice a week	0.6	0.6	3.1	2.8	1.9	2.0
3 times a week	3.6	0.2	5.4	3.1	1.5	3.0
4 times a week	0.9	0.2	3.4	1.8	1.5	1.7
5 times a week	0.6	0.9	0.9	1.5	0.4	0.9
6 times a week	0.3	0.0	0.0	0.0	0.0	0.0
Everyday	54.2	57.6	37.5	49.5	47.7	48.7
Less than once a week	20.5	23.9	15.4	21.0	21.5	20.2

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 10(d)
Radio stations respondents usually listened to

	North (N=276)	Central East (N=394)	Central West (N=375)	South East (N=487)	South West (N=192)	Total (N=1,724)
Don't know or Not sure	0.0	0.5	1.6	1.0	0.0	0.8
Radio Maria ****	5.4	26.1	46.7	31.8	31.8	29.5
Radio Alinafe ****	0.0	20.8	18.7	1.9	1.0	9.5
Radio Joy ****	0.7	3.1	11.2	13.6	17.2	9.0
Zodiak ****	80.8	74.1	72.0	63.7	72.4	71.6
MBC Radio 1****	84.8	51.5	70.1	69.2	65.6	67.5
MBC Radio 2 ****	72.5	44.4	67.5	66.1	66.7	62.5
African Bible College **	0.7	0.5	2.9	0.4	1.0	1.1
Channel for All Nations **	0.4	0.0	2.7	1.6	1.0	1.2
Calvary Family Radio	0.4	0.3	0.3	1.2	1.0	0.6
Radio Islam ****	3.3	4.3	3.2	40.9	8.3	14.7
Capital Radio ****	1.5	0.5	5.3	6.0	8.3	4.1
Power 101 ****	0.7	1.5	4.3	2.9	10.4	3.4
MIJ Radio ****	0.7	1.8	10.7	6.2	28.7	7.8
SDA Radio ****	0.0	0.0	0.5	0.8	3.1	0.7
Dzimwe Radio ****	1.1	0.3	0.3	5.3	0.5	1.9
Galaxy FM ****	2.2	1.3	13.6	5.3	9.9	6.2
Nkhotakota Community Radio ****	1.8	20.8	1.6	0.0	0.5	5.5
Star FM ****	0.7	0.8	1.1	3.3	8.9	2.4
Transworld Radio ****	1.8	16.8	8.5	13.1	10.4	10.9
Radio Tigabane ****	4.0	3.6	0.0	0.2	0.0	1.5
Living Waters Radio **	0.7	0.0	0.3	0.2	2.1	0.5
Other ****	19.1	1.1	1.8	2.4	1.2	4.2

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 10(e)
Type of programs respondents listened to most

	North (N=276)	Central East (N=393)	Central West (N=375)	South East (N=486)	South West (N=192)	Total (N=1,722)
News and current ****	73.2	52.9	60.5	72.2	75.0	65.7
Sports ****	42.4	27.0	44.5	32.3	47.9	37.1
Religious programs ****	54.0	38.9	62.1	52.3	54.7	51.9
Music programs ****	71.7	42.0	55.2	47.9	60.9	53.4
Women's Programs ****	59.8	20.6	14.9	10.7	26.6	23.5
Health Programs ****	90.6	46.1	58.7	53.1	52.6	58.7
Business reports ****	18.5	8.1	7.2	3.1	2.1	7.5
Political Commentary ****	48.9	11.7	14.9	8.0	11.5	17.3
Educational Programs	33.7	16.3	11.7	6.2	7.3	14.2
Agricultural programs	55.1	24.9	28.0	24.9	18.8	29.7
Other	8.7	6.9	2.9	9.7	17.2	8.3

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 10(f)
Cheni Cheni Nchiti? (CCN) radio program

	North (N=336)	Central East (N=469)	Central West (N=552)	South East (N=608)	South West (N=259)	Total (N=2,224)
Respondents that had ever heard of CCN radio program ****	58.6	63.5	46.7	54.8	57.9	55.6
	(N=197)	(N=298)	(N=258)	(N=333)	(N=148)	(N=1,234)
Respondents that had ever listened to the CCN program	87.3	76.5	80.2	74.2	80.4	78.9
Frequency of listening to the CCN radio program ****	(N=172)	(N=227)	(N=207)	(N=246)	(N=118)	(N=970)
Twice a week	42.4	46.7	20.3	29.7	31.4	34.1
Weekly	29.1	33.5	47.8	36.6	39.0	37.2
Once a month	28.5	19.8	31.9	33.7	29.7	28.7
Content of CCN from respondent's perspective ****	(N=172)	(N=225)	(N=207)	(N=247)	(N=119)	(N=970)
PMTCT	30.8	27.6	35.8	35.6	58.8	35.8
Multiple Concurrent Partners	37.2	30.7	41.6	31.2	13.5	32.2
Male involvement	4.1	13.3	11.6	6.1	3.4	8.3
Malaria	3.5	4.4	1.9	2.0	0.8	2.7
MMC	5.2	0.9	1.5	0.4	2.5	1.9
Other	19.2	23.1	7.7	24.7	20.2	19.2
Don't remember	0.0	0.0	0.0	0.0	0.8	0.1
Whether respondents found CCN interesting ****	(N=172)	(N=228)	(N=207)	(N=247)	(N=119)	(N=973)
Not at all	23.3	23.3	11.1	13.8	26.1	18.6
Somewhat	9.9	7.5	10.1	4.9	6.7	7.7
Very	66.9	69.3	78.7	81.4	67.2	73.7

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

Table 10(g)
LLINs

	North (N=336)	Central East (N=469)	Central West (N=550)	South East (N=607)	South West (N=261)	Total (N=2,223)
Respondents that had heard of using LLINs to prevent malaria****	78.0	57.8	62.9	69.9	62.5	66.0
How respondents heard about using LLINs to prevent malaria information	(N=254)	(N=271)	(N=345)	(N=424)	(N=161)	(N=1,455)
Radio ****	45.3	45.4	43.5	57.1	62.7	50.2
	(N=243)	(N=271)	(N=344)	(N=424)	(N=161)	(N=1,443)
TV	0.4	0.0	0.9	0.7	1.2	0.6
	(N=243)	(N=271)	(N=345)	(N=424)	(N=161)	(N=1,444)
Friends or/and Relatives ****	7.4	8.9	21.5	12.0	2.5	11.8
	(N=243)	(N=271)	(N=344)	(N=424)	(N=161)	(N=1,443)
Church or Mosque ****	0.8	0.0	4.1	0.7	1.2	1.5
	(N=245)	(N=271)	(N=344)	(N=424)	(N=163)	(N=1,447)
Community Meetings ****	14.7	17.3	32.9	21.9	30.7	23.4
	(N=248)	(N=271)	(N=344)	(N=424)	(N=161)	(N=1,448)
Other ****	37.5	36.2	14.0	24.8	20.5	26.0
Radio stations from which respondents heard about LLINs ****	North (N=113)	Central East (N=121)	Central West (N=141)	South East (N=229)	South West (N=98)	Total (N=702)
MBC radio 1	51.3	24.0	63.1	66.4	72.5	56.8
Zodiak	47.8	62.8	31.9	23.1	21.4	35.5
Community Radio	0.0	5.8	2.1	5.7	4.1	3.9
Other	0.9	7.4	2.8	4.8	2.0	3.9

*p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001; **** p ≤ 0.0001

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