Wazazi nipendeni

"Love me, parents":

An Evaluation of Tanzania's National Safe Motherhood Campaign

September 2014

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List of acronyms

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
AUC	African Union Commission
CARMMA	Campaign on Accelerated Reduction of Maternal Mortality in Africa
COMMIT	Communication and Malaria Initiative in Tanzania
IBP	Individual Birth Plan
IPT	Intermittent Prevention Treatment for Malaria
ITNs	Insecticide Treated Mosquito Nets
HIV	Human Immunodeficiency Virus
MoHSW	Ministry of Health and Social Welfare
NACP	National AIDS Control Program
NMCP	National Malaria Control Program
MDGs	Millennium Development Goals
PMTCT	Prevention of Mother to Child Transmission of HIV
RCHS	Reproductive and Child Health Section
SBCC	Social and Behavior Change Communication
SMS	Short Message Service
SP	Sulfadoxine-Pyrimethamine
TCCP	Tanzania Capacity and Communication Project
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Executive summary

In response to the UNAIDS and African Union Commission calls to sufficiently decrease maternal and early childhood mortality, the Tanzanian Ministry of Health and Social Welfare, in partnership with Tanzanian Capacity and Communication Project (TCCP) and Communication and Malaria Initiative in Tanzania (COMMIT), launched Wazazi Nipendeni – a campaign that through mass media, new technology, and provider initiated communications, sought to increase maternal and early childhood outcomes.

The Wazazi Nipendeni or, "Love Me, Parents" campaign sought to increase early attendance at antenatal care (ANC) clinics, uptake and adherence to sulfadoxine-pyrimethamine (SP) for malaria prevention during pregnancy, birth-planning, and other important knowledge and behavioral outcomes necessary to prevent maternal and neonatal mortality. The campaign officially launched in November 2012 with radio and TV spots, billboards, and a dedicated short-message-service (SMS) number, where women, birth supporters, and others interested in safe motherhood could send a text message to receive information and reminders. Between December 2012 and March 2013, up to 3,600 radio spots with campaign messaging were aired monthly on various stations in the country, and between July and October 2013, 270 TV spots monthly were aired on Tanzania's 6 TV stations. In addition, posters, booklets, and other promotional materials were distributed through implementing partners to antenatal clinics, hospitals, and dispensaries for providers to initiate conversations about safe motherhood and individual birth planning (IBP) with pregnant women.

In November 2013, a post-hoc evaluation of the campaign was conducted, consisting of exit interviews at ANCs with pregnant women and women who had given birth within the last 6 months. Over a third of surveyed women (35.1%, or 600 out of 1,708 interviewees) were exposed to the Wazazi Nipendeni campaign. The primary source of exposure was the radio (83.3%), with radio also providing the highest frequency of exposure – 16.5% of radio listeners reported daily exposure. Almost a third of those exposed to the campaign recalled multiple messages, and 11.2% shared this information with someone they knew.

The evaluation found that exposure to a large number of campaign sources had impact on increasing delivery at a health facility and sleeping under a net, while overall message exposure had influence on taking SP and knowledge about malaria prevention during pregnancy. The majority of surveyed women (60.2%) first visited ANC before reaching 16 weeks in their pregnancy – the recommended timing. The most frequently cited reason for delayed attendance was that they did not see the need for attending the clinic so early in their pregnancy. Greater exposure to campaign materials was associated with more ANC visits; thus, future campaigns can provide encouragement and rationale for early attendance and potentially influence a larger proportion of the target population. The campaign also encouraged birth planning, and the evaluation found that the more sources from which women reported hearing about the campaign, the more they prepared for the birth of their child. Delivery in a healthcare facility was also influenced by exposure to Wazazi Nipendeni - for each message source to which a woman had been exposed, there was a 20% greater odds the woman delivered at a health facility.

In addition, 76.6% of women reported getting information about HIV/AIDS, and 88.1% were tested for HIV as part of their antenatal care. Over half (57.6%) of women reported their partners were also tested for HIV during one of their antenatal visits, and 59.9% reported knowing their partner's HIV status. While message exposure was not found to be associated with increased partner testing for HIV, exposure to the campaign increased the odds of the women being tested for HIV by 18%.

A large percentage of women (69.8%) were aware of at least one malaria prevention strategy in pregnancy, and 89.3% of the total sample (N=1,708) reported owning a mosquito bed net. For each increase in message sources to which a woman was exposed, there was about a 61% greater likelihood the woman slept under a mosquito net the previous night, even controlling for all other demographic variables. Similar positive results were observed with regards to taking malaria prevention medications—the campaign had a significant impact on exposed women. The more message sources that women had been exposed to, there was about an 8% greater likelihood the woman received an SP dose. The more message sources women had been exposed to, there was about a 23% greater likelihood the woman received 2 or more SP doses.

These evaluation results demonstrate that the Wazazi Nipendeni campaign had a successful impact on important outcomes such as SP medication uptake, individual birth planning, sleeping under a net, and frequency of ANC attendance. Future campaigns need to build on the success of Wazazi Nipendeni, and similar interventions can potentially help achieve the goals set forth by UNAIDS and AUC.

Background

While significant progress has been achieved in reducing maternal and child mortality in sub-Saharan Africa, challenges still remain in reaching the Millennium Development Goals (MDGs) in the region.[1] MDG targets propose a reduction in the maternal mortality ratio by three fourths and a decrease in childhood mortality to 31 deaths per 1,000 by 2015.[2] On both targets, sub-Saharan Africa remains significantly behind, with the maternal mortality ratio double the proposed goal and 178 deaths per 1,000 children under five.[2] Malaria in pregnancy and HIV transmission from mother to child pose major concerns for the well-being of children and mothers in the region.[3, 4] Pregnant women are especially vulnerable to malaria in the second trimester, and disease onset can cause severe anemia, spontaneous abortion, pre-term delivery, and low birth weight and other complications for the baby.[5, 6] Furthermore, HIV increases women's vulnerability to malaria and exacerbates the effects of malaria during pregnancy.[5]

At 454 maternal deaths per 100,000 live births, Tanzania's maternal mortality ratio remains among the world's highest.[7] Since 1990, Tanzania has made significant progress in combatting child deaths by reducing under-5 mortality by two thirds, but these indicators are still high - 51, 26, and 25 per 1,000 live births for infant, neonatal, and post-neonatal mortality, respectively.[7, 8] Several factors contribute to these disparities. Tanzania is one of the 22 countries globally with the highest number of pregnant women living with HIV.[9] HIV prevalence among pregnant women is 3.2%, compared to 5.1% prevalence among the general population, and only about 70% of pregnant women are reportedly reached with prevention of mother to child transmission (PMTCT) interventions.[10, 11] An estimated 1.6 million pregnant women in the country contract malaria annually, and the disease is a contributing factor to both maternal deaths and infant morbidity and mortality.[6, 7, 12, 13] Use of Insecticide Treated Mosquito Nets (ITNs) and prophylaxis with intermittent prevention treatments (IPT) are safe and effective methods for preventing malaria during pregnancy.[14-16] In Tanzania, the use of bed nets among pregnant women is relatively high, with 81.2% women reporting sleeping under any net the night before and 76% sleeping under an ITN.[11] However, uptake of IPT is less prevalent, with only 33% of pregnant women receiving their second dose of SP for malaria prophylaxis.[11]

Multi-country trials and reviews led by the World Health Organization (WHO) recommend a minimum of four visits with antenatal care service providers for healthy pregnant women with no underlying medical problems.[17] To deliver prevention interventions, early identification of issues is essential, thus, WHO recommends the timing of the first visit is as early as possible in pregnancy, and at least in the first trimester.[17] Meanwhile, only 42% of Tanzanian women attend ANC more than 4 times during pregnancy, and only 15% attend ANC in their first trimester.[7] In addition, less than half of current live births in Tanzania take place at a health facility and are assisted by a health provider.[7]

Exposure of mothers and the community at large to information about nutrition, birth preparedness, and care and treatment modalities during antenatal visits has been shown to increase skilled birth attendance and malaria prophylaxis uptake during pregnancy, thus impacting positive outcomes for mother and baby.[18, 19] Other studies have demonstrated that well-designed mass media campaigns can influence positive behavioral change.[20, 21] Levels of exposure to mass media in Tanzania are relatively high, with radio being the most popular source of information; almost 49% of women and 73% of men listen to the radio at least once a week. [11]

In 2009, the Campaign on Accelerated Reduction of Maternal Mortality in Africa (CARMMA) was initiated by the African Union Commission.[22] Since then, CARMMA has been launched in 37 Union member states and seeks to improve both maternal and infant mortality indicators. Following these regional developments and in anticipation of the 2015 deadline for achieving MDGs, in June 2012, UNICEF, in partnership with USAID, launched a call to action for "a promise renewed" to address child survival and development.[2, 23] Wazazi Nipendeni – a national campaign – was launched in Tanzania to answer these local and global calls for improving maternal and early childhood outcomes.

Program description

Wazazi Nipendeni (Love Me, Parents) is a national safe motherhood social and behavior change communication campaign that aims to encourage Tanzanian women and their partners to take steps for a healthy pregnancy and safe delivery, with the ultimate goal of improving maternal and child health outcomes.

Launched in November 2012, the campaign sought to increase early and complete antenatal care attendance, HIV testing, PMTCT enrollment, utilization of long-lasting insecticide-treated bed nets, uptake of SP for the prevention of malaria in pregnancy, individual birth planning, and delivery at a health facility. Partners of pregnant women, birth supporters, health providers, and local district leaders were also targeted by the campaign as individuals capable of creating an enabling environment for pregnant women to make healthy choices. Wazazi Nipendeni rolled out at both the mass media and health-facility levels.

Mass Media

- **Television spots.** Three 60-second television spots focused on receiving two doses of SP for the prevention of malaria in pregnancy, individual birth planning, and PMTCT. Six television stations aired three television spots per station per day between November 2012 and March 2013 and again between July and December 2013.

- **Radio spots.** The campaign featured six 60-second radio spots aired 4-12 times daily on up to 19 national and regional radio stations. Radio spots were on air between November 2012 and March 2013 and again between July and October 2013.

- **Billboards.** Two campaign billboards were placed on major roads leaving the capital, Dar es Salaam.

- **Bibi Bomba reality television program.** Through collaboration with Clouds Entertainment, Wazazi Nipendeni was featured in the Bibi Bomba television show – a program that follows the lives and experiences of 20 grandmothers from different regions of Tanzania. Bibi Bomba is a 30-minute program that is aired every day with one repeat on Saturday of all the week's episodes. The show incorporated discussions on safe motherhood messages from the Wazazi Nipendeni campaign.

- **Si Mchezo! magazine.** Wazazi Nipendeni articles and back-cover advertisements appeared in the January-February 2013, March-April 2013, and May-June 2013 issues of Femina Hip's Si Mchezo! magazine, a print publication targeting out of school youth.

- **Promotional materials.** Banners, tire covers, t-shirts, bags, and bumper stickers further promoted the Wazazi Nipendeni brand.

Health-Facility Level

All materials intended for use at the health facility level were distributed at central level to Wazazi Nipendeni service delivery partners, who in turn distributed them to the hospitals, health centers, and dispensaries in which they operate. Materials were expected to reach over 3,400 of Tanzania's approximately 5,000 health facilities through the 11 collaborating service delivery partners.

- **Individual birth planning brochure.** The IBP brochure contained pictures and text descriptions of the six key components of birth planning (due date, name of health facility for delivery, plan for transport to the facility, people to accompany the mother to the facility, supplies to take to the facility, and people to take care of the home while mom is away), as well as spaces to write in the woman's plan for each component.

  Brochures also gave information on normal signs of labor and danger signs during pregnancy, as well as a list of the tests, services, and supplies a woman should receive during pregnancy. IBPs were designed to be filled out together with the provider during an early ANC visit, discussed with the pregnant woman's partner and birth supporters, and then brought back at each ANC visit for further discussion.

- **Individual birth planning poster.** IBP posters depicted the six essential elements of an individual birth plan, encouraged women to make a birth plan, and included a referral to the SMS system. Posters were hung in visible locations at health facilities.

- **SP poster.** The SP poster encouraged pregnant women to receive 2 doses of SP for the prevention of malaria in pregnancy and included a referral to the SMS system. Posters were hung in visible locations at health facilities.

- **SP reminder card.** After receiving their first dose of SP, ANC clients received SP reminder cards from their providers indicating the date they should return for dose two.

- **Pregnancy wheel.** Branded pregnancy wheels were used to help providers determine a woman's due date and included guidance on timing of SP dosing. The wheel also provided counseling information on SP and other services one should pursue during pregnancy, such as iron and folic acid supplements.

SMS Service

As described above, campaign materials referred users to a dedicated short-message-service (SMS) number to receive more information on healthy pregnancy. The service, provided by the CDC Foundation, was free of charge for users across all mobile networks. A set of initial introductory questions allowed users to register as pregnant women, mothers of newborns, birth supporters, or general

information seekers, and establish the date of pregnancy or age of the newborn, where relevant. Users then received information, tips, and reminders timed to the week/month of pregnancy or age of the baby. On average, subscribers received 3-4 messages per week addressing a number of safe motherhood topic areas.

Developed under the Safe Motherhood Working Group of the Ministry of Health and Social Welfare's (MoHSW) Reproductive and Child Health Section (RCHS), the Wazazi Nipendeni campaign was a partnership led by MoHSW RCHS in coordination with the National Malaria Control Program (NMCP), the National AIDS Control Program (NACP), the Health Promotion and Education Section, and the mHealth Tanzania Public Private Partnership with funding from the United States Government through the US Agency for International Development (USAID), the US President's Malaria Initiative (PMI), the US President's Emergency Plan for AIDS Relief (PEPFAR), and the Centers for Disease Control and Prevention (CDC).

The social and behavioral change communication (SBCC) campaign was developed by the Johns Hopkins Bloomberg School of Public Health Center for Communication Programs (JHU·CCP), and the SMS component by the mHealth Tanzania Public Private Partnership. Key service delivery partners included Jhpiego, Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), Aga Khan Health Services, Mwanzo Bora Nutrition Program, Mothers to Mothers, FHI360, Catholic Relief Services (CRS), CCBRT, Deloitte/Tunajali, PLAN International, and Tanzania Health Promotion Support.

Objectives of the evaluation

A post-hoc evaluation was conducted in November 2013 to assess the impact of the Wazazi Nipendeni campaign. The evaluation was specifically focused on assessing the following outcomes as they related to campaign exposure:

1) Timing of the first ANC visit;
2) Number of total ANC visits during pregnancy (with a preferred four visits);
3) Individual birth preparedness;
4) Partner involvement (including accompanying women to births and HIV testing with partner);
5) Delivery at a health facility;
6) Knowledge of malaria prevention during pregnancy;
7) Taking at least two doses of SP for the prevention of malaria during pregnancy;
8) Sleeping under a mosquito net every night.

To measure these outcomes, 1,708 pregnant women or women who given birth in the last six months were surveyed at ANC sites through exit interviews. In addition, 30 in-depth interviews were conducted with health providers in ANC clinics in two regions. This report focuses on the quantitative survey evaluation outcomes. Analysis of the qualitative data is reported elsewhere.

Methods

Procedure

A cross-sectional exit interview study design with women attending ANC or Postnatal Care (PNC) services in several regions of Tanzania was used for this post-hoc evaluation. With permission from the women, their medical records that hold information on birth planning and services received were also reviewed. The records list all ANC visits to date and information on antimalarial treatment and STI testing and treatment received for both the woman and her partner. In addition, interviewers completed facility observation checklists that included a list of all campaign materials that were present at the clinic.

Ethical clearance was obtained from the Johns Hopkins University Institutional Review Board (JHU IRB) and the Tanzania National Institute for Medical Research (NIMR). After ethical clearance was obtained, local authorities (regional, district, ward and village levels) were informed of the study, and the field team contacted health facilities to seek permission to conduct the surveys in the respective clinics and hospitals.

Five regions were selected based on the scope of the implementing partners' success in distributing program materials in health facilities. These five regions were Mtwara, Lindi, Morogoro, Tabora, and Mwanza.

Up to 6 districts were then selected in each region based on facility-level exposure. Health facilities within each district – hospitals, health centers, and dispensaries, not to exceed 11 in each district – were then identified as exit interview locations. 45 interviewers and 15 supervisors were recruited and trained on the study approach, as well as the use of mobile tablets for data collection. Data collection took place from October through November 2013.

Field teams were assigned to a total of 122 facilities in 18 districts. Within each facility, a maximum of 14 clients were recruited for a total of 1,708 exit interviews with pregnant and postpartum women. Women were eligible for the study if they were aged 18 years or older and were either pregnant at the time of the interview or had delivered a baby within the last six months. Eligible women were read a consent script in Kiswahili and asked to provide oral consent to participate. Data were collected by a structured questionnaire through face-to-face interviewing and recorded on mobile tablet devices. In some regions, women appointed a trusted translator to help interpret the survey into the local dialect. Women received 5,000 Tanzanian shillings (~$3.00 USD) for their participation in the study.

Instruments

The ANC exit interview survey (see Appendix) was developed to measure women's exposure to Wazazi Nipendeni key interventions and messages and to assess relationships with any of the behaviors targeted by the campaign.

The survey collected information related to 6 subtopics:

- **Socio-Demographics.**

  Participants were asked a series of demographic questions, including age, education, employment status, the number of children ever born, and the number of biological children currently living in their household. Participants were also asked several questions to determine socio-economic status (SES). SES was calculated from five different parameters, including household possessions (e.g., refrigerator, television); and frequency of lack of food, shelter, school fees, health needs, and feeling hungry. The highest score possible on the number of household possessions was 13, and the highest SES measure ranged from 4 to 16. The type, level, and locale of the health facility where the interviews were conducted were also recorded.

- **Campaign Exposure and Recall.**

  In this section participants were asked for the sources where they have heard or seen Wazazi Nipendeni messages, such as TV, radio, magazines, and others, as well as the frequency with which they encountered these messages. Women were asked about the campaign's messages and communication with others about the campaign. A series of questions were also asked about exposure to Wazazi Nipendeni's SMS service. Details on enrollment, frequency of use, and overall satisfaction with the SMS service were collected from users, while non-users were asked why they did not participate.

- **Antenatal Care Services Utilization.**

  Questions in this section were dedicated to understanding women's utilization of ANC services and knowledge and attitudes towards ANC service use. Women were asked when they first noticed their pregnancy, first went to ANC, and how many times they subsequently visited an ANC provider. Women were also asked about the services they received during their visits related to HIV, malaria, STIs, and the wellbeing of their fetus. Questions assessing understanding of danger signs in pregnancy were also asked.

- **Individual Birth Planning.**

  Women were asked about their understanding of birth preparedness, and inquiries were made in regards to their due date, in which health facility they were planning to deliver, how they were planning to travel to the facility, whether they planned to have someone accompany them, whether they had all necessary items for delivery, and whether they

tasked someone with watching their home while they were giving birth. Surveyed women were divided into two categories – those who were pregnant were asked about their plans, and those who had delivered a baby in the last 6 months were interviewed about their experiences and the reasons for their choices. Both groups were also asked whether they received IBP brochures and SP reminder cards from providers during their ANC visits.

- **Natal and Post-Natal Care.**

  Those women who had delivered a baby in the last 6 months were then asked about their actual experiences with delivery. They discussed how they got to the clinic, who accompanied them, and who delivered the baby.

- **Malaria in Pregnancy.**

  Questions in this section addressed the women's understanding of malaria prevention strategies during pregnancy and investigated whether the women received vouchers for ITNs during their ANC visits, slept under a net, and treated and/or prevented malaria with medication. Women were also asked about the potential dangers of malaria to their baby and other questions aimed at assessing malaria knowledge.

In order to compare self-reported data to facility-level data, interviewers also requested information from women's medical records on birth planning and services received, which required listing all ANC visits to date, antimalarial treatment received, and STI testing and treatment received for both the woman and her partner.

Data Analyses

Data was analyzed using Statistical Package for Social Science (SPSS) software version 21.0. Step-wise linear and logistic regression analyses were used to test the impact of the campaign, depending upon whether the outcome variable was continuous or dichotomous.

Quantitative Results

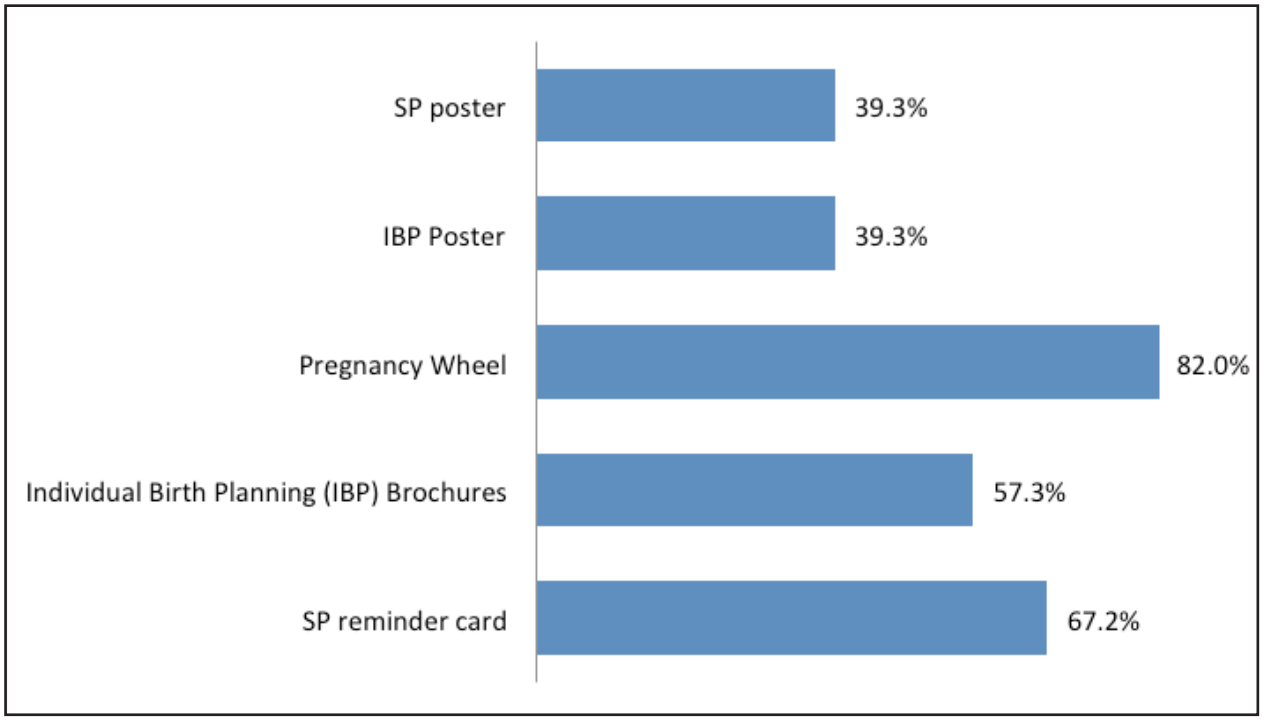
Facility Materials

Five campaign materials were meant for use at the health facility level: the SP reminder card, the SP poster, the IBP poster, the IBP brochures, and the pregnancy wheel. Facility-level materials were distributed to hospitals, health centers, and dispensaries through service delivery partners implementing activities in the facilities. In order to assess the viability of this materials distribution mechanism, interviewers used an observation checklist to determine the availability of each of the materials in the facilities, as well as where they were located.

Facility-level exposure is reflected in Figure 1 below. Out of the 122 facilities sampled, 12 did not have any of the materials.

20% had all five materials, 70% had some (1 - 4), and only 10% had none. The pregnancy wheel was most widely available (82.0%), followed by the SP reminder cards (67.2%), and IBP brochures (57.3%). SP and IBP posters were available in 39.3% of the facilities visited. When available, most materials were found in appropriate locations: 95.8% of SP posters and 87.5% of IBP posters and were placed in a location visible to clients.

Figure 1. Percent of health facilities where relevant campaign materials were available. (N = 122)



Demographics

Table 1 demonstrates the distribution of interviews by type, location and level of facility. Tables 1 and 2 and Figure 2 demonstrate the demographics of the sample. A total of 1,708 women were interviewed. The mean age of participants was 26.19 years (SD = 6.60), and the mean number of household possessions was 3.60 (SD = 1.72, 13 possible). Over half of the women (53.8%) reported completing all primary education, and the majority (62.7%) said they were employed as farmers. The mean number of live births among women was 2.38 (SD = 1.93, with a range of 0-13)[1]. The sample was closely distributed between pre - and post-natal women – 49% (n = 835) of women were pregnant, and 51% (n = 873) had given birth in the 6 months preceding the interview.

Level of Facility	Urban	Peri-Urban	Rural	Total
Dispensary	3.6%	12.8%	48.4%	64.8%
Health Center	3.0%	6.5%	17.5%	27.0%
Hospital	6.5%	1.6%	0.1%	8.2%
Type of Facility				
Public	12.4%	17.6%	64.3%	94.2%
Private	0.8%	3.3%	1.6%	5.8%

Figure 2. Participants by Facility Setting (N = 1708)[2]

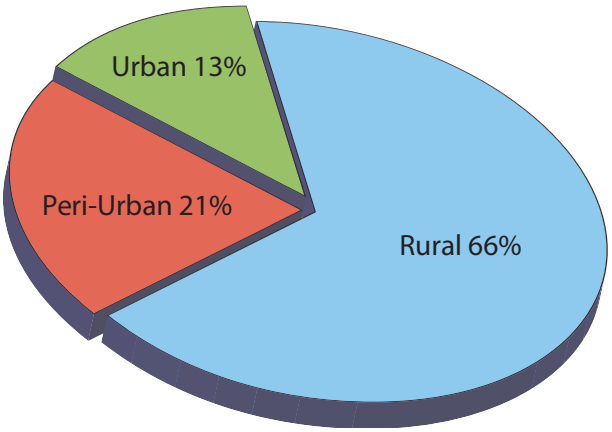


Table 2. Participant Demographics

Age**	N	%
18-24	809	47.5%
25-34	655	38.5%
35-44	229	13.4%
45+	10	0.6%
Education* **	**N**	**%**
None	377	22.1%
Primary	1115	65.3%
Secondary	203	11.9%
Post-Secondary	13	0.7%
Employment*	**N**	**%**
Farmer	1071	62.7%
Housewife	362	21.2%
Other	263	15.4%
Unemployed	12	0.7%
Pre Natal	**Post Natal**	
837	871	

* Out of 1,708
**Out of 1,703
***Out of 1,708

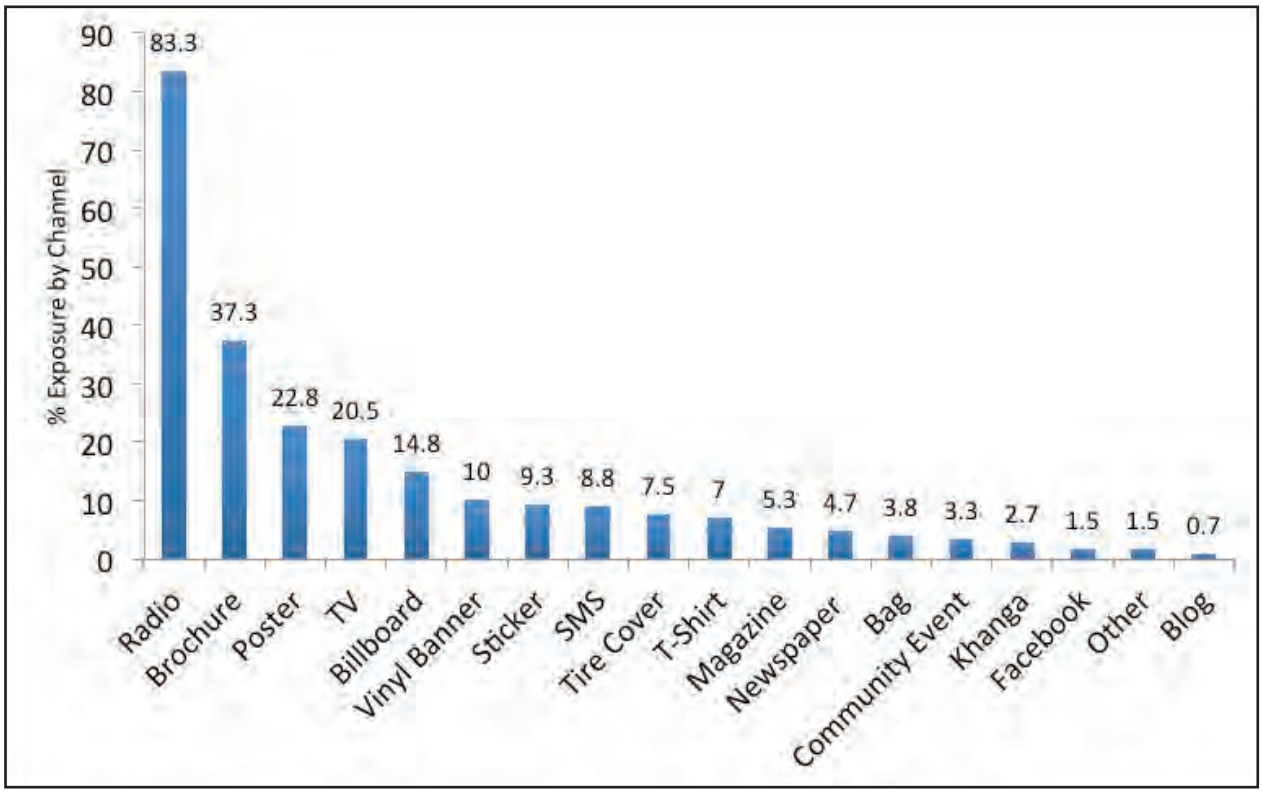
[1] The number of previous live births was entered as a control variable in the analyses and was not found to change the overall impact of the message exposure on outcomes and so is not discussed further.

[2] Urban/rural residence was entered as a control variable in the analyses and was not found to change the overall impact of message exposure on outcomes, and so is not discussed further.

Campaign Exposure and Recall

Women were asked if they have heard or seen messages with Wazazi Nipendeni content. Over a third of women in the sample (35.1%, n = 600) reported exposure to the Wazazi Nipendeni messages in the last one month. Distribution of sources by most common form of exposure is summarized in Figure 3.

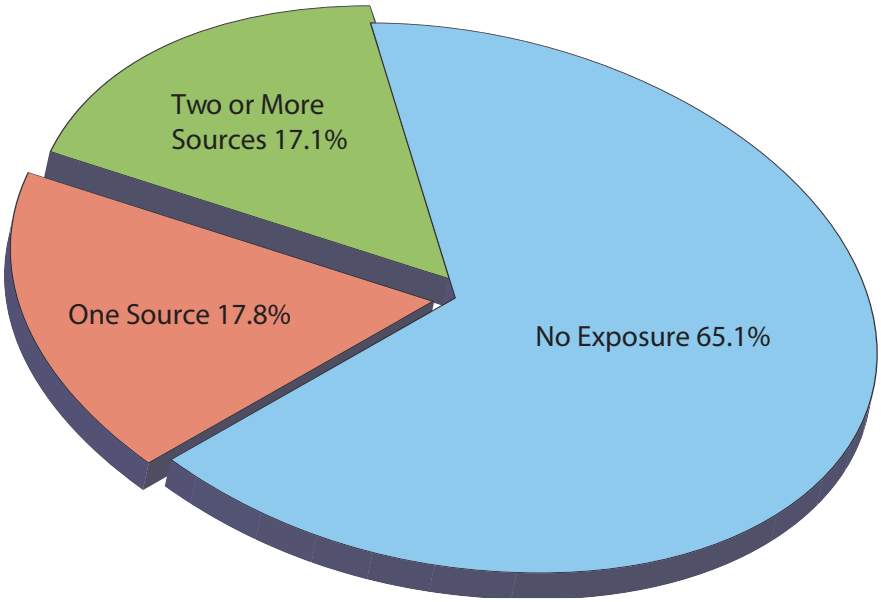
Figure 3. Distribution of sources by most common form of exposure. (N=600)



The most commonly reported message source was radio (83.3%), which is consistent with statistics on radio utilization in Tanzania. This was followed by exposure via a brochure (37.3%), poster (22.8%), and TV (20.5%). Fewer women reported hearing/seeing the message on a billboard (14.8%), vinyl banner (10%), sticker (9.3%), SMS (8.8%), tire cover (7.5%), t-shirt (7%), magazine (5.3% of 565), newspaper (4.7%), bags (3.8%), at community events (3.3%), on a khanga (2.7%), through Facebook (1.5%), via "other" sources (1.5%), or on a blog (0.7%). 17.8% of respondents were exposed to one source, and 17.1% were exposed to two or more sources.

Frequency of exposure varied considerably by source type. For radio, 16.5% reported daily exposure, and 8.3% reported weekly or monthly exposure. Only 3.5% reported daily exposure to messages received through TV and 0.6% from a billboard. It is evident that participants demonstrated low levels in frequency of exposure to sources other than the radio. To guide further calculations, a frequency index was developed by adding together frequency exposure of all the sources. Daily exposure was coded as 2, weekly and monthly exposure as 1, and less frequent exposure as 0 (the less frequent exposure included the people who reported not hearing the message). Summing potential exposure frequencies across all exposure sources, this made the total possible equal to 54. The mean exposure index using this approach was 0.84 (SD = 1.77), with a range of 0 - 15. The majority of the sample had little to no exposure, but some (24.8%) had at least weekly or monthly exposure.

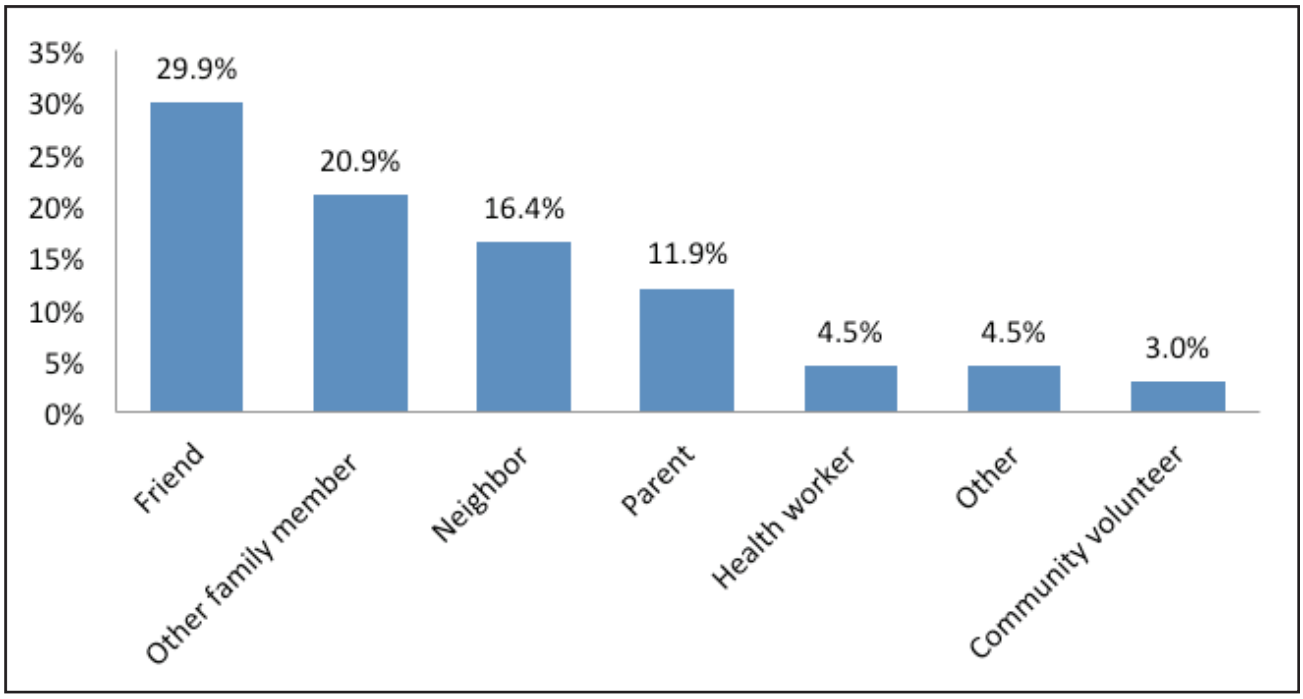
Figure 4. Frequency of Exposure (N = 1,708)



There were also significant variations in the messages that women recalled from the campaign. 525 interviewees responded to the recall questions, and of these, almost a third (28.4%) reported multiple messages, with 12% reporting the message was to "go to ANC as soon as possible."

Of the 600 women who reported any exposure to the campaign, 11.2% (67) talked to other individuals about it. Of the 67 who answered the question, the majority (35.8%) talked to their spouse/partner about it, and many reported multiple people or "other" individuals.

Figure 5. Sharing Campaign Messages (N = 67)



SMS Exposure and Utilization

Only 7.1% of 1,708 women reported hearing anything about the SMS system. Of these 121 women, only 36 texted the word "mtoto" to the number provided by the campaign. Of the 79 women who knew the number and the word to text, 10 did not have a mobile phone, 10 did not have good network in the setting, and 59 provided other reasons, most of which signified lack of understanding of how they would benefit from the SMS program.

Of the 36 women who texted, 30 (83.3%) completed the SMS registration process. For the 6 who did not finish it, one reported it being too difficult, and the other 5 provided another response. 26 of the 30 women reported still being enrolled in the SMS system. One stated she was not enrolled due to not having phone credit, another due to not having a charge on the phone, another due to poor reception, and another due to not being able to answer questions. Half of the 36 women who texted told others about the information they learned through SMS, and 83.3% said they would recommend it to others. Only 5 of the 36 women reported they received too many SMS messages, and 7 thought the messages were too few (24 reported the message frequency as being "just right").

The preferred time of day for SMS messages varied for the 36 respondents, with half stating that anytime would be fine.

Table 3. Utilization of the Campaign's SMS System

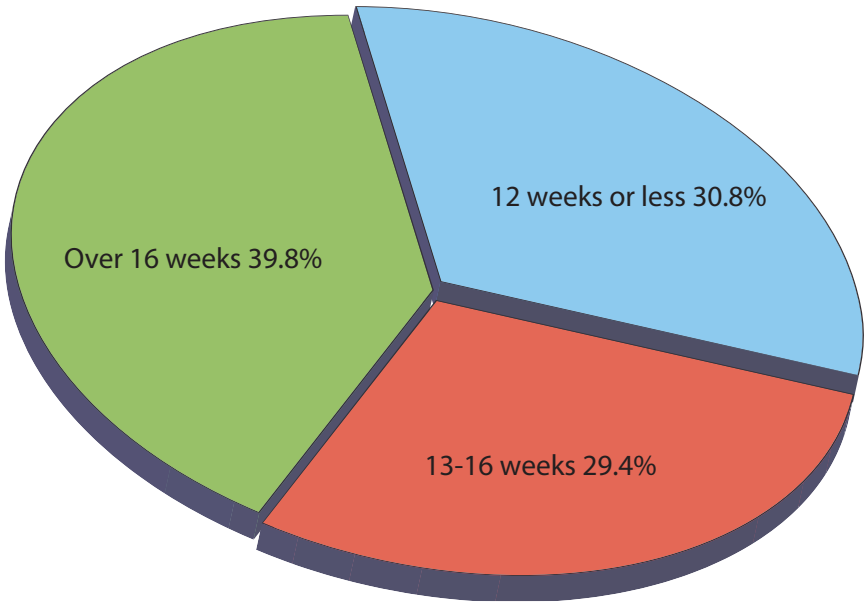
	N
Heard about the SMS System	122
↓	
Texted "mtoto" to the number provided by the campaign	36
↓	
Completed the registration process	30
↓	
Told others about the information they received through the SMS service about the campaign	18

Antenatal Services

Timing of the First ANC Visit

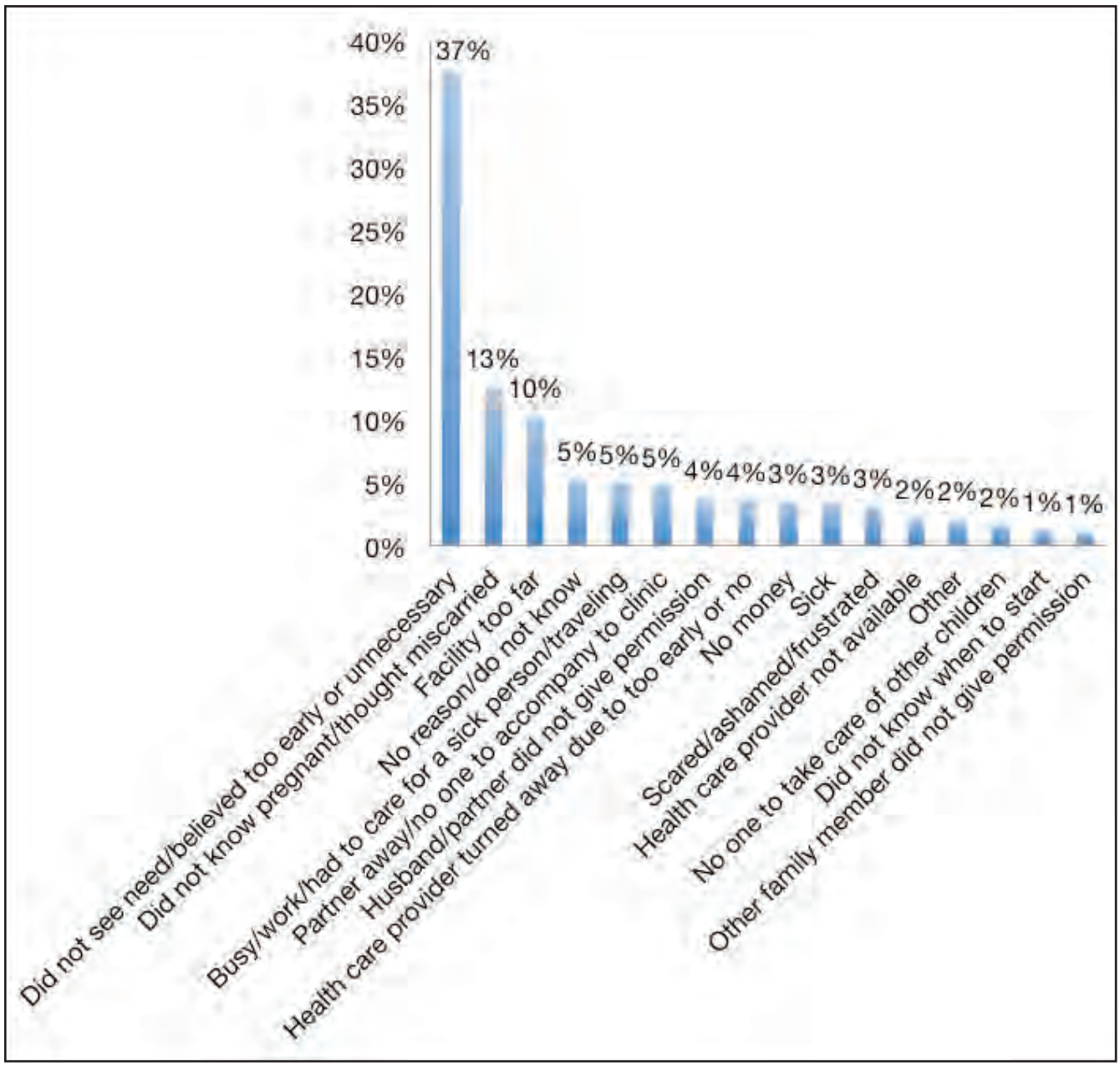
There were 1,679 women who reported how many weeks pregnant they were before attending ANC. The mean number of weeks was 16.85 (SD = 5.53, range 0-38 weeks). There were similar proportions of women who attended the clinic prior to 12 weeks (30.9%) and between 12-16 weeks (29.4%). The rest of the women attended ANC after 16 weeks (39.8%) into their pregnancies. While the larger portion of those surveyed (60.9%) attended ANC in the period before 16 weeks, many still missed the WHO-recommended first trimester initial visit. Figure 6 displays the distribution of respondents according to first time of ANC attendance.

Figure 6. Timing of the First ANC visit. (N = 1,679)



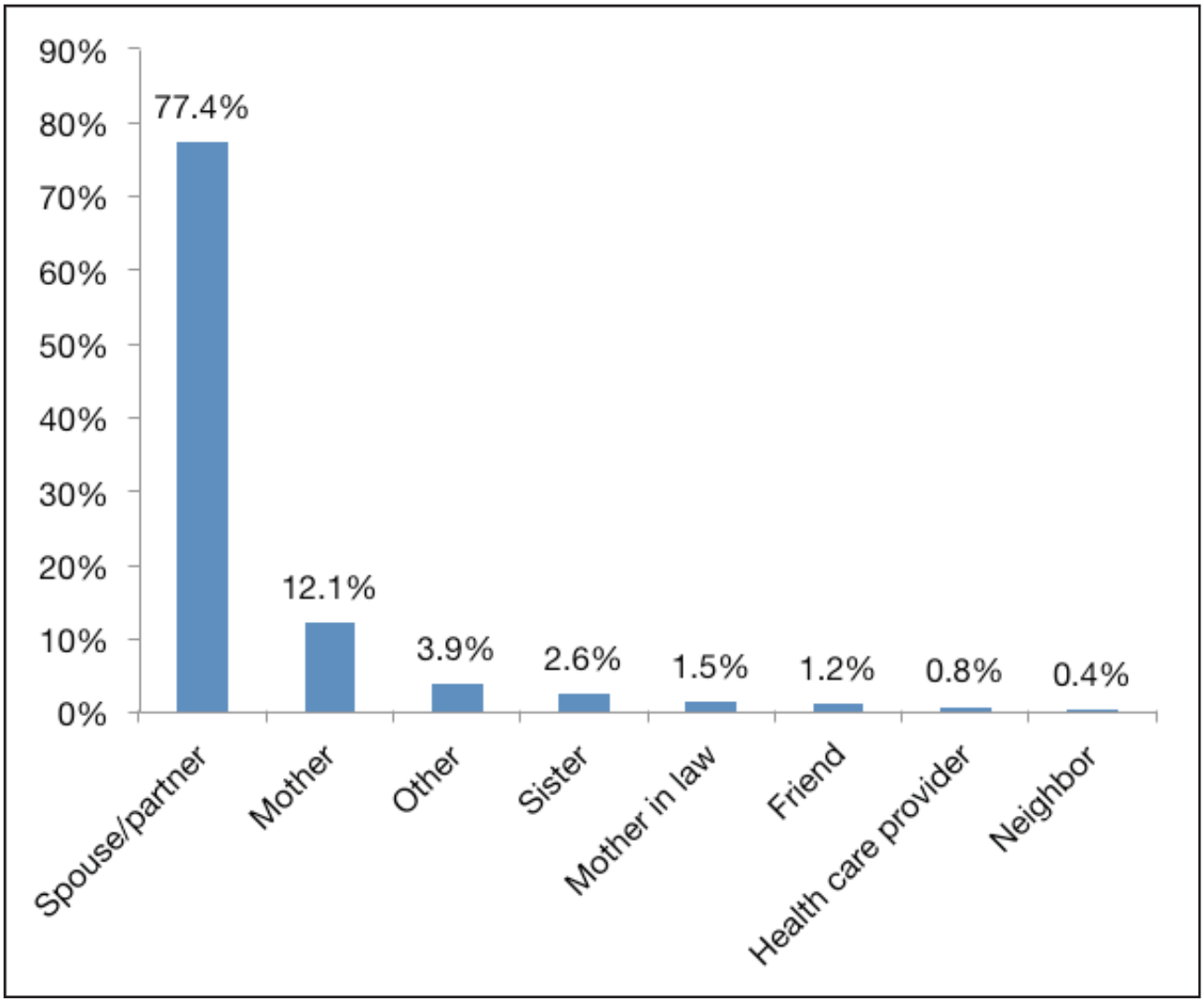
The most common reason for not getting care in the first 16 weeks among the 676 women who answered the question was that they did not know that going to the clinic was necessary before they were 16 weeks pregnant (37.4%). An additional 12.6% stated they did not know they were pregnant, 10.2% reported the facility being too far away, and 3.4% said it was too expensive. Permission to attend the clinic was not commonly mentioned, but almost 5% stated that they waited for their partner to return from traveling/work to accompany them to the clinic. Other common reasons were being busy with work or other personal responsibilities, a health care provider who turned them away from arriving too early or without a partner, or being ill.

Figure 7. Reasons for not receiving ANC early in pregnancy (n = 676)



Out of the 1,391 women who answered the question about the correct time to attend ANC, 43.6% said 12 weeks, and 21.1% said 16 weeks. To test for "corrective" memory of women in post-natal care, we compared their answers to those in pre-natal care. There was not a significant difference in answers between the two groups.

Figure 8. First person disclosed to about pregnancy

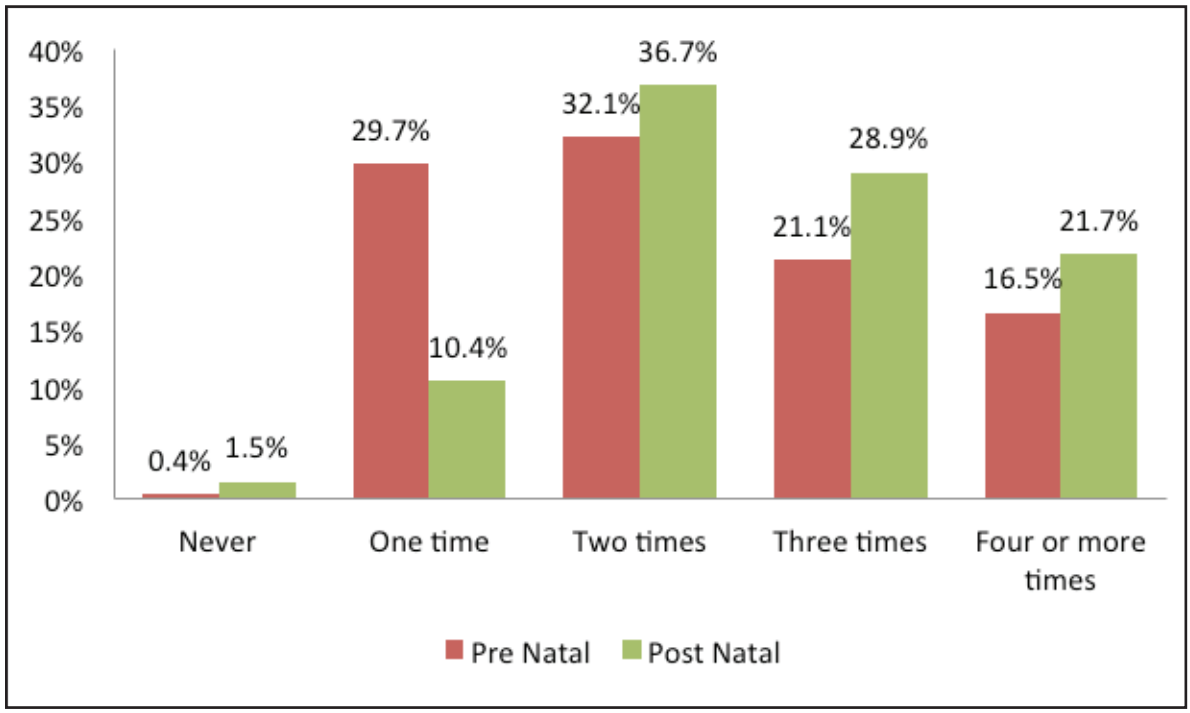


From Figure 8 it is evident that the majority (77.4%) of women told their partner about their pregnancy first. This is a significant statistic, since sharing this information promotes male involvement in the pregnancy progress - a key objective of the campaign.

Number of ANC Visits During Pregnancy

All women in the sample were asked about their number of ANC visits for the current pregnancy (including the current visit), and results were calculated for pre-natal and post-natal samples separately. One unit was subtracted from the number reported by post-natal women to account for one post-birth visit they were likely to report. Women attended ANC with varying frequency. It is evident from Figure 9 that the majority of both pre-natal and post-natal groups surveyed went to fewer than four ANC appointments. It also appears that the majority of interviewed pre-natal women were visiting ANC for the first or second time at the time of the interview. Still – the increased statistic of women going to their first ANC visit is encouraging for the upward trend of increased number of visits.

Figure 9. Frequency of ANC attendance during pregnancy



Services Received at ANC

All women (*N* = 1,708) in the sample reported on what tests and procedures were conducted during their ANC visit. 69.8% of women reported having their blood pressure checked (5 women did not know), 50.6% reported providing a urine sample (1 did not know), and 68.1% had their Hb checked (29, or 1.7% did not know). Fetal heartbeat was reported as being checked for 89.3% of women (9 did not know), and 55.7% were tested for syphilis (31 did not know). 74.3% received a tetanus shot during their pregnancy (3 did not know) and 59.6% of women reported being told to take iron-folate tablets (30 did not know).

HIV Testing

76.6% of women reported getting information about HIV/AIDS (4 did not know), 88.1% were tested as part of their antenatal care (2 did not know), and of these (1,504), 96.3% received their results that day. Over half (57.6%) of women reported their partners were also tested for HIV during one of their antenatal visits, and 59.9% reported knowing their partner's status.

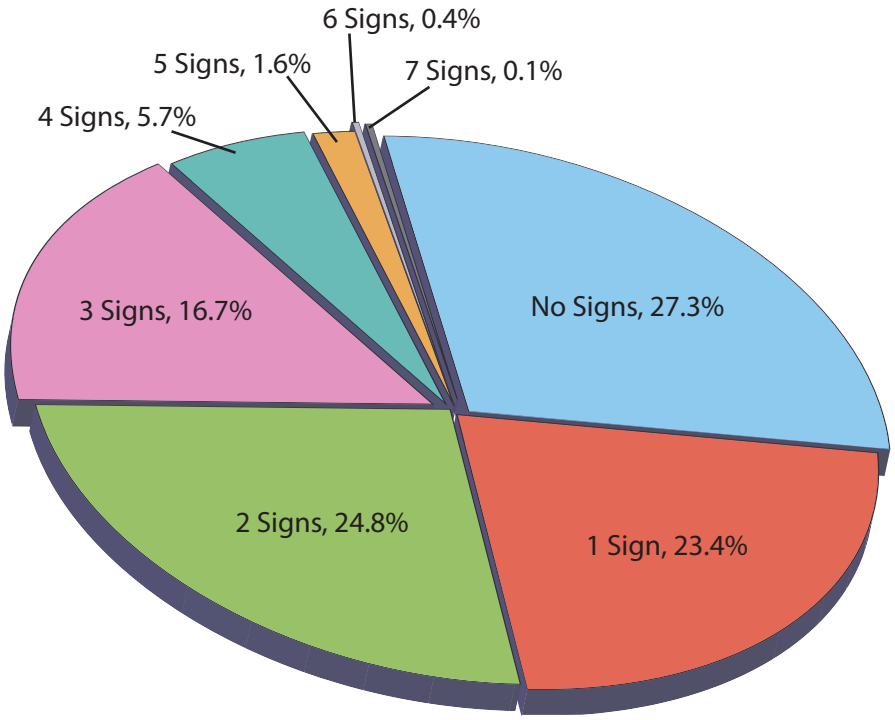
Table 4. HIV Testing Outcomes

	N
Tested for HIV as a part of their antenatal care	1,504
Received their results the same day	1,448
Knew their partner's HIV status	1,023
Partner tested for HIV, while accompanying woman to ANC	985

Recognizing Danger Signs in Pregnancy

Without prompt, women were asked to name up to 13 danger signs in pregnancy, including vaginal bleeding, blurred vision, high fever, severe abdominal pain, severe weakness, swelling, and others. 71.8% of the total sample of women reported learning about the danger signs associated with pregnancy and labor (45 said they did not know). 64.9% reported between 1 and 3 signs, while 27.3% of respondents could not recall any danger signs for pregnancy. There were a number of women who reported some "other" sign such as "watery vaginal discharge," but such symptoms are not classified as being a danger to pregnancy and were not included in this analysis.

Figure 10. Number of Danger Signs in Pregnancy vs. Percent of Women who recalled them (N = 1,708)



Individual birth planning

Wazazi Nipendeni emphasized six key components of individual birth planning: 1) knowing one's due date, 2) identifying the facility to deliver in, 3) methods for getting to the health facility, 4) picking someone to accompany her to the health facility, 5) having the necessary supplies ready, and 6) planning for who would take care of the home while the mother is away. The IBP brochure included space for providers and pregnant women to fill in the woman's plan together during her ANC visit.

Because both pregnant women and women who recently gave birth were interviewed in the study, two similar sets of questions were asked of women's experiences with birth and/or plans for the upcoming birth. Similarities are noted in both samples, and we conducted side-by-side data comparisons to analyze trends (see Figures 11-13 and Tables 6-7). Availability and utilization of these IBP brochures was assessed.

Pre-Natal Sample (N = 837)

47.9% of the 837 pregnant women interviewed knew their due date, and 75% made plans as to where they would give birth. 90.5% indicated wanting to give birth in a health facility, 5% at home, and 4.5% (n = 9) indicated an "other" location.

72.5% of 837 women reported knowing how they were going to get to the location where they planned to give birth. Of the 606 women answering, the majority (65.5%) indicated they were going to take a motorcycle or bus. 87.9% of 835 women (2 missing) reported planning on having someone accompany them to the health clinic. Of these (734 women), the majority reported either their spouse (23.8%) or mother (30.3%) would accompany them. 74.1% of 837 women reported having planned for someone to watch their house/family while at the health care facility. 50.9% of women reported having a plan as to which items to bring with them to the facility. Of the 835 pre-natal women for which there was data (2 missing), 159 (19%) indicated all 6 items on the planning measure.

32.5% of 832 women (5 missing) reported seeing the Wazazi Nipendeni IBP brochure, and 145 of 835 (2 missing; 17.4%) had received one. Of those who received the brochure (145 women), 84.1% received it from their health care provider at their ANC visit, and smaller numbers received them at group counseling sessions (n = 6), in the waiting room (n = 7), from a community volunteer (n = 7), or some other source/unsure (n = 3). Of those who received the brochure, 23.4% filled it out (n = 34), and of these, the majority did this with a provider (67.6%). 17.6% filled it out with their spouse, and 8.8% filled it out by themselves, 1 with a family member or friend, and 1 with some other person. Only 4 women stated they discussed the brochure with someone else (2 with their health care provider, one with her spouse, and one with her friend).

Only those women who filled out the IBP brochure were asked whether or not they liked it. Out of 34 respondents to this question, 33 (97.1%) stated that they did. Only 19.4% of 834 women (3 missing) reported getting a reminder card for their next SP dose ANC visit.

Post-Natal Sample (N = 871)

68% of women in this subsample knew their due date, and 87% planned where they would give birth. Of the 758 women for which data were available, 97.2% indicated wanting to give birth in a health facility, 2.4% at home, and 0.4% (3 women) indicated an "other" location.

71.1% reported knowing how they were going to get to the birth location. Of these 619 women, the majority (65%) indicated they were going to take a motorcycle or bus. 81.3% of all post-natal

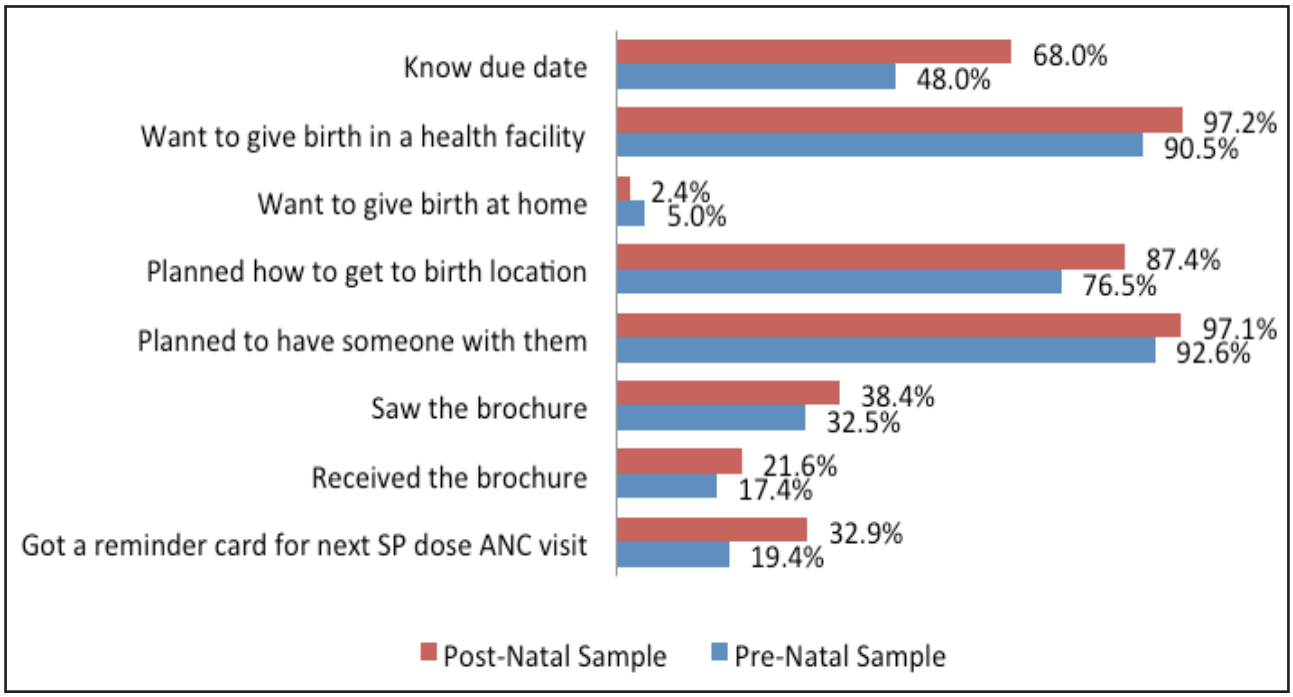
women reported planning on having someone accompany them to the health clinic. Of these (n = 708), the majority reported either their sister (14.7%), mother (30.8%), or spouse (14.1%) accompanied them. 73.5% reported having planned for someone to watch their house/family while at the health care facility. 90.1% of women planned items to bring with them to the health care facility. Of the 871 post-natal women, 44.7% (n= 389) indicated all 6 items on the birth planning measure.

38.5% of the women reported seeing the IBP brochure, and 21.7% had received one. Of those who received the brochure (n=189), 89.9% received one from their health care provider at their ANC visit, and smaller numbers received them at group counseling sessions (n = 2), in the waiting room (n = 5), from a community volunteer (n = 10), or some other source/unsure (n = 2).

Of those who received the brochure (189 women), 25.4% filled it out (n = 48), and the majority did this with a provider (56.3%). 27.1% filled it out with their spouse, and 12.5% filled it out by themselves, and 2 with some other person. Only 14 of these same women (29.2%) stated they discussed the brochure with someone else; 2 with their health care provider, 6 with their spouse, one with their mother, three with their friend, and two with another family member.

Out of the 47 women who completed the brochure and responded to the question, 95.7% stated they liked it. 33% of 871 post-natal women reported getting a reminder card for their next SP dose ANC visit.

Figure 11. Birth Planning Comparison: Pre-Natal and Post-Natal Sample

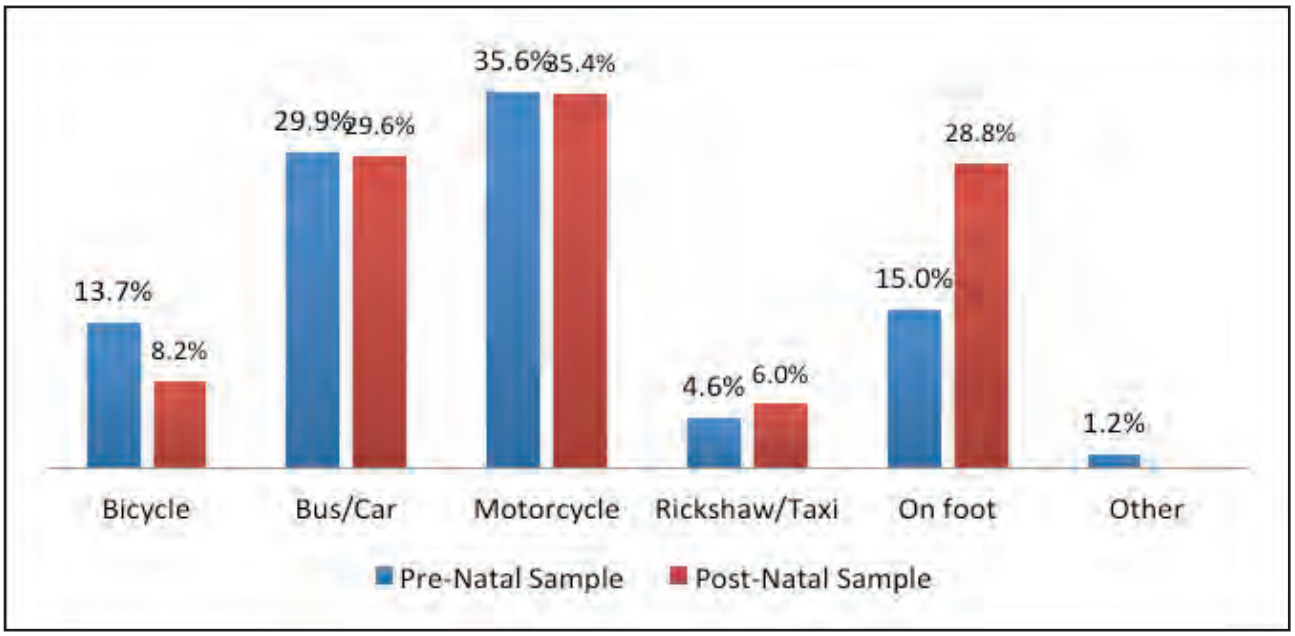


As seen in Figure 9, there are marked similarities in the pre- and post-natal samples in terms of the individual birth planning intentions. A slightly larger proportion of women in the post-natal sample indicated knowing their due date. This, however, may have been due to already knowing the date of delivery and confusing it with prior knowledge of a due date. A larger proportion of women in the post-natal sample also reported receiving the brochures and the SP reminder cards. This might be due to the fact that providers began running out of supplies as the campaign was winding down, and thus, women who were pregnant at the time of the interview did not receive the comprehensive package of materials.

Table 5. Utilization of Campaign Materials

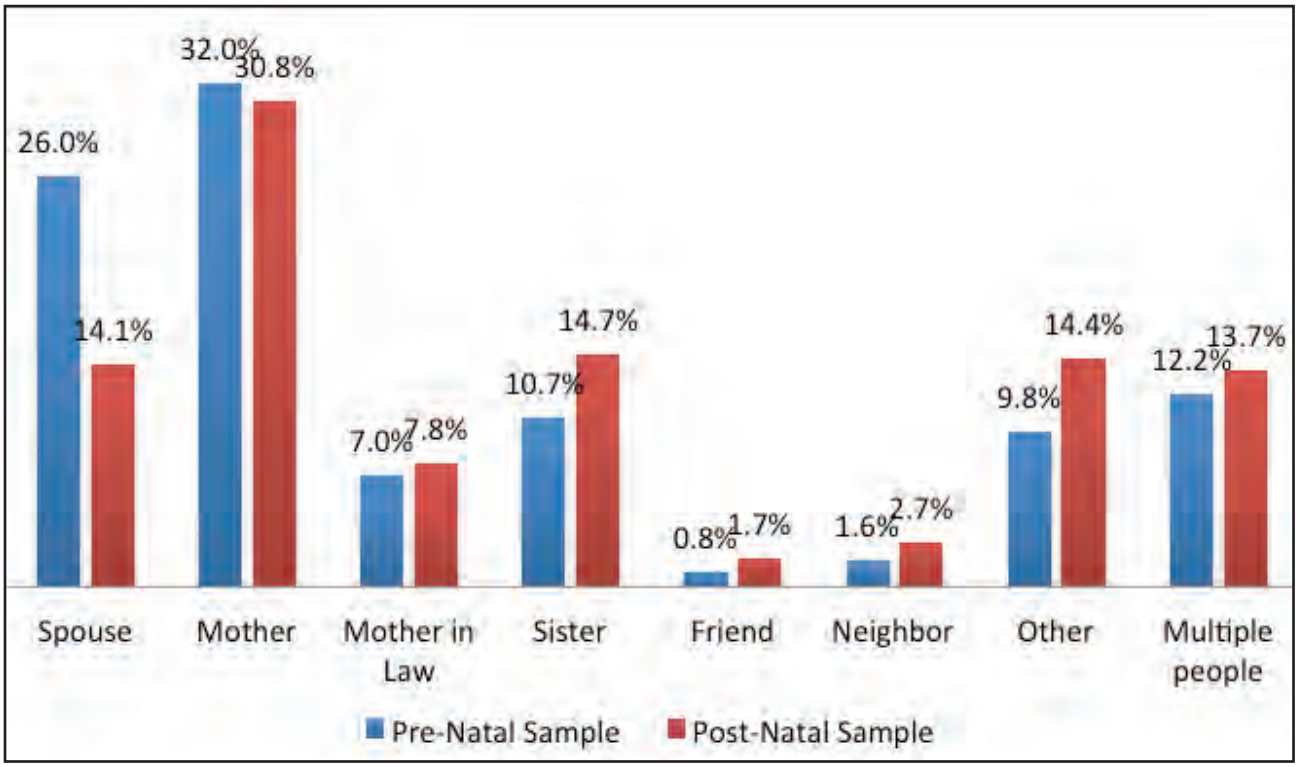
	Pre-Natal	Post-Natal
Total Sample	835	873
Saw IBP	271	335
Received IBP	145	189
Filled out IBP	34	48
Discussed IBP with others	4	14

Figure 12. Transportation to the Birth Location



It is evident that motorcycle and bus/car were the most popular preferred method of transportation to the place of giving birth. In the post-natal sample, getting there by foot was listed more frequently.

Figure 13. Person to Accompany to Birth



From Figure 13 it is evident that most women preferred their mothers or their spouses to be present when delivering the baby. The pre-natal sample reported favoring the presence of a partner more than did the post-natal sample.

Natal and Post-Natal Care

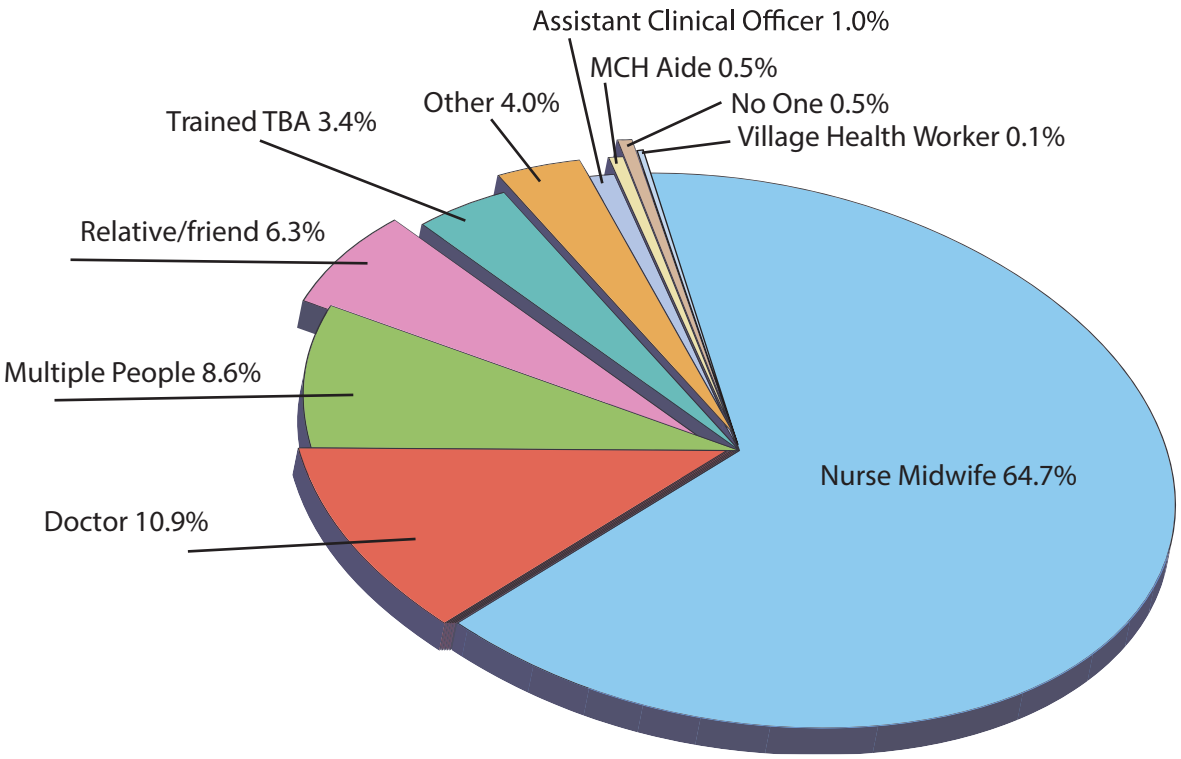
Women who delivered a baby in the last 6 months (N=873) were asked about their experiences. While 97.2% of the total post-natal sample stated they intended to give birth at a health facility, only 87% of the 865 women who responded to the question delivered their baby at a hospital or health center.

Table 6. Location of delivery

Location	Frequency	Percent
District Hospital	268	31.0%
Dispensary	231	26.7%
Health Center	195	22.5%
Participant's home	102	11.8%
Regional Hospital	38	4.4%
Referral/Special Hospital	13	1.5%
Other home	12	1.4%
Village Health Post	5	0.6%
Community based health facility	1	0.1%
Total	**865**	**100.0**

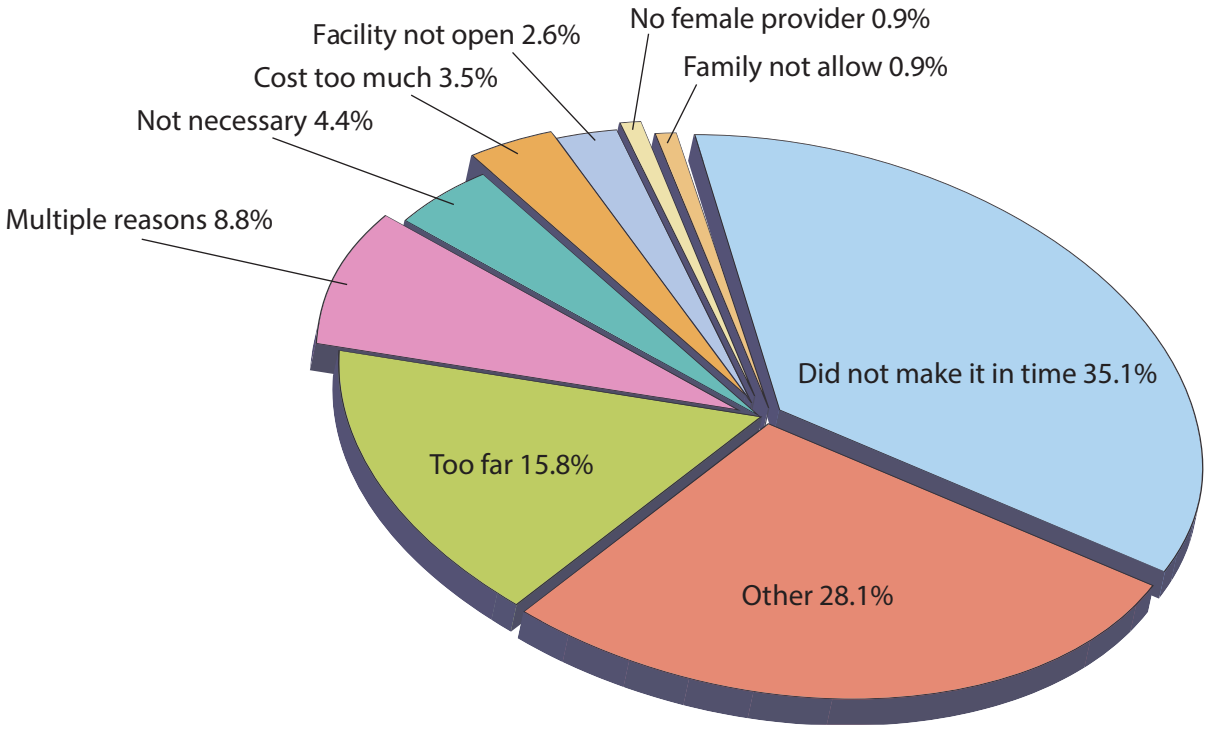
While for the majority of women a doctor or a midwife delivered their baby, a small percentage received no help from medical workers during the delivery.

Figure 14. Who delivered the baby? (N = 873)



When asked about why they could not deliver at a health care facility, the majority of women said they either could not make it in time or cited other reasons.

Figure 15. Why did the delivery not happen at a health care facility? (N = 114)



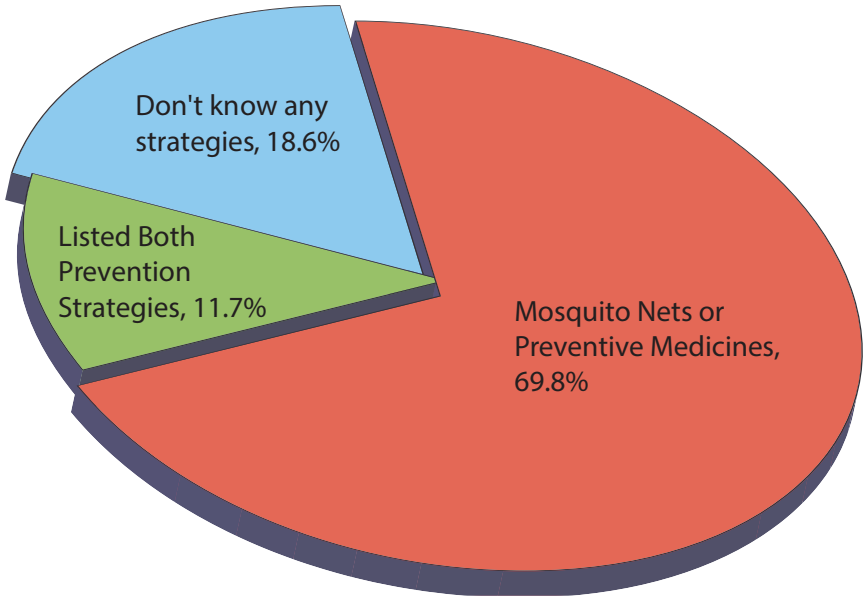
Prevention of malaria in pregnancy

Knowledge of malaria in pregnancy prevention strategies

In this section, women's knowledge of malaria prevention strategies was assessed. Interviewers asked participants to list all the ways in which pregnant women could protect themselves against malaria. Answers were coded into two groups to classify the knowledge of prevention strategies. The first group contained all the answers with mention of mosquito nets (treated or untreated), the second group contained all the answers that only made reference to preventive medicines.

The majority of participants knew that either mosquito nets or preventive medicines should be used during pregnancy (69.8%), but only 11.7% listed both strategies as a standard for prevention.

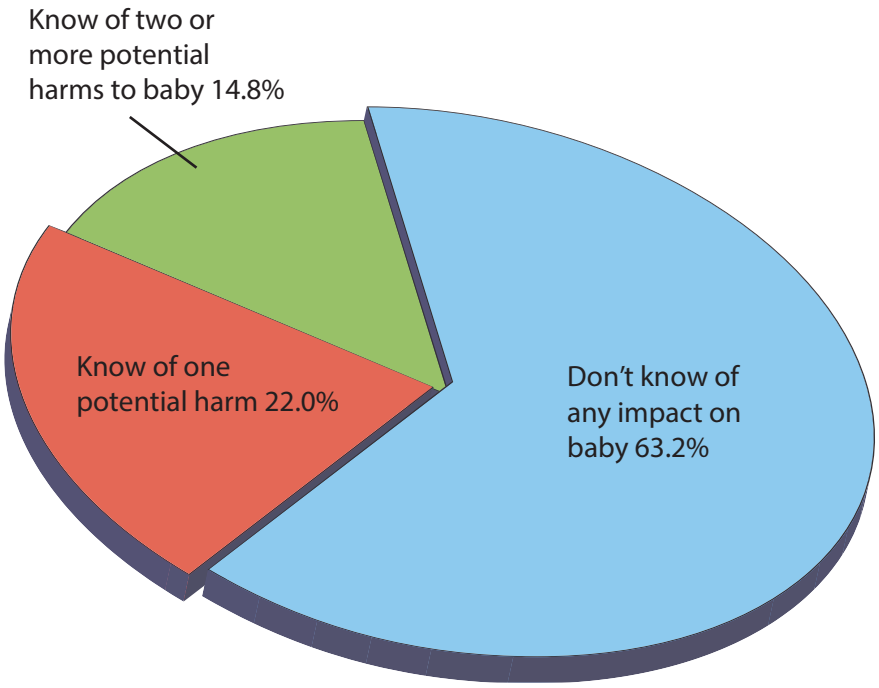
Figure 16. Knowledge of Malaria Prevention Strategies during Pregnancy (N = 1708)



Knowledge of the Impact of Malaria on Mothers and Babies

Women were also asked about the impact of malaria on their babies. The majority of women did not know of any complications that malaria could cause for the baby (63.1%), and only 22% reported one way, such as low birth weight or death at birth.

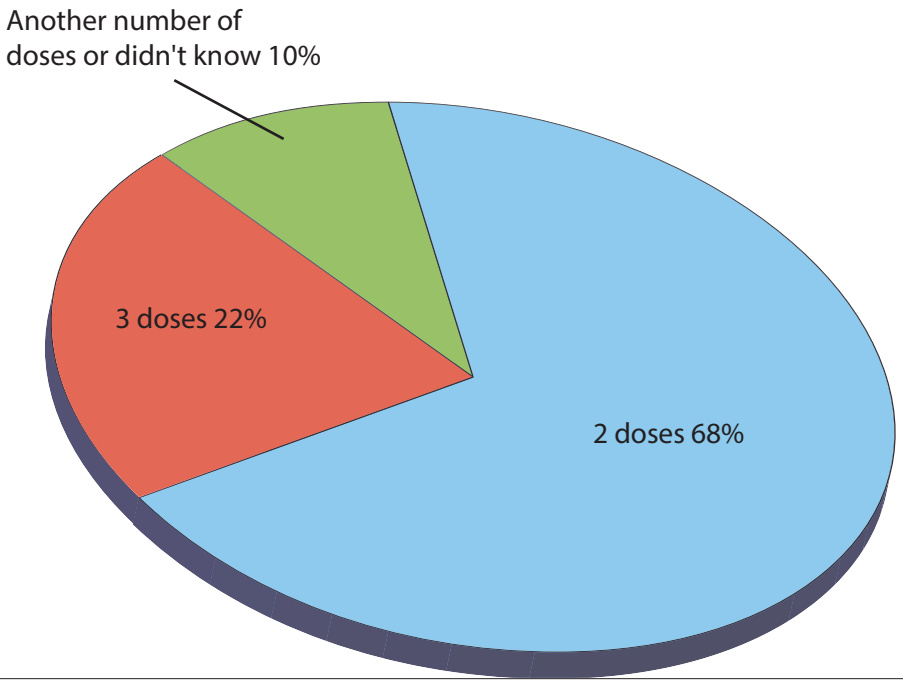
Figure 17. Knowledge of potential malaria harm to baby (N = 1,708)



Knowledge of SP

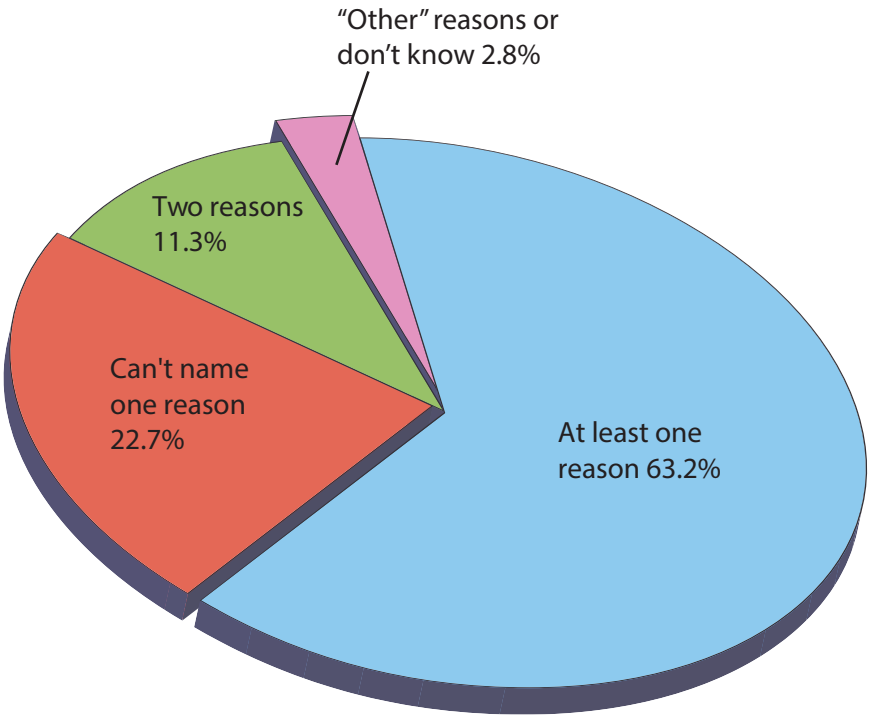
990 women responded to the question that analyzed their knowledge of the needed number of SP doses that would sufficiently protect them and their babies from malaria. The majority of the respondents stated 2 doses (68.2%), and 21.8% said 3 doses. The remaining women in the sample reported not knowing how many doses a woman should receive (n =718).

Figure 18. Knowledge of how many doses of SP are protective for mother and baby (N = 990)



All of the women responded to the question about the importance of taking SP, and the majority (63.2%) could name at least one reason for taking the medication during pregnancy, while only 11.3% reported two reasons. 22.7% did not name any reasons, and the remainder came up with an "other" reason or more than 2 responses. The most common reason provided was the prevention of malaria (60.2% of women).

Figure 19. Understanding why SP is important during pregnancy (N = 1,708)



SP Reminder Card

After receipt of the first dose of the antimalarial drug, women were also supposed to get a reminder card indicating when they needed to come back for the second dose. Availability and utilization of the reminder cards were assessed. Only 19.4% of the 834 women reported getting a reminder card for their next SP dose.

ITN Use

89.3% of the total sample (N=1,708) reported having a mosquito bed net. 666 women reported not getting a net at the ANC, 327 (19.1%) reported getting it from the ANC that day, and 41.9% received it on another visit. 993 (58.1%) reported receiving a voucher from the clinic to get a mosquito net (1 person missing), and of these, 88.4% reported redeeming the voucher.

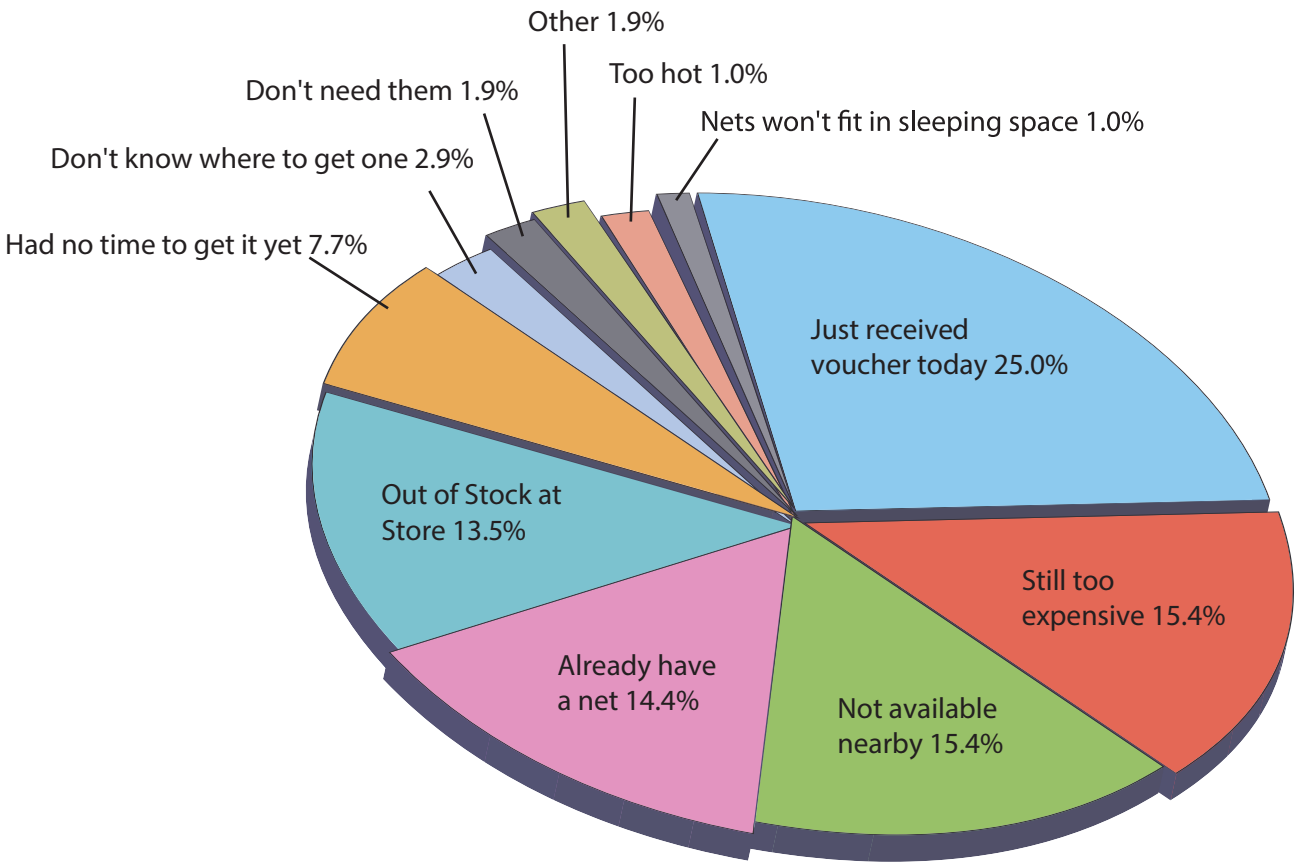
Table 7. Reports of Net and Voucher Distribution through ANC (N = 1,708)

	N	%
Did not get net at ANC	666	39.0%
Got it from ANC that day	327	19.1%
Got net on another visit	715	41.9%

Received Voucher for Net		Used Voucher to get Net
993 out of 1,708 (58%)	→	888 out of 993 (89%)

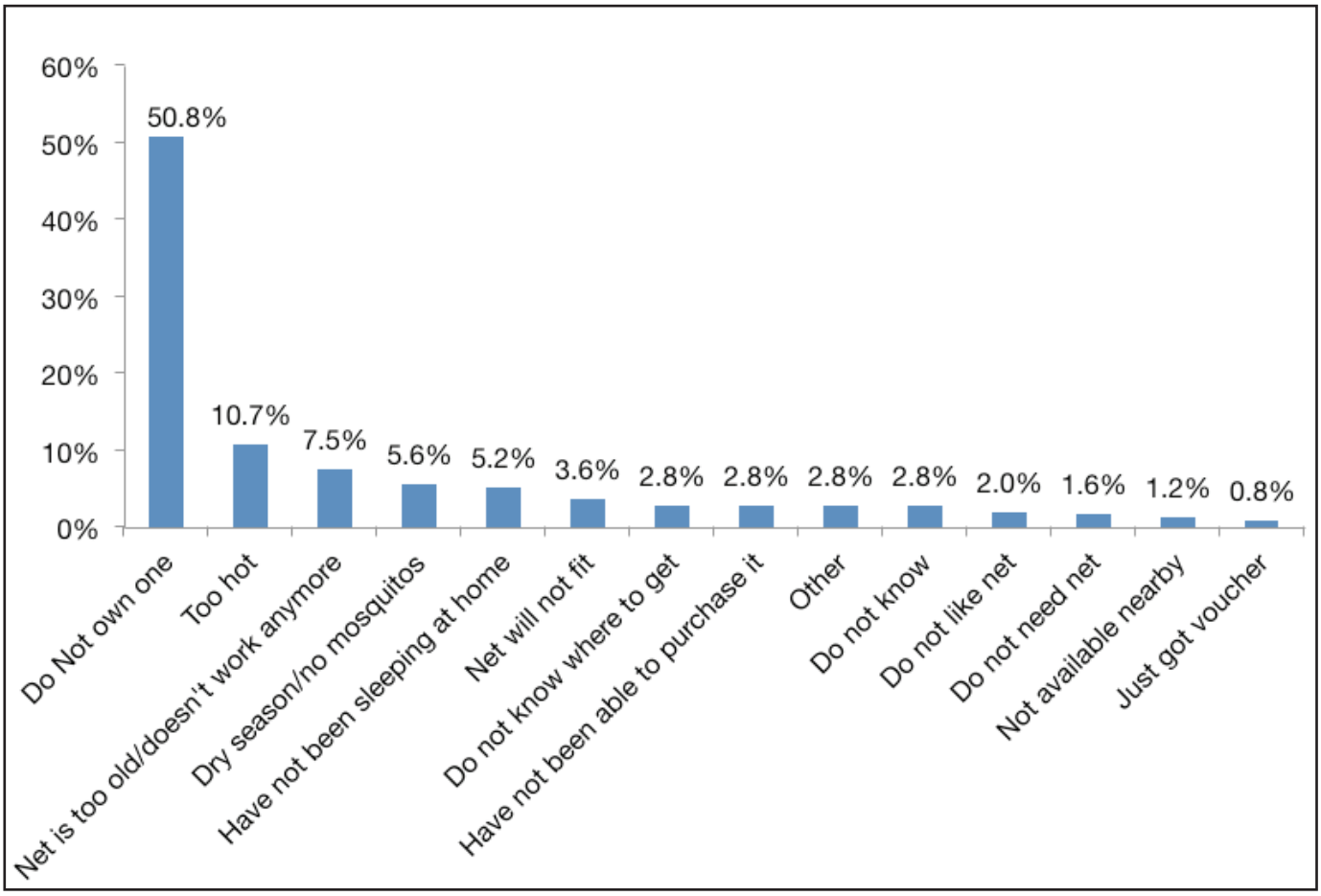
For those women who did not use the voucher to buy a net and answered the question (n = 104), 25% had just received the voucher that day. Some women reported already having a net (14.4%), or that the net was still too expensive, even with a voucher (15.4%). Several women (13.5%) stated that stores were out of nets and that is why they had not yet received one.

Figure 20. Reasons for not purchasing a net with voucher (N = 104)



85.3% of women reported sleeping under a net the night before. The remaining 14.7% or 252 women reported varying reasons for not sleeping under one. 50.8% of them did not own a net, and 27 women reported it was too hot to use a net, while a smaller number of women reported other reasons.

Figure 21. Reasons for Not Sleeping Under a Net the Previous Night (N = 252)



Of the 1,537 women who responded, the mean gestational month when they started sleeping under a mosquito net was 2.51 weeks, SD = 5.94, ranging from 0-35 weeks. 75.3% reported zero weeks as the starting point; many women reported the practice of sleeping under their mosquito nets prior to pregnancy.

536 of 1707 (31.4%) women reported having been diagnosed with malaria during their pregnancy, and 721 of 1708 (42.2%) took a drug to cure it. After close review, it was evident that women were reporting both preventive and treatment medication intake simultaneously, which likely inflated the treatment numbers.

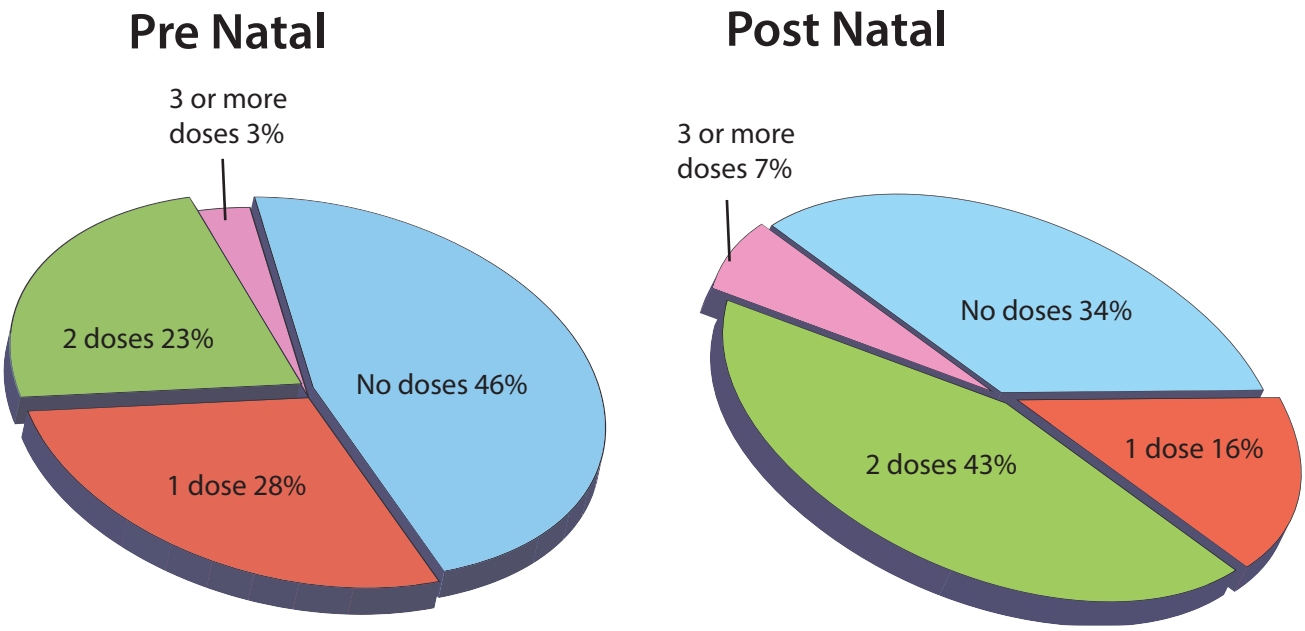
Table 8. Summary of Malaria interventions uptake in the sample

Type of Intervention/Behavior	Number and % of Women
Received malaria DIAGNOSIS while pregnant*	536 (31.4%)
Took a drug to CURE malaria while pregnant **	721 (42.2%)
Took a drug to PREVENT malaria while pregnant **	1,057 (61.9%)

* Out of 1,707
** Out of 1,708

683 of all women (40%) reported not receiving an SP dose during pregnancy to prevent malaria (385 in the post-natal sample and 298 in pre-natal care sample).

Figure 22. Number of SP Doses Taken During Current or Past Pregnancy



From Figure 22 it is evident that half (50%) of the post-natal women received the recommended 2 or more doses of SP. Still, over a third (34%) of the post-natal sample reported no coverage with malaria prevention medications. Women from the pre-natal sample might have not yet received a dose due to the early stages of their pregnancy. The higher proportion of post-natal clients who have received 2 doses is encouraging for this sample.

Of those women who took malaria medication while pregnant and answered the question (n= 1,025), the majority (88.1%) took the medication under direct observation of a healthcare provider. 10.1% took their medication at home, and 1.8% at the pharmacy.

Effect of Program Exposure on Knowledge and Behaviors

To analyze the relationship between campaign exposure and knowledge and behaviors, an index of message exposure was created. A "1" was assigned to each Wazazi Nipendeni message source;[2] this created a range of 0-16 sources. The total number of sources was summed, and the mean was 0.76 (SD = 1.36). The kurtosis of this variable was very high (over 14), indicating the assumptions of normal distribution were violated.

There were many women who reported no exposure to the message (65.1% of 1708 women), and smaller and smaller numbers reported one, two, three or more sources. The variable was then recoded to have 6 possible values: 0, 1, 2, 3, 4, and 5 or more sources. This recoding improved the kurtosis value to be acceptable for regression analyses (3.09, SE = .12).

Self-report versus ANC card data

ANC card data was requested from interviewees and was available for 832 women. These data were compared against self-reported behavioral outcomes, and tests were run to see whether exposure had differential influence on either self-reported behaviors or those recorded in the ANC cards, where available.

The connection between exposure and the following seven outcomes was explored:

- Time of first ANC visit
- Number of ANC visits
- Birth Preparedness
- Women's HIV Testing
- Partner involvement in birth planning and joint HIV testing
- Delivery in a health facility
- Malaria knowledge and behaviors

The relationship between SMS utilization and behavioral outcomes was also assessed. These outcomes were assessed on a binary scale - Yes (1) or No (0) - so step-wise logistic regression analyses were used to test for the effectiveness of exposure to the Wazazi Nipendeni message on the outcomes. Similar to the linear regression analysis, demographic variables (age, education, SES and employment) were entered as predictors in the first block. The number of message sources was then entered into Block 2. The following are the results for each outcome separately. Residual diagnostics were examined, and no subsequent steps were needed to manipulate the raw data for further analyses (other than for sleeping under a net; see below).

[2]Note: An alternative exposure index was created using frequency of exposure across all sources. The responses were recoded such that daily exposure was coded a 2, weekly and monthly exposure a 1, and more than monthly or not at all a zero. These values were added, and the distribution and range were almost identical to the source message index. As frequency was not providing much nuanced understanding of whether frequency mattered, the source index was used for analyzing outcome measures.

Relationship between exposure and time of first ANC visit

Of the 832 women for whom ANC card data were available, the group was categorized as having first visited the ANC prior to or at 16 weeks (1), or after 16 weeks (0). Of this subsample, 452 (54.2%) reported visiting the ANC prior to or at 16 weeks.

A step-wise logistic regression was conducted, with demographic variables (age, education, household possessions, and employment status) entered as predictors at Step 1, and number of message sources entered at Step 2.

The table below shows the predictors' effects on whether the number of message sources women reported was associated with visiting the ANC prior to or at 16 weeks. The Hosmer-Lemeshow test was non-significant at both steps, indicating the models at both steps were good fits for the data; however, the only significant predictor when all variables were entered into the model was education, with more educated women having 44% greater odds of attending the ANC before 16 weeks than those with less education. Message exposure was not a significant predictor at the second step ($p > .05$), and the model was not a significant improvement with its inclusion.

Table 9. Predictors of early first ANC visit

Predictor	β	SE β	Wald's $\chi 2$	df	p	eβ (odds ratio)
Step 1						
Constant	-.90	.41	4.72	1	.03	NA
Age	.01	.01	.43	1	.51	1.04
Education	.34	.12	9.04	1	.003	1.44
Employment	-.03	.17	.02	1	.88	.98
SES	-.04	.04	1.00	1	.32	.96
Test			$\chi 2$	df	P	
Overall model estimation						
Likelihood ratio test			9.34	4	.053	
Wald test			5.55	1	.02	
Goodness of fit test						
Hosmer & Lemeshow			11.32	8	.18	

Table 9. Predictors of early first ANC visit

	β	SEβ	Wald's χ2	df	p	eβ (odds ratio)
Step 2						
Constant	-.87	.42	4.35	1	.04	NA
Age	.01	.01	.50	1	.48	1.01
Education	.34	.12	7.43	1	.01	1.40
Employment	-.02	.17	.01	1	.91	.98
SES	-.05	.04	1.53	1	.23	.95
Number message sources	.06	.06	1.51	1	.30	1.06
Test			χ^2	df	p	
Overall model estimation						
Likelihood ratio test			15.27	5	.009	
Wald test						
Goodness of fit test						
Hosmer & Lemeshow			10.39	8	.07	

Note: Step 1 & Step 2: Cox and Snell R^2 = .01. Nagelkerke R^2 = .02. NA = not applicable. N = 832.

Relationship between exposure and number of ANC visits

At the first step in this regression, pre- and post-natal status was a statistically significant predictor of number of ANC visits, while the other demographic variables were not, with post-natal attending the clinic more often, β =.18, t = 7.37, p < .001. At step 2, when campaign exposure was entered, this difference between pre- and post-natal women remained statistically significant, β =.17, t = 7.29, p < .001. Controlling for the demographic variables, campaign exposure was also a statistically significant factor for ANC visits, with greater exposure associated with more visits, β =.07, t = 2.64, p < .01. The addition of campaign exposure into the second step of the model also significantly improved model fit, R2 change = .004, F change (1,1696) = 6.95, p = .008.

Relationship between exposure and individual birth planning

One of the components of the Wazazi Nipendeni campaign was focused on providers helping women to make better plans for their birth to reduce associated risks. These individual birth-planning preparations were analyzed for both the pre-natal and post-natal sample. The available six response items were all rated with either Yes (1) or No (0). When summed, in the case of all positive responses, six points were available. While women who reported at pre-and post-birth were analyzed together, their birth status was added as an individual control factor. The mean for the birth plan variable was 4.41 (SD = 1.64).

A step-wise regression was run, with demographics (age, education, and SES, as measured by household belongings and employment status) and birth status (pre- or post-natal) entered at the first step. Message exposure was entered at the second step. All variables entered at the first step were statistically significant predictors of whether the woman developed a birth plan. Women who reported having given birth were more likely to have developed a birth plan, but this may be due to the variability in gestation for those women who were pre-birth, and the fact that planning may take place closer to actual delivery.

Even controlling for all of these variables, the addition of message exposure into the second step significantly improved the fit of the regression model, R2 change = .004, F (1, 1694) change = 6.50, p = .01. The more sources from which women reported hearing the Wazazi Nipendeni message, the more they prepared for the birth of their child, β = .06, t = 2.55, p = .01.

Relationship between exposure and HIV testing

A step-wise logistic regression was run to determine whether campaign exposure impacted whether women reported being tested for HIV themselves (independent of their partner). The demographic variables in the first step were not significant predictors, but campaign exposure was at the second step (controlling for the independent variables at the first step), p = .02. Fit indices indicated that the model was improved with the addition of campaign exposure, Chi-square (1) = 5.94, p = .02. Greater exposure to the campaign message increased the odds of HIV testing by 18%.

Relationship between exposure and partner involvement

Analyses were conducted on both pre-natal and post-natal sample to analyze partner involvement in birth and in HIV testing.

Partner Involvement in Birth

Partner attendance of birth was analyzed separately for pre-natal and post-natal women, since planning versus what actually occurred are two different behaviors. Table 10 shows the predictors' effects on whether a woman planned on her spouse/partner accompanying her to the health facility when delivering their baby. The Hosmer-Lemeshow test was non-significant at both steps, indicating the models were good fits for the data; however, the only significant predictor when all variables were entered into the model was age, with older women having greater odds of indicating her partner would accompany her. Message exposure was not a significant predictor of a woman planning for her partner to accompany her to the health facility for delivery when entered into the equation at step 2, and the model fit was not significantly improved with its inclusion (χ2 difference (1) = .81, p = .37).

Table 10. Prenatal Sample: Predictors of partner involvement in birth

Predictor	β	SE β	Wald's χ2	df	p	eβ (odds ratio)
Step 1						
Constant	-2.51	.47	28.77	1	<.001	NA
Age	.04	.01	7.49	1	.006	1.04
Education	-.04	.07	0.29	1	.59	0.96
Employment	.04	.03	3.20	1	.07	1.05
SES	.03	.05	.33	1	.57	1.03
Test			χ2	df	P	
Overall model estimation						
Likelihood ratio test			14.46	4	.006	
Wald test			222.51	1	<.001	
Goodness of fit test						
Hosmer & Lemeshow			5.75	8	.68	

Table 10. Prenatal Sample: Predictors of partner involvement in birth

	β	SEβ	Wald's χ2	df	p	eβ (odds ratio)
Step 2						
Constant	-2.53	.47	29.15	1	<.001	NA
Age	.04	.01	7.28	1	.007	1.04
Education	-.03	.08	0.11	1	.74	0.98
Employment	.04	.03	3.04	1	.08	1.04
SES	.04	.05	.61	1	.44	1.04
Number message sources	-.05	.06	.77	1	.38	0.95
Test			χ2	df	p	
Overall model estimation						
Likelihood ratio test			15.27	5	.009	
Wald test						
Goodness of fit test						
Hosmer & Lemeshow			2.33	8	.97	

Note. Step 1 & Step 2: Cox and Snell R^2 = .02. Nagelkerke R^2 = .03. NA = not applicable. N = 835 (2 missing).

For women who had already delivered their babies, the results were similar. The model fit indices were not significant in the first step, so the data fit the model well. Age was the only significant predictor in the model, with older women more likely to have had their partner with them at delivery than younger women. When message source exposure was added to the model, it did not improve, and the number of sources was not a statistically significant predictor of the outcome. Thus, message exposure was not a significant predictor of post-natal women having their partners accompany them to the health facility for delivery.

Table 11. Post-natal Sample: Predictors of partner involvement in birth

Predictor	β	SE β	Wald's χ2	df	p	eβ (odds ratio)
Step 1						
Constant	-2.51	.47	28.77	1	<.001	NA
Age	.04	.01	7.49	1	.006	1.04
Education	-.04	.07	0.29	1	.59	0.96
Employment	.04	.03	3.20	1	.07	1.05
SES	.03	.05	.33	1	.57	1.03
Test			χ2	df	P	
Overall model estimation						
Likelihood ratio test			14.46	4	.006	
Wald test			222.51	1	<.001	
Goodness of fit test						
Hosmer & Lemeshow			5.75	8	.68	

Table 11. Post-natal Sample: Predictors of partner involvement in birth

	β	SEβ	Wald's χ2	df	p	eβ (odds ratio)
Step 2						
Constant	-2.53	.47	29.15	1	<.001	NA
Age	.04	.01	7.28	1	.007	1.01
Education	-.03	.08	0.11	1	.74	1.01
Employment	.04	.03	3.04	1	.08	1.06
SES	.04	.05	.61	1	.44	1.09
Number message sources	-.05	.06	.77	1	.38	1.04
Test			χ2	df	p	
Overall model estimation						
Likelihood ratio test			10.55	5	.06	
Wald test						
Goodness of fit test						
Hosmer & Lemeshow			5.73	8	.68	

Note. Step 1 & Step 2: Cox and Snell R^2 = .01. Nagelkerke R^2 = .02. NA = not applicable. N= 868.

Partner HIV testing

Pre- and post-natal women were analyzed together to see whether the message exposure impacted whether the women and their partners tested together for HIV at the ANC. Model fit statistics were acceptable, with a non-significant Hosmer-Lemeshow test at both steps and statistically significant log likelihood model tests. Message exposure was not a significant predictor of a partner getting tested for HIV, and only education level (with higher education, the more likely the partners had been tested together at ANC) and employment were significant predictors.

For 832 women who had available ANC card data for the partner HIV testing variable, a $\chi 2$ test indicated there were statistically significant differences between self-reported partner testing and ANC card records of having been tested with a partner, $\chi 2(1)= 570.29$, $p < .001$. 26 women stated they had not been tested for HIV with their partner when they actually were, while 46 women reported having been tested for HIV with their partner while pregnant, but their cards indicated that they had not been.

The same step-wise binomial regression analysis was conducted with HIV partner testing as the outcome, and at step 1 the only demographic variable that was a significant predictor was employment, with the odds of employed women being tested with her partner for HIV being 35% lower than unemployed women, according to the ANC card data. Exposure to the message was not a significant predictor at step-two. This reflected the initial analysis using self-report data.

Table 12. Predictors of joint HIV testing pre- and post-natal samples

Predictor	β	SE β	Wald's χ2	df	p	eβ (odds ratio)
Step 1						
Constant	-1.26	.39	10.71	1	.001	NA
Age	.01	.01	1.07	1	.30	1.01
Education	.14	.06	5.26	1	.02	1.15
Employment	.05	.02	6.69	1	.01	1.05
SES	.05	.04	1.53	1	.23	1.05
Test			χ2	df	P	
Overall model estimation						
Likelihood ratio test			15.50	4	.004	
Wald test			.02	1	.89	
Goodness of fit test						
Hosmer & Lemeshow			10.36	8	.24	

Table 12. Predictors of joint HIV testing pre- and post-natal samples

	β	SEβ	Wald's χ2	df	p	eβ (odds ratio)
Step 2						
Constant	-1.25	.39	10.53	1	.001	NA
Age	.01	.01	1.17	1	.28	1.01
Education	.13	.06	4.27	1	.04	1.14
Employment	.05	.02	6.89	1	.009	1.05
SES	.04	.04	.89	1	.34	1.04
Number message sources	.06	.06	.94	1	.33	1.06
Test			χ2	df	p	
Overall model estimation						
Likelihood ratio test			16.44	5	.006	
Wald test						
Goodness of fit test						
Hosmer & Lemeshow			6.73	8	.57	

Note. Step 1 & Step 2: Cox and Snell R^2 = .02. Nagelkerke R^2 = .03. NA= not applicable. N= 1708.

Relationship between exposure and health facility delivery

Several places, such as at home, a dispensary, or a hospital, were reported by women as locations where they delivered their babies. All non-formal health facilities were recoded as 0, and all health facilities were coded as 1. This served as the dependent variable for this analysis. The sub-sample included was 868 postnatal women, with answers from 3 women missing. The Hosmer-Lemeshow test was non-significant at both steps, indicating the data fit the model well.

The log likelihood model was significant, indicating the model was improved with the addition of message source at step 2, and the control variables were also good predictors at step 1. At steps 1 and 2, education was the only predictor of whether a woman delivered at a health facility; with higher education, the odds of a woman delivering in a health facility increased 37% (with all variables included at step 2). With the addition of message exposure, the model improved, and the variable predicted delivery location, but the effect was marginally significant (p = .06). For each message source to which a woman had been exposed, there was a 20% greater odds the woman delivered at a health facility, even controlling for all other demographic variables.

Table 13. Predictors of women delivering in a health facility (post-natal sample only)

Pedictor			β SE β	Wald's χ2	df	p eβ (odds rati
Step 1						
Constant	0.76	.53	2.06	1	.15	NA
Age	.02	.02	1.18	1	.28	1.02
Education	.35	.09	14.09	1	<.001	1.42
Employment	-.04	.03	2.01	1	.16	0.96
SES	.002	.06	.001	1	.96	1.00
Test			χ2	df	P	
Overall model estimation						
Likelihood ratio test			19.60	4	.001	
Wald test			338.61	1	<.001	
Goodness of fit test						
Hosmer & Lemeshow			6.99	8	.54	

Table 13. Predictors of women delivering in a health facility (post-natal sample only)

	β	SEβ	Wald's χ2	df	p	eβ (odds ratio)
Step 2						
Constant	-2.53	.47	29.15	1	<.001	NA
Age	.02	.02	1.02	1	.31	1.02
Education	.32	.10	11.06	1	.001	1.37
Employment	-.04	.03	1.91	1	.17	0.96
SES	-.02	.06	.14	1	.70	0.98
Number message sources	.18	.09	3.55	1	.06	1.20
Test			χ2	df	p	
Overall model estimation						
Likelihood ratio test			23.62	5	<.001	
Wald test						
Goodness of fit test						
Hosmer & Lemeshow			7.07	8	.53	

Note. Step 1: Cox and Snell R^2 = .02. Nagelkerke R^2 = .04. Step 2 Cox and Snell R^2 = .03. Nagelkerke R^2 = .05. NA= not applicable.

Relationship between exposure and malaria knowledge and prevention

Two separate step-wise regression models were run to determine whether message exposure was related to knowledge about malaria. In the first step, the demographic variables were entered in order to control for them (age, education, employment status, and SES as measured by household belongings). In the second step, the number of message sources was entered as the exposure index.

For both models, all demographic variables were statistically significant predictors of malaria knowledge in the first step, with the exception of education ($p > .05$). When the exposure index was added to the models in the second step, the demographic variables remained statistically significant, and the exposure index was also a significant predictor of malaria knowledge, $\beta = .11$, $t = 4.24$, $p < .001$ for model 1, and $\beta = .08$, $t = 3.04$, $p = .002$ for model 2. The greater exposure to the messaging, the greater knowledge the participants reported having about how to prevent against malaria during pregnancy.

Of the 1,702 women reporting (6 answers missing), only 648 women (385 in the post-natal and 298 in the pre-natal sample) reported not receiving SP doses during pregnancy to prevent malaria. The Hosmer-Lemeshow test was non-significant at both steps, indicating a good fit for the data. The log likelihood model was significant at both steps, indicating the control variables were good predictors of the outcome in the first step, and adding number of message sources also significantly improved the model at the second step. At steps 1 and 2, age and SES were the only predictors of whether a woman received SP doses. Message exposure, as a variable itself in the second step, was marginally significant ($p = .06$), but the model was improved with the inclusion of it. The more message sources that women had been exposed to, there was about an 8% greater odds the woman received an SP dose, even controlling for all other demographic variables.

Table 14. Predictors of SP uptake by women

Predictor	β	SE β	Wald's $\chi 2$	df	p	eβ (odds ratio)
Step 1						
Constant	-.72	.27	6.91	1	.009	NA
Age	.02	.008	4.61	1	.03	1.02
Education	.05	.05	0.95	1	.33	1.05
Employment	.01	.01	0.82	1	.37	1.01
SES	.16	.03	24.52	1	<.001	1.17
Test			$\chi 2$	df	P	
Overall model estimation						
Likelihood ratio test			36.52	4	<.001	
Wald test			94.96	1	<.001	
Goodness of fit test						
Hosmer & Lemeshow			4.95	8	.76	

Table 14. Predictors of SP uptake by women

	β	SEβ	Wald's χ2	df	p	eβ (odds ratio)
Step 2						
Constant	-0.68	.27	6.25	1	.01	NA
Age	.02	.008	4.62	1	.03	1.01
Education	.03	.05	0.31	1	.58	1.03
Employment	.01	.01	0.94	1	.33	1.01
SES	.14	.03	19.25	1	<.001	1.15
Number message sources	.08	.04	3.66	1	.06	1.08
Test			χ2	df	p	
Overall model estimation						
Likelihood ratio test			40.26	5	.05	
Wald test						
Goodness of fit test						
Hosmer & Lemeshow			5.31	8	.72	

Note. Step 1: Cox and Snell R^2 = .02. Nagelkerke R^2 = .03. Step 2 Cox and Snell R^2 = .03. Nagelkerke R^2 = .05. NA = not applicable.

Number of SP Doses Impacted by Campaign Exposure

Of the 873 breastfeeding mothers in the sample, 42% received 1 or no SP doses, whereas 49% of pregnant women received 1 or no doses. As with the other logistic regression analyses, demographic variables were entered at the first step, and then number of message sources and respondent status (pregnant versus breast feeding mother) were entered at the second step. The Hosmer-Lemeshow test was non-significant at both steps, indicating a good fit for the data.

The log likelihood model was significant at both steps, indicating the control variables were good predictors of the outcome in the first step, and that adding number of message sources and respondent status also significantly improved the model at the second step. At steps 1 and 2, all demographic variables were statistically significant predictors of whether a woman received 2 or more SP doses, except employment status was only marginally significant at step 2 with the inclusion of the other factors at that stage.

Message exposure as a variable itself in the second step was a statistically significant predictor ($p < .001$), as was the respondent status variable ($p = .001$). The more message sources that women had been exposed to, there was about a 23% greater odds the woman received 2 or more SP doses, even controlling for all the other demographic variables. In addition, pregnant women had 29% lower odds of having received 2 or more SP doses compared to breastfeeding mothers.

Table 15. Predictors of women receiving the recommended 2 or more doses of SP.

Predictor	β	SE β	Wald's χ2	df	p	eβ (odds ratio)
Step 1						
Constant	-1.93	.28	47.88	1	<.001	NA
Age	.03	.01	19.74	1	<.001	1.04
Education	.34	.05	59.01	1	<.001	1.44
Employment	-.03	.01	4.08	1	.04	0.97
SES	.12	.03	15.23	1	<.001	1.13
Test			χ2	df	P	
Overall model estimation						
Likelihood ratio test			121.27	4	<.001	
Wald test			14.07	1	<.001	
Goodness of fit test						
Hosmer & Lemeshow			1.17	8	.99	

Table 15. Predictors of women receiving the recommended 2 or more doses of SP.

	β	SEβ	Wald's χ2	df	p	eβ (odds ratio)
Step 2						
Constant	-2.53	.47	29.15	1	<.001	NA
Age	.04	.01	20.43	1	<.001	1.04
Education	.33	.05	46.19	1	<.001	1.39
Employment	-.03	.01	3.56	1	.06	0.97
SES	.09	.03	7.88	1	.01	1.10
Number message sources	.21	.04	22.18	1	<.001	1.23
Respondent Status	-.34	.10	11.31	1	.001	0.71
Test			χ2	df	p	
Overall model estimation						
Likelihood ratio test			157.31	6	<.001	
Wald test						
Goodness of fit test			5.57	8	.80	
Hosmer & Lemeshow	-2.53	.47	29.15	1	<.001	NA

Note. Step 1: Cox and Snell R^2 = .02. Nagelkerke R^2 = .03. Step 2 Cox and Snell R^2 = .03. Nagelkerke R^2= .05. NA= not applicable.

Of the 1,702 women reporting (6 responses missing), only 255 women reported not sleeping under a mosquito net the previous night. There were 28 identified outliers with standardized residuals over 3.0 or less than -3.0. Two models were run, the baseline model with all cases included and a revised model with the 28 cases removed. The classification tables were then compared to determine the impact of the cases on the model. The improvement in classification only changed by 1.4%, so the baseline model was used to interpret the results.

The Hosmer-Lemeshow test was non-significant at both steps, indicating a good fit for the data. The log likelihood model was significant at both steps, indicating the control variables were good predictors of the outcome in the first step, and adding number of message sources also significantly improved the model at the second step. At steps 1 and 2, all of the demographic variables predicted net use. Message exposure as a variable itself in the second step was significant ($p < .001$). For each increase in message source to which a woman was exposed, there was about a 61% greater odds the woman slept under a mosquito net the previous night, even controlling for all other demographic variables.

Table 16. Predictors of sleeping under a mosquito net

Predictor	β	SE β	Wald's $\chi 2$	df	p	eβ (odds ratio)
Step 1						
Constant	-.50	.37	1.84	1	.18	NA
Age	.02	.01	4.05	1	.04	1.02
Education	.28	.07	18.93	1	<.001	1.33
Employment	.04	.02	5.66	1	.02	1.04
SES	.19	.05	17.27	1	<.001	1.21
Test			$\chi 2$	df	P	
Overall model estimation						
Likelihood ratio test			56.72	4	<.001	
Wald test			653.34	1	<.001	
Goodness of fit test						
Hosmer & Lemeshow			7.23	8	.51	

Table 16. Predictors of sleeping under a mosquito net

	β	SEβ	Wald's χ2	df	p	eβ (odds ratio)
Step 2						
Constant	-0.41	.37	1.23	1	.27	NA
Age	.02	.07	4.23	1	.04	1.02
Education	.22	.07	10.91	1	.001	1.25
Employment	.04	.02	5.78	1	.02	1.04
SES	.14	.05	8.70	1	.003	1.15
Number message sources	.48	.10	23.23	1	<.001	1.61
Test			χ2	df	p	
Overall model estimation						
Likelihood ratio test			90.43	5	<.001	
Wald test						
Goodness of fit test						
Hosmer & Lemeshow			13.12	8	.11	

Note. Step 1: Cox and Snell R^2= .03. Nagelkerke R^2= .06. Step 2 Cox and Snell R^2= .05. Nagelkerke R^2= .09. NA= not applicable.

Relationship between SMS enrollment and behavioral outcomes

In order to determine whether the SMS enrollment was associated with behavioral outcomes, a new variable was created with 3 dummy coded values: 0 = no message exposure, 1 = message exposure only, regardless of number of sources, and 2 = SMS (woman texted the enrollment word to the number). The analyses were rerun with this new variable entered as a predictor in the second step, rather than just the number of message sources. There were only 35 women who reported texting and using the SMS system, so the power to detect differences was small. SMS exposure was not significantly related to any of the behavioral outcomes.

Summary of Exposure Influence on Outcomes

Table 17 summarizes the impact of message exposure on key outcome variables, as well as other significant predictors in the final regression models.

Table 17. Campaign Exposure influence on Outcomes

Knowledge/ Behavioral Outcome	Exposure Impact	Other Predictors	Details
Time of first ANC visit	None	Education	• More educated women had 44% greater odds to attend ANC before 16 Weeks
Number of ANC Visits	☑		• Exposure to the campaign improved ANC attendance
HIV Testing	☑		• Exposure to the campaign increased the odds of HIV testing by 18%
Individual Birth Planning	☑	Age and SES	• The more sources of exposure women had, the more they prepared for their birth
Partner getting tested for HIV	None	Education	• The higher the woman's education, the more likely the partner had been tested for HIV
Delivering at a health facility	☑	Education	• With higher education, the odds of delivering in a health facility increased 37% • With more message sources, there was a 20% greater odds of delivering at a health facility

Knowledge about malaria prevention during pregnancy	☑	All demographic variables with the exception of education	• With age, employment and increased SES, the odds of being knowledgeable about malaria prevention increased • With greater exposure, participants reported greater knowledge of malaria prevention
Taking SP	☑	Age and SES	• With greater exposure, there was a 17% greater odds women received an SP dose
Number of Doses of SP	☑		• The more message sources to which women were exposed, there was about a 23% greater odds the woman received 2+ SP doses
Sleeping under a net	☑	All demographic variables	• With increased number of message sources, there was a 61% greater odds women slept under a net

Implications/ Recommendations for Future Programming

Exposure

While overall campaign exposure was 35.5%, national omnibus surveys show exposure to the campaign of up to 46%. The campaign used a number of channels, and it was expected the exposure would be higher with the target population. Wazazi Nipendeni was aired on national radio and TV stations, but not on regional radio stations. A better reach could be acquired through the addition of regional radio networks. Currently, 66% of men and women over the age of 18 reside in Tanzania's rural communities. As the second phase of the campaign is being developed, exploring the channels that cater best to this underserved, as well as less educated, and less wealthy population will be key. Campaign implementers could consider enhanced opportunities for community outreach and mobilization through engagement with local leaders and volunteers, and linkages to health facilities. Because the evaluation clearly indicates that the campaign had positive effects on those who were exposed to its messages, increasing exposure will help amplify the behavioral effects of the campaign.

Radio was identified as a key source of exposure, and with radio being the most popular media outlet in Tanzania,[7] radio spots reached women with the most frequency. While among interviewed women the uptake of the SMS service was low, between November 2012 and January 2014, 331,664 pregnant women, new mothers, supporters and general information seekers registered for the SMS service. Considering the high degree of satisfaction with the service among women interviewed who registered, this avenue of campaign exposure needs to be explored in more detail. Women also reported a high degree of satisfaction with the individual birth planning brochures they completed with their health providers, partners or others.

It is therefore important to continue involving providers in individual birth planning in Tanzania, and to distribute health campaign messages over radio as a source most frequently utilized by Tanzanian women.

SMS Platform

Mobile health (mHealth) was an important supportive communication channel for the campaign, allowing for the delivery of more detailed information on healthy pregnancy multiple times per week. However, only a small percentage (7.9% or 122) of women reported hearing about the SMS service – a surprising finding, given the referral to the SMS system was included on the majority of campaign materials – radio spots, TV spots, billboards, magazine advertisements, posters, IBP brochures, banners, and others. Awareness of the SMS system was expected to be much more on par with overall reach of the campaign (35.1%). It is possible the SMS call to action was "lost in the clutter" by being placed at the end of radio spots, after the main content of the spot, in a graphic but not in words at the end

of the TV spots, and on the bottom or at the back of print materials. In future iterations of the campaign, it is recommended that referral to the SMS platform be given more prominence – possibly even its own dedicated radio and TV spots and/or print materials.

Though only a small proportion of respondents heard of the SMS system, nearly one third (30%) of those who did, texted the campaign word to the number provided, and 83% completed registration in the system. Furthermore, half of the women who texted the system told others about the information they learned through SMS, 83.3% said they would recommend it to others, and 92.3% said the number of messages received was "just right." These are all encouraging findings and suggest that those who do use the system find it helpful. More concerted efforts should be made to increase awareness of and enrollment in the SMS system, and further research should be conducted on its impact, as the small sample size hindered our ability to see the effects of enrollment in the system.

Delivery in Health Facility

In the pre-natal group, fewer women (90.5%) wanted to give birth in a health facility than did post-natal women (97.2%), and fewer women received the individual birth planning brochures from providers (17.4% vs. 21.6%, respectively). We speculate providers might have run out of brochures later in the campaign, so the women who have not yet given birth were less likely to receive one. The majority of the women in the post-natal sample (87%) actually gave birth at a health facility. 35.1% of those who did not reported they could not make it to the hospital in time. Future campaign messaging could emphasize the importance of moving closer to the health facility - staying with a friend or relative, or in a maternal waiting home, where possible - as one's due date approaches.

Individual Birth Plans

Individual birth planning is a key step in the healthy pregnancy and safe delivery process in Tanzania, emphasized in national-level documents such as The National Road Map Strategic Plan to Accelerate Reduction of Maternal, Newborn, and Child Deaths in Tanzania 2008 - 2015, and Focused Antenatal Care training manuals for providers and supervisors. However, to our knowledge, the Wazazi Nipendeni campaign was the first to define and standardize the components of an IBP for end users, and the first to introduce messaging and tools to assist providers, pregnant women, and their partners and birth supporters in the individual birth planning process. The most interactive of these tools was the IBP brochure. Health providers were meant to counsel clients on the IBP during ANC sessions, discuss and fill out the plan together, and encourage the client to discuss the plan with her partner and birth supporters. The successful introduction, dissemination, and utilization of this new tool was dependent upon campaign partners' distribution to health facilities and orientation of providers.

At first glance, it appears that relatively small proportions of women reported receiving the IBP (17.4% of pre-natal and 21.7% of post-natal clients). Given only 57.3% of facilities had IBPs at the time of the study, however, these numbers are actually hopeful. Furthermore, high proportions of those that did receive it did so as intended – from their health care provider at their ANC visit (84.1% of pre-natal clients, 89.9% of post-natal clients), and an overwhelming majority reported they liked the brochure (97.1% of pre-natal and 95.7% of post-natal).

Approximately one-quarter of those that received the IBP reported filling it out (23.4% of pre-natal, 25.4% of post-natal clients) – a finding with room for improvement. Furthermore, few respondents reported discussing the IBP with others (2.8% of pre-natal clients and 7.4% of post-natal clients that received the IBP brochure). While Phase I of the campaign focused on emphasizing the components of an IBP, Phase II could emphasize the importance of sharing the plan with others.

Malaria

Intermittent preventive treatment for pregnancy (IPTp) is one of the core malaria control interventions among pregnant women in Tanzania. At the time of the campaign, it was recommended that pregnant women receive at least 2 doses of SP/Fansidar (IPTp2) to be counted as sufficient preventative therapy during pregnancy. However, proper dosage is one indicator that did not show sufficient outcomes in the current sample. When a woman receives 2 doses of SP and sleeps under a treated net, she is considered to be fully protected against malaria during pregnancy. Encouragingly, close to 50% of the post-natal sample reported receiving 2 doses of SP. This is one of the highest rates recorded in a study like this in Tanzania.

The study also found a low percentage of women who knew both strategies for prevention of malaria during pregnancy. The majority of participants knew either mosquito nets or preventive medicines should be used during pregnancy (69.8%), but only 11.7% listed both strategies as a standard for prevention. There are many reasons that could be attributed to this finding; the major contributor could be due to the fact that for the last 10 years, there has been a very heavy promotion on the use of nets, both among pregnant women via receiving and redeeming discounted LLIN vouchers and free mass LLIN distribution. This has led many people to consider net use as the main or only malaria prevention strategy. The Tanzania HIV and Malaria Indicator Survey (2012),[11] had similar findings, where 98% of survey respondents mentioned sleeping under a treated net as the malaria prevention method they know.

While knowledge about prevention medicines was lower than that of malaria nets, the majority of respondents (63.2%) could name at least one reason for taking the medication during pregnancy. The most common reason provided was the prevention of malaria (60.2% of women). This shows most women know that SP is taken to prevent the effects of malaria during pregnancy.

Likewise, knowledge of the needed doses of SP that would protect pregnant women and their babies from malaria is fair; the majority of the respondents stated 2 doses (68.2%), and 21.8% said 3 doses. It was found that the majority of women did not know of any complications malaria could cause for the baby or pregnant woman (63.1%), and only 22% reported one way and 15% two ways, such as low birth weight or death at birth. Key facts about complications malaria could cause a baby need to be communicated. This could be done not only through campaigns, but also integrated in the health education sessions conducted at ANC, as it is one of the avenues where pregnant women are most likely to be reached. Tanzania is among the countries with high ANC attendance: 96% of women attend at least once, with 43% of those whose last birth occurred in the five years before the 2010 DHS reporting four or more visits, while 51% report 2-3 visits.[7] Incorporating malaria in pregnancy facts during routine ANC visits, could reach pregnant women directly and provide a chance for women to ask questions about malaria.

Limitations

A qualitative component was also included in this evaluation (results reported in a separate report) to assess the effectiveness of the campaign's client and provider print materials. As such, health facilities in this study were purposefully sampled in order to obtain those that had received some or all of the campaign materials. The sample, therefore, is not entirely representative of Tanzania's population of health facilities. It follows, then, that the design of the evaluation may have overestimated the reach of the campaign, given the anticipated presence of additional support materials in the selected facilities.

The campaign relied on partners in the field to deliver materials to the health facilities, of which there are over 5,000 in Tanzania. Wazazi Nipendeni partners had access to approximately 3,000 of those facilities through their programs. Timeframes in which materials were delivered to the health facilities varied widely by partner and by location, as did the mechanism for delivery. While some partners delivered materials directly to the facilities, others opted to deliver materials to the district level for onward dissemination. For this reason, not all of the facilities had received the materials at the time of the evaluation. We purposively sampled facilities that reported receipt of at least some materials at some point during campaign implementation. As the evaluation was carried out ten months after the start of the campaign, it is possible that some facilities that received materials early on may have exhausted their supply by the time of the study.

Furthermore, the present study interviewed pregnant and post-partum women only. There is room for additional research to look into the effect of the campaign on men's knowledge, attitudes, and practices related to safe motherhood, as male partners are also a key target audience for the campaign.

Conclusion

The Wazazi Nipendeni campaign utilized several mutually reinforcing communication channels to disseminate its messages. The variety of sources where women heard or saw campaign messages had impact on two key outcomes—delivery at a health facility and sleeping under a net—while overall message exposure influenced taking SP, developing an individual birth plan, and knowledge about malaria prevention during pregnancy.

This evaluation demonstrates that a nationwide media campaign on improving maternal health outcomes can have significant effects on protective behaviors and knowledge among pregnant women. Interviewed women reported not only engaging in protective behaviors, but also relaying campaign messages to others, thereby further increasing the campaign's reach through indirect channels of interpersonal communication. The Wazazi Nipendeni campaign demonstrates the importance of multi-media campaigns in improving safe motherhood outcomes among pre- and post-natal women in Tanzania.

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Appendix

Wazazi Nipendeni Evaluation Questionnaire.

SECTION 1: BACKGROUND

#	Question	Response/Codes	Skip Patterns
101	Region		
102	District		
103	Name of health facility		
104	Level of Health Facility	Dispensary……..1 Health Centre…….2 Hospital……..3	
105	Type of Health Facility	Public……..1 Private…….2	
106	Urban, peri-urban, or rural?	Urban…….1 Peri-urban…….2 Rural…….3	
107	How old were you at your last birthday?		**Enter the age in complete years**
108	What is the highest level of education you completed?	None…….1 Some primary……2 Primary completed…….3 Some secondary……4 Secondary completed…..5 Technical training after secondary…….6 Some university……7 University completed…..8 Advanced degree…….9	

#	Question	Response/Codes	Skip Patterns
109	What is the status of your employment?	Housewife……..1 Employed in formal sector…….2 Employed in informal sector…….3 Retired/pensioner…….4 Student…….5 Self-employed/ running own business…….6 Unemployed looking for work…….7 Unemployed not looking for work ……8 Casual laborer…….9 Farmer…….10 Other ……11 (specify)	
110	Does your household have (READ EACH STATEMENT):	Electricity……..1 Paraffin lamp…….2 Working radio……..3 Working television…….4 Telephone…….5 Mobile……..6 Iron ……..7 Refrigerator……..8 Plough……..9 Generator…….10 Toilet……..11 Bicycle…….12 Vehicle/motorbike……13	

#	Question	Response/Codes	Skip Patterns
111	I will read a few statements. Please tell me, in the last 12 months, how often your family experienced the following (READ EACH STATEMENT):		
	a. Lacked enough food to eat	Never……1 Rarely……2 Sometimes……3 Often……4	
	b. Lacked Shelter/House to stay in	Never……1 Rarely……2 Sometimes……3 Often……4	
	c. Been unable to afford to send children to school	Never……1 Rarely……2 Sometimes……3 Often……4 Not Applicable……98	
	d. Lacked money to buy medicines/medical treatment	Never……1 Rarely……2 Sometimes……3 Often……4 Not Applicable……98	
112	How many times have you given birth to a living baby in your life?	☐☐	If zero, skip to Section 2
113	How many children whom you gave birth to are still living and currently live in your household?	☐☐	

SECTION 2: ANTENATAL CARE

(For pregnant women and those delivered within six months prior to interview)

#	Question	Response/Codes	Skip Patterns
201	When did you notice for the first time you were pregnant?	At _____ weeks of gestation	If don't remember, enter 98
202	Who was the first person you told about your pregnancy? *(DO NOT READ ANSWERS)*	Spouse/parner…….....…….1 My mother…….....……..2 My mother in law….....……3 My sister…….....……..4 My friend …….....……5 Neighbor…….....6 Health care provier…….....7 Others .....……....8 (specify)	
203	How long after you first noticed you were pregnant did you tell this person?	_____days	
204	How many weeks pregnant were you when you first received antenatal care for this pregnancy/this baby?	_____ Weeks Don't know…….....……98	If more than 16 weeks, answer question 205. If less than 16 weeks, skip to Q206

#	Question	Response/Codes	Skip Patterns
205	(If response to Q204 is 17 weeks or greater) What is the MAIN reason you did not come for antenatal care during the first 16 weeks of pregnancy, when you first learned you were pregnant? (Do not read answer choices. Circle only one)	Did not seeneed…….....….....1 Facility too far…….....….....2 No money…….....…3 Husband/partner did not give permission …….....4 Other family member did not give permission ….....….5 No one to take care of other children ….....…….....…...6 Other .....7(Specify)	
206	How many times did/have you come for antenatal care during this pregnancy, including this visit today?	Number of times….....	
207	At which week of pregnancy do you think a pregnant woman should start attending antenatal clinic?	_____ Weeks	
208	Why do you think you should go at the time you have indicated?		

SECTION 2: ANTENATAL CARE

Now I am going to ask about services you received at this clinic during your pregnancy for this baby. This can include services you received today or during previous visits, but I am talking about the pregnancy for this baby.

Wakati ulipopewa huduma katika ujauzito huu, je ulipata huduma mojawapo katika hizi zifuatazo aidha leo au mahudhurio yaliyopita

#	Question	Response/Codes	Skip Patterns
209	During this ANC visit, or a previous ANC visit during this pregnancy (for this baby), was your blood pressure measured (e.g., did they put a cuff/band on your arm)?	Yes……..…1 No……....0 Don't know……...98	
210	Did you give a urine sample during antenatal care?	Yes……..…1 No……....0 Don'tknow……...98	
211	Did you have your blood checked for Hb during antenatal care?	Yes……..…1 No……....0 Don't know……...98	
212	Was the fetal heartbeat checked during antenatal care?	Yes……..…1 No……....0 Don'tknow……...98	
213	Did you receive a test for syphilis during antenatal care?	Yes……..…1 No……....0 Don'tknow……...98	
214	Were you given any information or counselled about HIV/AIDS?	Yes……..…1 No……....0 Don'tknow……...98	
215	Were you tested for HIV as part of your antenatal care?	Yes……..…1 No……....0	If no, skip to Q217
216	(If yes to Q215) Did you get the results of the test the same day you were tested?	Yes……..…1 No……....0 Don't know……...98	
217	Did your partner get tested during one of the visits with you?	Yes……..…1 No……....0 Don't know……...98	
218	I don't want to know about your partner's HIV satus, but do you know your partner's HIV status?	Yes……..…1 No……....0	

#	Question	Response/Codes	Skip Patterns
219	Were you told about danger signs during pregnancy and labor for which you should seek care at a health facility?	Yes……..….1 No…….....0 Don'tknow……...98	
220	Can you please tell me the danger signs during pregnancy and labor for which a pregnant woman should immediately seek care at a health facility? (Do not prompt. Circle all mentioned.)	Vaginal bleeding ……..…1 Convulsions/fits…….....…...2 Severe headache…….....…...3 Blurred vision…….....4 High fever…….....…….5 Severe abdominal pain….....6 Difficulty breathing….....…..7 Severe weakness…….....…...8 Loss of consciousness.....9 Swelling of hands or face .....….10 Labor going on for too long (or labor going on for more than 12 hours)….11 Baby presenting other than the head during labor.....12 Baby stops moving….....….13 Other (specify)…….....14 Don't know…….....…98	
221	During your ANC visits for this pregnancy, were you given an injection in the arm to prevent the baby from getting tetanus?	Yes……..….1 No…….....0 Don'tknow……...98	
222	Before this pregnancy, were you given an injection in the arm to prevent you from getting tetanus?	Yes……..….1 No…….....0 Don'tknow……...98	

SECTION 3A: INDIVIDUAL BIRTH PLAN (ANC)

#	Question	Response/Codes	Skip Patterns
301	Do you know your due date?	Yes……..…1 No……..0	→303
302	What is your due date?	_____/_____ Month/year	
303	Have you planned where you are going to deliver the baby?	Yes……..…1 No……..0	→305 →304
304	Where would you like to deliver?	Facility…….....…….....…1 Home…….....…….....…2 Other…….....…….3 (specify)	→306 →313 →313
305	Where do you plan to deliver (Ask for specific name of facility)?	Facility (Name:_____)..…1 Facility but no name given…....…2 Home…….....…….....…3 Other…….....……4 (specify)	→313
306	Do you know how you will get to the health facility when it is time to deliver?	Yes……..…1 No……..0	→308
307	What type of transportation will you use to get to the health facility when it is time to deliver?	Bicycle…….....…….....…1 Bus/car…….....……2 Motorcycle…….....…….....…3 Bajaj…….....…...…….....…4 On foot…….....…….....…5 Other…….....…...……...6 (specify)	
308	Will someone accompany you to the health facility when it is time to deliver?	Yes……..…1 No……..0	→310

SECTION 3A: INDIVIDUAL BIRTH PLAN (ANC)

#	Question	Response/Codes	Skip Patterns
309	Who will accompany you to the health facility when it is time to deliver?	Spouse/partner……..........…….…..1 My mother……............................……..…2 My mother in law…….....................….3 My sister…………….......................……...4 My friend …………….......................…5 Neighbor………………….....................6 Health care provider………...............7 Others...............................8 (specify)	
310	Have you prepared the items that you need for delivery?	Yes……………..….1 No………………......0	
311	Do you know who will watch over your house/family while you are at the health facility?	Yes……………..….1 No………………......0	If no, skip to Q313
312	Who is this person?	Spouse/partner…...........................……...1 My mother…….................................……2 My mother in law…...........................…3 My sister……………..........................4 My friend …………….......................5 Neighbor………….............................6 Health care provider…......................7 Others................................8 (specify)	
313	Have seen this brochure before (Show them an example)?	Yes……………..….1 No………………......0	

SECTION 3A: INDIVIDUAL BIRTH PLAN (ANC)

#	Question	Response/Codes	Skip Patterns
314	Have you received an IBP brochure?	Yes……..…1 No……..0	If no, skip to Q322
315	Where did you receive the brochure?	Group counseling session.....1 In a waiting room….....2 In an ANC appointment with a provider…….....3 From a community volunteer…....4 Other.....5 (specify) Unsure…….....6	
316	Did you fill out an IBP brochure?	Yes……..…1 No……..0	If no, skip to Q322
317	Who did you fill it out with?	A provider…….....…1 By myself…….....2 With spouse/partne…….....3 With a friend/family member….....4 Other.....5 (specify)	
318	Have you discussed this brochure with anyone?	Yes……..…1 No……..0 Don’t know…….98	If no, skip to Q320

SECTION 3A: INDIVIDUAL BIRTH PLAN (ANC)

#	Question	Response/Codes	Skip Patterns
319	Who did you discuss it with?	My spouse/partner…….....1 Health care provider…….....2 My mother…….....…3 My friend…….....4 Other family members …….....5 Other _____.....6 (specify)	
320	Ask for IBP brochure for verification and check which items are complete.	When she is due…….....…1 Where she will give birth…….....2 Who will accompany her to the health facility…….....3 How they will get there…….....……4 Who will take care of the family while they are away…….....…..5 Prepare the bag to keep the baby's clothes and other needs…….....…….6	
321	Did you like the brochure?	Yes……..…1 No……..0	
322	Did you receive a reminder card for SP2?	Yes……..…1 No……..0	

SECTION 3B: INDIVIDUAL BIRTH PLAN (POST NATAL)

#	Question	Response/Codes	Skip Patterns
323	Did you know your due date?	Yes……………..….1 No…………….......0	
324	What was the birth date of this baby?	________________/_________ Month/year	
325	Did you plan where you were going to deliver the baby?	Yes……………..….1 No………………......0	If no, skip to Q331
326	Where did you plan to deliver (Ask for specific name of facility)?	Facility (Name:_________________)...…1 Facility but no name given…............…2 Home……..............….........................…3 Other……....................….……4 (specify)	→331
327	Did you know how you would get to the health facility when it was time to deliver?	Yes……………..….1 No………………......0	→329
328	What type of transportation did you plan to use to get to the health facility when it was time to deliver?	Bicycle……..............……...................…1 Bus/car……..................................………2 Motorcycle……........……....................…3 Bajaj……..............…....…..................…4 On foot……............……....................…5 Other……..............…...……....6 (specify)	
329	Did you plan for someone to accompany you to the health facility when it was time to deliver?	Yes……………..….1 No………………......0	→331

SECTION 3B: INDIVIDUAL BIRTH PLAN (POST NATAL)

#	Question	Response/Codes	Skip Patterns
330	Who was this person to accompany you to the health facility when it was time to deliver?	Spouse/partner……..1 My mother……2 My mother in law…….3 My sister……4 My friend ……5 Neighbor……6 Health care provider…….7 Others.....8 (specify)	
331	Did you prepare the items that you would need for delivery?	Yes……..…1 No……..0	
332	Did you know who would watch over your house/ family while you were at the health facility?	Yes……..…1 No……..0	If no, skip to Q334
333	Who was this person?	Spouse/partner……..1 My mother……2 My mother in law…….3 My sister……4 My friend ……5 Neighbor……6 Health care provider…….7 Others.....8 (specify)	

SECTION 3B: INDIVIDUAL BIRTH PLAN (POST NATAL)

#	Question	Response/Codes	Skip Patterns
334	Have seen this brochure before (Show them an example)?	Yes……..….1 No…….....0	
335	Did you receive an IBP brochure?	Yes……..….1 No…….....0	If no, skip to Q341
336	Where did you receive the brochure?	A provider…….....…1 By myself…….....2 With spouse/partne…….....3 With a friend/family member…....4 Other.....5 (specify)	
337	Did you fill out an IBP brochure?	Yes……..….1 No…….....0	If no, skip to Q345
338	Who did you fill it out with?	My spouse/partner…….....1 Health care provider…….....2 My mother…….....…3 My friend…….....4 Other family members …….....5 Other _____.....6 (specify)	
339	Did you discuss this brochure with anyone?	Yes……..….1 No…….....0	If no, skip to Q341

SECTION 3B: INDIVIDUAL BIRTH PLAN (POST NATAL)

#	Question	Response/Codes	Skip Patterns
340	Who did you discuss it with?	My spouse/partner…….....1 Health care provider…….....2 My mother…….....3 My friend…….....4 Other family members …….....5 Other _____.....6 (specify)	
341	(Show a brochure to the respondent and ask for verification) Which of the following did you use the brochure to plan? (SELECT ALL THAT APPLY)	When you were due…….....…….1 Where you would give birth…….....2 Who would accompany you to the health facility…….....….3 How you would get there…….....…..4 Who would take care of your family while you were away…….....5 Preparing the bag to keep the baby's clothes and other needs…….....6	
342	Did you like the brochure?	Yes……..…..1 No……..…..0	If YES skip to the next question, If no skip to question 344
343	Why did you like the brochure?		Skip to Q345
344	Why didn't you like the brochure?		
345	Did you receive a reminder card for SP2?	Yes……..…..1 No……..…..0	


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SECTION 4: ANTENATAL AND POSTNATAL CARE

#	Question	Response/Codes	Skip Patterns
401	Where did you give birth to (NAME)? **Probe to identify the type.** If unable to determine if a hospital, health center, or clinic is public or private medical, write the name of the place. …… NAME OF PLACE	HOME Your home……..……..1 Other home…….....…...2 HOSPITAL Referral/Spec. Hospital…….....…3 Regional Hospital…….....4 District Hospital…….....5 Health Center…….....…6 Dispensary…….....……7 Village Health Post…….....…..8 Community based Disctributors (CBD) Worker……9	
402	Who assisted with the delivery of (NAME)? Anyone else? Probe for the type(s) of person(s) and record all mentioned. If respondent says no one assisted, probe to determine whether any adults were present at the delivery.	HEALTH PROFESSIONAL Doctor/AMO…….…….....1 Clinical Officer…….....2 Asst. Clinical Officer…….....3 Nurse/Midwife…….....4 Mch. Aide……....5 OTHER PERSON Village health workers…….....6 Trained TBA/TBA…….....7 Relative/Friend…….....8 Others _____.....9 (specify) No one …….....10	

#	Question	Response/Codes	Skip Patterns
403	**IF DID NOT DELIVER IN FACILITY:** Why didn't you deliver in a health facility? Probe: Any other reason? Record all mentioned	Cost too much……....1 Facility not open……....2 Too far/No transportation……...3 Don't trust facility/ poor quality service ……4 No female provider at facility…….....5 Husband/partner did not allow…....6 Family did not allow…….....7 Not necessary…….....8 Not customary…….....9 Didn't make it in time…….....10 Other _____.....11 (Specify)	

SECTION 5: MALARIA IN PREGNANCY

#	Question	Response/Codes	Skip Patterns
501	What are all the ways in which pregnant women can protect themselves against malaria? Multiple responses possible. Unprompted. Probe once—anything else?	Sleep under a mosquito net…..……..1 Sleep under an insecticide-treated mosquito net…….....….2 Use mosquito repellant…….....….3 Avoid mosquito bites…….....….4 Take preventive medication…..……..5 Spray house with insecticide…….....6 Use mosquito coils…….....7 Cut the grass around the house…...8 Fill in puddles/stagnant water…....9 Keep house surroundings clean.....10 Burn leaves…….....11 Don't drink dirty water…….....12 Don't eat bad food (immature sugarcane/leftover food)……..……..13 Put mosquito screens on the windows…….....14 Don't get soaked with rain…….....15 Other _____.....16 Don't know…….....17	
502	Does your household have any mosquito net that can be used while sleeping?	Yes……..….1 No…….....0	

SECTION 5: MALARIA IN PREGNANCY

#	Question	Response/Codes	Skip Patterns
503	Did you receive an insecticide treated mosquito net today (or another day) at the ANC?	Yes, today……………………………1 No……………………………………0 Received at ANC another day………2	
504	Did you receive a voucher for an insecticide treated mosquito net during your ANC visits in this pregnancy?	Yes………………1 No…………………0	
505	Did you use the voucher to purchase a mosquito net?	Yes………………1 No…………………0	
506	Why did you NOT use the voucher to purchase a mosquito net (UNPROMPTED)?	Already have a net…………………………1 Still too expensive………………………2 Not available nearby……………………3 Don't know where to get one …………4 Don't like them ……………………………5 Don't need them ……………………………6 Nets won't fit in sleeping space………7 Just received voucher today……………8 Too hot………………………………………9 Dry season so not needed………………10 Other _______________…………………11 Don't know …………………………………98	
507	Did you sleep under a mosquito net last night?	Yes………………1 No…………………0	

SECTION 5: MALARIA IN PREGNANCY

#	Question	Response/Codes	Skip Patterns
508	Why did you NOT sleep under a mosquito net? (UNPROMPTED. MARK ALL RESPONSES STATED)	Don't own one……..…1 Not available nearby…….....…2 Don't know where to get one…....3 Don't like them …….....4 Don't need them …….....5 Nets won't fit in sleeping space .....6 Just came for 1st ANC visit today and received a voucher…….....7 Too hot…….....8 Dry season so not needed……...9 Other _____.....…10 (specify)	
509	During which week of your pregnancy did you first sleep under a mosquito net?	Week _____ (Enter month as a number of weeks. If she used a net before she became pregnant, enter "0" as the month.)	
510	During this pregnancy, did a health worker ever diagnose you with malaria?	Yes……..…1 No…….....0	
511	During this pregnancy, did you take any drugs to cure a case of malaria?	Yes……..…1 No…….....0	

SECTION 5: MALARIA IN PREGNANCY

#	Question	Response/Codes	Skip Patterns
512	(IF YES) Which drugs did you take to cure the malaria? (Circle all mentioned)	Chloroquine…….....1 SP/Fansidar…….....…..2 Lumefantrine / Arthemeter…...…...3 Malarone…….....4 Quinine…….....5 Traditional medicines…….....6 Nothing / did not treat…….....…..7 Other _____.....8 (specify) Don't Know……..98	
513	How can malaria affect pregnant women or their babies in particular? (Unprompted. Circle all mentioned)	It is worse for them when they are pregnant.....1 It is bad for the baby …….....…..2 Baby might be born underweight....3 Baby might die at birth…….....…...4 They might have it but not feel sick …….....….5 It could cause anemia …….....….6 Could cause abortion/ miscarriage…….....…7 Baby might be born early…....……8 Other _____.....….9 (specify) Don't know…….....…….98	

SECTION 5: MALARIA IN PREGNANCY

#	Question	Response/Codes	Skip Patterns
514	During this pregnancy, did you take any drugs to prevent you from getting malaria? (Not drugs you took because you were sick with malaria.)	Yes……..….1 No…….....0	
515	Which drugs did you take to prevent malaria? (Record all mentioned)	SP/Fansidar …….....1 Chloroquine…….....….2 Other _____……3 (specify) DON'T KNOW…….....….98	
516	How many times did you take SP/Fansidar for prevention during this pregnancy?	TIMES……..	
517	Did you get the SP/Fansidar during an antenatal visit, during another visit to a health facility, or from some other source?	Antenatal visit…….....1 Another facility visit…….....….2 Both…….....…...3 Other _____.....…4 (specify)	
518	Did you take the SP/Fansidar under direct observation by the health workers each time or did you take it at home?	Direct Observation.….....1 At home…….....……2 At pharmacy…….....….3	
519	How many doses of SP do you think a pregnant woman should receive in total to protect her and her baby against malaria when pregnant?	No. of doses.....… Don't know…….....……98	

SECTION 5: MALARIA IN PREGNANCY

#	Question	Response/Codes	Skip Patterns
520	[Data collector: FOR PREGNANT WOMEN, please look at ANC card and record weeks of gestation as of today]	Gestational age today (weeks): _____	
521	[Data collector: FOR PREGNANT WOMEN, please look at ANC card and record whether client has received 0, 1 or 2 doses of IPT]	Number of doses.....…	
522	(If she has taken the first SP dose) Were you told to return for a (another) dose of SP?	Yes……..…1 No…….....0	
523	When are you going to return for a (another) dose of SP? (Do not prompt)	In one month/4 weeks……..…. 1 Two months from now……..….2 Three months from now……..…...3 Not going to return / not taking another dose…….....….4 Don't know……..... 98	
524	Why is it important to take SP during pregnancy? (Note: If she says "prevents malaria" ask about the benefits of preventing malaria. Circle as many as the client mentions)	Prevents underweight babies…....1 Keeps mother healthy…….....2 Keeps the baby healthy…….....3 Prevents maternal death……..…..4 Prevents baby death…….....5 Cannot think of any benefit…….....6 Prevents malaria…….....7 Other _____.....……8 (specify)	

SECTION 6: MASS MEDIA EXPOSURE AND RECALL

#	Question	Response/Codes	Skip Patterns
601	In the past one month have you heard or seen a message called “Wazazi Nipendeni”?	Yes……..…1 No……..0	→If NO, skip to Section 7
602	Where did you see/hear it		
603	How often did you hear/see the “Wazazi Nipendeni” message from: (PROMPTED SINGLE RESPONSE PER STATEMENT)		

	Check here if yes, then check how often	Daily	Weekly	Monthly	Less than monthly
TV/Televisheni					
Radio/Redio					
Poster/Matangazo					
Billboard/mabango					
Vinyl banner/Mabango ya vitambaa					
Brochure/Vipeperushi					
Magazine/majarida					
News Paper/Magazeti					
T-shirt/ Fulana					
Blog/Blogu					
Facebook/Mtandao wa kijamii					
Community events/Matamasha ya kijamii					
Sticker/					
Bags/Mifuko					
Tire cover/mifuko ya matairi ya gari					
Khanga/kanga					
SMS/ujumbe mfupi					
Others (specify)/Nyingine taja					

#	Question	Response/Codes	Skip Patterns
604	What did the “Wazazi Nipendeni” campaign tell you to do? UNPROMPTED. TICK ALL THAT APPLY (MULTIPLE RESPONSES POSSIBLE)	Tell your close people about your pregnancy early….....1 Go for ANC as soon as you know you are pregnant..,,,,,,,.....2 Go for ANC at least four times……3 Test for HIV with your partner ……...4 Enroll in PMTCT services if you or your partner is HIV positive……5 Make an individual birth plan ……6 Sleep under a treated net every night ……..……7 Get at least 2 doses of SP to prevent malaria in pregnancy……..…8 Deliver at a health facility with a skilled provider….....9 SMS ‘mtoto’ to 15001 for more information…..……10 Talk to pregnant women about safe motherhood…....11 Other _____.....12	
605	Have you discussed the Wazazi Nipendeni campaign with anyone? UNPROMPTED.	Yes……..…..1 No…….....0	→If NO, skip to Section 7

SECTION 6: MASS MEDIA EXPOSURE AND RECALL

#	Question	Response/Codes	Skip Patterns
606	If yes, whom did you discuss with? UNPROMPTED. TICK ALL THAT APPLY (MULTIPLE RESPONSES POSSIBLE)	Spouse/ partner……...…..1 Friend…….2 Parent……...….3 Child……...4 Other family member /relative (not partner/parent/child) ……...…...5 Neighbor ……....…….6 Health worker ……..….7 Community volunteer (CBD, CBT, CCA, etc)….....8 Religious leader ……..….9 Other _____....…10 (specify)	

SECTION 7: SMS QUESTIONS

#	Question	Response/Codes	Skip Patterns
701	Have you heard or seen anything about an SMS system where you can get more information on pregnancy?	Yes……..…1 No……....0	→If NO, SKIP TO SECTION 8
702	Where did you hear or see information about the SMS system? (Unprompted, tick all that apply)	TV…….....…..1 Radio…….....2 Poster…….....3 Brochure…….....4 Billboard…….....5 Magazine…….....6 Health worker…….....7 Community volunteer…….....8 Other (specify)…….....9	
703	What word are you supposed to send to the system in order to enroll?	Mtoto…….....……..1 Mimba…….....……2 Others (specify)…….....3 Don't know…….....….98	
704	What number are you supposed to send the SMS to?	15001…….....…..1 Other _____.....…2 (specify) Don't know…….....……98	
705	Did you ever SMS the word "mtoto" to 15001?	Yes……..…1 No……....0	→If YES, SKIP TO Q707

SECTION 7: SMS QUESTIONS

#	Question	Response/Codes	Skip Patterns
706	If no, why not?	I don't have a mobile phone……....1 No good network in this setting.....2 Other _____.....…3 (specify)	SKIP TO SECTION 8
707	If yes, did you finish the regisration process?	Yes……..…..1 No……....0	→If YES, SKIP TO Q709
708	If you did not finish the registration process, why not?	Too difficult…….....…..1 Too time consuming…….....….2 Too many questions…….....3 Too confusing…….....4 Other _____.....…5 (specify)	
709	At what stage of your pregnancy did you enroll in the system (week)?	_____Weeks Don't Know…….....……98	
710	Are you still enrolled in the SMS system?	Yes……..…..1 No……....0	→If YES, SKIP TO Q712
711	If no, why?	Too many messages……..…..1 No credit…….....……...2 No charge (issues with charging).....3 No reception/poor network…....…..4 Couldn't answer my questions.....….5 Not relevant for me…….....….6 Other _____.....…7 (specify)	

SECTION 7: SMS QUESTIONS

#	Question	Response/Codes	Skip Patterns
712	Have you discussed any information you received in the SMS system with anyone else?	Yes……..…1 No……....0	→If NO, SKIP TO Q715
713	If yes, with whom?	Spouse/sexual partner……..…1 Friend…….....2 Parent…….....……3 Child…….....…..4 Other family member/relative (not partner/parent/child)……..……..5 Neighbor…….....……6 Health worker…….....……7 Community volunteer (CBD, CBT, CCA, etc)…….....……..8 Religious leader ……...…9 Other _____.....…10 (specify)	
714	What did you discuss?		
715	Would you recommend the SMS system to a friend that is pregnant?	Yes……..…1 No…… ….....0	
716	Why?		
717	How did you find the number of messages you received? (READ RESPONSES)	Too few…….....……1 Just right…….....……2 Too many…….....…….3	

SECTION 7: SMS QUESTIONS

#	Question	Response/Codes	Skip Patterns
718	What time of the day would you prefer to receive the messages?	Early in the morning…….....……1 Late morning…….....……...2 In the afternoon…….....3 Early in the evening…….....4 Late in the evening…….....5 At night…….....6 Anytime…….....7	
719	Would you be willing to pay for this service?	Yes……..…1 No……...0	→If NO, SKIP TO SECTION 8
720	If yes, how much would you be willing to pay? (Write exact numbers)		

SECTION 8: ANC CARD REVIEW

Please record information from the respondent's ANC card in the table below

#	Item Kitu husika	Information recorded on card Maelezo yaliyo katika kadi
801	Gravidity	
802	Parity	
803	Time of first ANC visit (gestational age in weeks) Umri wa mimba katika hudhurio la kwanza	
804	Total number of ANC visits to date Jumla ya madhurio ya ujauzito hadi sasa	
805	Total number of iron tablets/folic acid given Jumla ya vidonge vya madini chuma vilivyotolewa/alivyopewa	
806	First Dose SP (gestational age in weeks) Dozi ya kwanza ya SP (umri wa mimba)	Yes/Ndio……..….1 No/Hapana……....0 (skip to 810)
807	If yes, how many weeks pregnant were you? Kama ndio wiki ya ngapi ya ujauzito?	_____Weeks
808	Second Dose SP (gestational age in weeks) Dozi ya pili SP (umri wa mimba kwa wiki)?	Yes/Ndio……..….1 No/Hapana……....0
809	If yes, how many weeks pregnant were you? Kama ndio, wiki ya ngapi ya ujauzito?	_____ Weeks
810	Received ITN voucher Amepata Hati Punguzo ya kununua chandarua	Yes/Ndio……..….1 No/Hapana……....0 Yes/Ndio……..….1 No/Hapana……....0
811	TT1	Yes/Ndio……..….1 No/Hapana……....0

SECTION 8: ANC CARD REVIEW

#	Item Kitu husika	Information recorded on card Maelezo yaliyo katika kadi
812	TT2	Yes/Ndio……..….1 No/Hapana……....0
813	Tested for HIV	Yes/Ndio……..….1 No/Hapana……....0
814	Received results	Yes/Ndio……..….1 No/Hapana……....0
815	Partner tested for HIV while at ANC with woman	Yes/Ndio……..….1 No/Hapana……....0
816	Partner received HIV results	Yes/Ndio……..….1 No/Hapana……....0
817	Partner tested for HIV at another time and place	Yes/Ndio……..….1 No/Hapana……....0 Don't Know/Sijui……..2
818	Partner received results	Yes/Ndio……..….1 No/Hapana……....0 Don't Know/Sijui……..2
819	Tested for syphilis?	Yes/Ndio……..….1 No/Hapana……....0
820	Tested positive for syphilis?	Yes/Ndio……..….1 No/Hapana……....0
821	Treated for syphilis?	Yes/Ndio……..….1 No/Hapana……....0
822	Partner treated for syphilis?	Yes/Ndio……..….1 No/Hapana……....0 Don't Know/Sijui……..2

Waza nipe


Zi
ndeni

Wazazi nipendeni

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