ADOLESCENTS 360 OUTCOME EVALUATION: SUMMARY REPORT OF THE BASELINE SURVEY IN TANZANIA

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Results in development

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Disclaimer

The views within this document are entirely the responsibility of the outcome evaluation team.

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Acronyms

A360	Adolescents 360
ASFR	Age-specific fertility rate
AYSRH	Adolescent and youth sexual and reproductive health
CIFF	Children's Investment Fund Foundation
DHS	Demographic and Health Survey
GPS	Global Positioning System
HCD	Human-centred design
HH	Household
HIV	Human Immunodeficiency Virus
IUD	Intrauterine contraceptive device
LAM	Lactational amenorrhoea method
LSHTM	London School of Hygiene and Tropical Medicine
mCPR	Modern contraceptive prevalence rate
MITU	Mwanza Intervention Trials Unit
PSI	Population Services International
PSU	Primary sampling unit
SDM	Standard days method
SRH	Sexual and reproductive health
SRS	Simple random sample
TDHS	Tanzania Demographic and Health Survey

Executive summary

Introduction

The innovative, trans-disciplinary Adolescents 360 (A360) programme being rolled out across Ethiopia, Nigeria and Tanzania uses human-centred design (HCD) to create context-specific multi-component interventions with the aim of increasing voluntary modern contraceptive use among adolescent girls aged 15–19 years.

There is a lack of evidence on the health impact of projects that employ HCD. The A360 evaluation comprises an outcome evaluation, a process evaluation and a cost effectiveness study. The primary objective of the outcome evaluation is to assess the impact of the A360 programme on the voluntary use of modern contraception (the modern contraceptive prevalence rate (mCPR)) among sexually active girls aged 15–19 years. A baseline survey was conducted prior to the scale-up of the programme's interventions, with an endline survey planned for late 2019. This report details the findings from the baseline survey in one of the three A360 countries—Tanzania. A360 will be implemented in 10 regions in Tanzania. This survey was conducted in one of these regions.

Methods

In Tanzania, we are conducting pre- and post-population-based cross-sectional surveys. Baseline surveys took place between 8 September 2017 and 20 February 2018, prior to scale-up of A360 activities, so that baseline conditions in one implementation region could be documented. We conducted baseline surveys in Ilemela district in Mwanza region.

The target population for the study, both unmarried and married girls aged 15–19 years, was in line with the main focus of the programme in Tanzania.

A two-stage sampling design was used. A simple random sample of 34 'streets' (neighbourhoods) was selected from across the 15 urban and semi-urban wards of Ilemela district. In the first eight streets, a simple random sample of households were visited; after this, the sampling strategy was modified to visiting all households in a street. Therefore, in the remaining 26 streets all households were visited. The change in sampling strategy was necessary to ensure the target sample size was achievable. From the households identified in the selected streets, all eligible girls were invited to take part in the survey. In addition, we surveyed a subgroup of co-habiting adults. In total, 3,511 adolescent girls aged 15–19 years and 125 co-habiting adults were included in the study.

The survey collected baseline information on key background characteristics and sexual and reproductive health (SRH) indicators. Only adolescent girls who reported having had sexual intercourse within the 12 months preceding the survey were asked questions regarding use of contraception and family planning services. Therefore, our primary outcome (mCPR) was measured only in sexually active adolescent girls aged 15–19 years. Co-habiting adults were asked about community acceptance and social support for adolescent girls to adopt healthy SRH behaviours.

Key findings

Background characteristics of adolescent girl respondents

- Overall, 94.3% (3,310 out of 3,511) of adolescent girls surveyed were unmarried.
- The median age of unmarried adolescent girls was 17 years (range 15–19 years). The median age of married adolescent girls was 19 years (range 15–19 years).
- Few respondents had no education. For 55.6% of unmarried girls, secondary 'O' level education was the highest educational level attained. For 64.2% of married girls, primary education was the highest educational level attained.
- The percentage of unmarried and married adolescent girls who owned a mobile phone was 34.0% and 60.7%, respectively.

Sexuality, fertility and fertility preferences of adolescent girl respondents

- Overall, 22.5% of unmarried respondents reported being sexually active during the

previous 12 months. The median age of first sexual intercourse was 16 years (interquartile range 15–17 years). For married respondents, 93.1% reported being sexually active during the previous 12 months. The median age of first sexual intercourse was 16 years (interquartile range 15–17 years).

- A total of 250 (7.6%) unmarried and 167 (83.1%) married girls surveyed had ever been pregnant.
- Unmet need for modern contraception was 40.3% in unmarried girls and 32.0% in married girls, made up almost entirely of unmet need for spacing.

Family planning

- Overall, 80.7% of unmarried adolescent girls and 90.1% of married adolescent girls had heard of contraception during the 12 months preceding the survey. The majority of adolescent girls aged 15–19 years knew the benefits of modern contraception. However, many respondents also had misconceptions about modern contraception.
- mCPR for unmarried girls aged 15–19 years was 51.4%. Male condoms were the most common modern method (36.8%), followed by standard days method (8.1%). Traditional methods were used by 2.1% of respondents.
- mCPR for married girls aged 15–19 years was 28.5%. Implants were the most common modern method (11.5%), followed by injectables (6.2%). Traditional methods were used by 1.5% of respondents.
- Overall, 84.5% of unmarried girls and 86.9% of married girls said they felt able to start a conversation with their husband/ partner about contraception, and 87.6% of unmarried girls and 88.5% of married girls said they felt able to obtain a contraception method if they decided to use one. About three fifths of both unmarried and married girls said they felt able to use a method of contraception even if their husband/partner didn't want them to.

Perspectives of co-habiting adults and husbands

- The majority of co-habiting adults surveyed for unmarried girls were female relatives of the girls interviewed. Mothers were most commonly interviewed (43.7%). The majority of co-habiting adults surveyed for married girls were husbands (40.9%).
- For unmarried girls, of the co-habiting adults surveyed, 87.4% said it was acceptable for an adolescent girl to obtain information on contraception services and products if she needed to, and 83.5% said it was acceptable for an adolescent girl to obtain a contraception method if she decided to use one. In addition, 87.4% of co-habiting adults said it was acceptable for an adolescent girl to start a conversation with her partner about contraception, and 47.6% said it was acceptable for an adolescent girl to use a method of contraception even if her partner did not want her to.
- For married girls, of the co-habiting adults surveyed, 95.5% said it was acceptable for an adolescent girl to obtain information on contraception services and products if she needed to and to obtain a contraception method if she decided to use one. In addition, 90.9% of co-habiting adults said it was acceptable for an adolescent girl to start a conversation with her partner about contraception, and 27.3% said it was acceptable for an adolescent girl to use a method of contraception even if her partner did not want her to.

Identified priority areas for programme activities promoting contraceptive use

- *Programme activities to take into account the higher-than-predicted baseline mCPR and lower-than-predicted proportion of married adolescent girls:* The observed mCPR for unmarried adolescent girls was higher than the predicted baseline mCPR (DHS definition: baseline survey 48.7% vs. predicted estimate 38.5%). However, of those unmarried girls reporting using a method of contraception (modern or traditional), only about one in ten were using long-acting methods. Married girls

made up a smaller proportion of all girls aged 15–19 years than expected (baseline survey 5.7% vs. PSI estimate 21.7%). To inform programming decisions, the programme should reflect on the baseline results, including the likelihood of variability in mCPR and proportion of married girls within and across the target regions.

- *Programme communication strategies to take into account using different media depending on whether contraceptive messaging is being targeted at unmarried or married adolescent girls:* Sources of information on contraception differed between unmarried and married girls. Unmarried girls more commonly obtained contraception information from radio and television, or teachers, friends and neighbours, whereas the majority of married girls obtained this information from health facilities. Of note, adolescent girls' access to the internet is limited.

- *Address fears, misconceptions and myths to build trust and credibility of family planning products and to shift the method mix towards long-acting methods:* Myths and misconceptions were widespread among both adolescent girls and their co-habiting adults. Approximately half of adolescent girls in Mwanza believed use of long-acting reversible contraceptives could make adolescent girls permanently infertile and changes to normal menstrual bleeding patterns caused by some modern contraceptives were harmful to health. Currently, of those reporting using a method of contraception (modern or traditional), only about one in ten sexually active unmarried girls and two thirds of sexually active married girls are using implants, intrauterine contraceptive device and injectables. Effective family planning counselling must prepare girls for the possibility that they will experience side effects and provide them with the information and tools to overcome them.

- *Increase intentions to use contraception by positioning contraception as relevant and valuable:* One of the main reasons for unmarried girls not using contraception was that it did not occur to her to use contraception. For unmarried girls, this may highlight a need to position contraception as relevant and valuable for both her and her partner. One of the main reasons married adolescent girls gave for not using contraception was wanting a/another child. However, the majority of married girls acknowledged the health benefits of family planning for child spacing. This data may highlight the need for a planned focus on addressing social norms around the interrelationship between marriage and early childbearing among adolescent girls, and delivering communication on 1) the health and non-health benefits of delaying the birth of a first child and 2) the health and non-health benefits of a two- to three-year interval.

- *Increase partner communication about family planning to help create a supportive environment for accessing services:* While the majority of adolescent girls felt able to start a conversation with their partners about contraception, the proportion who felt able to use a method of contraception even if their partner did not want them to was much lower. An even lower percentage of co-habiting adults and husbands said it was acceptable for an adolescent girl to use a method of contraception even if her partner did not want her to. This data may highlight the need for a planned focus on tackling barriers to community and partner acceptance of modern contraception, and on partner communication for both unmarried and married girls.

- *Foster public approval of family planning by communities to help create a supportive environment for accessing services:* While the majority of respondents (girls and co-habiting adults) approved of married couples using a modern contraceptive method to avoid or delay pregnancy, far fewer respondents approved of unmarried couples using a modern contraceptive method to avoid or delay pregnancy. This data may highlight the need for a planned focus on tackling prevailing social norms

with regard to unmarried couples and the use of modern contraception.

1. Introduction to the programme and the evaluation

Key messages:

- The Adolescents 360 (A360) initiative being rolled out across Ethiopia, Nigeria and Tanzania aims to increase voluntary modern contraceptive use among adolescent girls aged 15–19 years.
- The primary objective of the outcome evaluation is to assess the impact of A360 on the voluntary use of modern contraception (mCPR) among sexually active girls aged 15–19 years.

Adolescents 360 (A360) is a four-and-a-half year initiative co-funded by the Bill & Melinda Gates Foundation and the Children's Investment Fund Foundation (CIFF). A360 is being implemented by Population Services International (PSI) as part of a consortium with IDEO.org, the University of California, Berkeley Centre on the Developing Adolescent, the Society for Family Health Nigeria and Triggerise. The project is being delivered in Ethiopia, Nigeria and Tanzania, in partnership with local governments, organisations and technology and marketing firms.

The A360 interventions are being designed using a human-centred design (HCD) process as a core component. The process includes the following steps:

1. **Inspiration**–a period of formative research to understand adolescent girls' sexual and reproductive health (SRH) needs and their socio-cultural environment;
2. **Ideation**—an iterative process of generating ideas, testing these ideas with adolescent girls and their communities, refining these ideas and developing prototype interventions and testing these prototypes in real-world settings;
3. **Implementation**—rolling out the intervention in the target communities.

Through a transdisciplinary approach, A360 merges public health, HCD, adolescent developmental science, socio-cultural anthropology, youth engagement and marketing to yield country-specific adolescent and youth sexual and reproductive health (AYSRH) solutions.

Ethiopia, Nigeria and Tanzania have some of the highest teenage pregnancy rates and lowest rates of modern contraceptive use among adolescents in the world.[1] A360 is being rolled out across these three countries using HCD to create context-specific multi-component interventions with the aim of increasing voluntary modern contraceptive use (MCPR) among adolescent girls aged 15–19 years. HCD is increasingly being used to develop health interventions, yet the evidence base for the effectiveness of this approach is limited.[2 3]

Itad, the London School of Hygiene and Tropical Medicine (LSHTM) and Avenir Health are working together to monitor, evaluate and develop learning from the A360 programme. The external evaluation of the A360 intervention comprises an outcome evaluation, a process evaluation and a cost effectiveness study.

The primary objective of the outcome evaluation, led by LSHTM, is to assess the impact of the A360 programme on the voluntary mCPR among sexually active girls aged 15–19 years. In Tanzania, we are using a pre- and post-population-based cross-sectional survey design. The outcome evaluation started prior to the scale-up of A360 programme activities, to make it possible to document baseline conditions in one of the ten regions in Tanzania targeted for A360 roll-out.

This report presents the methods and results of the baseline survey in Tanzania. The baseline data will provide A360 implementation partners in Tanzania with crucial information about family planning and reproductive health issues in their target populations on the eve of programme implementation.

The structure of this report is as follows:

Section 2 presents details on the methods used for the baseline survey.

Section 3 describes the background characteristics of the adolescent girls surveyed.

Section 4 describes the sexuality, fertility and fertility preferences of the adolescent girls surveyed.

Section 5 describes the family planning attitudes and behaviours of the adolescent girls surveyed.

Section 6 describes the background characteristics and family planning attitudes of the co-habiting adults of the adolescent girls surveyed.

Sections 7 and 8 present our key findings from the baseline survey and identify priority areas for programme activities promoting contraceptive use for A360 and for future similar projects.

2. Methods

Key messages:

- The baseline survey took place between 8 September 2017 and 20 February 2018. It was conducted across the 15 urban and semi-urban wards of Ilemela district in Mwanza region.
- The target population was adolescent girls (unmarried and married) aged 15–19 years.
- A two-stage sampling design was used. A simple random sample of 34 'streets' (neighbourhoods) was selected across the 15 urban and semi-urban wards of Ilemela district. In the first eight 'streets', a simple random sample of households were visited; the sampling strategy was then modified to visiting all households in a 'street'. Therefore, in the remaining 26 'streets' all households were visited. The change in sampling strategy was necessary to ensure the target sample size was achievable. All eligible girls from the households identified were invited to take part in the survey.
- In Ilemela district, 5,121 potentially eligible adolescent girls aged 15–19 years were identified; 68.6% (3,511) were included in the study.

2.1. Study objectives

The objectives of the baseline survey were to describe, in the A360 target populations, the pre-intervention prevalence of key background characteristics and SRH indicators. The outcome evaluation will be analysing the impact of A360 on these SRH indicators (Table 2.1).

Table 2.1. Primary and secondary outcomes

Outcome domain	Indicators
Primary outcome	Prevalence of modern contraceptive use among sexually active girls aged 15–19 years
Secondary outcomes	• Age-specific fertility rates • Age at first birth • Unmet need for modern contraception among sexually active girls aged 15–19 years • Adolescent girls' knowledge on the use of modern contraceptives to prevent unintended pregnancies • Adolescent girls' agency (self-efficacy) to use modern contraceptives to prevent unintended pregnancies • Adolescent girls' attitudes towards the use of modern contraceptives to prevent unintended pregnancies • Adolescent girls' access to contraceptive services and products • Adolescent girls' misconceptions about modern contraceptives • Community acceptance and social support for adolescent girls to adopt healthy SRH behaviours, including use of modern contraceptives

Our primary outcome, mCPR among 15–19-year-old girls, was defined as follows:

$$\frac{\text{Number of fecund sexually active 15–19-year-old girls reporting use of modern contraceptives at the time of the survey}}{\text{Number of fecund sexually active 15–19-year-old girls}}$$

Modern contraception is as defined in Demographic Health Surveys (DHS):[4] male and female sterilisation, contraceptive implants, intrauterine contraceptive devices (IUDs), injectables, oral contraceptive pill, emergency

contraceptive pill, male condom, female condom, standard days method (SDM), lactational amenorrhoea method (LAM), diaphragm, spermicides, foams and jelly.

Sexually active girls are defined as those who report having sexual intercourse in the past 12 months.

Fecund girls are defined as those who have started menstruating, are not pregnant and do not report that they are infertile.

Our study definition of mCPR differs from the standard DHS definition. Our denominator reflects the population at risk (of pregnancy) – that is, sexually active women who are not infecund or pregnant. Therefore, we consider our definition to be more informative for programming and for understanding whether A360 increases voluntary use of contraception in adolescents. However, we acknowledge that the DHS definition is more widely used, and therefore present the results using DHS mCPR in Appendix D to allow for direct comparisons with DHS data and studies that use the DHS definition for mCPR.

2.2. Study design

Table 2.2 outlines a summary of the methods used in the outcome evaluation study in Tanzania.

Table 2.2. Summary of methods

A360 country	A360 regions	Study design	Outcome evaluation study setting	Study population (sample size)	Sampling strategy
Tanzania	Kagera, Geita, **Mwanza**, Arusha, Tabora, Tanga, Dar es Salaam, Mbeya, Iringa, Morogoro	Cross-sectional before-and-after study	Mwanza region: Ilemela district (urban and semi-urban wards only): Buzuruga, Nyakato, Kirumba, Kitangiri, Nyamanoro, Ibungilo, Kawekamo, Pasiansi, Ilemela, Kiseke, Nyasaka, Buswelu, Kahama, Nyamhongolo, Mecco	Married and unmarried girls aged 15–19 years (3,269) Co-habiting adults (127)	PSU: Street Prior to sampling strategy modification: Two-stage design SRS of 8 streets from 2 wards. SRS of 50 GPS points in each street. All HHs with front door within 20 m radius of GPS point visited. All eligible girls from those HHs invited to be interviewed. After sampling strategy modification: One-stage design SRS of 26 streets from 13 wards. All HHs visited in selected streets. All eligible girls invited to be interviewed.

PSU: primary sampling unit; HH: household; SRS: simple random sample; GPS: Global Positioning System.

2.3. Study settings

A360 is being implemented by PSI and partners in 10 regions in Tanzania (Kagera, Geita, Mwanza, Arusha, Tabora, Tanga, Dar es Salaam, Mbeya, Iringa and Morogoro). PSI will implement A360 across the whole of each of these regions. The aim is to implement A360 in all districts within each of the 10 regions.

We conducted the outcome evaluation study in urban and semi-urban areas of Ilemela district, Mwanza region (Figure 2.1). Ilemela district covers the northern part of Mwanza municipality and comprises 19 wards. Fifteen of these are urban or semi-urban and four are rural (Table 2.3). The wards are of similar population size. Each ward is administratively divided into a number of neighbourhoods, called ‘streets’.

Figure 2.1. Map of Mwanza region showing districts by their boundaries

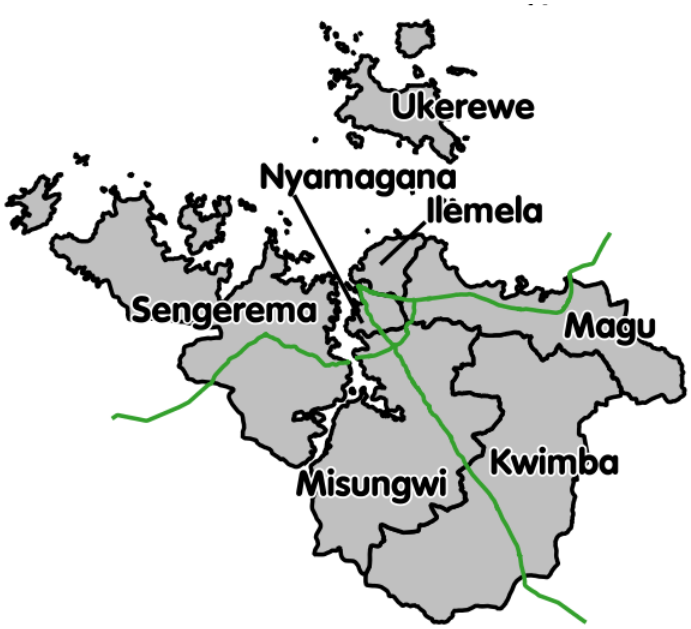


Table 2.3. List of administrative wards within Ilemela District, Mwanza

	Names of ward	Geographical settings
1	Buswelu	Semi-urban setting
2	Nyakato	Urban setting
3	Nyamhongolo	Semi-urban setting
4	Buzuruga	Urban setting
5	Mecco	Urban setting
6	Nyasaka	Semi-urban setting
7	Pasiansi	Urban setting
8	Nyamanoro	Urban setting
9	Ibungilo	Urban setting
10	Kawekamo	Urban setting
11	Kirumba	Urban setting
12	Kitangiri	Urban setting
13	Ilemela	Semi-urban setting
14	Kiseke	Semi-urban setting
15	Kahama	Semi-urban setting
16	Shibula	Rural setting
17	Bugogwa	Rural setting
18	Sangabuye	Rural setting
19	Kayenze	Rural setting

Source: Ilemela Municipal Council 2016. Shaded grey are urban and semi-urban wards included in the study.

Mwanza region was selected by the evaluators in collaboration with PSI because of the high unmet need for modern contraception among girls aged 15–19 years relative to other A360 target regions,[5] because of the absence of other large-scale SRH activities and because PSI has previous experience working in the region. The study was restricted to urban and semi-urban wards in Ilemela district, in part because PSI focuses efforts in more densely populated areas and in part because of resource constraints. The selection of a district in Mwanza region builds on existing strong collaborative links between LSHTM and Mwanza Intervention Trials Unit (MITU).

2.4. Study population

The inclusion criteria for the baseline survey were as follows:

- Adolescent girls aged 15–19 years;
- Living, at the time of the survey, in the study sites;

- Those who voluntarily provide informed consent.

The exclusion criteria for the baseline survey were as follows:

Adolescent girls aged 15–19 years who were:

- Not living, at the time of the survey, in the study sites;
- Those who do not voluntarily provide informed consent.

Adolescent girls were classified as married if they had a husband or were living as married with a co-habiting male partner. Only adolescent girls who reported sexual intercourse within the 12 months preceding the survey were asked questions regarding use of contraception and family planning services.

To measure community acceptance and social support for adolescent girls to adopt SRH behaviours, our second target population comprised adults in the household who might be most influential to a girl's decision-making. Therefore, in households where the girl interviewed was married or living as married we invited the husband/co-habiting male partner to participate, following the girl's permission. In households where the girl interviewed was unmarried, we asked her to nominate a co-habiting adult (age 20+ years) whose views were most likely to influence her decision-making with regard to sexual health and family planning. In those cases where the girl surveyed did not give permission to interview her husband/co-habiting adult, these were excluded, as were adults who did not voluntarily provide informed consent.

Written informed consent was obtained from all participants. A parental consent waiver was granted for unmarried girls aged 15–17 years, given the sensitive nature of the topics discussed. Married adolescent girls under 18 years of age are considered emancipated and did not require parental consent in addition to their own voluntary consent.

2.5. Sampling strategy

The primary sampling unit (PSU) for our survey was a 'street'. A street is the smallest administrative unit in Ilemela district, similar to a neighbourhood or a localised and delineated group of people. All 15 urban or semi-urban wards of Ilemela district were included in the survey. Each ward has an estimated eight to ten streets. As per the study protocol, a two-stage sampling design was used initially. A simple random sample (SRS) of 30 streets was selected from across the 15 urban and semi-urban wards of Ilemela district (two streets per ward). The boundaries of each selected street were identified and mapped using Global Positioning System (GPS) devices.[6]

In the first instance, within each street in the first two wards where we started conducting surveys, we randomly selected 50 GPS coordinates using ArcGIS software version 9.3 (Esri, Redlands, USA).[7] All households whose front doors were located within a radius of 20 m around the GPS point were visited and all eligible consenting girls aged 15–19 years residing in these households were invited to be interviewed. However, we identified much fewer eligible girls than we had predicted based on assumptions derived from local census data.[8] Our sampling target was 332 female participants aged 15–19 years per ward. After conducting sampling in the first two wards, we had identified, on average, 68 female participants aged 15–19 years per ward. Our initial approach to reach our target sample size per ward was to take a SRS of a further two streets within the first two wards and use the same GPS sampling strategy. However, given the resource, time and logistical implications involved in conducting sensitisation for the study with community leaders and residents of an additional two streets, we then chose an alternative approach. For the remaining 13 wards, we used a one-stage sampling design. Within each of the two randomly selected streets, we visited all households and administered the questionnaire to all eligible girls aged 15–19 years. In households that had more than one eligible female aged 15–19 years, all consenting adolescent girls were interviewed.

Thus, in summary, an SRS of 34 streets was finally selected across the 15 urban and semi-urban wards of Ilemela district. In the first eight streets (first two wards), an SRS of households were visited prior to a modification to the sampling strategy to visit all households in a street. All households in the remaining 26 streets (13 wards) were visited. The change in sampling strategy was necessary to ensure the target sample size was achievable.

In the first instance, a husband or co-habiting adult was systematically selected for every 10 sexually active adolescent girls aged 15–19 years who were interviewed and who had given permission to interview her husband or a co-habiting adult. This resulted in 64 co-habiting adults being systematically selected from a list of 636 sexually active girls who gave permission to interview co-habiting adults or husbands (selecting every tenth sexually active girl). To reach the target sample size of 127 co-habiting adults, we randomly sampled 63 from the remaining list of 572 sexually active girls who gave permission to interview co-habiting adults or husbands, and interviewed their co-habiting adults.

For married girls, the focus was on interviewing their husbands, but in a few circumstances an alternative co-habiting adult was interviewed (where the husband refused to be interviewed and the married girl suggested another co-habiting adult (e.g. mother-in-law) who had an influence on her decision to use contraception.

If potentially eligible participants were not available at the first visit, a further two revisits were made to attempt to hold interviews.

2.6. Sample size

Appendix A presents a full description of the original sample size calculations and assumptions used to derive the sample size estimates. We also describe in Appendix A changes made to the original sample size calculations based on interim results from the baseline survey. Here, we provide a summary of our final sample size calculations.

The mCPR estimates used in our final sample size calculations were based on estimates of mCPR from interim results from the baseline survey following data collection in the first four wards. Effect estimates were based on an analysis conducted by one of our evaluation collaborators, Ms Michelle Weinberger (Avenir Health).

In Ilemela district, among sexually active 15–19 year olds, we assumed that, between 2017 and 2019, mCPR would increase from 48.9% to 59.7% in the presence of A360. This represents an absolute increase of 10.8% and a relative increase of 22% between 2017 and 2019 in A360-exposed girls. We estimated that 3,269 girls aged 15–19 years had to be surveyed to achieve 90% power.

In addition, we wanted to achieve a target sample of 127 husbands/co-habiting adults.

2.7. Data collection tools

The questionnaires were adapted from various research instruments that have been used and validated in the study countries,[1 5 9] including DHS [5] and Family Planning 2020 surveys.[1] These were developed in English and then translated into Swahili. Final modifications were made to the questionnaires following an extensive pretesting exercise and after pilot surveys were conducted in communities outside of the selected study sites.

Questionnaires were administered face-to-face by female interviewers aged between 18 and 26 years. The interviewers were provided with one week of extensive training prior to fieldwork. Data was collected and recorded electronically on tablets in the field. This allows for improved data quality through real-time data delivery, built-in logical checks and skip patterns.

The adolescent girl questionnaire obtained information on the following topics:

- Background characteristics of the respondent;
- Migration and movement history;
- Housing and assets;
- Marital and co-habitation status;
- Reproductive history;
- Reproductive health knowledge;
- Fertility preferences;
- Sexual history;
- Knowledge of contraceptive methods;

- Media exposure to family planning messages;
- Use of contraceptive methods (girls who reported sexual intercourse in the previous 12 months only).

The husband/co-habiting adult questionnaire obtained information on the following topics:

- Background characteristics of the respondent and relationship to adolescent girls surveyed;
- Migration and movement history;
- Housing and assets;
- Knowledge of contraceptive methods;
- Attitudes towards use of contraceptive methods among adolescent girls.

2.8. Data analysis

All analyses were conducted in Stata 15 using robust standard errors to account for the cluster survey design.

We produced descriptive statistics on the socio-demographic and reproductive health characteristics of adolescent girls by marital status. Continuous variables were described as median and interquartile range. Categorical variables were described as number and proportion.

2.9. Ethics

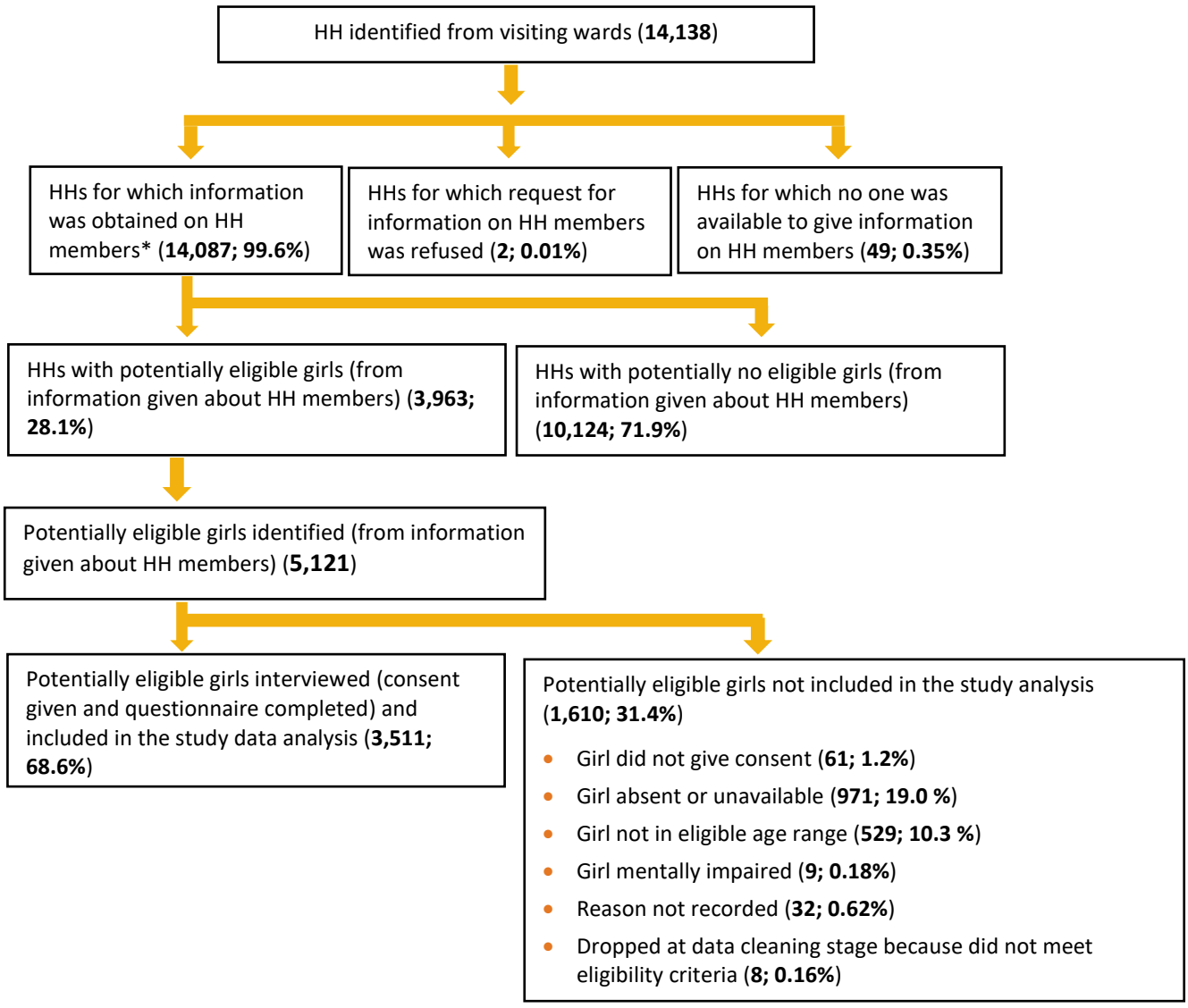
Ethical approval was obtained from the LSHTM Ethics Committee and the National Health Research Ethics Review Sub-Committee of Tanzania.

2.10. Response rates

Data collection took place between 8 September 2017 and 20 February 2018. Appendix B outlines some of the challenges with fieldwork implementation and what approaches were used to overcome these. Figure 2.3 presents the response rates for the different survey components.

In Ilemela district, 34 streets were visited in total across 15 urban and semi-urban wards. A total of 14,138 households were identified and 99.6% were successfully interviewed to obtain information regarding who lived in the household. A total of 5,121 potentially eligible adolescent girls aged 15–19 years were identified from 3,963 households (28.1% of successfully interviewed households); 68.6% (3,511) of potentially eligible adolescent girls were included in the study (Figure 2.3). The most common reason for not successfully interviewing an eligible girl was that the girl was absent or unavailable after a maximum of three visits.

Figure 2.3. Response rate for households and adolescent girls



* Information obtained from individual living in the household or from a neighbour.

3. Background characteristics of adolescent girl respondents

Key messages:

- The majority of adolescent girls surveyed were unmarried (94.3%).
- The median age of unmarried adolescent girl respondents was 17 years (range 15–19 years) and for married girls was 19 years (range 15–19 years).
- Few respondents had no education. For 55.6% of unmarried girls, secondary 'O' level education was the highest educational level attained. For 64.2% of married girls, primary education was the highest educational level attained.
- Christianity was the main religion among respondents (83.2%), followed by Islam (16.6%).
- Among unmarried adolescent girls, about a third owned a mobile phone. Three fifths of married girls owned a mobile phone.

3.1. Age and marital status

The median age of unmarried adolescent girl respondents is 17 years (range 15–19 years). The median age of married adolescent girl respondents is 19 years (range 15–19 years).

The majority of adolescent girls surveyed were unmarried (94.3%). Overall, 201 of 3,351 (5.7%) girls surveyed were married.

3.2. Education

A small proportion of adolescent girl respondents have no education (3.5% unmarried; 7.5% married).

For 55.6% of unmarried adolescent girls, secondary 'O' level education is the highest educational level attained. The highest educational level attained for married adolescent girl respondents is primary education (64.2%).

Overall, 37.9% of unmarred adolescent girls and 1.0% of married adolescent girls were enrolled in education at the time of the survey.

3.3. Religion

Christianity is the main religion among adolescent girls in Ilemela district (unmarried: 83.4%/married: 79.6%).

3.4. Language

Swahili is the language most spoken outside the home by respondents (96.4%), followed by English (2.1%).

3.5. Employment

The majority of unmarried (79.8%) and married (84.1%) adolescent girls surveyed are not currently engaged in any activity to earn money.

3.6. Access to media

Television and radio are the most widely accessed media. The proportions of unmarried and married adolescent girls who own a mobile phone are 34.0% and 60.7%, respectively. The proportions of unmarried and married respondents with no access to a mobile phone are 46.5% and 19.9%, respectively.

Adolescent girls' access to newspapers and magazines and to the internet is limited.

Table C1 in Appendix C presents the background characteristics of the respondents.

4. Sexuality, fertility and fertility preferences of adolescent girl respondents

Key messages:

- In Ilemela, 22.5% of all unmarried girls aged 15–19 years reported having been sexually active during the past 12 months. The median age of first sexual intercourse was 16 years (range 5–19 years). For married girls, 93.1% had been sexually active during the past 12 months. The median age of first sexual intercourse was 16 years (range 8–19 years).
- A total of 250 (7.6%) unmarried girls and 167 (83.1%) married girls surveyed had ever been pregnant. About a quarter of all married girls were currently pregnant at the time of the survey, whereas only 1.4% of unmarried girls were currently pregnant.
- Unmet need for modern contraception was 40.3% in unmarried girls and 32.0% in married girls, made up almost entirely of unmet need for spacing.

4.1. Age at first sexual intercourse

Overall, 37.5% of unmarried girls aged 15–19 years have had sex. The median age at first sexual intercourse is 16 years (range 5–19 years).

All married girls aged 15–19 years have had sex. The median age at first sexual intercourse is 16 years (range 8–19 years). The median age at the time of marriage was 17 years (range 13–19 years).

4.2. Timing of last sexual intercourse

Figure 4.1 below presents the sexual behaviour of adolescent girls in Ilemela district who participated in the survey.

Overall, 22.5% (744 of 3,310) of unmarried girls had been sexually active during the 12 months preceding the survey. For unmarried girls in the survey, 7.7% had been sexually active during the four weeks preceding the interview.

The majority of married girls had been sexually active during the 12 months preceding the survey: 93.1% (187 of 201). About 70% of all married girls in the survey had been sexually active during the four weeks preceding the interview.

4.3. Teenage pregnancy

Overall, 7.6% (250 of 3,310) of all unmarried girls and 20.1% (250 of 1,239) of ever sexually active unmarried girls have ever been pregnant. For married girls surveyed, 83.1% (167 of 201) have ever been pregnant. The median age at first pregnancy is 17 (range 13–19 years) for unmarried girls and 17 (range 12–19 years) for married girls.

Only 1.4% of unmarried girls were currently pregnant at the time of the survey. Approximately a quarter of married adolescent girls were currently pregnant at the time of the survey (25.4%).

4.4. Age-specific fertility

Definition: The age-specific fertility rate (ASFR) is based on the number of live births to girls aged 15–19 years of age during the 12 months preceding the survey.

The ASFR for unmarried and married adolescent girls aged 15–19 years in Ilemela district is 26.9 and 303.5 live births per 1,000 adolescent girls, respectively.

4.5. Planning status of most recent birth

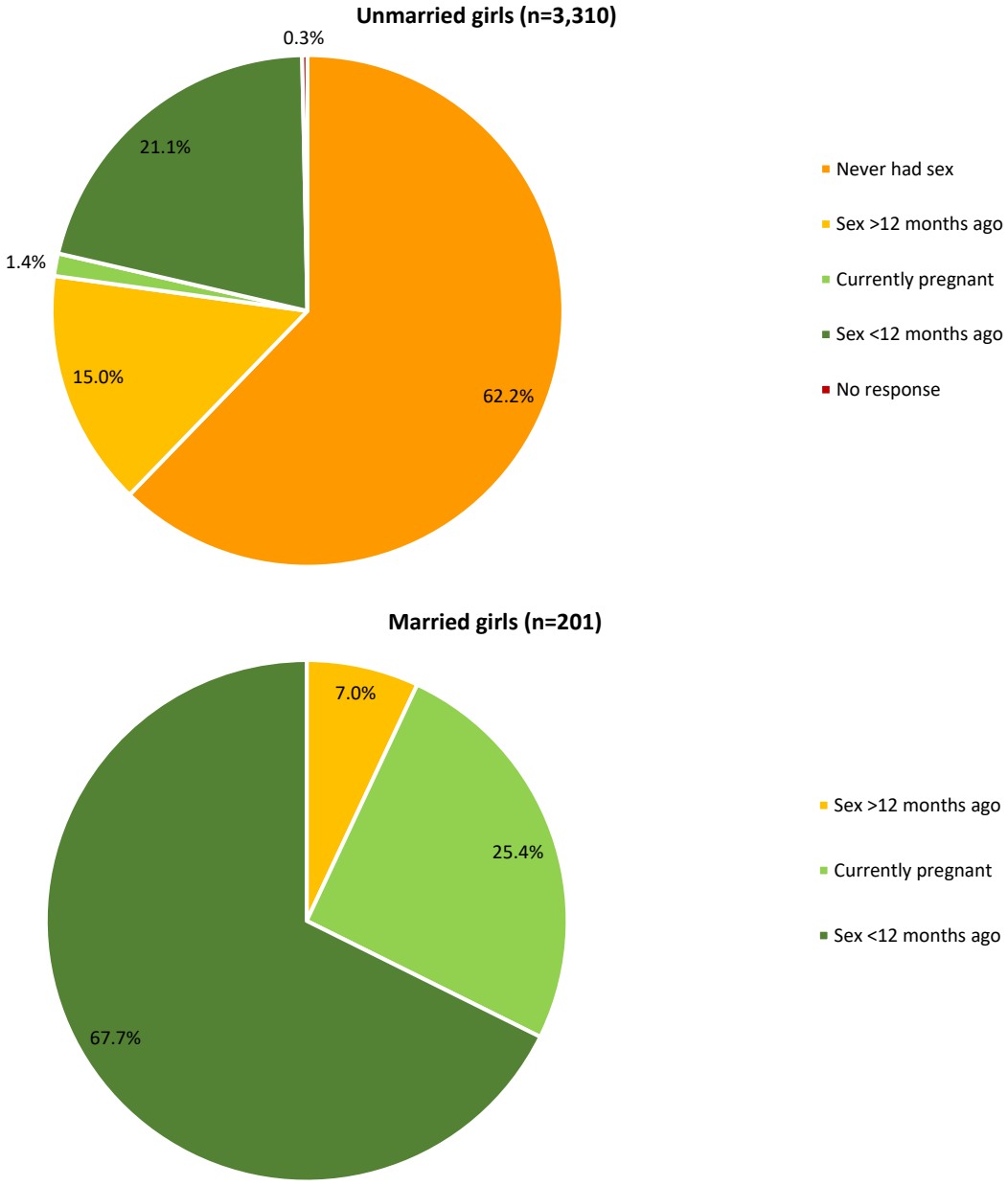
Definition: The survey asked respondents who had had a child whether their last birth was wanted then, wanted later or not wanted at all.

Overall, 5.5% (181 of 3,310) of unmarried girls and 54.7% (110 of 201) of married girls surveyed have given birth.

For unmarried adolescent girls, 14.5% reported their most recent birth as wanted at the time they gave birth. About three fifths of unmarried girls reported their last birth as mistimed (wanted later than at the time they gave birth).

About half of last births in married adolescent girls were reported as wanted at the time they gave birth (52.1%). About two fifths of most recent births were reported as mistimed for married girls.

Figure 4.1. Sexual activity behaviour among adolescent girls in Ilemela district



4.6. Unmet need for modern contraception

Definition: Family planning methods can be used to space or limit childbearing. In this survey, sexually active and fecund adolescent girls aged 15–19 years who indicated that they either wanted no more children (limiters) or wanted to wait for two or more years before having a/another child (spacers), but were not using modern contraception, are identified as having an unmet need for modern contraception. Pregnant women are considered to have unmet need for spacing or limiting if their pregnancy was mistimed or unwanted, respectively. Postpartum amenorrheic women who are not using modern contraception are considered to have unmet need for modern contraception if at the time they became pregnant they had wanted to delay or did not want more children.

About two fifths of sexually active (had sex in the past year) and fecund unmarried adolescent girls have an unmet need for modern contraception (40.3%). About a third of sexually active (had sex in the past year) and fecund married adolescent girls have an unmet need for modern contraception (32.0%). As expected in this young age group, overall unmet need for modern contraception is almost entirely made up of unmet need for spacing.

Table C2 in Appendix C presents the sexuality, fertility and fertility preferences of the respondents.

5. Family planning

Key messages:

- In Ilemela, mCPR for unmarried girls aged 15–19 years was 51.4%. Male condoms were the most commonly used modern method (36.8%), followed by the standard days method (SDM) (8.1%). Traditional methods were used by 2.1% of unmarried respondents.
- In Ilemela, mCPR for married girls aged 15–19 years was 28.5%. Implants were the most commonly used modern method (11.5%), followed by injectables (6.2%). Traditional methods were used by 1.5% of married respondents.
- Overall, 80.7% of unmarried girls and 90.1% of married girls had heard of contraception in the past 12 months. The majority of adolescent girls aged 15–19 years knew the benefits of modern contraception. However, many respondents also had misconceptions about modern contraception.
- Overall, 84.5% of unmarried girls and 86.9% of married girls said they felt able to start a conversation with their husband/partner about contraception, and 87.6% of unmarried girls and 88.5% of married girls said they felt able to obtain a contraception method if they decided to use one. About three fifths of both unmarried and married girls said they felt able to use a method of contraception even if their husband/partner didn't want them to.

5.1. Current use of modern contraception

Overall, 43.9% of unmarried and 68.5% of married sexually active adolescent girls are not currently using a family planning method.

The main reasons for unmarried girls not using include that it didn't occur to her to use contraception (23.5%), partner opposition (17.2%) and opposition by the respondent (14.1%). The main reasons for married girls not using include wanting more children (34.7%), breastfeeding (27.4%), partner opposition (13.7%) and that it didn't occur to her to use contraception (13.7%).

Overall, 51.4% of unmarried and 28.5% of married sexually active adolescent girls currently use a modern method of contraception (mCPR). Male condom (36.8%) is the most widely used modern method by unmarried sexually active adolescent girls, followed by the standard days method (SDM) (8.1%). Implants (11.5%) are the most widely used modern method by married sexually active adolescent girls, followed by injectables (6.2%) and SDM (4.6%).

Of those reporting using a method of contraception (modern or traditional), 10.1% of sexually active unmarried girls and 64.1% of sexually active married girls are using long acting methods (implants, IUDs and injectables).

Table 5.1 shows the distribution of respondents who are currently using specific family planning methods.

Figure 5.1 presents current mCPR among sexually active and fecund adolescent girls in Ilemela district who participated in the survey.

Table 5.1. Percentage distribution of sexually active and fecund adolescent girls aged 15–19 years who currently use contraception, by method used (%, 95% confidence interval)

Characteristic	Unmarried	Married	Total Ilemela
No. of sexually active girls[1]	702	130	832
Any method	53.6 (50.2-56.9)	30.0 (22.4-38.9)	49.9 (46.1-53.6)
Any modern method[2]	51.4 (48.4-54.5)	28.5 (21.4-36.8)	47.8 (44.6-51.1)
Modern method			
Implant	2.3 (1.3-4.0)	11.5 (6.6-19.5)	3.7 (2.6-5.4)
IUD	0.14 (0.02-1.2)	1.5 (0.35-6.5)	0.36 (0.11-1.2)
Injectables	3.0 (2.0-4.5)	6.2 (2.8-13.0)	3.5 (2.5-4.8)
Daily pills	0.28 (0.06-1.2)	0.77 (0.11-5.4)	0.36 (0.11-1.2)
Emergency pills	0.28 (0.07-1.2)	0	0.24 (0.05-1.1)
Male condom	36.8 (33.5-40.1)	2.3 (0.70-7.3)	31.4 (28.3-34.6)
Standard days method/cycle beads	8.1 (6.1-10.7)	4.6 (1.4-14.4)	7.6 (5.5-10.4)
Other modern method	0.57 (0.19-1.7)	1.5 (0.36-6.3)	0.72 (0.26-2.0)
Any traditional method	2.1 (1.4-3.3)	1.5 (0.35-6.6)	2.0 (1.3-3.2)
Not currently using	43.9 (41.1-46.7)	68.5 (60.2-75.7)	47.7 (44.5-50.9)
No response	2.6 (1.6-4.0)	1.5 (0.35-6.5)	2.4 (1.5-3.7)
Total	100.0	100.0	100.0

1 Excludes girls who are infecund and currently pregnant.

2 Modern methods include female sterilisation, male sterilisation, contraceptive pill (oral contraceptives), IUD, injectables (Depo-Provera), implants (Norplant), female condom, male condom, diaphragm, contraceptive foam and contraceptive jelly, LAM, SDM, cycle beads.

Figure 5.1. Current use of modern contraception among sexually active and fecund unmarried adolescent girls in Ilemela district

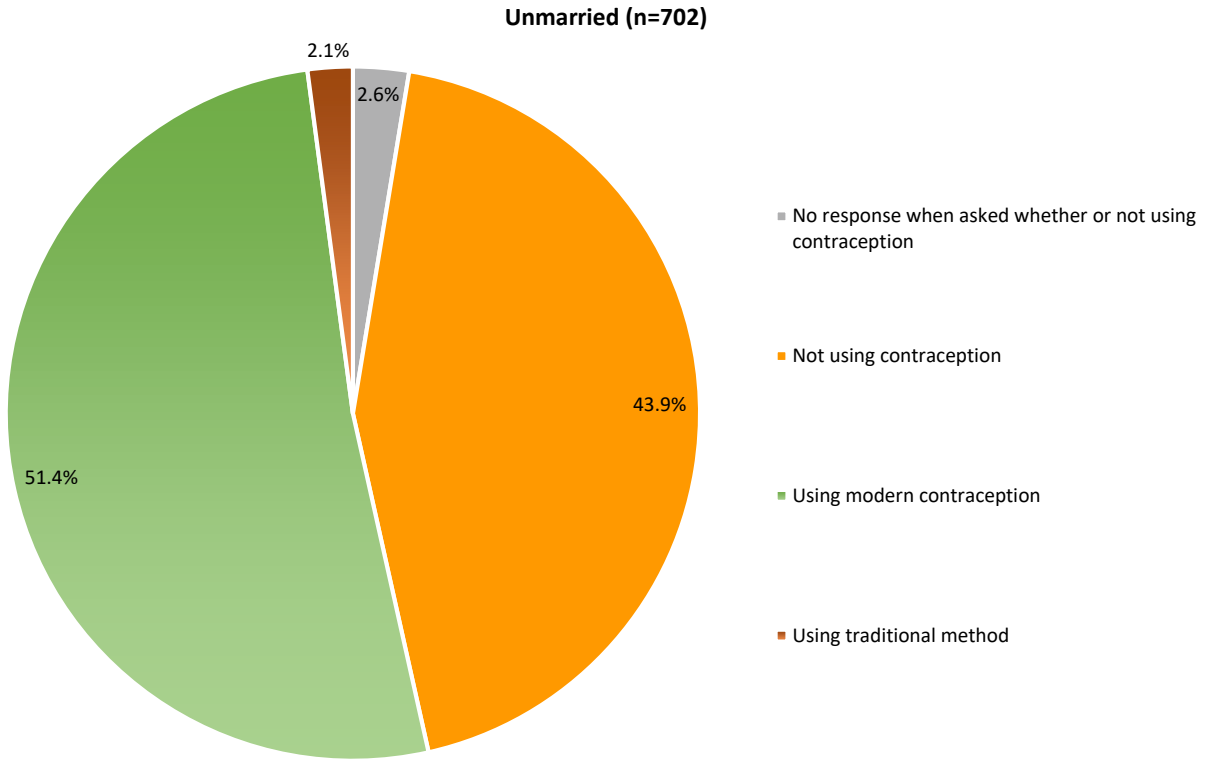
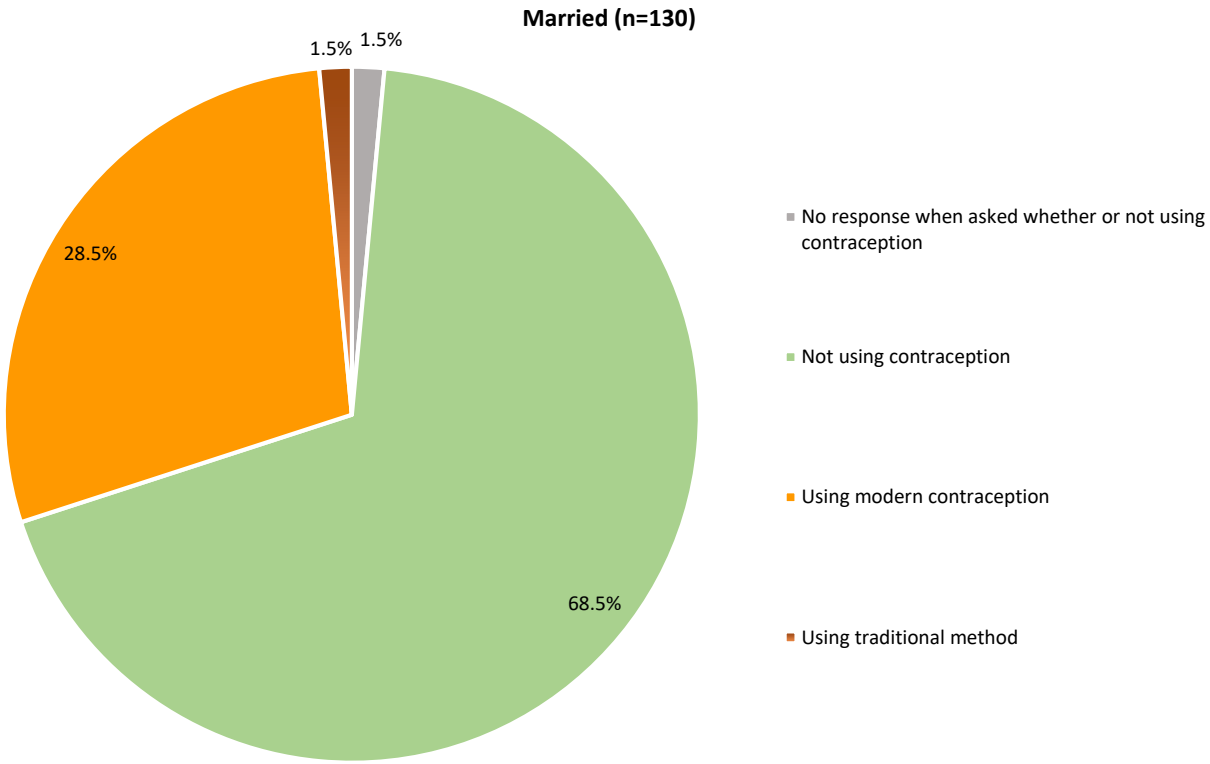


Figure 5.2. Current use of modern contraception among sexually active and fecund married adolescent girls in Ilemela district



5.2. Knowledge of contraceptive methods

The majority of adolescent girls surveyed had seen or heard about contraception during the 12 months preceding the interview (unmarried 80.7%; married 90.1%).

Common sources of information on contraception for unmarried girls include radio, television, teachers, friends, peers and neighbours. Health facilities were the most common source of information on contraception reported by married girls (58.6%). Radio, friends, peers and neighbours are also common sources of information for married girls.

5.3. Myths about contraceptive methods

Definition: Respondents were read a number of statements representing common myths about contraception in Tanzania. They were asked whether or not they agreed with each statement.

About half of unmarried and married respondents believe that use of long-acting reversible contraceptives can make adolescent girls permanently infertile, and that changes to normal menstrual bleeding patterns caused by some modern contraceptives are harmful to health. Overall, 40.7% of unmarried and 54.2% of married girls believe modern contraceptives can make a girl permanently fat. In Ilemela district, 57.1% of unmarried and 49.8% of married respondents believe that if adolescent girls use a method of family planning they may become more promiscuous.

5.4. Benefits of contraceptive methods

The majority of adolescent girls believe in each of the benefits of modern contraception listed in the questionnaire, including that modern contraception can help prevent unintended pregnancies and abortions, can help child spacing and can allow a girl to complete her education, take up better economic opportunities and fulfil her potential. However, only two fifths of respondents believe that some modern contraception reduces sexually transmitted infections and HIV.

5.5. Attitudes towards using contraceptive methods

About three quarters of respondents approve of married couples using a modern contraceptive method to avoid or delay pregnancy. Overall, 65.5% of unmarried and 64.2% of married girls surveyed approve of couples who are not married using a modern contraceptive method to avoid or delay pregnancy.

5.6. Source of modern contraceptive methods

Definition: Sexually active adolescent girls were asked from where or whom they would feel comfortable getting family planning services and products.

Among sexually active unmarried and married adolescent girls, 53.8% and 61.1% said they knew of a place or person from whom they felt comfortable getting family planning services and products, respectively.

Health centres and clinics were the most commonly reported sources of family planning services and products that sexually active adolescent girls felt comfortable with (unmarried 60.5%; married 78.8%). Pharmacies, chemists and drug dispensaries were also commonly reported (unmarried 46.5%; married 44.3%).

5.7. Intention to use modern contraception in the future

Definition: Sexually active adolescent girls who were not using any modern contraceptive method at the time of the survey were asked about their future intention to use a modern contraceptive method.

Among sexually active unmarried and married adolescent girls who were not currently using a modern contraceptive method, 73.4% and 83.2% said they intended to use a modern method in the future, respectively.

5.8. Self-efficacy to access and use contraceptive methods

Definition: The survey asked adolescent girls four separate questions about their level of confidence in their ability to access and use family planning methods.

The majority of respondents said they felt able to start a conversation with their husband/partner about contraception, to obtain information on contraception services and products if they needed to and to obtain a contraception method if they decided to use one.

Fewer adolescent girls said they felt able to use a method of contraception even if their husband/partner didn't want them to (61.5%).

Table 5.2 and Table 5.3 present additional family planning characteristics of respondents.

Table 5.2. Family planning characteristics of adolescent girl respondents (%, 95% Confidence Interval)

Characteristic	Unmarried n=3,310	Married n=201	Total Ilemela n=3,511
In the past 12 months, have you seen or heard about contraception (%)	n=3,310	n=201	n=3,511
Yes	80.7 (79.6-81.8)	90.1 (85.7-93.2)	81.2 (80.1-82.3)
No	18.9 (17.8-20.0)	9.9 (6.8-14.3)	18.4 (17.4-19.5)
No response	0.39 (0.22-0.70)	0	0.37 (0.21-0.66)
Contraception information source in past 12 months (%)	n=2,671	n=181	n=2,852
Radio	29.3 (27.2-31.5)	28.2 (23.5-33.4)	29.2 (27.2-31.4)
Television	23.6 (21.6-25.8)	9.4 (6.2-14.0)	22.7 (20.7-24.9)
Seminars/workshops	6.2 (5.1-7.4)	6.1 (3.0-11.8)	6.2 (5.1-7.4)
Hospital/health centre/clinic	16.0 (13.8-18.6)	58.6 (49.1-67.4)	18.7 (16.3-21.5)
Pharmacy/chemist/drug dispensary	6.2 (5.2-7.3)	21.0 (15.4-28.0)	7.1 (6.0-8.4)
Teachers	27.1 (25.1-29.2)	3.3 (1.1-9.3)	25.6 (23.7-27.5)
Friends/peers	20.9 (18.6-23.4)	22.7 (19.3-26.4)	21.0 (18.8-23.4)
Neighbours	25.6 (23.7-27.5)	33.2 (25.5-41.8)	26.1 (24.2-28.0)
Spouse/partner	0.15 (0.04-0.53)	0.55 (0.06-4.6)	0.18 (0.06-0.53)
Parent/guardian	11.7 (10.2-13.4)	9.9 (6.1-15.7)	11.6 (10.0-13.4)
Do you know of a place where or person from whom you would feel comfortable getting family planning services and products (%)	n=743	n=185	n=928
Yes	53.8 (49.6-58.0)	61.1 (53.5-68.2)	55.3 (52.1-58.4)
No	46.2 (42.0-50.4)	38.9 (31.8-46.6)	44.7 (41.6-47.9)
From where or whom would you feel comfortable getting family planning services and products (%)	n=400	n=113	n=513
Hospital	40.0 (35.4-44.8)	26.6 (17.6-38.0)	37.0 (33.3-40.9)
Health centre/clinic	60.5 (54.6-66.1)	78.8 (69.4-85.8)	64.5 (58.9-69.8)
Community health worker	1.8 (0.59-5.0)	0.89 (0.10-7.3)	1.6 (0.58-4.1)
Pharmacy/chemist/drug dispensary	46.5 (40.2-52.9)	44.3 (32.6-56.6)	46.0 (40.4-51.7)

Characteristic	Unmarried n=3,310	Married n=201	Total Ilemela n=3,511
Future intention to use modern contraception in girls not currently using a modern method (%)	n=308	n=89	n=397
Yes	73.4 (68.0-78.2)	83.2 (75.5-88.8)	75.6 (71.3-79.4)
No	21.8 (18.4-25.5)	14.6 (9.3-22.3)	20.2 (17.6-22.9)
No response	4.9 (2.7-8.8)	2.2 (0.49-9.8)	4.3 (2.5-7.3)

Table 5.3. Additional family planning characteristics of adolescent girl respondents (%, 95% Confidence Interval)

Characteristic	Unmarried n=3,310	Married n=201	Total Ilemela n=3,511
Agreed with misconception about contraception (%)	n=3,310	n=201	n=3,511
Use of a long-acting reversible contraceptive like injections, IUDs and implants can make adolescent girls permanently infertile	45.2 (43.5-46.9)	44.8 (38.5-51.3)	45.1 (43.6-46.7)
Changes to normal menstrual bleeding patterns, which is caused by some contraceptives, are harmful to health	53.4 (51.2-55.7)	54.7 (47.9-61.4)	53.5 (51.2-55.8)
Modern contraceptives can make adolescent girls permanently fat	40.7 (38.8-42.6)	54.2 (46.2-62.1)	41.5 (39.7-43.3)
Adolescent girls who use family planning/birth spacing may become promiscuous	57.1 (53.9-60.2)	49.8 (42.4-57.2)	56.7 (53.5-59.8)
Agreed with benefits about contraception (%)	n=3,310	n=201	n=3,511
Preventing unintended pregnancies is a benefit of contraception	87.5 (86.0-88.9)	84.1 (75.9-89.9)	87.3 (85.8-88.6)
Preventing abortions is a benefit of contraception	62.8 (60.7-64.8)	60.7 (53.1-67.8)	62.7 (60.8-64.5)
Some contraception methods reduce sexually transmitted infections/HIV	39.3 (36.2-42.4)	34.3 (25.5-44.4)	39.0 (35.9-42.2)
Modern contraception can help with child spacing	87.0 (85.6-88.2)	87.1 (79.5-92.1)	87.0 (85.6-88.2)
Using modern contraception can allow a girl to complete her education, take up better economic opportunities and fulfil her potential	84.7 (83.2-86.0)	82.1 (75.8-87.0)	84.5 (83.2-85.7)
Approved of using contraception (%)	n=3,310	n=201	n=3,511
Married couples using a modern contraceptive method to avoid or delay pregnancy	74.5 (72.5-76.4)	78.6 (69.9-85.4)	74.7 (72.8-76.6)
Couples who are not married using a modern contraceptive method to avoid or delay pregnancy	65.5 (62.9-68.0)	64.2 (55.4-72.1)	65.4 (62.9-67.8)

Characteristic	Unmarried n=3,310	Married n=201	Total Ilemela n=3,511
Agreed with statements on accessing and using contraception (%)	n=702	n=130	n=832
I feel able to start a conversation with my boyfriend/husband about contraception	84.5 (80.9-87.5)	86.9 (81.2-91.1)	84.9 (81.9-87.4)
I feel able to obtain information on contraception services and products if I need to	87.2 (83.5-90.1)	86.9 (80.5-91.5)	87.1 (84.2-89.6)
I feel able to obtain a contraception method if I decide to use one	87.6 (85.1-89.8)	88.5 (82.9-92.4)	87.7 (85.6-89.6)
I feel able to use a method of contraception even if my boyfriend/husband doesn't want me to	61.5 (50.5-71.5)	61.5 (58.1-64.9)	61.5 (58.0-65.0)

6. Perspectives of co-habiting adults

Key messages:

- To measure community acceptance and social support for adolescent girls to adopt SRH behaviours, a sample of co-habiting adults of sexually active unmarried girls (n=103) and co-habiting adults of married girls (n=22) were interviewed. The majority of co-habiting adults surveyed for unmarried girls were female relatives of the girls interviewed. Mothers were most commonly interviewed (43.7%). The majority of co-habiting adults surveyed for married girls were husbands (40.9%).
- For unmarried girls, of the co-habiting adults surveyed, 83.5% said it was acceptable for an adolescent girl to obtain a contraception method if she decided to use one, and 87.4% said it was acceptable for an adolescent girl to start a conversation with her partner about contraception. Fewer co-habiting adults said it was acceptable for an adolescent girl to use a method of contraception even if her partner did not want her to (47.6%).
- For married girls, of the co-habiting adults surveyed, 95.5% said it was acceptable for an adolescent girl to obtain a contraception method if she decided to use one, and 90.9% said it was acceptable for an adolescent girl to start a conversation with her partner about contraception. Fewer co-habiting adults said it was acceptable for an adolescent girl to use a method of contraception even if her partner did not want her to (27.3%).

6.1. Relationships to adolescent girls in the household

The majority of co-habiting adults surveyed for unmarried girls are female relatives of the girls interviewed. Mothers were most commonly interviewed (43.7%), followed by a respondent's aunt (18.5%).

The majority of co-habiting adults surveyed for married girls are husbands (40.9%), followed by a respondent's co-habiting male partner (31.8%).

6.2. Age

The median age of husbands/co-habiting male partners surveyed is 26.5 years (range 20–40). The median age of other co-habiting adults surveyed is 39 years (range 20–72)

6.3. Education

The proportion of co-habiting adults with no education is 8.0%. Primary education is the highest educational level attained by co-habiting adults (55.2%).

6.4. Religion

Christianity is the main religion among co-habiting adults in Ilemela district (83.2%).

6.5. Language

Swahili is the language most spoken outside the home by co-habiting adults (95.2%).

6.6. Myths about contraceptive methods

About half of co-habiting adults believe that use of long-acting reversible contraceptives can make adolescent girls permanently infertile. Approximately three fifths believe that changes to normal menstrual bleeding patterns caused by some modern contraceptives are harmful to health, that modern contraceptives can make a girl permanently fat and that if adolescent girls use a method of family planning they may become more promiscuous.

6.7. Benefits of contraceptive methods

The majority of co-habiting adults surveyed believe in each of the benefits of modern contraception listed in the questionnaire, including that modern contraception can help prevent unintended pregnancies and abortions, can help child spacing and can allow a girl to complete her education, take up better economic opportunities and fulfil her potential. However, only about a third of respondents believe that some modern contraception reduces sexually transmitted infections and HIV.

6.8. Attitudes towards family planning

About two thirds of all co-habiting adults approve of married adolescent girls aged 15–19 years using a modern contraception method to avoid or delay pregnancy. Three fifths of co-habiting adults surveyed approve of unmarried adolescent girls aged 15–19 years using a modern contraception method to avoid or delay pregnancy.

6.9. Attitudes towards self-efficacy of adolescent girls to access and use contraceptive methods

The majority of co-habiting adults surveyed said it was acceptable for an adolescent girl to obtain information on contraception services and products if she needed to, and also said it was acceptable for an adolescent girl to obtain a contraception method if she decided to use one.

The majority of co-habiting adults surveyed said it was acceptable for an adolescent girl to start a conversation with her partner about contraception (88.0%). Fewer co-habiting adults said it was acceptable for an adolescent girl to use a method of contraception even if her partner didn't want her to (44.0%).

Figure 6.1 and Figure 6.2 compare the attitudes of adolescent girls aged 15–19 years and co-habiting adults towards self-efficacy of adolescent girls to access and use contraceptive methods. Attitudes of sexually active unmarried girls and co-habiting adults are broadly similar. Attitudes of married girls and husbands/co-habiting male partners are broadly similar with respect to adolescent girls being able to obtain information on contraception services and products if she needs to, being able to obtain a contraception method if she decides to use one and being able to start a conversation with her partner about contraception. However, fewer husbands/co-habiting male partners said it was acceptable for an adolescent girl to use a method of contraception even if her partner didn't want her to compared with what married girls said they felt able to do (Figure 6.2).

Table C3 in Appendix C presents the background characteristics of the co-habiting adults of a subgroup of sexually active adolescent girls interviewed.

Table C4 in Appendix C presents the family planning knowledge, attitudes and beliefs of the co-habiting adults of a subgroup of sexually active adolescent girls interviewed.

Figure 6.1. Attitudes of unmarried sexually active adolescent girls aged 15–19 years (n=702) and co-habiting adults (n=103) towards self-efficacy of adolescent girls to access and use contraceptive methods

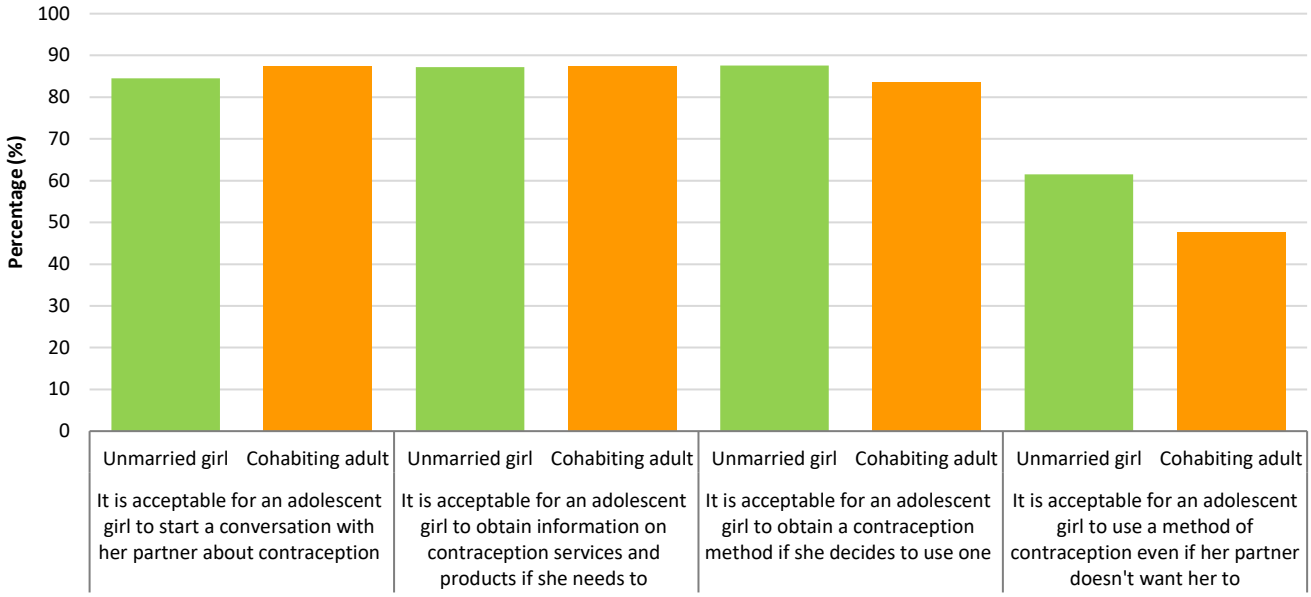
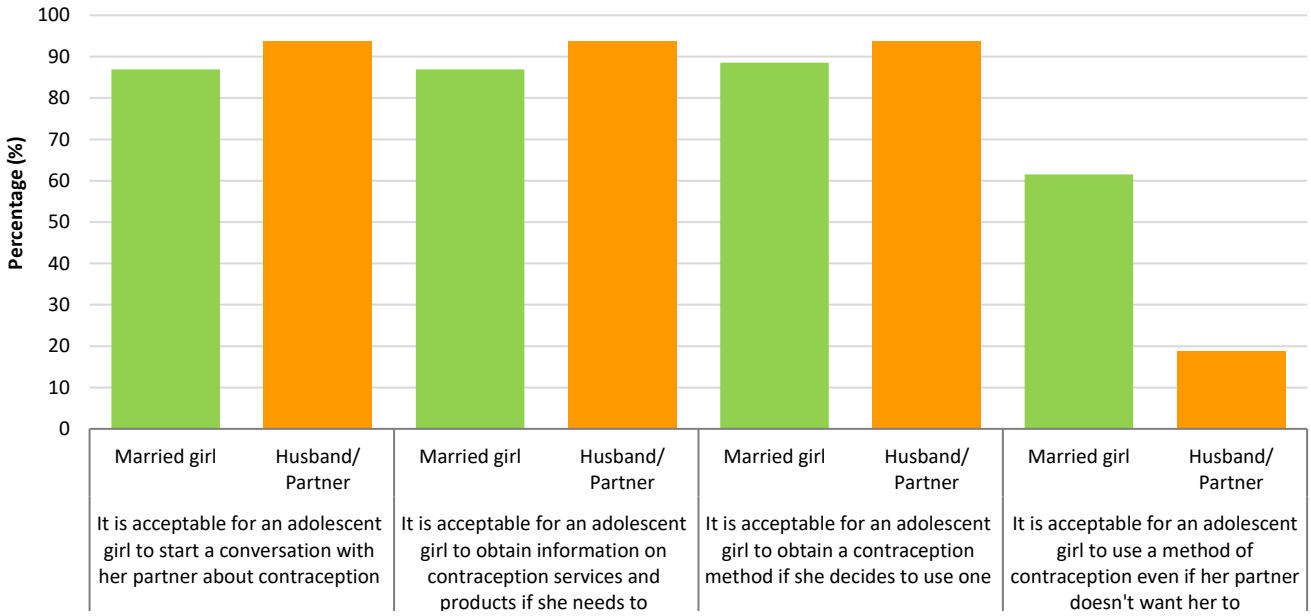


Figure 6.2. Attitudes of married sexually active adolescent girls aged 15–19 years (n=130) and husbands/co-habiting male partners (n=16) towards self-efficacy of adolescent girls to access and use contraceptive methods



7. Conclusions

Key messages:

- In Mwanza, our findings for both unmarried and married adolescent girls with respect to family planning indicators are more positive than national estimates from the most recent Tanzania DHS (TDHS), conducted in Tanzania in 2015–2016. This could owe to increasing trends in voluntary contraceptive use between 2015 and 2017, and/or could reflect regional variation in mCPR in Tanzania.
- The baseline survey has identified several priority areas for programme activities promoting contraceptive use, including 1) addressing fears, misconceptions and myths; 2) increasing intentions to use contraception; 3) increasing partner communication about family planning; and 4) fostering public approval of family planning by communities.

In Mwanza, our findings for both unmarried and married adolescent girls with respect to family planning indicators were more positive than results from other cross-sectional surveys carried out in Mwanza,[9 10] and the most recent Tanzania DHS (TDHS), conducted in Tanzania in 2015–2016.[5] In the TDHS 2015–2016, current use of modern contraception among unmarried women aged 15–19 years was 33.1% (Study Protocol mCPR 51.4%; Study DHS mCPR (Appendix D) 48.7%). For married adolescent girls, current use of modern contraception was reported as 13.3% in TDHS 2015–2016 (Study Protocol mCPR 28.5%; Study DHS mCPR (Appendix D) 19.4%). However, it is important to note that mCPR shows significant variation by region in Tanzania and may be lower in more rural parts of Mwanza region.[5] The findings could also owe to increasing trends in voluntary contraceptive use between 2015 and 2017.

Although mCPR is greater for unmarried girls than for married girls in Mwanza, we found that unmet need for modern contraception was greater among sexually active unmarried adolescents than among those who are married (40.3% vs. 32.0%). Unmet need for modern contraception, defined as the proportion of women wishing to limit or postpone child birth, but not using modern contraception, points to the gap between women's reproductive intentions and their contraceptive behaviour. Socio-cultural and structural barriers may be contributing to the gap between adolescent girls' reproductive intentions and their use of modern contraception. The findings suggest these barriers may be greater for unmarried adolescents than for those who are married.

Of note is the left-skewed age distribution of married girls in our study, with approximately half reporting being aged 19 years. This likely represents a real peak in marriage for adolescent girls at age 19 years, as the Law of Marriage Act (1971) allows for girls in Tanzania to marry at 14, with parental consent. Therefore, there would be no obvious reason for married girls to misreport their age.

Our findings demonstrate significant variation in key demographic and family planning characteristics between unmarried and married adolescent girls. Married girls attain lower levels of education but have greater ownership and access to mobile phones. As expected, married girls are much more likely to have been sexually active in the four weeks preceding the survey, to have ever been pregnant and to report their most recent birth as wanted at the time. With regard to family planning indicators, married adolescent girls have a much lower mCPR, but those using modern contraception are more likely to be using a long-acting reversible method compared with unmarried girls using modern contraception, who are more likely to be using male condoms. Of those reporting using a method of contraception (modern or traditional), 10.1% of sexually active unmarried girls and 64.1% of sexually active married girls are using long-acting methods (implants, IUDs and injectables). Effective family planning counselling around method choice must prepare girls for the possibility that they will experience side effects and provide them with the information and tools to overcome them.

Interestingly, sources of information on contraception differ between unmarried and married girls. Unmarried girls more commonly obtain contraception information from radio and television, or teachers, friends and neighbours, whereas the majority of married girls obtain this information from health facilities. This may reflect the difference in healthcare-seeking behaviours or access to healthcare between unmarried and married

adolescents. Of note, adolescent girls' access to newspapers and magazines and the internet is limited. Despite different sources of information, unmarried and married girls hold similar attitudes to using contraception, myths and misconceptions, and knowledge about the benefits of family planning. These findings may highlight the need for varying communication strategies using different media depending on whether contraceptive messaging is being targeted at unmarried or married adolescents.

Myths and misconceptions are widespread among unmarried and married adolescent girls, and their co-habiting adults. Approximately half of adolescent girls surveyed believe that use of long-acting reversible contraceptives can make adolescent girls permanently infertile and that changes to normal menstrual bleeding patterns caused by some modern contraceptives are harmful to health. Similarly, about half of co-habiting adults believe use of long-acting reversible contraceptives can make adolescent girls permanently infertile, and approximately three fifths believe changes to normal menstrual bleeding patterns caused by some modern contraceptives are harmful to health. This may highlight a need to build trust and credibility of family planning products among both adolescent girls and the communities in which they live by addressing fears, misconceptions and myths.

Furthermore, among both unmarried and married adolescent girls and their co-habiting adults, more respondents approve of married couples using a modern contraceptive method to avoid or delay pregnancy than of unmarried couples using a modern contraceptive method to avoid or delay pregnancy. This data may highlight the need for a planned focus on tackling prevailing social norms with regard to unmarried couples and the use of modern contraception by fostering public approval of family planning by communities to help create a supportive environment for accessing services.

Overall, 43.9% of unmarried and 68.5% of married sexually active adolescent girls are not currently using a family planning method. The main reasons for unmarried girls not using include that it didn't occur to her to use contraception, partner opposition and opposition by the respondent. For unmarried girls, this may highlight a need to position contraception as relevant and valuable for both her and her partner, and to build trust and credibility of family planning products to increase intentions to use contraception among unmarried girls and their partners. The main reasons for married girls not using include wanting more children, breastfeeding, partner opposition and that it didn't occur to her to use contraception. This data may highlight the need for a planned focus on addressing social norms around the interrelationship between marriage and early childbearing among adolescent girls, and delivering communication to both her and her partner on 1) benefits of delaying the birth of a first child and 2) benefits of a two- to three-year interval. This would be in addition to building trust and credibility of family planning products among married couples.

While the majority of both unmarried and married girls feel able to start a conversation with their partners about contraception, the proportion who feel able to use a method of contraception even if their partner does not want her to is much lower. An even lower percentage of co-habiting adults said it was acceptable for an adolescent girl to use a method of contraception even if her partner did not want her to. This data may highlight the need for a planned focus on tackling barriers to community and partner acceptance of modern contraception, and on partner communication for adolescent girls to help create a supportive environment for accessing services.

In summary, the key findings of this baseline report support focusing on programming activities to deliver the outputs outlined in the A360 theory of change positioning contraception as relevant and valuable, building trust and credibility of family planning products and creating a supportive environment for accessing services.

8. Programmatic implications

Programme activities to take into account the higher-than-predicted baseline mCPR and lower-than-predicted proportion of married adolescent girls

The observed mCPR for unmarried adolescent girls was higher than expected (DHS definition: baseline survey 48.7% vs. predicted estimate 38.5%). Married girls made up a smaller proportion of all girls aged 15–19 years than expected (baseline survey 5.7% vs. PSI estimate 21.7%). To inform programming decisions, the programme should reflect on the baseline results, including the likelihood of variability in mCPR and proportion of married girls within and across the target regions.

Programme communication strategies to take into account using different media depending on whether contraceptive messaging is being targeted at unmarried or married adolescent girls

Sources of information on contraception differed between unmarried and married girls. Unmarried girls more commonly obtain contraception information from radio and television, or teachers, friends and neighbours, whereas the majority of married girls obtained this information from health facilities. Of note, adolescent girls' access to newspapers and magazines and the internet is limited. The proportion of unmarried and married adolescent girls surveyed with no access to a mobile phone was 46.5% and 19.9%, respectively.

Address fears, misconceptions and myths to build trust and credibility of family planning products and to shift the method mix towards long-acting methods

Myths and misconceptions were widespread among both unmarried and married adolescent girls and their co-habiting adults. Approximately half of adolescent girls in Mwanza believed use of long-acting reversible contraceptives could make adolescent girls permanently infertile and changes to normal menstrual bleeding patterns caused by some modern contraceptives were harmful to health. Effective family planning counselling must prepare girls for the possibility that they will experience side effects and provide them with the information and tools to overcome them. Counselling is also an important factor in shifting the method mix towards long-acting methods for birth spacing. Currently, of those reporting using a method of contraception (modern or traditional), only about one in ten sexually active unmarried girls and two thirds of sexually active married girls are using implants, intrauterine contraceptive device and injectables.

Increase intentions to use contraception by positioning contraception as relevant and valuable

One of the main reasons for unmarried girls not using contraception was that it didn't occur to her to use it. For unmarried girls, this may highlight a need to position contraception as relevant and valuable for both her and her partner. One of the main reasons married adolescent girls gave for not using contraception was wanting a/another child. However, the majority of married girls acknowledged the health benefits of family planning for child spacing. This data may highlight the need for a planned focus on addressing social norms around the interrelationship between marriage and early childbearing in adolescent girls and delivering communication on 1) the benefits of delaying birth of a first child and 2) the benefits of a two- to three-year interval.

Increase partner communication about family planning to help create a supportive environment for accessing services

While the majority of adolescent girls felt able to start a conversation with their partners about contraception, the proportion who felt able to use a method of contraception even if their partner did not want them to was much lower. An even lower percentage of co-habiting adults said it was acceptable for an adolescent girl to use a method of contraception even if her partner did not want her to. This data may highlight the need for a planned focus on tackling barriers to community and partner acceptance of modern contraception, and on partner communication for adolescent girls to help create a supportive environment for accessing services.

Foster public approval of family planning by communities to help create a supportive environment for accessing services

While the majority of respondents (girls and co-habiting adults) approved of married couples using a modern contraceptive method to avoid or delay pregnancy, far fewer respondents approved of unmarried couples using

a modern contraceptive method to avoid or delay pregnancy. This data may highlight the need for a planned focus on tackling prevailing social norms with regard to unmarried couples and the use of modern contraception.

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Appendix A: Sample size calculations

Original sample size calculations

The mCPR estimates used in our original sample size calculations were obtained from PSI and were based on projections of mCPR using the most recent DHS estimates. Effect estimates are based on an analysis conducted by one of our evaluation collaborators, Ms Michelle Weinberger (Avenir Health). The assumptions used are outlined in Table A1.

In Ilemela district, among sexually active 15–19 year olds, we have assumed that between 2017 and 2019 mCPR will increase from 26.7% to 32.7% in the presence of A360. This represents an absolute increase of 6.0% and a relative increase of 22% between 2017 and 2019 in A360-exposed girls. A sample size of 1,217 sexually active girls aged 15–19 years would give us 90% power to detect this difference based on the assumptions in Table A1.

Taking into account the sampling design, estimated non-response and the fact that not all adolescent girls will be currently sexually active, the final target sample size is 4,980 girls aged 15–19 years (Table A1). In this scenario, we have estimated that the design effect will be 1.5.

Table A1: Table of assumptions for key parameters required for sample size calculations, and final target sample size taking into account various estimates of design effect

Scenario	Original 90% power to detect 22% increase in mCPR (26.7% to 32.7%)	Revised (final) 90% power to detect 22% increase in mCPR (48.9% to 59.7%)
Proportion of 15–19-year-old females who are married (or living together with partner)	21.7% (PSI data)	5.9%[1]
Proportion of 15-19-year-old females who are unmarried (not currently married)	78.3 % (PSI data)	94.1%[1]
Proportion of married 15–19-year- old females who report sexual activity in past year	97% (TDHS 2015-16 – all ages married[5])	91.5%[1]
Proportion of unmarried 15-19 year old females who report sexual activity in past year	24.8% (PSI data)	22.2%[1]
Proportion of 15–19-year- old females who report sexual activity in past year	40.4% (PSI data)	26.2%[1]
Proportion of sexually active girls who are married	51.8% (PSI data)	20.5%[1]
Proportion of sexually active girls who are unmarried	48.2% (PSI data)	79.5%[1]
Target sample of sexually active 15–19-year-old girls	1,217	519
Total sample size of 15–19-year-old girls • Effective sample size • Includes estimated non-response (10%) • Includes non-sexually active girls	3,314	2,179
Design effect	1.5	1.5
Sample size (effective sample size * design effect)	4,971	3,269

1 Estimated from interim baseline survey data

We set out to equally divide across 30 ‘streets’ in 15 wards the sample target of 4,980 female participants aged 15–19 years. Based on assumptions derived from local census data,[8] we estimated that 34.2% of households have a female aged 15–19 years so we would need to enumerate 485 households per street to find approximately 166 adolescent girls per street. Our sampling strategy assumed we would identify 10 households per GPS point and an average of 3 eligible adolescent girls (1 of whom is sexually active) per household cluster.

Following sampling in the first two wards, we found these assumptions largely overestimated the number of eligible girls identified per street using our planned strategy. In order to achieve the desired sample size we revised our sampling strategy to the one described in Section 2.5.

Original sample size calculations

Based on interim analysis of data from four wards, mCPR was estimated to be higher (48.9%) than our original estimate (26.7%). We revised our sample size calculations accordingly (Table A1).

In Ilemela district, among sexually active 15–19 year olds, we have assumed that between 2017 and 2019 mCPR will increase from 48.9% to 59.7% in the presence of A360. This represents an absolute increase of 10.8% and a relative increase of 22% between 2017 and 2019 in A360-exposed girls. A sample size of 519 sexually active girls aged 15–19 years would give us 90% power to detect this difference based on the assumptions in Table A1. Taking into account the sampling design, estimated non-response and the fact that not all adolescent girls will be currently sexually active, the final target sample size is 3,269 girls aged 15–19 years (Table A1). In this scenario, we have estimated that the design effect will be 1.5.

Following revision of sample size calculations based on interim baseline survey results, we estimated that sampling two streets' from each of the remaining 13 wards (26 streets) and visiting all households to identify eligible girls would be sufficient to reach our revised target sample size.

Appendix B: Implementation challenges and solutions

Challenge	Field response
Difficulty locating households	Household enumeration team used detailed descriptions of location of all households with potential eligible girl(s) for the survey team to reach the household. The description made use of popular/obvious landmarks located in the street.
Refusals from parents/guardians/spouses	Working with street leaders to introduce field team to heads of household in order to gain their trust and cooperation
Difficulty accessing participants	Conducting interviews during weekend days to maximise access to school attending girls who were the majority

Appendix C: Data tables

Table C1. Percentage distribution of adolescent girl respondents by age, education, religion, language, employment and access to media (%, n)

Characteristic	Unmarried n=3,310	Married n=201	Total Ilemela n=3,511
Age (years)			
15	25.1 (830)	1.0 (2)	23.7 (832)
16	18.2 (601)	2.0 (4)	17.2 (605)
17	22.5 (746)	11.9 (24)	21.9 (770)
18	18.1 (598)	34.3 (69)	19 (667)
19	16.2 (535)	50.8 (102)	18.1 (637)
Education			
No education	3.5 (115)	7.5 (15)	3.7 (130)
Primary	36.6 (1,210)	64.2 (129)	38.1 (1,339)
Post primary training	1.2 (40)	1.0 (2)	1.2 (42)
Secondary 'O' level	55.6 (1,839)	26.9 (54)	53.9 (1,893)
Post-secondary 'O' level training	1.0 (34)	0.50 (1)	1.0 (35)
Secondary 'A' level	1.5 (51)	0	1.5 (51)
University	0.63 (21)	0	0.60 (21)
Religion			
Catholic	39.7 (1,315)	30.4 (61)	39.2 (1,376)
Protestant / Other Christian	43.7 (1,445)	49.3 (99)	44.0 (1,544)
Muslim	16.4 (543)	18.9 (38)	16.6 (581)
No religion	0.21 (7)	1.5 (3)	0.28 (10)

Characteristic	Unmarried n=3,310	Married n=201	Total Ilemela n=3,511
Language (outside home)			
Swahili	96.3 (3,188)	97.0 (195)	96.4 (3,383)
English	2.2 (73)	0	2.1 (73)
Sukuma	1.1 (38)	3.0 (6)	1.3 (44)
Other	0.33 (11)	0	0.31 (11)
Income-generating activity			
Yes	20.2 (669)	15.9 (32)	20.0 (701)
No	79.8 (2,641)	84.1 (169)	80.0 (2,810)
Reads newspaper/magazine at least once a week			
Yes	14.8 (491)	8.0 (16)	14.4 (507)
No	85.2 (2,819)	92.0 (185)	85.6 (3,004)
Listens to radio at least once a week			
Yes	52.1 (1,723)	58.7 (118)	52.4 (1,841)
No	47.9 (1,586)	41.3 (83)	47.5 (1,669)
No response	0.03 (1)	0	0.03 (1)
Watches television at least once a week			
Yes	60.2 (1,991)	45.8 (92)	59.3 (2,083)
No	39.9 (1,319)	54.2 (109)	40.7 (1,428)
Accesses internet at least once a week			
Yes	8.0 (264)	7.0 (14)	7.9 (278)
No	92.0 (3,046)	93.0 (187)	92.1 (3,233)
Mobile phone access			
Owns smartphone	10.2 (336)	15.4 (31)	10.5 (367)
Owns non-smart mobile phone	23.8 (788)	45.3 (91)	25.0 (879)
Accesses mobile phone at least once a week	7.5 (248)	10.0 (20)	7.6 (268)
Accesses mobile phone less than once a week	12.1 (400)	9.5 (19)	11.9 (419)
No mobile phone access	46.5 (1,538)	19.9 (40)	44.9 (1,578)

Table C2. Sexuality, fertility and fertility preferences of adolescent girl respondents (estimate, 95% Confidence Interval)

Characteristic	Unmarried n=3,310	Married n=201	Total Ilemela n=3,511
Timing of last intercourse (%)	n=3,310	n=201	n=3,511
Within past 4 weeks	7.7 (6.9-8.6)	68.7 (59.7-76.5)	11.2 (10.1-12.4)
Within past year	14.8 (13.3-16.4)	24.4 (18.0-32.2)	15.3 (13.8-17.0)
More than 1 year	15.0 (13.52-16.51)	7.0 (4.1-11.7)	14.5 (13.1-16.1)
Never had sex	62.2 (60.1-64.3)	0	58.7 (56.6-60.7)
No response	0.33 (0.20-0.54)	0	0.31 (0.19-0.51)
Median (interquartile range) age at first sexual intercourse	n=1,250	n=201	n=1,451
	16 (15–17)	16 (15–17)	16 (15–17)
Ever been pregnant (%)	n=3,310	n=201	n=3,511
Yes	7.6 (6.2-9.1)	83.1 (74.8-89.1)	11.9 (10.3-13.7)
No	92.4 (90.9-93.7)	16.9 (11.0-25.2)	88.1 (86.3-89.7)
Don’t know	0.03 (0.003-0.25)	0	0.03 (0.003-0.24)
Median (interquartile range) age at first pregnancy	n=250	n=167	n=417
	17 (16–18)	17 (16–18)	17 (16–18)
Currently pregnant (%)	n=3,310	n=201	n=3,511
Yes	1.4 (1.1-1.9)	25.4 (19.6-32.1)	2.8 (2.3-3.3)
No	98.4 (98.0-98.7)	72.6 (66.5-78.0)	96.9 (96.4-97.3)
Don’t know	0.21 (0.11-0.41)	2.0 (0.65-5.9)	0.31 (0.18-0.55)
Age-specific fertility rates (per 1,000)	n=3,310	n=201	n=3,511
15-19	26.9 (20.4-35.4)	303.5 (244.5-369.7)	42.7 (33.7-54.1)
Ever given birth (%)	n=3,310	n=201	n=3,511
Yes	5.5 (4.5-6.6)	54.7 (47.4-61.9)	8.3 (7.1-9.6)
No	94.5 (93.4-95.5)	45.3 (38.1-52.6)	91.7 (90.4-92.9)

Characteristic	Unmarried n=3,310	Married n=201	Total Ilemela n=3,511
Planning status of most recent birth (%)	n=145	n=94	n=239
Wanted then	14.5 (8.8-22.9)	52.1 (37.6-66.4)	29.3 (21.1-39.1)
Wanted later	62.1 (53.7-69.8)	42.6 (30.6-55.5)	54.4 (45.2-63.3)
Wanted no more	22.8 (17.3-29.4)	5.3 (0.97-24.4)	15.9 (11.6-21.4)
No response	0.69 (0.08-5.6)	0	0.42 (0.05-3.3)
Unmet need for modern contraception (%)	n=749[3]	n=181[3]	n=930[3]
No unmet need	59.7 (56.3-63.0)	68.0 (60.5-74.6)	61.3 (58.2-64.3)
Unmet need for spacing[1]	37.4 (34.5-40.3)	30.4 (23.9-37.8)	36.0 (33.2-38.9)
Unmet need for limiting[2]	2.9 (2.0-4.3)	1.7 (0.50-5.4)	2.7 (1.8-4.0)
Total unmet need	40.3 (37.0-43.8)	32.0 (25.4-39.5)	38.7 (35.7-41.8)

1 Unmet need for spacing includes pregnant women whose pregnancy was mistimed; fecund women who are non-pregnant, who are not using any modern method of contraception and say they want to wait two or more years for their next birth; and postpartum amenorrheic women, who are not using any modern method of contraception and say at the time they became pregnant had wanted to delay pregnancy.

2 Unmet need for limiting refers to pregnant women whose pregnancy was unwanted; fecund women who are non-pregnant, who are not using any modern method of contraception, and who want no more children; and postpartum amenorrheic women, who are not using any modern method of contraception and say at the time they became pregnant had not wanted any more children.

3 Total number of adolescent girls aged 15–19 years who are fecund and sexually active (sex in the past year) or postpartum amenorrheic or pregnant.

Table C3. Background characteristics of husbands and co-habiting adult respondents surveyed (%,n)

Characteristic	Unmarried n=103	Married n=22	Total Ilemela n=125
Relationship to adolescent girl			
Husband	0 (0)	40.9 (9)	7.2 (9)
Co-habiting partner	0 (0)	31.8 (7)	5.6 (7)
Boyfriend	1.9 (2)	0 (0)	1.6 (2)
Mother	43.7 (45)	0 (0)	36.0 (45)
Father	0.97 (1)	0 (0)	0.80 (1)
Mother-in-law	0 (0)	9.1 (2)	1.6 (2)
Father-in-law	0 (0)	4.5 (1)	0.80 (1)
Grandmother	4.9 (5)	0 (0)	4.0 (5)
Aunt	18.5 (19)	0 (0)	15.2 (19)
Sister	13.6 (14)	4.5 (1)	12.0 (15)
Cousin	1.9 (2)	4.5 (1)	2.4 (3)
Employer	9.7 (10)	0 (0)	8.0 (10)
Other	4.9 (5)	4.5 (1)	4.8 (6)
Age (years)			
20–29	28.2 (29)	68.2 (15)	35.2 (44)
30–39	25.2 (26)	13.6 (3)	23.2 (29)
40–49	34.0 (35)	9.1 (2)	29.6 (37)
50–59	3.9 (4)	4.5 (1)	4.0 (5)
60–89	4.9 (5)	4.5 (1)	4.8 (6)
Don’t know	3.9 (4)	0 (0)	3.2 (4)

Characteristic	Unmarried n=103	Married n=22	Total Ilemela n=125
Education			
No education	9.7 (10)	0 (0)	8.0 (10)
Primary	58.3 (60)	40.9 (9)	55.2 (69)
Post-primary training	2.9 (3)	0 (0)	2.4 (3)
Secondary 'O' level	20.4 (21)	54.6 (12)	26.4 (33)
Post-secondary 'O' level training	5.8 (6)	0 (0)	4.8 (6)
Secondary 'A' level	0 (0)	0 (0)	0 (0)
University	2.9 (3)	4.5 (1)	3.2 (4)
Religion			
Catholic	39.8 (41)	45.5 (10)	40.8 (51)
Protestant/other Christian	42.7 (44)	40.9 (9)	42.4 (53)
Muslim	15.5 (16)	13.6 (3)	15.2 (19)
No religion	1.9 (2)	0 (0)	1.6 (2)
Language (outside home)			
Swahili	95.2 (98)	95.5 (21)	95.2 (119)
Sukuma	4.8 (5)	4.5 (1)	4.8 (6)

Table C4. Family planning knowledge, attitudes and beliefs of the husbands and co-habiting adult respondents surveyed (%, 95% Confidence Interval)

Characteristic	Unmarried n=103	Married n=22	Total Ilemela n=125
Agreed with misconception about contraception (%)			
Use of a long-acting reversible contraceptive like injections, IUDs and implants can make adolescent girls permanently infertile	49.5 (39.4-59.7)	45.5 (27.2-65.0)	48.8 (39.3-58.4)
Changes to normal menstrual bleeding patterns, which is caused by some contraceptives, are harmful to health	67.0 (56.1-76.3)	50.0 (29.1-70.9)	64.0 (53.6-73.3)
Modern contraceptives can make adolescent girls permanently fat	65.1 (54.6-74.3)	54.6 (35.0-72.8)	63.2 (54.4-71.2)
Adolescent girls who use family planning/birth spacing may become promiscuous	59.2 (50.1-67.8)	59.1 (42.0-74.2)	59.2 (51.3-66.6)
Agreed with benefits about contraception (%)			
Preventing unintended pregnancies is a benefit of contraception	90.3 (82.3-94.9)	77.3 (56.0-90.1)	88.0 (80.2-93.0)
Preventing abortions is a benefit of contraception	59.2 (45.2-71.9)	63.6 (37.5-83.6)	60.0 (46.6-72.0)
Some contraception methods reduce sexually transmitted infections/HIV	27.2 (19.0-37.3)	31.8 (12.1-61.3)	28.0 (19.1-39.0)
Modern contraception can help with child spacing	92.2 (85.4-96.0)	81.8 (59.6-93.2)	90.4 (83.5-94.6)
Using modern contraception can allow a girl to complete her education, take up better economic opportunities and fulfil her potential	85.4 (74.7-92.1)	86.4 (64.9-95.6)	85.6 (75.6-92.0)
Approved of using contraception (%)			
Married couples using a modern contraceptive method to avoid or delay pregnancy	58.3 (47.5-68.3)	90.9 (66.9-98.0)	64.0 (54.2-72.8)
Couples who are not married using a modern contraceptive method to avoid or delay pregnancy	58.3 (46.5-69.1)	68.2 (47.6-83.5)	60.0 (49.5-69.7)
Agreed with statements on accessing and using contraception (%)			
It is acceptable for an adolescent girl to start a conversation with her boyfriend/husband about contraception	87.4 (77.5-93.3)	90.9 (66.9-98.0)	88.0 (79.5-93.3)
It is acceptable for an adolescent girl to obtain information on contraception services and products if she needs to	87.4 (76.5-93.7)	95.5 (70.6-99.5)	88.8 (79.4-94.2)
It is acceptable for an adolescent girl to obtain a contraception method if she decides to use one	83.5 (70.3-91.6)	95.5 (70.6-99.5)	85.6 (74.7-92.3)
It is acceptable for an adolescent girl to use a method of contraception even if her boyfriend/husband doesn't want her to	47.6 (35.7-59.7)	27.3 (10.5-54.5)	44.0 (32.9-55.8)

Appendix D: DHS mCPR definition and results table

DHS definition of mCPR among 15–19-year-old girls:[4]

MARRIED

$$\frac{\text{Number of married 15–19-year-old girls reporting use of modern contraceptives at the time of the survey}}{\text{Number of married 15–19-year-old girls}}$$

UNMARRIED

$$\frac{\text{Number of unmarried sexually active* 15–19-year-old girls reporting use of modern contraceptives at the time of the survey}}{\text{Number of unmarried sexually active* 15–19-year-old girls}}$$

Modern contraception: male and female sterilisation, contraceptive implants, intrauterine contraceptive devices (IUDs), injectables, oral contraceptive pill, emergency contraceptive pill, male condom, female condom, standard days method (SDM), lactational amenorrhoea method (LAM), diaphragm, spermicides, foams and jelly.

*Sexually active girls: those who report having sexual intercourse in the past 30 days

(NOTE: in our analysis we used a slightly modified DHS definition for unmarried girls and we included those who were sexually active in the past 12 months.)

mCPR definition	Pros	Cons
Study protocol mCPR	• Denominator reflects the population at risk (of pregnancy), i.e. sexually active women who are not infecund, pregnant, or amenorrheic • More informative for programming • Easier to tease out the separate impacts of an intervention on 1) use of contraception in population at risk of pregnancy and 2) number of pregnancies (age-specific fertility rates are a secondary outcome in our study)	• Not directly comparable with DHS
DHS mCPR	• More widely used definition • Direct comparison can be made for married women with DHS • The DHS definition is helpful for international comparisons	• Denominator doesn't reflect population at risk of pregnancy for married women • Definition for unmarried women would be sexually active within 12 months (30 days in DHS) therefore still not directly comparable with DHS

Table D1. Percentage distribution of married and sexually active unmarried adolescent girls aged 15–19 years who currently use contraception, by method used (DHS definition) (%, 95% Confidence Interval)

Characteristic	Unmarried	Married	Total Ilemela
No. of sexually active girls[1]	744	201	845
Any method	50.7 (47.7-53.6)	20.4 (13.9-28.9)	44.2 (40.6-48.0)
Any modern method[2]	48.7 (45.8-51.5)	19.4 (13.4-27.3)	42.4 (39.2-45.7)
Modern method			
Implant	2.2 (1.2-3.8)	7.5 (4.3-12.7)	3.3 (2.3-4.7)
IUD	0.13 (0.02-1.1)	1.5 (0.43-5.0)	0.42 (0.15-1.2)
Injectables	2.8 (1.9-4.2)	4.5 (2.4-8.3)	3.2 (2.4-4.3)
Daily pills	0.27 (0.06-1.2)	0.50 (0.07-3.6)	0.32 (0.10-1.0)
Emergency pills	0.27 (0.06-1.2)	0	0.21 (0.05-0.92)
Male condom	34.8 (31.8-38.0)	1.5 (0.45-4.8)	27.7 (24.9-30.8)
Standard days method/cycle beads	7.7 (5.8-10.1)	3.0 (0.86-9.9)	6.7 (4.8-9.2)
Other modern method	0.54 (0.18-1.6)	1.0 (0.23-4.2)	0.62 (0.23-1.7)
Any traditional method	2.0 (1.3-3.0)	1.0 (0.22-4.4)	1.8 (1.1-2.8)
Not currently using	42.9 (39.7-46.1)	47.3 (41.7-52.9)	43.8 (40.9-46.8]
No response[3]	6.5 (4.9-8.4)	32.3 (24.9-40.8)	12.0 (9.8-14.5)
Total	100.0	100.0	100.0

1 Unmarried girls who report sexually activity in last 12 months; all married girls in Ilemela district.

2 Modern methods include female sterilisation, male sterilisation, contraceptive pill (oral contraceptives), IUD, injectables (Depo-Provera), implants (Norplant), female condom, male condom, diaphragm, contraceptive foam and contraceptive jelly, LAM, SDM, cycle beads.

3 Girls who reported no sexual activity in past 12 months or reported being pregnant were not asked about use of modern contraception in the survey.