

Knowledge of sexually transmitted infections among women attending primary health care clinics in Moshi, Tanzania.



A student thesis by

Berthe Annette Svenkerud

Kathrina Isachsen

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Supervisors

Sia E. Msuya

Babill Stray-Pedersen

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Abstract

Introduction

Untreated STIs may have serious complications. Knowledge of STIs is important in order to prevent this, and to promote care seeking and treatment. Previous studies have found knowledge to be associated with sexual behavior and socioeconomical factors. The aim of our study was to describe the knowledge of STIs among women attending primary health care clinics in Moshi, Tanzania, to identify their sources of knowledge and evaluate if the level of knowledge is associated with socioeconomical status and the use of condoms.

Methods

A cross-sectional study conducted between June 19th and July 6th 2009, using face to face interviews of sexually active women of reproductive age, attending two primary health care clinics. The interviews were based on a questionnaire including questions on socio-demographical factors, knowledge of STIs, condom use and communication. In the knowledge part, points were given for each correct answer, resulting in a knowledge score.

Results

The study included 166 women that had a mean knowledge score of 11.15 out of a possible of 31. 20.4% had poor knowledge, 68.5% average knowledge, 11.1% good knowledge and none very good knowledge. 46.1% thought women with STIs would always have symptoms, 42.2% answered correctly that they sometimes do not. 64.8% said that men with STIs would always have symptoms, and only 18.2% that they sometimes do not. 83.1% mentioned condom use as a way to prevent STIs, and 75.3% monogamy. Part from being formally employed ($p=0.030$), there was no significant association between socioeconomical status and the knowledge of STIs. 96.4% knew where to get condoms, but only 39.2% had ever used one. Women that mentioned condoms as a way of preventing STIs and women that were single/separated were more likely to have used a condom ($p = 0,001$ and $p= 0.029$ respectively). Reasons for not using condoms were that they had never discussed condoms with their partner (36.7%), partner objected (31.6%) or personal dislike (16%). Main sources of information about STIs were reproductive health clinics (83.1%), public campaigns/ media (63.0%) and schools (53.0%).

Conclusion

Knowledge about prevention of STIs effects condom use. The level of knowledge about STIs is too low, and further education is needed. Reproductive health clinics and public campaigns/ media may be suitable arenas for this. Further research on womens status in relationships and its effect on sexual behaviour is needed.

Abbreviations

STI: Sexually Transmitted Infections

UNDP: United Nations Development Programme

HDI: Human Development Index

PMTCT: Prevention of Mother to Child Transmission

KCMC: Kilimanjaro Christian Medical Center

PID: Pelvic Inflammatory Disease

HPV: Human Papilloma Virus

GUS: Genital Ulcer Syndrome

VDS: Vaginal Discharge Syndrome

UDS: Urethral Discharge Syndrome

LAP: Lower Abdominal Pain

HSV: Herpes Simplex Virus

SD: Standard deviation

TZS: Tanzanian shillings

1 Introduction

1.1 Background information

1.1.1 Tanzania

Tanzania is the largest country in eastern Africa, covering an area of 947,300 sq km, and has a population of approximately 41.9 million people(1). It has a life expectancy at birth of 56.9 years, 5.1 mean years of schooling and a maternal mortality ratio of 950 per 100,000 live births. In the United Nations Development Programme's (UNDPs) Human Development Index (HDI) based on health, education and living standards it is ranked 148, with an HDI value of 0.398, putting it on the list of countries with low human development. Yet it is better than average for the sub-Saharan region(2).

1.1.2 Moshi

Moshi is the capital of the Kilimanjaro-region. The region has a population of 1,3 million people, of which 230,166 live in Moshi urban district. Moshi has one referral hospital, Kilimanjaro Christian Medical Center (KCMC), one district hospital, Mawenzi, and six primary health care clinics.

1.1.3 Sexually transmitted infections

Sexually transmitted infections (STIs) are transferred from person to person, primarily through sexual contact. Some of them can also be transmitted from mother to child and through blood products and tissue transfer.

Complications of untreated STIs include pelvic inflammatory disease (PID), infertility, a larger risk of ectopic pregnancies, cervical cancer, adverse pregnancy outcomes and increased risk of HIV transmission. PID is often caused by untreated chlamydia infections, and may lead to tubal damage. This may cause ectopic pregnancies or infertility. 40-50% of ectopic pregnancies and 30-40% of infertility is thought to be due to previous PID. Certain types of human papilloma virus (HPV) may contribute to development of cervical cancer.

Prevalence of syphilis in pregnant women varies between 4 and 15% in Africa. In Tanzania it varies between 1,2 – 8% (3). Untreated syphilis may lead to stillbirth and neonatal death. Overall perinatal mortality is about 40%. Untreated gonorrhoea may lead to spontaneous abortion, premature deliveries and perinatal death. Gonorrhoea and chlamydia may lead to ophtalmia neonatorum.

Both ulcerative and non-ulcerative STIs increase the risk of transmitting HIV during sexual intercourse(4, 5). This because of a reduced barrier and facilitated virus transfer, which accentuates the importance of treating STIs(6, 7). There is limited evidence of STI control being a way to decrease the HIV incidence directly, but the epidemics are independent, as risk behavior such as multiple partners and lack of consistent condom use facilitate the transmission of both(8).

Because many developing countries lack equipment and personnel for laboratory diagnosing STIs, The World Health Organization (WHO) recommend the use of a syndromic approach(9). This is the case in Tanzania, where STIs are diagnosed based on identification of symptoms and signs typically associated with defined etiologies. This results in different flowcharts for managing genital ulcer syndrome (GUS), vaginal discharge syndrome (VDS), urethral discharge syndrome (UDS) and lower abdominal pain (LAP). While clinical diagnosis is inaccurate and incomplete, laboratory tests are complex, expensive and may delay treatment. Thus making treatment at 1st visit the main advantage of the syndromic approach. However, it is not suitable for areas with low STI prevalence, can not be used as a screening tool and does not address asymptomatic infections (10). It has been shown that there is a poor association between laboratory diagnosed vaginal infections and self-reported symptoms, with one study showing that nearly 70% of women diagnosed with trichomoniasis and/ or bacterial vaginosis reported no symptoms (11). In addition to not addressing asymptomatic infections, this poor association may lead to overtreatment. This can be decreased by including a risk score assessment (10, 12).

1.2 Literature reviews

1.2.1 Prevalence of sexually transmitted infections

According to WHO estimate from 1999, it is 340 million new cases of curable STIs (Chlamydia, syphilis, gonorrhoea and trichomoniasis) in the world each year. 75-85% of them are in developing countries, where STIs are ranked in the top five disease categories for why adults seek treatment(13). It is estimated that 2.2 million adults and children in Tanzania are infected with STIs, including HIV/ AIDS. 50% of STIs occur before the age of 29(14).

S Msuya's study performed at Majengo and Pasua clinics in Moshi in 2002-2004 found an overall HIV prevalence of 6,9% (15). But the percentage was lower among younger women, and higher among unmarried. The prevalence of herpes simplex virus-2 (HSV-2) was 33,9%, syphilis 0,9% gonorrhoea 0,5% and trichomoniasis 5,0% (15). The same study found that

mean age at sexually debut was 18.3, age at first pregnancy 19.7 and 43,8% of the women had had more than one partner (16).

1.2.2 Knowledge of STIs

Awareness and knowledge of sexually transmitted infections and its complications is important in order to prevent transmission and promote early treatment. Also studies have shown awareness and knowledge may have an impact on risky sexual behaviour(17).

A study performed in rural Kilimanjaro in 2005, among people aged 15-44, found that the knowledge of STIs, its complications and its role in HIV transmission was very low: only 36,8% were considered knowledgeable(17) . The same study found that educational level and age was significantly associated with STI knowledge. The knowledge was best among adults aged 25-34 and people with secondary education(17). A study among women in rural Vietnam in 2006 showed a similar trend (18). Knowledge of STIs, its symptoms and complications was low: Out of 40 possible correct answers, mean knowledge score was found to be 6,5. A higher knowledge was significantly associated with being married, aged 20-29 years, being a worker or a government staff, educational level, living in the lowland, having experinced induced abortion and having had symptoms the last 6 months(18).

1.2.3 Condom use

Part from abstinence and mutually monogamous relationship with an uninfected partner, condoms are considered the best way to avoid transmission of STIs(4).

The Tanzanian commition for AIDS has advertised through TV, billboards, brochures and stickers in order to promote condom use in the public. From 2005 to 2007 the distribution of condoms increased from 59 millions to 121 millions, and condoms are available in 94% of bars(19). Still, overall use of condoms has shown to be low. In rural areas of Tanzania, half of all women, and almost one quarter of men aged 15-24 do not know where to get condoms (19). In the study mentioned earlier, among pregnant women in Moshi 2002-2004, 75% of the women reported never to have used a condom, while 13% reported consistent use (16).

A study from rural Kilimajaro found that not using a condom with a casual sexpartner was significantly associated with low knowledge of sexually transmitted infections and its complications(17). Studies from other parts of Africa has found condomuse to be significantly associated with education level(20).

1.3 Justification

Knowledge of STIs is very important in developing countries. One reason for this is that management of STIs in developing countries relies on a syndromic approach. This means that in order to be diagnosed with, and be treated for an STI, there has to be symptoms of an infection. Many people infected with STIs, and especially women, have no symptoms, and therefore they do not seek medical care. Women are also at the highest risk of complications after non-treated infections.

It is thus important that women of reproductive age have a good knowledge of STIs. They need to know about different infections and their symptoms, since recognition of these are important to prompt care seeking. They need to know which infections that can be treated and that some of them have serious complications if left untreated. They also need to know that there are infections without symptoms and that there are ways they can protect themselves from them. Hopefully, good knowledge of all this can reduce risky behaviour and therefore reduce transmission.

In order to be able to target educational campaigns it is necessary to know in what areas knowledge is lacking, what is the best way of transferring knowledge and who are the best communicators of this knowledge. In our literature searches, we found few studies matching our study population, that have focused on knowledge of STIs other than HIV. Also we have the impression that many campaigns have focused on delaying debut and abstinence as the best ways of avoiding transmission of STIs. This of course can not be denied, but we believe use of condoms may be easier to implement as a good way of reducing the transmission. After all, a message of safe sex may be easier to take home, than a message of no sex at all.

With this study we want to identify the womens knowledge and lack of knowledge, to map where they have gained their information, and whether STIs are discussed or is a taboo. Also we want to have a closer look on condom use, and why or why not these women practice safe sex. Hopefully these data can be useful to identify who lacks knowledge of STIs, and that this can help public health workers in their educational work. First of all, the workers at the two clinics we visited, but also other places. Also we hope that the women that participated in the study have increased their knowledge and awareness about STIs.

2 Objectives

2.1 Broad objective

To describe the knowledge of STIs among women attending primary health care clinics in Moshi, Tanzania.

2.2 Specific objectives

- To describe the women's knowledge of STIs.
- To identify the source of STI knowledge among the women.
- To determine if STI knowledge is associated with socioeconomic status
- To see if there is an association between knowledge of STIs and use of condoms.

3 Methodology

3.1 Study area

The study was performed at Majengo and Pasua health care clinics in Moshi, Tanzania between June 19th and July 6th 2009. Moshi is the capital of the Kilimanjaro-region. The region has a population of 1,3 million people, of which 230,166 live in Moshi urban district. Moshi has one referral hospital, KCMC, one district hospital, Mawenzi, and six primary health care clinics. Majengo and Pasua are two of these clinics, which focus on reproductive health (antenatal care, growth monitoring, vaccination, family planning services, delivery services and an STI clinic).

3.2 Study design

Cross sectional study, using face to face interviews.

3.3 Study population

The participants were sexually active women of reproductive age, attending the clinics for antenatal care, family planning and child welfare. Women who attended the STI clinic were excluded, assuming that this could be a selected group regarding STI knowledge

3.4 Data collection tools and techniques

3.4.1 The questionnaire

The interviews were performed using a standardized questionnaire including questions about sociodemographical factors, knowledge of STIs, condom use and education about STIs. It contained only closed ended questions, validated from a questionnaire used in a previous study on HIV/STIs conducted among women of reproductive age at the same clinics (11, 15, 16). Participants were randomly selected at the clinics each day, and the aim was to reach a sample of 150. The women were informed about the aim of the study, and asked to participate. Because of low literacy level, interviews were performed face to face in Swahili, by female health workers at the clinic. The interviewers were given instructions in how to perform the interviews, so that these, as far as possible, were done in a standardized way. Written answers were given in either English or Swahili, the latter were then translated to English. After finishing the questionnaire, the women were educated about STIs, their symptoms, complications, prevention and where to seek treatment.

A pilot of the questionnaire was performed, to evaluate the questions and the way of asking them. This was not included in the data analysis.

3.4.2 The knowledge score

The questionnaire had 8 questions regarding knowledge of STIs. Five of the questions had multiple answers, while the remaining three had only one correct answer. They were given ½ point for every STI they could mention, while the rest of the answers gave 1 point each. The reason for this difference is that we find it easier to mention names of diseases rather than their symptoms and complications. Also, the syndromic approach relies on recognition of symptoms, and we therefore consider this more important.

When a respondent answered something not mentioned in the questionnaire that was later approved as a true complication/ symptom, she got an extra point for this and it counted in her total score.

Points were given for mentioning fever as a symptom in women, and itching as a symptom in men. Fungus did not give any extra points as it is not a sexually transmitted infection, while mental illness and transmission to partner was approved as complications. We decided to give points for mentioning death as a complication, as tertiary syphilis may lead to death. Death from AIDS is not a relevant complication of an untreated STI, since HIV/AIDS can not be cured.

All questions together made a possible score of 31 points. In order to be able to say something about the level of knowledge in our population we arranged the respondents in four groups according to their obtained knowledge score. To make these groups we split the possible score of 31 into four, and named the four groups: Poor knowledge 0-8p, average knowledge 9-16p, good knowledge 17-24p and very good knowledge 25-31p.

3.4.3 Data analysis

The questionnaires were numbered in order to make them easily trackable. Data were analyzed using SPSS 16.0 and independent sample T-tests, ANOVA test, Chi-square test and Fisher`s exact test.

3.5 Ethical clearance

The study is ethically declared by the Tanzanian Ministry of Health and the Norwegian Ethical Committee as part of an ongoing project. Also the questionnaires do not include any names or identification numbers, which keeps the respondents anonymous.

4 Results

4.1 Characteristics of respondents

A total of 166 women between 17 and 46 years, with a mean age of 26.9 years were interviewed. Most of the women, 74.4%, were married, 16.5% were cohabiting, 7.3 % single and 1.8% separated. Everyone in the study had been pregnant before, with a mean number of pregnancies of 2.02. They had between 0 and 5 living children, with a mean of 1.68.

One respondent had no formal education, 83.7 % had primary level (1-7 years) and 15.1% had O-level (9-12 years) education. Only one, had an A-level education (13-14 years).

29.5% were formally employed and 30.1% had some other income generating activity. 31.3% stated to be depended on their partner while 9.0% had no income. In the latter group, two (1.2%) were dependant on parents, one person was a farmer and the remaining had not specified. This accord with the fact that 39.3% states they had no income, while the remaining women had some. 14.7% of the women earned less than 30,000 TZS a month, 29.4% earned 30,000 – 59,000 TZS, 12.3% earned 60,000-100,000 TZS and 4.3% earned more than 100,000 TZS a month.

The majority of the respondents, 71.1%, rented their housing. Of these, 20.5% rented a house and 50.6% rented one or more rooms, for which they paid between 4,000 TZS and 45,000 TZS per month. About one fourth, 25.9%, owned the house they lived in, while 3.0% lived with relatives.

Almost all the respondents, 88.6% owned a radio, and 81.3% owned a phone. A TV was owned by 40.4% and 15.7% had a fridge. Regarding transportation, 29.5% of the families had a bicycle, but only 2.4% had their own car.

The average number of lifetime partners were 1.70, but ranged from 1 to 8. Most of the women, 88.2%, stated that they had never been treated for a STI, while 11.8 % had. Regarding the respondents` HIV-serostatus; 6.1% of the women had not been tested, 7.4% were HIV-positive and 86.5% were negative.

4.2 Knowledge of STIs

The questionnaire contained eight questions regarding knowledge of STIs. Average number of STIs mentioned by respondents was 3.09, with maximum being 9 and minimum 0. The infections most commonly mentioned were HIV/AIDS, mentioned by 92.8%, gonorrhoea, mentioned by 92.2% and syphilis, mentioned by 83.7% of the women. Candida was

mentioned by 13.9% of the respondents, but this did not give any points and did not count in the total score as it is not a sexually transmitted infection.

On the question on whether a woman with an STI will have symptoms, 42.4 % gave the correct answer that sometimes they will not have symptoms. On average, the respondents mentioned 2,72 symptoms, with genital ulcers (40.4%), genital itch (77.7%) and abnormal vaginal discharge (68.7%) being the most commonly mentioned. Three women got a point for mentioning fever as a symptom, as this is common with pelvic inflammatory disease.

The respondents mentioned in average 2.18 complications of untreated STIs in women. Only 18.7% knew that PID is a complication of an untreated STIs, while 59.6% mentioned infertility as a complication. Two women got a point each for answering mental illness and transmission to partner as a complication, and 14.5% answered death as a complication.

As many as 64.8% of the women thought that a man with an STI will always have symptoms, 5.5% think he will not have symptoms, 11.5% do not know and 18.2% answered the correct, that he will only sometimes have symptoms. The women mentioned in average 2.04 male symptoms, ranging from 0 to 4. The symptoms mentioned by the most women were penile discharge (69.3%) and painful micturation (61.4%). Four women mentioned itching as a symptom of STIs in men.

When it comes to prevention, they mentioned in average 2.01 ways of preventing STIs, ranging from 0 to 4. The method of prevention best known was consistent condom use, mentioned by 83.1%, followed by monogamy with 75.3%.

82.9% thought having an STI made them more vulnerable for HIV transmission.

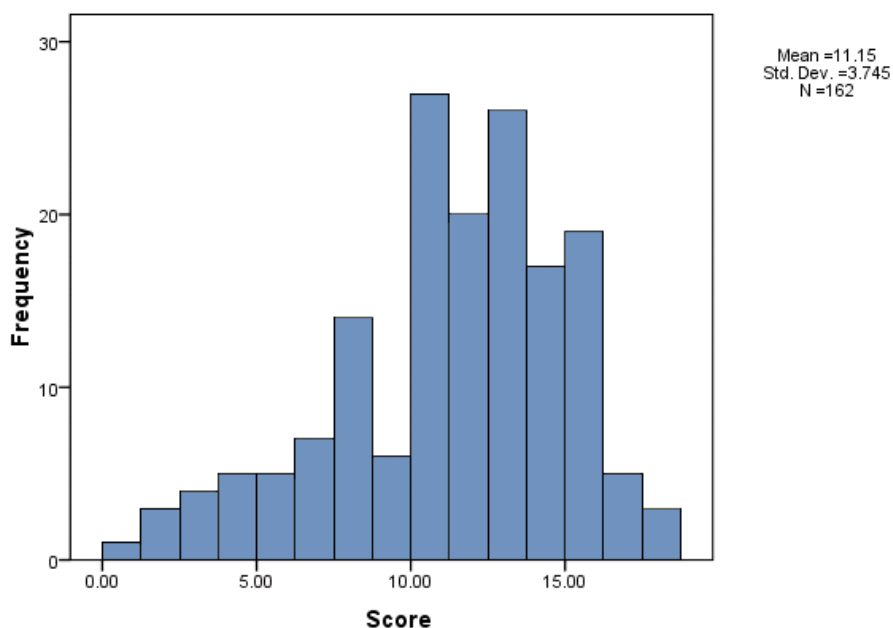
Table 1: Overview of the knowledge score of 166 women.

	N	Mean	Minimum – maximum	Std. Deviation
Total number of STIs mentioned	166	3.09	0 – 9	1.08
Total number of female symptoms mentioned	166	2.72	0 – 5	1.19
Total number of complications mentioned	166	2.18	0 – 5	1.21
Total number of male symptoms mentioned	166	2.04	0 – 4	1.16
Ways of preventing STIs mentioned	166	2.01	0-4	0.81
Total Score	162	11.15	1.00 - 18.50	3.75

Table 2: Knowledge of STIs among 166 women.

	N	Valid %
Total	166	100
Can you please mention any STIs you know? (Multiple answers)		
None	3	1.8
Gonorrhoea	153	92.2
Syphilis	139	83.7
Chancroid	30	18.1
HIV/AIDS	154	92.8
Genital herpes	4	2.4
Genital ulcer	13	7.8
Trichomoniasis	2	1.2
Chlamydia	10	6.0
Pubic lice/ crabs	2	1.2
Genital warts	6	3.6
Other RTIs – candida	23	13.9
Do you think a woman with STIs will:		
Always have symptoms	76	46.1
Sometimes not have symptoms	70	42.4
Never have symptoms	7	4.2
Don't know	12	7.2
Missing	1	
Can you mention symptoms that may cause you to suspect that you have an STI? (Multiple answers)		
None	10	6.0
Genital ulcer	67	40.4
Genital itch	129	77.7
Spotting	3	1.8
Abnormal vaginal discharge	114	68.7
Lower abdominal pain	59	35.5
Pain during sex	15	9.0
Painful micturation	61	36.7
Other symptoms of STIs	3	1.8
Symptoms of AIDS	5	3.0
Do you know any consequences of untrated STIs? (Multiple answers)		
None	20	12.0
Infertility	99	59.6
PID/ pelvic pain	31	18.7
Adverse pregnancy outcomes	71	42.8
Transmit infection to the newborn	54	32.5
Easily get or transmit HIV	43	25.9
Cancer of the cervix	39	23.5
Other	26	15.7
Death	24	14.5
Would a man infected with STI have symptoms?		
No	9	5.5
All the times	107	64.8
Sometimes	30	18.2
Don't know	19	11.5
Missing	1	
What symptoms and signs may he have? (Multiple answers)		
Don't know	26	15.7
Penile discharge	115	69.3
Genital ulcers	57	34.3
Painful micturation	102	61.4
Scrotal swelling	18	10.8
Pain during sex	39	23.5
Enlarged inguinal lymph nodes	4	2.4
Others	4	2.4
Symptoms of AIDS	3	1.8
Name ways you know of preventing STIs? (Multiple answers)		
None	6	3.6
Abstinence	39	23.5
Consistent condom use	138	83.1
Monogamy	125	75.3
Get tested before marriage/having sex	31	18.7
Do you think having a STI make you more vulnerable for HIV transmission? (Multiple answers)		
No	12	7.3
Yes	136	82.9
Don't know	16	9.8
Missing	2	

Figure 1: Histogram showing the normal distribution of the knowledge-score.



The maximum knowledge score obtained was 18.5 points, while one person had a score of 1. Mean score was 11.15 (standard deviation 3.76). This means that of the respondents, 20.4% had “poor knowledge”, 68.5 %, had an ”average knowledge”, 11.1% “good knowledge” and non had a “very good knowledge”.

Table 3: Level of knowledge among 166 women.

	Frequency	Valid Percent
Poor knowledge (0-8.0 points)	33	20.4
Average knowledge (8.5-16.0 points)	111	68.5
Good knowledge (16.5-24.0 points)	18	11.1
Very good knowledge (24.5 -31.0)	0	0.0
Total	162	
Missing	4	

To determine if there was an association between socioeconomical status and the women`s knowledge of STIs, we looked at educational level, employment and income.

Regarding education, the one woman with no formal education had a knowledge score of 6.50 points. The average score of women with primary level education (1-7 years) was 11.03, (SD

3.84) and among those with O-level education (8-12 years) it was 11.93, (SD 3.09). The one person with A-level education (13-14 years) had a score of 13.50. When dividing the women into two groups; primary level education or less and O-level education or more, there was no significant difference between the groups, (p=0.229)

It does seem to be a difference between the women that are formally employed and the women that are not. The 114 women with no formal employment had an average knowledge score of 10.74 (SD 3.81), significantly different (p=0.030) from the 48 women that were formally employed and their average score of 12.14 (SD 3.43).

There was no association between monthly income and knowledge of STIs. 62 women had no income, and their average knowledge score was 10.35 (SD 4.18). The 23 women with <30.000 TZS a month had an average score of 11.91 (SD 3.913), for the 48 women with 30.000-59.000 TZS it was 11.30 (SD 3.57) and the 26 women with 60.000 or more TZS income per month had 11.92 (SD 3.34). Within every group there was a large difference between the minimum and maximum scores obtained. This and that the 95% confidence intervals for the groups overlap support that there is no difference between the groups, and when using an ANOVA-test to analyze if there is a significant difference between the groups mean score, it resulted in a p-value of 0.180.

There was no association between knowledge score and previously been treated for a sexually transmitted infection, p-value 0.478. The women that had been treated for an STI had an average knowledge score of 10.50 (SD 3,72), while it was 11.17 (SD 3.79) for the women that had not been treated.

Table 4: Association between the knowledge score and socioeconomical status.

Predictor	N	%	Mean Knowledge-score	Std. deviation	95% confidence interval	Minimum - maximum	P-value (T-test and ANOVA)
Educational level							
0-7 (No education or primary level)	137	84.6	11.00	3.84		1.0 – 17.5	Not significant (p = 0.221)
9-14 (O-A level)	25	15.43	12.00	3.04		6.5 – 18.5	
Total	162	100					

Are you formally employed?							
No	114	70.37	10.74	3.80			Significant p = 0.030
Yes	48	29.62	12.13	3.42			
Total	162	100					
Income per month							
No income	62	37.4	10.35	4.18	9.29 - 11.41	1.0 - 17.5	Not significant (p=0.180)
<30.000 TZS	23	13.9	11.91	3.17	10.54 - 13.28	3.5 - 17.0	
30.000-59.000 TZS	48	28.9	11.30	3.57	10.26 - 12.33	3.0 - 17.5	
>59.000 TZS	26	15.6	11.92	3.34	9.82 - 12.80	5.0 - 17.0	
Total	159	100	11.12	3.75	10.53 - 11.71	1.0 - 18.5	

4.3 Condom Use

As many as 78.3% of the respondents had ever used a family planning method. Injections was the most common method, tried by 45.8%. Contraceptive pills (we did not differ between combined oral contraceptives and minipills), had been used by 28.9%, 17.5% had used implants and 7.2% IUD. One women said that she had used safe periods as contraception-method.

Almost everyone, 96.4%, of our respondents knew where to get condoms, but only 39.6% said they had ever used one. The most common reasons for not using a condom is that they have never discussed condoms with their partner (36.7%), that the partner objected (31.6%) and personal dislike (16.3%). Of the ones that had ever used a condom, 59.4% used them occasionally, 25% always, 9.4% most times and 6.2% never.

Prevention of sexually transmitted infections as a reason for using condoms was mentioned by 87.2%, 84.1% mentioned prevention of pregnancy, 78.7% mentioned prevention of HIV transmission and 1.8% mentioned casual partners as a reason to use condoms.

When comparing those that said they had used condoms, and those that said they had never used condoms, there was a difference in knowledge of STIs between the two groups, but this was not significant (p=0.076). Mean knowledge score among those that had used a condom was 11.83 (SD 3.46), while it was 10.77 (SD 3.81) among those that had not.

Those who mentioned consistent condom use as a way of preventing transmission of STIs are significantly more likely to have ever used a condom (p=0.001).

Also there was a significant difference ($p=0.029$) in the use of condoms between married/cohabiting women and the ones that were single/separated, as the latter group were more likely to have ever used a condom.

It was no significant association between age, number of lifetime partners or if they had ever been treated for a sexually transmitted infection and the use of condoms.

Table 5: Association between condom use and marital status, age, number of lifetime partners, previously been treated for a sexually transmitted infection and mentioning condom as way of preventing STIs.

	Have you ever used a condom?			P-value
	No	Yes	Total	
Marital status				
Married or cohabiting	93	54	147	Fisher-exact test Significant ($p=0.0292$)
Single or separated	5	10	15	
Total	98	64	162	
Age				
<20	4	6	10	Chi-square Not significant ($p=0.507$)
20-24	31	25	56	
25-29	29	16	45	
30-34	21	10	31	
>35	12	8	20	
Total	97	65	162	
Number of lifetime partners				
1	38	26	64	Chi-square Not significant ($p=0.354$)
2	16	16	32	
3 or more	7	10	17	
Total	61	52	113	
Ever been treated for a sexually transmitted infection?				
No	81	52	133	Chi-square Not significant ($p=0.528$)
Yes	9	8	17	
Total	90	60	150	
Respondent mentioned consistent condom use as a way of preventing STIs				
Yes	25	3	28	Chi-square Significant($p=0.001$)
No	74	62	136	
Total	99	65	164	

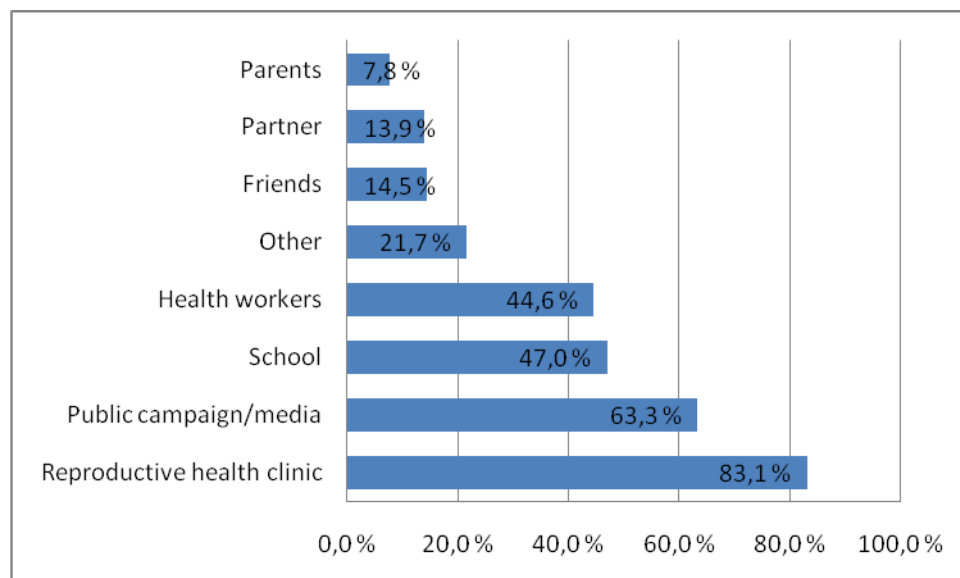
4.4 Communication about STIs:

When the respondents were asked about who they could discuss STIs with, almost everyone mentioned somebody; only 1.8% said that they could not talk about STIs with anyone. As many as 92.0% stated that they could discuss this subject with their partner, and 52.1% with friends. Only 21.5% mentioned their parents, 8.4% mentioned family and relatives, 1.2% mentioned female relatives and friends and 4.2% said doctors.

Almost everyone, 95.0%, said that they would inform their partner if they were diagnosed with an STI, while 5.0% would not.

When asked where they had gained their knowledge about STIs, participants mentioned multiple sources for information. Reproductive health clinic was mentioned by 83.1% and 44.6% mentioned health workers. Media or public campaign was mentioned by 63.3%, and about half, 47.0%, of the respondents said they had learnt about STIs at school. It seems like people in the respondents social circle, to a lesser extent is a source of information about STIs: 13.9% said that they had learnt about STIs from their partner and 14.5% from friends, while only 7.8% mention their parents. 21.7% said they had other sources of information about STIs.

Figure 2: Bar chart showing where the women have gained their knowledge of STIs.



5 Discussion

5.1 General discussion of main results.

5.1.1 Knowledge of STIs

Most of the women had some knowledge about STIs: 11.1% had good knowledge, 68.5% were in the group considered to have average knowledge of STIs and 20.4% had poor knowledge.

Almost everyone knew about HIV, gonorrhea and syphilis. There may be many reasons for why these STIs are most frequently remembered. The most important are that these are the most serious STIs, with the most severe consequences, reflected by the fact that adverse pregnancy outcome and transmit infection to newborn are mentioned by respectively 42.8% and 32.5% as a consequence of untreated STIs. Only infertility are mentioned more frequently than these.

We expected that the prevalence of the infections in the population could influence peoples knowledge about them, as the most common ones may then be under more focus. This was not the case. We had a self-reported prevalence of HIV of 7.4% among the respondents in our study, quite similar to other studies in the area(15, 17). Msuya et al. found that HSV-2, Trichomonas vaginalis and HIV were the most frequent STIs, with the prevalence of HSV-2 being as high as 33.6% (based on serologic testing) (15). In contrast, only 2.4% of our respondents mentioned genital herpes as an STI. This infection increases the risk of HIV transmission during sexual intercourse(4, 5), and knowledge about genital herpes is important. Most of the women seems to be aware of the association between STIs and HIV: 25.9% mentioned that one can easily acquire or transmit HIV as a consequence of untreated STIs, and as many as 82.9% said yes when asked directly if they thought having a STI increased vulnerability for HIV transmission.

Nearly half of the women, 46.1%, believed that females infected with STIs will always have symptoms, while 64.8% believed that males with STIs always will have symptoms. This is very worrying since these women will not seek care and not use a condoms as long as their partners or themselves are free of symptoms.

The knowledge of symptoms associated with STIs were in average 2.72 symptoms in women and 2.04 symptoms in men. Genital itch was the most frequently mentioned STI symptom in a women. This may reflect the fact that as many as 13.9% mentioned yeastinfection as an STI.

For men penile discharge and painful micturation were most frequently mentioned, maybe reflecting the fact that as many as 92.2% named gonorrhoea as an STI. Again, it is important that they learn that a man with an STI may be asymptomatic!

As for prevention of STIs, 83.1% mention consistent condom use, but only 39.6% had ever used a condom. This discrepancy between knowledge and use may indicate that the women do not think they are at risk of being infected. Since 75.3% mention monogamy and 18.7% say getting tested before marriage or having sex as a way of preventing STIs, this may justify the lack of condom- use. It is interesting that there was a significant association between the knowledge of STI prevention through consistent condom use and having ever used a condom. This may indicate that knowledge of transmission may be a predictor for use of condoms.

There was a significant difference in knowledge of STIs between those that were formally employed and those that were not. Part from that, we did not find any association between socioeconomical status and knowledge of STIs. This may indicate that socioeconomical factors are not associated with knowledge of STIs, but more likely our study population are too small, as this is in contrary to previous studies that have found such correlations(17, 18).

5.1.2 Source of knowledge

In order to describe the womens source of STI knowledge we had questions regarding communication and education about STIs. On the question “where have you learnt what you know of STIs”, as many as 83.1% answered reproductive health clinics, and 44.6% mentioned healthworkers. This may mean that health clinics are good places to do educational work. It is also interesting that 63.3% mentioned media or public campaign as a source of knowledge, as this may point to that public campaigns have been effective. About half of the women said that they had learnt of STIs in school. Here it could have been interesting to see if there is any difference in age; that the younger have learnt more in school than the elder, and if so, see if education in schools has become better the latest years.

At the same time as healthworkers and health clinics are mentioned as source of information, only 4.2% say they can discuss sexually transmitted infections with doctors, either meaning that this is not a subject you talk to the doctor about or these women do not often talk to doctors.

We were happy to see that as many as 92.0% responded that they could discuss sexually transmitted infections with their partner, and that 95% said they would inform their partner if they were diagnosed with an STI. It could have been interesting to have specified this

questions a bit further and included more questions regarding couple communication, as this is central also when it comes to the matter of condom use.

From our results it seems like health clinic and public campaigns are the main source of information, while people in the respondents social circle to a lesser extent contribute to the womens knowledge of STIs.

5.1.3 Use of condoms

About 60% of our participants had never used a condom. This struck us as a very large number, but is actually lower than what Sia Msuya found in the study performed in 2002-2004 where only 25.2 % reported to have ever used a condom (16). This may reflect a trend in increasing use of condoms, but the sample-size of data is too small to conclude, although the populations probably are comparable.

It may be many reasons for the low use of condoms. One may be the availability of condoms, but almost everyone (97.0%) say that they know where to get condoms. The distribution of condoms have also increased (19), but still, we do not know how easily available condoms are, or how common or accepted it is to for a woman to buy condoms.

It is important to also take into account that 39.8% of the women tell that they have only had one partner, and these women may not feel the need to use condoms, opposing to the fact that only 14.2% say that they do not use condoms because they are married or trust their partner. More common reasons given are that they have never discussed condoms with their partner (36.7%) or that he objected (31.6%). This seems a little paradoxical to us, as over 90% of the women can discuss STIs with their partners. It does make one wonder what the women`s position is in the relationships are like? Are they allowed to request the use of condom or do they have to obey their partner`s wishes. It is also important not to miss that 16.3% of the women, say that they personally dislike condoms.

There was a significant association between marital status and condom use, with single or separated women being more likely to have ever used a condom ($p=0.029$). There was no significant association between age, number of lifetime partners, education or whether or not they had been treated for STIs before and the use of condoms. This oppose to previous studies that have shown an association between condom-use and educational level(20). We did expect to find an association, especially since this association was found in studies from rural Kilimanjaro (17), and we had heard that children learn about STIs and condom-use at school. We do not know when this became part of the educational program or at what level it is

taught. The majority (84.3%) of the participants in the study had primary level education or less, and may not have been exposed to it. Nevertheless about half (47.0%) of the participants in our study said that they had learnt about STIs at school. This is important to keep in mind when working with interventions in public health, especially since there was a non-significant trend ($p=0.076$) in that those with better knowledge of STIs were more prone to have used a condom before.

Since there was only one question about reasons for not using a condom in the questionnaire, more in-depth examination should have been done to map out the reasons more clearly. Also, questions about sexual behavior such as polygamous relationships, age of sexual debut, unfaithfulness and casual partners, that could have given important information regarding the use of condoms, were missing in our study.

5.2 Limitations of the study

5.2.1 Study population

As described in the methodology chapter, the women attending the STI clinic were not included, assuming that they could be a selected group regarding STI knowledge. Most likely these women have present symptoms of an STI or have recently searched new knowledge or discussed STIs more than they would otherwise do, and so would they answer differently in our survey. We hoped that question number 28: "Hva you ever been treated for a sexually transmitted infection" could, to some extent, tell us if women that had been treated for an STI had more knowledge than others. 18 of our respondents replied that they had been treated, and it was no significant difference between these 18 and the rest of the respondents. 18 is a small number, and it could have been interesting to also have included the women at the STI clinic to see if there really is any difference.

5.2.2 The questionnaire

The questionnaire is based on the one S Msuya used in her studies at the same clinic. In our small pilot, we discovered some missing details in our questionnaires, and found it necessary to add some questions. These were given the same number as the previous, but with the letter b. Because of this, not everyone has answered all questions.

Question 23 caused some trouble when analyzing, as we had not specified whether those that had never used a condom should answer this one or not.

5.2.3 The knowledge score

The score is based on question 10- 17 in the questionnaire: ½ point for every disease mentioned in question no. 10 and 1 point for every other answer.

We discussed very much back and forth whether question 10 should count ½ or 1 point. As described in the methodology we landed on ½ because, in our opinion, everyone can come up with names of STIs, but it takes more to know symptoms, prevention and complication, and therefore we thought this would give a better picture of the actual knowledge.

Also we discussed where to set the limits for poor, average, good and very good knowledge. We thought of using the mean score plus/ minus the standard deviation as the average score, but at the end decided to split the possible score of 31 into 4. This way, what was considered poor, average, good or very good was universal.

5.2.4 Data-collection

All measures are self-reported, meaning that there could be recall biases or intentional misreporting. The latter was hopefully minimized by securing anonymity for the participants and that the interviews were done by only female healthworkers, but sexually transmitted infections can be an embarrassing subject to discuss. Also we were present during many of the interviews. This may have caused some to feel shy or nervous, and therefore not answer the questions as good or honest as they would otherwise do.

It could also be that, when we asked who they could discuss STIs with, the respondents thought about HIV, and who they could discuss HIV with. If it is more accepted to talk about HIV rather than other STIs this could represent a bias.

The interviews were performed in swahili by health personell with swahili as their mother tongue. Swahili words and sentences given in the written answers were translated to english just by asking the personell working at the clinic. This could offcourse have been done in a more standardized way, but was only necessary for a few single words, and most likely has no impact on the results.

HIV-prevalence is based on self-reported PMTCT-status, meaning that some of these women may have been infected since the last time they were tested.

6 Conclusion

6.1 Conclusions

Most of the women have some knowledge on the subject, but we find that 20.4% having a poor knowledge is too much. It is especially alarming that so many of the respondents think STIs will always give symptoms, as long as treatment depends on a syndromic approach. This implies that there is still a large need of education on the subject.

We found a significant association between the knowledge score and being formally employed, but no association to other socioeconomical factors.

The use of condoms seems to have increased the last five years, with 39.6% now saying that they have ever used condoms. There is also a significant difference in condom use among married/cohabiting and singles/separated, with the latter group being more likely to have ever used a condom. The same thing is seen in women that mentioned consistent condom use as a way of preventing STIs, underlining the importance of good STI knowledge.

Reproductive health clinics is a very important source of information on STIs mentioned by over 80 % of the respondents, followed by media/public campaigns and schools, showing that educational works have been beneficial.

6.2 Recommendations

As mentioned above, reproductive health clinics are a very important source of STI information. This tells us that this is a good arena to be used for further communication of knowledge. For example by unrequested giving information on the subject to all women attending the clinics for contraception or antenatal care, or have freely available pamphlets.

More research is needed when it comes to the use of condoms; whether it is accepted for a women to buy, have and suggest to use condoms. Also sexual behaviour, couple communication regarding sexual matters and why these women seems to not see themselves at risk of acquiring STIs. It could have been very interesting to do the same type of study among the male part of the population, to map their knowledge and attitudes towards the subject and compare it to the women's.

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Appendix

QUESTIONNAIRE

Please inform the respondent that participation is voluntary, that she will stay anonymous in any written report and that all information will be treated confidentially.

Date *Tarehe* _____

Number of pregnancies *Mimba ya ngapi?* _____

Number of living children *Namba ya watoto walio hai:* _____

Interviewer *Jina la anayedodosa* _____

Sociodemographic factors

1. **When were you born (month/ year)?** *Umezaliwa mwazi na mwaka gani?* _____/_____.

2. **What is your marital status?** *Hali yako ya uny umbu kwa sasa ikoje?*

1: Married *Nimeolewa*

2: Cohabiting *Tunaishi pamoja bila ndoa*

3: Single *Sijaolewa*

4: Divorced *Mtalaka (kwa miaka _____)*

5: Separated *Tumetengana (kwa miaka _____)*

6: Widowed *Mjane (kwa miaka _____)*

3. **Are you formally employed, in which you receive a regular salary?** *Je una kazi ambayo unapokea mshahara kila mwisho wa mwezi?*

0: No *Hapana* → 4

1: Yes *Ndiyo*

4. **If you are not employed, do you have income generating activity?** *Hata kama hujaajiriwa, je una shughuli yoyote inayokupatia kipato?*

0: No *Hapana*

1: Yes *Ndiyo*

2: I am dependent on my partner *Namtegemea mwenzi kwa matumizi yote*

5. **What is your approximate income per month?** *Kwa kukadiria kipato chako cha mwezi ni kiasi gani?* _____

1: <30.000 Tanzanian shs

2: 30.000- 59.000 Tanzanian shs

3: 60.000- 100.000 Tanzanian shs

4: >100.000 Tanzanian shs

6. **Level of education?** (Number of years of full time education completed) *Kiwango zhelimu uliyofikya- andika namba ya miaka aliyomaliza?* _____

0: No formal education *Sikuwahi kusoma*

1: 1-7 (primary level) *Darasa la 1-7.*

2: 9-12 (O-level) *Kidato 1-4.*

3: 13-14 (A-level) *Kidato cha 5-6.*

4: Higher institutions (degree advanced diploma) *Elimu ya juu.*

7. **House ownership?** *Je nyumba unayoishi...?*

- 1: Own house. *Ni yakwenu wenyewe*
- 2: Rent house. *Mmepangisha nyumba yote* → 8
- 3: Renting a room/ rooms. *Mmepangisha chumba/ vyumba.* → 8
- 4: Living with relatives/ family/ parents. *Unaishi na ndugu/ wazazi/ familia yangu.* → 8
- 5: Others. *Nyinginezo*_____.

8. **If you are renting, how much do you pay per month?** *Kama mnapanga je mnalipa kodi ya nyumba shilingi ngapi kwa mwezi?*_____

9. **Does your family own?** (Multiple responses): *Je mna vitu vifuatavyo nyumbani?*

- 1: Radio *Redio*
- 2: Television *Televisheni*
- 3: Fridge *Friji*
- 4: Bicycle *Baisikeli*
- 5: Car *Gari*
- 6: Telephone *Simu*

Knowledge of STIs

10. **Can you please mention any sexually transmitted diseases you know?** (Interviewer record all responses but do not prompt participant) *Je unaweza ukaniambia ni magonjwa gani unayoyajua ambayo hutokana na kukutana kimwili/ kujamiiana? (Usidodose, andika majibu yote mama anayoyata ja.)*

- 0: None *Sifahamu*
- 1: Gonorrhoea *Kisonono*
- 2: Syphilis *Kaswende*
- 3: Chancroid *Pangusa*
- 4: HIV/AIDS *UKIMWI*
- 5: Genital herpes *Herpes*
- 6: Genital ulcer *Vidonda sehemu ya siri*
- 7: Trichomoniasis *Trikomona*
- 8: Chlamydia *Klamedia*
- 9: Pubic lice/ crabs *Chawa sehemu za siri*
- 10: Genital warts *Sundosundo*
- 11: Others *Nyinginezo*_____.

11. **Do you think a woman with STDs will:** *Je unadhani mwanamke akiwa na magonjwa ya sinaa (msomee majibu na achagua lililo sahihi)*

- 1: Will always have symptoms. *Ni lazima awe/ aonyeshe dalili za ugonjwa mara zote.*
- 2: Sometimes they will not have symptoms. *Kuna wakati atakuwa hana/ haonyeshi dalili.*
- 3: Never have symptoms. *Mara zote anakuwa hana dalili za ugonjwa*
- 4: I don't know. *Sifahamu*

12. Can you mention symptoms that might cause you to suspect that you have an STD?

(Interviewer record all responses but do not prompt participant) Je unadhani ni dalili gani ambazo mwanamke atakuwa nazo akiwa na magonjwa ya zinaa/ yaletwayo na kujamiiana. (Usidodose, andika majibu yote mama anayoyata ja.)

0: None *Sifahamu*

1: Genital ulcers *Vidonda sehemu za siri*

2: Genital itch. *Kuwasha*

3: Spotting *Damu siku ambazo sio za mwezi.*

4: Abnormal vaginal discharge *Kutoka ute usio wa kawaida- mwingi, harufu mbaya ukeni.*

5: Lower abdominal pain *Kuumwa tumbo kwenye kizazi au upande wa chini*

6: Pain during sex *Kupata maumivu wakati wa kufanya mapenzi*

7: Painful micturation *Kupata maumivu wakati wa unapoenda haja ndogo/ kukojoa*

8: Others *Nyinginezo*_____.

13. Do you know any consequences of untreated STDs? (Interviewer record all responses but do not prompt participant): *Je unajua ni madhara gani mwanamke anaweza kupata akiwa na magonjwa ya zinaa? (usidodose, andika majibu yote mama anayoyataja)*

0: No *Sifahamu*

1: Infertility *Umgumba/ kutopata mtoto*

2: PID/ pelvic pain *Maumivu makali au ya mara kwa mara katika sehemu ya kizazi*

3: Recurrent abortions/ stillbirths/ PROM/ Preterm delivery (Adverse pregnancy outcomes) *Mimba kuharibika/ kuzaa mtoto mfu/ kuzaa kabla ya muda*

4: Transmit infection to the newborn- ophtalmia neonatorum, pneumonia, congenital syphilis, HIV *Kumwambukiza mtoto magonjwa wakati anapozaliwa*

5: Can easily get or transmit HIV 1. *Kupata au kuambukiza UKIMWI kwa urahisi*

6: Cancer of the cervix *Saratani ya mdomo wa kizazi*

7: Others *Nyinginezo*_____.

14. Would a man infected with an STD have symptoms? *Je kama mwanaume akiwa na magonjwa ya zinaa, atakuwa na dalili zozote?*

0: No *Hapana*

1: Yes, all the times *Ndiyo, wakati wote*

2: Yes, sometimes *Ndiyo, mara nyingine hatakuwa na dalili*

3: Don't know *Sijui*

15. What symptoms or signs may he have? (Interviewer record all responses but do not prompt participant) *Ni dalili zipi atakazokuwa nazo?*

0: Don't know *Sijui*

1: Penile discharge *Kutoka uchafu au usaha sehemu za siri?*

2: Genital ulcers *Vidonda sehemu za siri*

3: Painful micturation *Maumivu makali wakati akienda haja ndogo.*

4: Scrotal swelling *Kuwimba makende*

5: Pain during sex *Maumivu wakati wa kufanya mapenzi*

6: Enlarged inguinal lymphnodes *Kuvimba mtoki*

7: Others *Nyinginezo*_____.

16. Name ways you know of preventing STDs (Interviewer record all responses but do not prompt participant): *Unaweza kuniambia ni njia zipi utatumia ili kuepuka/ kujikinga kupata magonjwa ya zinaa?*

0: None *Sijui*

1: Abstinence *Kuacha kufanya mapenzi kabisa*

2: Consistent condom use *Kutamia kondomu kila wakati wa kujamiiana*

3: Monogamy *Kuwa na mpenzi/ mwenzi mmoja tu*

4: Get tested before marriage/ before starting new relationships *Kupima kabla ya kuanza kujamiiana/ au kabla ya ndoa*

5: Others *Nyinginezo*_____.

17. Do you think having a STI makes you more vulnerable for HIV transmission?*Je unadhani kuwa na magonjwa ya ngono yanaweza kusababisha kupata au kueneza kwa ugonjwa wa ukimwi kwa urahisi?*

0: No *Hapana*

1: Yes *Ndiyo*

2: Don't know *Sijui*

Condom use

18. Have you ever used any family planning method? *Je umeshawahi njia yoyote ya uzazi wa mpango*

0: No *Hapana*

1: Yes (mention) *Ndiyo (taja)* _____

18b. Have you had other partners before your current spouse/ partner? *Je umeshakuwa na mwenzi/wapenzi wengine kabla ya huya mume/mwenzi wako wa sasa?*

0: No *Hapana*

1: Yes *Ndiyo* (How many *Wangapi* _____)

19. Do you know where to get condoms? *Je unafahamu mahali au kwa mtu yeyote ambapo unaweza kupata kondomu/ mpira wa kuuvisa uume unapouhitaji?*

0: No *Hapana*

1: Yes *Ndiyo*

20. Have you ever used a condom? *Je umewahi kutumia kondomu/ mpira wa kuuvisa uume wakati wa kukutana kimvili?*

0: No *Hapana* → 21

1: Yes *Ndiyo* → 22

21. **If no, why not?** (Multiple responses) *Kwa nini hujawahi kuutumia?*

1: Not available *Hazipatikani kiurahisi*

2: Too expensive *Zinazwa ghali sana*

3: Personal dislike *Sipendi kuzitumia*

4: Partner objected *Mwenzi/ mume hakubali/hapendi kuzitumia*

5: Reduces sexual pleasure *Zinapunguza starehe wakati wa kufanya mapenzi*

6: I have never discussed condoms with my partner *Hatujawahi kujadili kuhusu swala la kuzitumia na mwenzangu*

7: Others *Nyinginezo*_____.

22. **How often do you use a condom?** *Je unatumia kondomu?*

1: Always *Kila unapokutana kimwili*

2: Most of the times *Mara kwa mara*

3: Occasionally *Mara chache chache*

4: Never *Hapana*

23. **Did you use a condom during your last sexual encounter?** *Je ulitumia kondomu mlipokutana kimwili mara ya mwisho na mwenzi/ mume wako?*

0: No *Hapana*

1: Yes *Ndiyo*

24. **Reasons for using condoms.** *Je mara nyingi unapotumia kondomu ni kwa ajili ya (tiki majibu yote)*

1: Prevention of pregnancy *Kujikinga kutopata mimba*

2: Prevention of STDs *Kujikinga nisipate magonjwa ya zinaa*

3: Prevention of HIV *Kujikinga nisipate ukimwi*

4: When I have casual partners *Ninapokutana na wanaume wengine*

5: Others *Nyinginezo*_____.

Communication/ education about STIs

25. **With who can you discuss STIs?** *Unaweza kujadili magonjwa ya ngono na nani? (Taja wote achague)*

0: Nobody *Hakuna mtu*

1: My partner *mwenzi / mume*

2: Friends *Rafiki*

3: Parents *Ndugu*

4: Others *Wengine*_____.

26. **If you were diagnosed with an STI, would you inform your partner?** *Kama ukiwa na uambukizo je unaweza kumweleza mume wako?*

0: No *Hapana*

1: Yes *Ndiyo*

27. **Where have you learnt what you know of STIs?** *Je ufahamu / elimu kuhusu magonjwa ya ngono uliipata wapi?*

1: School *Shule*

2: Media/ public campaign *Vyombo vya habari*

3: Friends *Rafiki*

4: Parents *Ndugu*

5: Partner *Mume*

6: Health workers *Wafanyakazi wa afya*

7: Reproductive health clinic *Kliniki ya akina mama*

8: Others *Wengine*_____.

28. **Have you ever been treated for a sexually transmitted infection?** *Ulishawahi kutibiwa magonjwa ya ngono?*

0: No *Hapana*

1: yes *Ndiyo*

29. **PMTCT**

1 OR 2

Antenatal care - Family planning - Child welfare