

**Sexual Violence at First Intercourse Against Women in Moshi, Northern Tanzania:
Prevalence, Risk Factors and Consequences**

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Human Participant Protection

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ABSTRACT

The objectives of this study were to establish the prevalence of sexual violence at first intercourse, to identify associated risk factors, and to explore the life-trajectory influences of this sexual violence using a life course framework. A representative household survey in Moshi, Tanzania with face-to-face interviews of 1,835 women was analyzed using multivariate logistic regression. Women were asked about sociodemographics, sexual violence at first intercourse, and marriage history. Women were also tested for the presence of sexually transmitted infections (STIs). Approximately 10.9% reported forced first intercourse and 15.3% reported unwanted first intercourse. Analyses indicate that forced sexual initiation is associated with presence of an STI at survey date, as well as with being married more times, polygamous unions, having first births before marriage, and more sexual partners. Some implications are to conduct research on resiliency factors, to change policies affecting victims of sexual violence and to improve follow-up with girls experiencing sexual violence to diminish its impact on their future health and well-being.

INTRODUCTION

Sexual violence is a worldwide problem that can affect the physical and mental health of women. Sexual abuse exposes girls to sexually transmitted infections (STIs), results in younger age at first pregnancy, and damages their mental health (Krug, 2002). In sub-Saharan Africa sexual assault carries the additional burden of potential HIV-infection. In a study of women accessing prenatal care in the United States, women who had ever experienced physical or sexual abuse were more likely to have tested positive for an STI, and women with a history of sexual abuse only or physical and sexual abuse were more than twice as likely to test positive for a current STI (Johnson & Hellerstedt, 2002).

Studies of the prevalence of rape in other African countries indicate that it is a widespread threat to women. A study in Sierra Leone found that among women reporting that they had ever experienced forced sexual intercourse, for 65% of the women, the experience was forced sexual initiation (Coker & Richter, 1998). Twenty-one percent of sexually experienced females reported that they had ever experienced sexual coercion in a study of Kenyan adolescents ages 10-24; women experiencing coercion were more likely to have had three or more sexual partners and to have experienced symptoms of reproductive tract infection (Erulkar, 2004). A study in Rwanda found that women were more likely to report sexual coercion from their current male partner if the woman was HIV-positive, had ever negotiated condom use with her partner, had ever refused to have sex with him, has sex five or more times per week or had been in the relationship more than 14 years (van der Straten, 1998).

The unique experience of forced sexual initiation may result in more negative life and health trajectories than other experiences of sexual violence, making this an area in need of additional research. Prevalence rates vary depending on the study methods and region; in

previous studies, the prevalence of forced sexual initiation among girls has ranged from 7.0% in New Zealand to 47.6% across nine countries in the Caribbean (Krug, 2002). In rural Uganda, 14% of sexually active women aged 15-19 reported coerced first intercourse; younger age at first intercourse increased the likelihood that it was coerced (Koenig, 2004). In this study, women experiencing forced first intercourse were more likely to have ever been pregnant, to indicate that their most recent pregnancy was unintended, to have had two or more sexual partners, and to have one or more genital tract symptoms at survey date; they were also less likely to have used a condom at last intercourse.

Little research on sexual violence has been conducted in Tanzania. In one study in Dar es Salaam, partner violence among women in voluntary testing clinics was associated with an increased risk of HIV among women under the age of 30 (Maman, 2002). In a qualitative study of youth aged 16-24 in Dar es Salaam, there was a disconnect among men about sexual violence with some men reporting that they had never forced a woman to have sex, but then describing instances where they became physically violent with their partner to convince her to have sex (Lary, 2004). In this study, forced sex within marriage was also justified by some men and women as the right of the male partner. This study builds upon prior work to explore the problem of sexual violence at first intercourse in Moshi, Tanzania.

Theoretical Framework

This paper uses a life-course perspective to explore the relationship between sexual violence at first intercourse and later prevalence of STIs. A life-course perspective refers to how current health status is not only determined by current sociodemographic and health conditions, but also past circumstances and environments (Kuh & Ben-Shlomo, 1997; Krieger, 2001). The

life-course framework has typically been used in health disparities research, to examine how current health status differentials may be due not only to current differences in factors such as socioeconomic status, but also differences in socioeconomic status throughout the lives of people. In this paper, sexual violence at first intercourse is examined as a past event that may set women off on different trajectories, thus exposing them to a different set of experiences that may increase their risk of contracting an STI. Having an STI would be then not only related to the traditional risk factors (number of sexual partners, not using condoms, etc.), but also indirectly associated with earlier experiences that make it more likely for women to be in those “at-risk” situations.

Risk factors for sexual violence at first intercourse

Only factors that are known to precede the sexual violence will be examined as risk factors for experiencing forced first intercourse. Given the age at which first intercourse took place, only those characteristics uniquely tied to women’s early identity were selected. Most of these characteristics are culturally embedded, such as ethnic group, religion, and circumcision history and may differentiate sexual assault victims from other women. Age will be looked at as a cohort effect variable (if sexual violence were more prevalent among younger women, it could be due to changes in the social norms around rape or a reporting bias associated with increased information about the risks of HIV). Education is also considered, although the direction of the association with sexual violence is less clear (for some women, their first intercourse, especially if it were forced, may have been a factor in discontinuing their education, while others may have already dropped out of school at that point).

Life trajectory and health consequences of sexual violence at first intercourse

After experiencing sexual violence at first intercourse, particularly if the event occurs at a young age, women may end up on different paths in terms of marital/partner history, the characteristics of their partners, their violence history, and their mental health (Figure 1). Women may be forced to marry their assailant, which may subject them to further incidences of violence. Because of their exposure to violence, they may also feel that violence is more acceptable. In addition, mental health problems, such as suicide attempts and alcohol problems, have been found to be more common among victims of child sexual abuse; this may also be a marker of lower self-esteem that may indirectly place women at risk for contracting an STI via partner choice and inability to negotiate safer sex. Women who experience early sexual violence may also subsequently have more sexual partners than other women.

METHODS

Study Sample

Moshi Urban District (Moshi) contains 15 wards. Within each ward clusters were selected with probability proportional to the number of women age 20-44 years. One hundred and fifty clusters were selected for interviewing, and 18 households were selected randomly within each cluster. In selected households, all women aged 20 – 44 years, who were de facto or de jure residents of the household, were invited to participate in the survey interview. All interviews were in-person conducted in Swahili by local nurses. To protect confidentiality interviewers ensured privacy. The interview took between one and two hours. There was no monetary compensation. In the period from mid-November 2002 to mid-March 2003, 2,019 women completed the interview.

Measures

Sexual violence

Women answered three questions about their sexual violence history. First, women were asked to describe the first time they had sexual intercourse, specifically “How would you describe the first time that you had sex? Would you say that you wanted to have sex, you did not want to have sex but it happened anyway, or were you forced to have sex?” Women were asked two follow-up questions: how old were they and who was their sexual partner at the time they first had sexual intercourse.

Second, women were asked a question adapted from the Sexual Experiences Interview (Koss & Oros, 1982) about sexual violence during two time periods: within the present relationship and in previous relationships (outside of the present relationship): “Have you ever had sexual intercourse when you didn’t want to because your husband or partner threatened or used some degree of physical force to make you?”

Risk factor variables

Participants in the survey were asked questions spanning socio-demographic variables: age (divided into five five-year groups for analysis), religion (Muslim, Catholic, Protestant/Other), ethnic group (Chagga, Pare, Other), and whether they were circumcised. Educational attainment was collapsed into three levels (incomplete primary school, complete primary school, and some secondary school and above).

Life trajectory variables

Women were also asked multiple questions about life events, including their current marital status; who made the decision to be married; number of times married; whether their first birth was before marriage; the number of sexual partners in the last three years; and the type of union they had with their partner (e.g., monogamous or polygamous). Women were also asked about whether violence against women by a male partner was acceptable in eight situations (e.g.

she does not complete her household work to his satisfaction; she disobeys him; she refuses to have sexual relations with him; she takes a long time to get pregnant; he finds out that she has been unfaithful), which was recoded into a violence tolerance item. Women were coded as being highly tolerant of violence if they said yes to two or more items, and other wise were coded as having a low tolerance of violence. In addition, women were asked two questions about experiences with intimate partner violence in the last 12 months: “In the last 12 months, how often has your husband or partner: (1) Threatened to hurt you physically? (2) Hit, slapped, kicked or otherwise physically hurt you?” The first item was based on an item on the Severity of Violence Against Women Scale (Marshall, 1992), and the second is from the Abuse Assessment Screen (McFarlane, 1992).

Women also answered questions about their male partners, including his age (used to look at age differences within couples), whether he had children with other women, and about their husbands’ alcohol problems using the CAGE Alcohol Screening Questionnaire (Ewing, 1984). Women were also asked whether their husband contributed towards five household expenses (her health care, children’s health care, children’s school fees, drugs, and other expenses). A proportion of the items he contributed on out of those items that were applicable was calculated; men were designated low contributors if they contributed on less than 50% of applicable items and were designated high contributors otherwise.

Health consequences variables

Women were tested for six STIs [Chlamydia, Gonorrhea, Trichomoniasis, HIV, Syphilis, Herpes Simplex Virus Type 2 (HSV2)] using urine or blood samples. These six variables were recoded into a dichotomous variable indicating the presences of any STI at the time of interview; an indicator was also added for those women who did not volunteer samples.

Statistical Analysis

The cluster sampling design was taken into account using STATA version 8 (StataCorp, 2003). First, the associations between sexual violence at first intercourse and the demographic characteristics, the context of the sexual violence, and the life trajectory variables were measured using Pearson χ^2 tests. Second, the associations between presence of an STI at interview and the demographic characteristics, sexual violence at first intercourse, the context of the sexual violence, and the life trajectory variables were measured using Pearson χ^2 tests. Unadjusted odds ratios (OR) and 95% confidence intervals (95% CI) of each independent variable and having an STI were estimated using multinomial logistic regression analysis. Third, two multinomial logistic regression models, with presence of an STI as the outcome, were estimated including the following variables as predictors: (1) demographic characteristics and sexual violence at first intercourse; and (2) demographic characteristics, sexual violence at first intercourse, and life trajectory variables. Each multinomial logistic regression model was estimated twice in order to change the reference category and get all comparisons between the three groups (no STI, STI, and not tested). Missing indicator variables were used to maintain the full sample in the multiple logistic regression models.

RESULTS

These analyses were conducted on the 1835 women who reported that they had ever had sexual intercourse.

Prevalence Rates of Sexual Violence

Table 1 displays the overall prevalence rates of women reporting sexual violence at first intercourse. Overall, 10.9 % of the women described forced sex at first intercourse, and an

additional 15.3% described their first sexual encounter as unwanted. In addition, 1.5% reported they had experienced forced sexual intercourse in their present relationship, and 3.8% reported that it had happened outside of their present relationship. Overall 4.7% reported an incident of sexual violence, excluding violence at first intercourse. Of those who reported forced first intercourse, 69% reported no sexual violence when asked the other two questions about forced sexual intercourse; 98.7% of those who reported unwanted first intercourse said no to the other questions about sexual violence.

Characteristics of All Women

Overall demographics of the sample are presented in Table 2. Although women could be as old as 44, the majority of women (87.0%) in the sample were less than 40 years of age. Most of the women were Catholic (37.3%) or Muslim (33.3%). Approximately half of the women were from the Chagga tribe (50.5%), 13.6% were Pare and the remaining 36.0% belonged to numerous different tribes. Roughly one quarter (25.8%) had been circumcised. Most had completed primary school (66.8%); only 9.7% had not completed primary school and 23.5% had attended at least some secondary school.

Characteristics of Women Disclosing Sexual Violence at First Intercourse

Demographic Characteristics

Table 2 also presents the proportion of women who were sexually assaulted at first intercourse according to demographic characteristics including their age, religion, ethnic group, and circumcision history, and education. Of these variables, only religion and education were significantly associated with sexual violence at first intercourse. Women who reported unwanted or forced first intercourse were more likely to be Catholic (43.4% and 42.7%, respectively vs. 35.2%). Women who reported forced first intercourse were also more likely to have completed

less than primary school and less likely to have attended any secondary school than those reporting wanted first intercourse (12.7% vs. 9.5% and 13.9% vs. 24.2%, respectively); the distribution of education attainment among women reporting unwanted first intercourse was similar to those with a wanted first experience.

Context of the Sexual Violence

Women describing forced first intercourse were younger at the time than women who consented to sex during their first experience (Table 2). Compared with 33.3% of those reporting a wanted first experience being less than 18 years old and 37.4% being older than 20 at the time, 54.3% of those who were forced were less than 18 years old and only 18.5% of them were older than 20 at the time; women who reported unwanted first intercourse were slightly younger (41.4% were under 18 and 29.7% were older than 20 years of age at the time). Women who reported wanted first intercourse were also more likely than those whose experience was unwanted forced to report that the man was their husband or cohabiting partner (48.4% vs. 21.4% vs. 19.4%).

Life Trajectory Differences

The associations between sexual violence at first intercourse and the life trajectory variables are also presented in Table 2; all of these variables were statistically significant. Women experiencing forced first intercourse, compared to those reporting wanted intercourse, are less likely to be married (48.4% vs. 61.2%) and more likely to be separated (9.1% vs. 6.6%) or divorced (9.2% vs. 4.5%). They were also less likely to have made the decision to be married (31.4% vs. 19.2%). Almost 25% of those who were forced to have sexual intercourse the first time had their first child before marriage, compared with only 13.7% of those where intercourse was wanted. The number of sexual partners reported in the last 3 years was also higher among

women reporting forced first sex; 18.1% reported two or more partners, compared with only 7.8% of those whose first experience was wanted reporting multiple sexual partners. Women reporting forced intercourse were less likely to report being in a monogamous union than those reporting wanted first sex (49.3% vs. 71.7%).

The current partners of women who reported forced first intercourse displayed different characteristics than the partners of women reporting wanted first intercourse. Women reporting forced first sex were more likely to report that they did not know the age of their partner (14.4% vs. 8.8%) or that he was the same age or younger than them (15.3% vs. 6.4%). Their partners were less likely to score high on contributions to the household (26.5% vs. 12.6%), were more likely to have children with other women (59.3% vs. 40.3%), and were more likely to have problems with alcohol use (37.6% vs. 20.5%).

Women who reported forced first intercourse appear to have a higher tolerance for violence later in life than those who reported wanted first intercourse (28.5% vs. 17.6%), and also more experiences with physical violence in the last 12 months; 37.5% of women who were forced at first intercourse responded positively to one of the items about physical violence compared with only 13.1% of those where first intercourse was wanted ($p < 0.0001$). Women's mental health also varied by sexual violence at first intercourse: compared to women with wanted first sex, women who were forced were more likely to have attempted suicide (8.3% vs. 2.3%, $p = 0.0003$) and to have problems with alcohol use (16.9% vs. 7.1%, $p = 0.0001$).

Women reporting unwanted first intercourse appear to have a different life trajectory than women reporting either wanted or forced first intercourse. While for many characteristics they resembled the women reporting wanted first intercourse (decision to be married; partner's age difference; partner contribution to household; partner has alcohol problem; violence tolerance;

physical violence in the last 12 months; suicide attempts; women has alcohol problem), for most other variables (marital status; times married; first birth before marriage; number of sexual partners; type of union; partner has children with other women), they had a unique distribution whose estimates often fell between those of the two other groups (Table 2).

Prevalence Rates of Sexually Transmitted Infections

Overall, 67.6% (n=1222) of the sample was tested for STIs, and among those who were tested for STIs, 53.0% of women had at least one STI. The proportion of women with each STI is shown in Figure 2. The most common STI was Herpes Simplex Virus 2 (HSV2). Of those with only one STI, 80.2% had HSV2; 7.6% had HIV and 9.4% had Trichomoniasis. Of the 26.3% who had more than one STI at interview, 94.4% had HSV2 as one of the STIs.

Characteristics of Women with a Sexually Transmitted Infection

Demographic Characteristics

Table 3 presents the proportion of women who have an STI according to demographic characteristics including their age, religion, ethnic group, circumcision history, and education. Of these variables, only age and education were significantly associated with presence of an STI. Compared to those who tested negative for an STI, women who tested positive were more likely to be 30-39 years old (OR: 2.13; 95% CI: 1.61-2.82) or 40-44 years old (OR: 3.34; 95% CI: 2.21-5.06). They were also more likely to have completed less than primary school (OR: 1.88; 95% CI: 1.24-2.84). While there was no difference between those who tested positive and negative, women who were not tested were less likely to have been circumcised.

Compared to those who tested negative for an STI, those who were not tested were more likely to be 30-39 years old (OR: 1.71; 95% CI: 1.32-2.21) or 40-44 years old (OR: 2.25; 95% CI: 1.44-3.51). There were no differences in age or educational attainment between women who

were not tested and those who tested positive for an STI. There were no differences between the three groups on religion or ethnic group.

Context of Sexual Violence

Women were more likely to have an STI if they reported forced first intercourse (OR: 1.76; 95% CI: 1.21-2.55) or were less than 18 at first intercourse (OR: 2.01; 95% CI: 1.49-2.71) (Table 3). Women who were not tested were less likely to be younger at first intercourse compared to those women who tested positive for an STI. Compared to women whose first partner was a husband or cohabiting partner, women with whose partner at first intercourse was a regular noncohabiting partner (OR: 1.57; 95% CI: 1.18-2.11) or an other friend (OR: 1.75; 95% CI: 1.25-2.45) were more likely to have contracted an STI. There was no difference in the partner at first intercourse between women who were and were not tested.

Life Trajectory Differences

The associations between presence of an STI and the life trajectory variables are also presented in Table 3. Among those who were tested, women with an STI were more likely to be living with a man (OR: 1.65; 95% CI: 1.05-2.58), divorced (OR: 3.30; 95% CI: 1.56-6.98) or separated (OR: 2.33; 95% CI: 1.30-4.17) than those who did not have an STI. They were also more likely to have been married two or more times (OR: 3.88; 95% CI: 1.93-7.80); to have had two or more sexual partners (OR: 2.57; 95% CI: 1.69-3.92); to have had a first birth before marriage (OR: 1.74; 95% CI: 1.15-2.63); to be in a non-monogamous union (OR: 1.92; 95% CI: 1.49-2.48); and to have partners who did not contribute to the household (OR: 2.51; 95% CI: 1.54-4.09) or had children with other women (OR: 2.43; 95% CI: 1.86-3.19).

Compared to women who had an STI, women who were not tested were less likely to have been married two or more times (OR: 0.43; 95% CI: 0.28-0.67), to have had a first birth

before marriage (OR: 0.65; 95% CI: 0.46-0.93), or to be in non-monogamous unions (OR: 0.68; 95% CI: 0.51-0.91); they were more likely to have had no sexual partners in the last three years (OR: 1.76; 95% CI: 1.07-2.91).

There were no differences in marital status between women who were and were not tested. Women who were not tested for STIs were less likely to have partners with alcohol problems, to have a high tolerance for violence, or to have experienced physical violence in the last 12 months, compared to those who were tested. There were no differences between the three groups in decision to be married, suicide attempts, or women's alcohol problems.

Health Consequences of Sexual Violence

Two multiple logistic regression models predicted presence of a sexually transmitted infection at interview are presented in Table 4. Model #1 shows the relationship between sexual violence at first intercourse and the presence of an STI, controlling for demographic characteristics. In this model, forced first intercourse remains significantly associated with having contracted an STI (OR: 1.80; 95% CI: 1.20-2.70). Age is still significantly associated with having an STI. Compared to those who tested negative for an STI, women who tested positive were more likely to be 30-39 years old (OR: 2.23; 95% CI: 1.68-2.96) or 40-44 years old (OR: 3.42; 95% CI: 2.26-5.17). Women with an STI were also more likely to have completed less than primary school (OR: 1.52; 95% CI: 1.01-2.29) compared to women who did not. There were no differences in religion, ethnic group or circumcision between those who do or do not have an STI. Compared to those with an STI, women who were not tested were less likely to report forced first intercourse (OR: 0.43; 95% CI: 0.28-0.66) or to have completed less than primary school (OR: 0.40; 95% CI: 0.24-0.66) or only primary school (OR: 0.50; 95% CI: 0.36-0.69).

Model #2 also controls for the life-trajectory variables, in addition to the demographic characteristics. Collinearity analysis revealed that marital status was collinear with times married (using a Variance Inflation Factor greater than 10 as a guideline), so times married was removed from this final model. In this model, comparing those who tested positive for an STI to those who tested negative, there is not a statistically significant association between sexual violence at first intercourse and presence of an STI, although those reporting forced first sex have a borderline increased risk of having an STI (OR: 1.49; 95% CI: 0.98-2.28). Age remains a significant predictor of having an STI. Religion, ethnic group and circumcision remain non-significant; education is also no longer statistically significant. Women who are widowed have an increased risk of having an STI (OR: 2.51; 95% CI: 1.07-5.89), as do women with two or more sexual partners in the last three years (OR: 2.57; 95% CI: 1.61-4.10) or whose partners have children with other women (OR: 1.60; 95% CI: 1.19-2.16). Women who had ever attempted suicide appear to have a lower risk of having contracted an STI (OR: 0.42; 95% CI: 0.21-0.83). There are no differences on any of the other variables in the model between women who tested positive for an STI and those who tested negative.

DISCUSSION

Overall, 26.2% of the women in this study reported unwanted or forced first sexual intercourse. In this sample, early sexual violence was associated with several negative life trajectory variables, including more sexual partners, having a partner who does not contribute to the household or who has alcohol problems, and increased risk of physical violence. In the adjusted models, sexual violence at first intercourse is not directly associated with having a sexually transmitted infection. However, sexual violence may be related to STIs through the life

trajectory variables, which would be serving as mediator variables, as hypothesized in Figure 1.

There appears to be for using a life-course perspective to analyze the relationship between sexual violence and later health consequences.

Sexual violence at first intercourse was used as the primary predictor because it was a highly prevalent event that preceded many of the life trajectory variables for which data were available. There were also very few reports of sexual violence outside of at first intercourse. Despite the fact that over one quarter of the sample reported sexual violence at first intercourse, only 4.7% reported sexual violence using the other two items, which raises the question of the validity of the measures used. However, there may be other reasons for this difference. It may be due to a form of recall bias: first sexual intercourse tends to be a significant event in a woman's life, which may make it more likely that a woman could recall the instance of that event. Another issue may be that in this sample, 96.9% of women agreed with the statement that it is a woman's duty to have sex with her partner or husband. In this context, the questions asked about sexual violence may not elicit positive responses, even if coercion were taking place.

Limitations

This study has several strengths. The first is the large sample size. One limitation is that due to time constraints, few questions were asked about sexual violence. With fewer items, women who experienced coercion of some form without physical force may underreport sexual violence. The low prevalence rate of sexual violence other than at first intercourse may be that there are also issues with the items themselves, especially considering that so many women agreed that it was a woman's duty to have sex with her husband. The items used may not be appropriate for women in this context, since

Recall bias may be an issue, given that the primary predictor happened long ago for some of the women. All of the data was collected during one interview. Given the sensitive nature of the topic, women's experiences with looking back in time may be different than their feeling at the time. For example, if a woman had regrets about events that happened after her first intercourse, she may be more likely to report that the intercourse was unwanted or forced, which would lead to an overestimate of the negative consequences of sexual violence at first intercourse.

Another measurement issue with the present study is that partner characteristics were based solely on women's reports. Bias could occur if women with negative early experiences report about their partners differently than other women.

Another issue is the fact that not all women volunteered samples for testing for STIs. Those who did not volunteer a sample appear to be at lower risk, which would bias the estimates comparing those who tested positive for an STI to those who tested negative and may limit the generalizability of these findings.

Conclusions

The research presented in this paper points to the long-lasting effect that sexual violence can have on the life trajectories of girls. Work needs to be done to reduce the prevalence of forced sexual initiation. Given that so many women feel it is their duty to have sex with their partners, sexual norms need to shift to allow women more control over what happens to them. This may be more effective by working with adolescents before they become sexually active.

Another implication of this work is to identify resiliency factors that may work to protect some girls from contracting a sexually transmitted infection later in life. Not all women who experienced sexual violence at first intercourse had the same negative life trajectory. Knowing

what can protect girls from the life and health consequences would allow for the development of interventions to help other girls. Finally, follow-up with girls experiencing sexual violence is needed to diminish its impact on their future life trajectory and health status.

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Table 1. Prevalence of Women Reporting Wanted, Unwanted or Forced First Intercourse by Other Reports of Sexual Violence (N=1835)

	Overall, %	Wanted First Intercourse, % (n)	Unwanted First Intercourse, % (n)	Forced First Intercourse, % (n)
Total		73.8 (1369)	15.3 (281)	10.9 (185)
Other Forced Intercourse				
<i>Within current relationship (n=1831)</i>				
No	98.5 (1808)	99.1 (1357)	99.4 (279)	93.3 (172)
Yes	1.5 (23)	0.9 (11)	0.6 (1)	7.7 (11)
<i>Outside of present relationship (n=1834)</i>				
No	96.2 (1770)	99.2 (1358)	99.3 (280)	71.2 (132)
Yes	3.8 (64)	0.8 (11)	0.7 (1)	28.8 (52)
<i>Within or outside of present relationship (n=1830)</i>				
No	95.3 (1754)	98.5 (1348)	98.7 (278)	69.0 (128)
Yes	4.7 (76)	1.5 (20)	1.3 (2)	31.0 (54)

Table 2. Percentage of women reporting sexual violence at first intercourse by background characteristics

	Sample Size ¹	Overall	First Intercourse			p-value ²
			Wanted	Unwanted	Forced	
Total	1835		73.8	15.3	10.9	
Demographic Characteristics						
Age						
20-29	942	51.0	50.6	54.3	49.5	0.4430
30-39	657	36.0	36.1	36.0	34.7	
40-44	234	13.0	13.3	9.7	15.8	
Religion						
Muslim	605	33.3	35.9	24.4	28.8	0.0097
Catholic	695	37.3	35.2	43.4	42.7	
Protestant / Other	534	29.4	28.9	32.2	28.5	
Ethnic Group						
Chagga	914	50.5	49.0	53.2	56.9	0.1828
Pare	237	13.6	13.3	14.3	13.8	
Other	683	36.0	37.7	32.5	29.3	
Circumcision						
No	1380	74.2	74.1	76.4	72.0	0.5677
Yes	451	25.8	25.9	23.6	28.0	
Education						
Primary incomplete or less	170	9.7	9.5	8.3	12.7	0.0174
Primary complete	1200	66.8	66.3	64.5	73.4	
Secondary incomplete and above	465	23.5	24.2	27.2	13.9	
Context of Sexual Violence						
Age at first intercourse						
<18 years old	631	36.8	33.3	41.1	54.3	<0.0001
18-19 years old	502	29.1	29.3	29.2	27.3	
20+ years old	643	34.1	37.4	29.7	18.5	
Partner at first intercourse						
Husband/cohabiting partner	757	41.1	48.4	21.4	19.4	<0.0001
Regular noncohabiting partner	639	35.7	32.8	48.4	37.4	
Casual acquaintance	389	20.7	16.8	27.2	37.7	
Relative	47	2.5	1.9	2.9	5.6	
Life Trajectory						
Marital Status						
Married	1084	59.0	61.2	55.9	48.4	0.0011
Living together	129	7.3	7.2	6.0	9.6	
Not married or living together	365	19.3	17.2	28.0	21.0	
Widowed	60	3.4	3.8	1.5	2.7	
Divorced	82	4.5	3.9	3.7	9.2	
Separated	115	6.6	6.6	4.9	9.1	
Decision to be Married						
Woman and partner both decided	1177	80.0	80.8	84.4	68.6	<0.0001
Partner or someone else decided	276	20.0	19.2	15.6	31.4	

SEXUAL VIOLENCE AT FIRST INTERCOURSE
AGAINST WOMEN IN MOSHI, TANZANIA

Number of Times Married						
None	363	19.1	17.3	27.8	19.1	<0.0001
1	1332	73.5	76.1	66.7	66.0	
2+	120	7.4	6.7	5.5	15.0	
First birth before marriage						
No	1305	84.1	86.3	79.5	75.3	0.0017
Yes	244	15.9	13.7	20.5	24.7	
Number of Sexual partners in last 3 years						
0	116	6.2	6.3	6.7	4.3	<0.0001
1	1524	84.0	86.0	79.0	77.6	
2+	174	9.9	7.8	14.4	18.1	
Type of Union						
Monogamous	1078	68.4	71.7	66.2	49.3	<0.0001
Partner has one or more wives or girlfriends	482	31.6	28.3	33.8	50.7	
Partner's Age Difference						
Unknown	134	9.0	8.8	5.7	14.4	0.0003
Same age or younger	110	7.5	6.4	7.2	15.3	
1-2 years older	220	14.7	15.5	13.4	11.2	
3-5 years older	401	25.4	25.5	32.8	15.9	
6-8 years older	311	20.0	20.3	21.2	15.9	
9+ years older	372	23.4	23.6	19.7	27.4	
Partner Contribution to Household						
Low	1183	85.9	87.4	87.6	73.5	0.0001
High	180	14.1	12.6	12.5	26.5	
Partner Has Children with Other Women						
No	787	49.3	53.1	42.4	33.0	<0.0001
Yes	657	43.2	40.3	45.9	59.3	
Unknown	117	7.5	6.6	11.7	7.7	
Partner Has Alcohol Problem						
No	1218	77.1	79.5	76.7	62.4	0.0003
Yes	327	22.9	20.5	23.3	37.6	
Violence Tolerance						
Low	1333	81.4	82.4	83.9	71.5	0.0080
High	283	18.6	17.6	16.1	28.5	
Physical violence in the last 12 months						
No	1142	78.8	80.9	79.5	62.5	<0.0001
Yes	296	21.2	13.1	20.5	37.5	
Ever tried to commit suicide						
No	1759	96.8	97.7	96.3	91.7	0.0003
Yes	59	3.2	2.3	3.7	8.3	
Woman Has Alcohol Problems						
No	1679	91.6	92.9	91.3	83.1	0.0001
Yes	140	8.4	7.1	8.7	16.9	

¹Unweighted sample size. For some variables the numbers do not add up to the total because of missing or not applicable values.

²Pearson's χ^2 test

Table 3. Percentage of women with an STI by background characteristics

	Presence of an STI			p-value	Yes vs. No	Not Tested vs.	Not Tested vs.
	No	Yes	Not Tested		OR, 95% CI	No	Yes
					OR, 95% CI	OR, 95% CI	OR, 95% CI
Total	30.0	37.6	32.4				
Demographic Characteristics							
Age							
20-29	37.5	31.2	31.2	<0.0001	1.0	1.0	1.0
30-39	23.9	42.3	33.9		2.13, 1.61-2.82	1.71, 1.32-2.21	0.80, 0.64-1.00
40-44	17.7	49.2	33.1		3.34, 2.21-5.06	2.25, 1.44-3.51	0.67, 0.49-0.92
Religion							
Muslim	27.1	39.5	33.4	0.3203	1.0	1.0	1.0
Catholic	32.1	37.7	30.2		0.80, 0.58-1.11	0.76, 0.57-1.03	0.95, 0.70-1.30
Protestant / Other	30.7	35.2	34.1		0.79, 0.56-1.10	0.90, 0.65-1.26	1.15, 0.85-1.56
Ethnic Group							
Chagga	31.7	36.1	32.3	0.6370	1.0	1.0	1.0
Pare	28.8	39.5	31.8		1.21, 0.81-1.81	1.09, 0.76-1.56	0.90, 0.61-1.32
Other	28.1	39.1	32.8		1.23, 0.93-1.61	1.15, 0.86-1.53	0.94, 0.71-1.23
Circumcision							
No	29.3	36.2	34.5	0.0036	1.0	1.0	1.0
Yes	32.3	41.8	25.9		1.05, 0.80-1.38	0.68, 0.52-0.88	0.65, 0.50-0.84
Education							
Primary incomplete or less	24.4	49.2	26.4	<0.0001	1.88, 1.24-2.84	0.64, 0.37-1.12	0.34, 0.20-0.57
Primary complete	32.0	39.1	28.8		1.14, 0.83-1.56	0.53, 0.41-0.70	0.47, 0.34-0.64
Secondary incomplete and above	26.6	28.5	44.9		1.0	1.0	1.0
Circumstances of First Intercourse							
Wanted	31.0	35.0	34.0	0.0002	1.0	1.0	1.0
Unwanted	27.9	39.2	33.0		1.24, 0.88-1.76	1.08, 0.75-1.55	0.89, 0.62-1.21
Forced	26.6	52.9	20.6		1.76, 1.21-2.55	0.70, 0.47-1.06	0.40, 0.26-0.61
Context of Sexual Violence							
Age at first intercourse							
<18 years old	25.2	46.7	28.1	<0.0001	2.01, 1.49-2.71	0.96, 0.71-1.31	0.48, 0.37-0.61
18-19 years old	33.7	36.2	30.2		1.17, 0.85-1.59	0.77, 0.56-1.06	0.66, 0.49-0.90
20+ years old	32.4	29.9	37.7		1.0	1.0	1.0
Partner at first intercourse							
Husband/cohabiting partner	34.1	31.5	34.4	0.0013	1.0	1.0	1.0
Regular noncohabiting partner	29.1	42.4	28.5		1.57, 1.18-2.11	0.97, 0.73-1.29	0.61, 0.46-0.81
Other friend	25.3	40.9	33.9		1.75, 1.25-2.45	1.33, 0.93-1.89	0.76, 0.56-1.03
Relative	19.4	41.7	38.9		2.32, 0.90-5.98	1.99, 0.82-4.76	0.85, 0.40-1.83
Life Trajectory							
Marital Status							
Married	32.1	35.5	32.4	0.0003	1.0	1.0	1.0
Living together	26.5	48.1	25.4		1.65, 1.05-2.58	0.95, 0.56-1.64	0.58, 0.37-0.91
Not married or living together	33.8	30.4	35.8		0.82, 0.57-1.17	1.05, 0.77-1.43	1.29, 0.89-1.87
Widowed	20.3	48.1	31.6		2.15, 0.96-4.79	1.55, 0.71-3.38	0.72, 0.41-1.26

SEXUAL VIOLENCE AT FIRST INTERCOURSE
AGAINST WOMEN IN MOSHI, TANZANIA

Divorced	14.8	53.8	31.4		3.30, 1.56-6.98	2.11, 1.00-4.48	0.64, 0.36-1.13
Separated	19.4	49.7	30.9		2.33, 1.30-4.17	1.59, 0.87-2.90	0.68, 0.40-1.16
Decision to be Married							
Woman and partner both decided	28.9	38.5	32.7	0.1164	1.0	1.0	1.0
Partner or someone else decided	31.0	42.9	26.1		1.04, 0.76-1.41	0.75, 0.54-1.03	0.72, 0.50-1.03
Number of Times Married							
None	33.5	30.8	35.7	<0.0001	0.78, 0.56-1.07	1.03, 0.75-1.41	1.32, 0.94-1.86
1	31.1	36.7	32.2		1.0	1.0	1.0
2+	13.7	62.6	23.7		3.88, 1.93-7.80	1.67, 0.83-3.37	0.43, 0.28-0.67
Number of sexual partners in last 3 years							
0	23.8	30.1	46.2	<0.0001	1.11, 0.62-1.99	1.95, 1.12-3.40	1.76, 1.07-2.91
1	31.9	36.4	31.7		1.0	1.0	1.0
2+	17.9	52.5	29.7		2.57, 1.69-3.92	1.67, 1.00-2.79	0.65, 0.43-0.99
First birth before marriage							
No	31.9	35.4	32.7	0.0069	1.0	1.0	1.0
Yes	24.5	47.2	28.4		1.74, 1.15-2.63	1.13, 0.78-1.64	0.65, 0.46-0.93
Type of Union							
Monogamous	33.4	34.1	32.5	<0.0001	1.0	1.0	1.0
Partner has one or more wives or girlfriends	23.6	46.3	30.1		1.92, 1.49-2.48	1.31, 0.98-1.75	0.68, 0.51-0.91
Partner's Age Difference							
Unknown	23.0	42.5	34.4	0.0314	2.27, 1.30-3.94	2.39, 1.32-4.30	1.05, 0.61-1.83
Same age or younger	35.6	40.8	23.6		1.41, 0.77-2.60	1.06, 0.53-2.12	0.75, 0.41-1.38
1-2 years older	41.0	33.4	25.7		1.0	1.0	1.0
3-5 years older	29.4	37.7	33.0		1.57, 1.02-2.43	1.79, 1.19-2.70	1.14, 0.72-1.80
6-8 years older	29.2	35.4	35.3		1.49, 0.93-2.37	1.93, 1.19-3.13	1.30, 0.86-1.95
9+ years older	26.6	34.0	33.4		1.84, 1.16-2.93	2.00, 1.24-3.25	1.09, 0.71-1.67
Partner Contribution to Household							
Low	31.4	36.1	32.5	0.0001	1.0	1.0	1.0
High	18.8	54.3	26.9		2.51, 1.54-4.09	1.38, 0.84-2.28	0.55, 0.36-0.83
Partner Has Children with Other Women							
No	37.0	31.1	31.9	<0.0001	1.0	1.0	1.0
Yes	23.0	47.0	30.0		2.43, 1.86-3.19	1.51, 1.15-1.99	0.62, 0.48-0.80
Unknown	27.3	31.6	41.1		1.37, 0.85-2.23	1.74, 1.08-2.82	1.27, 0.74-2.18
Partner Has Alcohol Problem							
No	30.3	35.5	34.3	0.0002	1.0	1.0	1.0
Yes	30.0	46.4	23.6		1.32, 0.98-1.79	0.70, 0.50-0.96	0.53, 0.39-0.70
Violence Tolerance							
Low	29.4	37.5	33.1	0.0603	1.0	1.0	1.0
High	32.0	42.5	25.5		1.04, 0.76-1.43	0.71, 0.48-1.03	0.68, 0.48-0.95
Physical violence in the last 12 months							
No	30.6	34.5	35.9	<0.0001	1.0	1.0	1.0
Yes	33.4	47.2	19.5		1.25, 0.91-1.72	0.51, 0.35-0.75	0.74, 0.28-0.59

SEXUAL VIOLENCE AT FIRST INTERCOURSE
AGAINST WOMEN IN MOSHI, TANZANIA

Ever tried to commit suicide

No	29.7	37.9	32.5	0.0997	1.0	1.0	1.0
Yes	44.0	33.4	22.6		0.59, 0.29-1.21	0.47, 0.21-1.03	0.79, 0.39-1.59

Woman Has Alcohol Problems

No	30.1	37.2	32.7	0.4442	1.0	1.0	1.0
Yes	29.6	42.6	27.8		1.16, 0.73-1.83	0.86, 0.52-1.43	0.74, 0.47-1.17

Table 4. Multiple Logistic Regression Models Predicting Presense of a Sexually Transmitted Infection at Interview (N=1835)

	Model #1			Model #2		
	Yes vs. No	Not Tested vs. No	Not Tested vs. Yes	Yes vs. No	Not Tested vs. No	Not Tested vs. Yes
	OR, 95% CI	OR, 95% CI	OR, 95% CI	OR, 95% CI	OR, 95% CI	OR, 95% CI
Total						
<i>Circumstances of First Intercourse</i>						
Wanted	1.0	1.0	1.0	1.0	1.0	1.0
Unwanted	1.37, 0.96-1.96	1.14, 0.78-1.68	0.83, 0.59-1.16	1.28, 0.87-1.89	1.11, 0.73-1.68	0.86, 0.60-1.23
Forced	1.80, 1.20-2.70	0.77, 0.51-1.18	0.43, 0.28-0.66	1.49, 0.98-2.28	0.83, 0.53-1.31	0.56, 0.36-0.88
<i>Demographic Characteristics</i>						
Age						
20-29	1.0	1.0	1.0	1.0	1.0	1.0
30-39	2.23, 1.68-2.96	1.81, 1.39-2.36	0.81, 0.64-1.03	2.17, 1.65-2.87	1.84, 1.40-2.41	0.84, 0.65-1.09
40-44	3.42, 2.26-5.17	2.53, 1.58-4.05	0.74, 0.54-1.02	3.34, 2.12-5.25	2.59, 1.58-4.24	0.77, 0.53-1.13
Religion						
Muslim	1.0	1.0	1.0	1.0	1.0	1.0
Catholic	0.86, 0.60-1.23	0.71, 0.50-1.00	0.82, 0.58-1.16	0.91, 0.63-1.31	0.74, 0.52-1.07	0.82, 0.57-1.18
Protestant / Other	0.78, 0.55-1.13	0.75, 0.52-1.07	0.96, 0.69-1.32	0.85, 0.58-1.25	0.79, 0.55-1.15	0.93, 0.67-1.29
Ethnic Group						
Chagga	1.0	1.0	1.0	1.0	1.0	1.0
Pare	1.24, 0.81-1.88	1.10, 0.73-1.64	0.89, 0.59-1.32	1.19, 0.78-1.82	1.06, 0.71-1.58	0.89, 0.59-1.35
Other	1.26, 0.93-1.71	1.11, 0.81-1.53	0.88, 0.65-1.19	1.32, 0.97-1.79	1.11, 0.80-1.53	0.84, 0.62-1.14
Circumcision						
No	1.0	1.0	1.0	1.0	1.0	1.0
Yes	0.81, 0.60-1.09	0.64, 0.48-0.85	0.79, 0.60-1.03	0.90, 0.66-1.23	0.70, 0.51-0.94	0.77, 0.58-1.02
Education						
Primary incomplete or less	1.52, 1.01-2.29	0.60, 0.33-1.08	0.40, 0.24-0.66	1.21, 0.79-1.86	0.59, 0.32-1.09	0.49, 0.28-0.86
Primary complete	1.11, 0.80-1.53	0.55, 0.41-0.73	0.50, 0.36-0.69	1.00, 0.73-1.37	0.55, 0.41-0.75	0.55, 0.39-0.77
Secondary incomplete and above	1.0	1.0	1.0	1.0	1.0	1.0
<i>Life Trajectory</i>						
Marital Status						
Married				1.0	1.0	1.0
Living together				1.47, 0.91-2.37	1.14, 0.65-1.99	0.77, 0.49-1.23
Not married or living together				1.35, 0.90-2.04	1.17, 0.76-1.80	0.86, 0.59-1.27
Widowed				2.51, 1.07-5.89	1.39, 0.59-3.29	0.55, 0.29-1.07
Divorced				1.98, 0.90-4.33	1.28, 0.54-3.02	0.65, 0.32-1.32
Separated				1.75, 0.89-3.43	1.47, 0.75-2.88	0.84, 0.44-1.61
Decision to be Married						
Woman and partner both decided				1.0	1.0	1.0

SEXUAL VIOLENCE AT FIRST INTERCOURSE
AGAINST WOMEN IN MOSHI, TANZANIA

30

Partner or someone else decided	0.98, 0.71-1.35	0.83, 0.59-1.16	0.85, 0.58-1.24
Number of sexual partners in last 3 years			
0	0.69, 0.37-1.27	1.64, 0.90-3.01	2.38, 1.30-4.38
1	1.0	1.0	1.0
2+	2.57, 1.61-4.10	2.06, 1.18-3.60	0.80, 0.49-1.31
First birth before marriage			
No	1.0	1.0	1.0
Yes	1.36, 0.87-2.15	1.10, 0.73-1.66	0.81, 0.56-1.15
Type of Union			
Monogamous	1.0	1.0	1.0
Partner has one or more wives or girlfriends	0.98, 0.70-1.36	0.92, 0.63-1.33	0.94, 0.65-1.35
Partner's Age Difference			
Unknown	1.06, 0.60-1.88	1.64, 0.89-3.02	1.55, 0.90-2.67
Same age or younger	0.86, 0.45-1.66	0.79, 0.41-1.53	0.91, 0.49-1.70
1-2 years older	1.0	1.0	1.0
3-5 years older	1.36, 0.93-1.98	1.51, 1.04-2.18	1.11, 0.75-1.64
6-8 years older	1.14, 0.74-1.78	1.54, 0.95-2.51	1.35, 0.92-1.98
9+ years older	1.29, 0.84-1.98	1.74, 1.11-2.72	1.35, 0.90-2.01
Partner Contribution to Household			
Low	1.49, 0.84-2.63	1.10, 0.60-2.03	0.74, 0.45-1.20
High	1.0	1.0	1.0
Partner Has Children with Other Women			
No	1.0	1.0	1.0
Yes	1.60, 1.19-2.16	1.23, 0.90-1.67	0.77, 0.56-1.04
Unknown	1.04, 0.59-1.82	1.54, 0.93-2.55	1.48, 0.81-2.71
Partner with Alcohol Problem			
No	1.0	1.0	1.0
Yes	1.13, 0.80-1.59	0.78, 0.56-1.09	0.69, 0.51-0.95
Violence Tolerance			
Low	1.0	1.0	1.0
High	0.98, 0.70-1.37	0.84, 0.57-1.25	0.86, 0.61-1.22
Physical violence in the last 12 months			
No	1.0	1.0	1.0
Yes	0.95, 0.67-1.34	0.54, 0.36-0.82	0.57, 0.38-0.85

SEXUAL VIOLENCE AT FIRST INTERCOURSE
AGAINST WOMEN IN MOSHI, TANZANIA

**Ever tried to commit
suicide**

No	1.0	1.0	1.0
Yes	0.42, 0.21-0.83	0.58, 0.24-1.36	1.37, 0.63-2.94

**Woman Has Alcohol
Problems**

No	1.0	1.0	1.0
Yes	1.03, 0.64-1.66	1.00, 0.60-1.65	0.97, 0.59-1.58

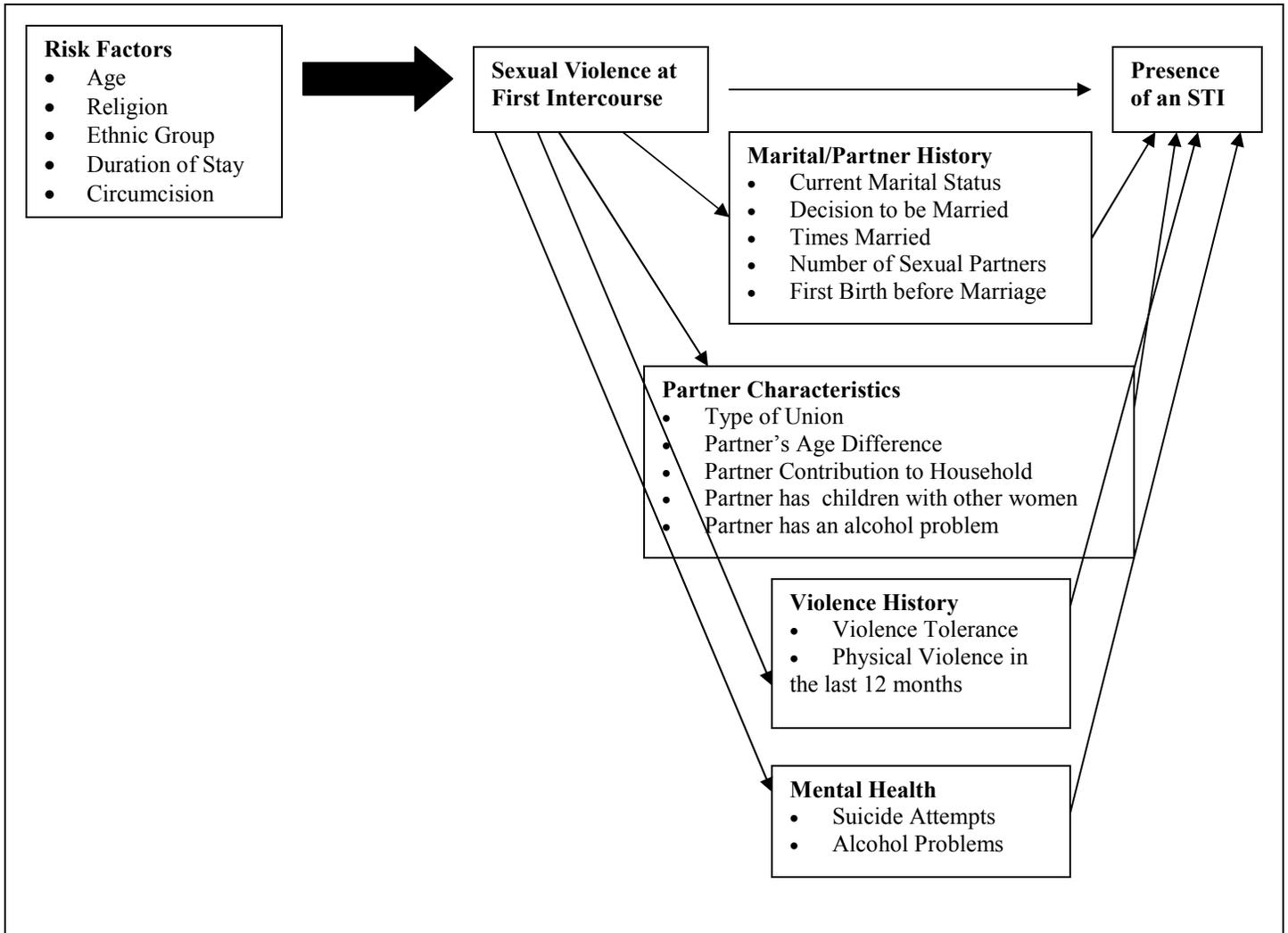


Figure 2. Distribution of STIs among those with at least one STI.

