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HIV-RISK BEHAVIORS OF MEN WHO PERPETRATE INTIMATE PARTNER VIOLENCE IN RAKAI, UGANDA

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Abstract

Little is known about men who perpetrate IPV in communities also at risk for HIV infection. Using data from the Rakai Community Cohort Study (RCCS), five survey rounds were used ($n = 21,157$, observation from $n = 10,618$ men) to examine HIV risk and prevention behaviors among men who reported acts of violence against their wife/primary partner in the past 12 months. Overall, 10.4% men reported perpetrating physical violence and 17.3% perpetrating verbal violence, 3.1% reported sexual violence, 3.1% used violence to have sex with their wife/partner, and 1.1% used verbal coercion. Factors associated with IPV were: age 20–24 years, lower socio-economic status, being married, no male circumcision, drinking alcohol before sex, no consistent condom use, multiple sex partners in the past 12 months, multiple partners ever, and working in a bar. Protective HIV behaviors predicted fewer reports of perpetration and HIV-risk behaviors predicted more reports of perpetrating IPV.

Across cultural settings the epidemics of HIV and intimate partner violence (IPV) are linked; violence victimization is highly prevalent among women with HIV (Campbell et al., 2008). Reviews on this intersection demonstrate the complexity of the relationship between HIV risk, violence and substance use, and context-specific gender norms (Campbell et al., 2008). This study investigated associations between IPV, sexual behaviors, and related outcomes in rural areas and trading towns in Rakai, Uganda, with a focus on men who report perpetrating acts of physical and sexual violence.

IPV is a common problem in Uganda. According to the Uganda Bureau of Statistics, 51% of women have experienced physical and/or sexual IPV in their lifetime (Uganda Bureau of Statistics and ICF International Inc., 2012). Additionally, 35% of women report that they have experienced physical and/or sexual IPV in the last 12 months (Uganda Bureau of Statistics and ICF International Inc., 2012). Research also demonstrates that more than half of men and three quarters of women support wife-beating attitudes and 40% of men who are married reported perpetrating IPV (Speizer, 2010).

There have been few examples of research focused on men as perpetrators (or survivors) of IPV, and much of the research with male perpetrators has been conducted in the United States. For example, one cross-sectional study demonstrated no significant difference in demographic characteristics between men involved in violent relationships compared to men who are not (Caetano, Vaeth, & RamisettyMikler, 2008). Another study based in the United States found that men were significantly more likely to report a IPV incident if their partners had been drinking alcohol but were marginally less likely to report if they had been drinking themselves (Thompson & Kingree, 2006).

The majority of violence research with men in Uganda and other parts of Africa has been limited to investigating men's attitudes towards violence. A multi-country study of six sub-Saharan African countries found that men with more household assets, higher education, and older age were significantly less likely to validate wifebeating (Rani, Bonu, & Diop-Sidibe, 2004). Research and programmatic efforts are often focused on understanding and changing cultural norms towards violence. Research in multiple African countries has focused on identifying predictive characteristics of men who report violence perpetration. The World Health Organization (WHO; 2012) has identified 25 consistent factors associated with a man's increased likelihood of committing violence against his partner(s) (e.g., low level of education, sexual abuse during childhood, male dominance in family, having multiple partners, economic stress, and weak community sanctions against IPV). The South Africa Stress and Health Study found that common risk factors among men and women reporting IPV perpetration included exposure to childhood physical abuse, witnessing parental violence, and adult onset alcohol abuse/dependence (Gass, Stein, Williams, & Seedat, 2011).

An abundance of evidence has grown demonstrating the role of IPV in relation to risk of HIV infection (Jewkes, Dunkle, Nduna, & Shai, 2010). One study in South Africa demonstrated that women who experienced IPV are at increased risk for HIV infection in comparison to women who have not experienced IPV (Jewkes et al., 2010). One proposed mechanism behind this association suggests that women in male-dominated and often abusive relationships are less able to protect themselves from HIV, for example by using

condoms, due to lack of control and fear of their partner (Jewkes et al., 2010; Pulerwitz, Gortmaker, S. L., & DeJong, 2000). Other research has also shown a link between IPV and HIV risk factors; men who report IPV perpetration during the past year also report higher rates of inconsistent or no condom use, forcing sexual intercourse without a condom, and having fathered more than three children (Raj et al., 2006). Not only is IPV related to incidence of HIV, but it has also been identified as an important predictor of poor health outcomes for people living with HIV (e.g., compared to men who are not violent, men who report perpetrating IPV have worse retention to HIV care and therapy adherence, and negative mental health outcomes; Siemieniuk et al., 2013).

Several global studies have found that male perpetrators of IPV commonly engage in behaviors that put their partners at greater risk for HIV infection. Women who participated in the WHO Multi-country Study on Women's Health and Domestic Violence were more likely to report that their partner engaged in high-risk behaviors (e.g., multiple sex partners) if he was abusive relative to women who reported their partner was not abusive (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005). A study by Dunkle and colleagues (2006) found that men's perpetration of violence against their female partners was correlated with higher numbers of past year sexual partners, lifetime sexual partners, frequency of recent intercourse, and increased number of casual partners.

It is challenging to determine the temporal relationship between violence and HIV from these studies, and issues of temporality are critical to address (Campbell et al., 2008). A small number of studies have attempted to investigate men's perpetration of IPV as a driver of HIV for themselves and their female partners. Research among men in Cape Town, South Africa demonstrated that men who reported violence were more likely to have concurrent sexual partnerships (Rani et al., 2004) and men in South African villages who reported rape were more likely to have had more sexual partners (Jewkes et al., 2006). A study of men in an HIV prevention trial in South Africa demonstrated IPV was associated with higher number of lifetime and past year sexual partners, transactional sex, reporting violence against women other than girlfriends and substance abuse (Abrahams, Jewkes, Hoffman, & Laubsher, 2004).

This study aims to investigate associations between men's IPV perpetration and selected sexual reproductive health behaviors and outcomes, with a focus on men who report perpetrating acts of violence in the past year. We examine individual and contextual determinants of IPV (both physical and sexual violence) among men who report these behaviors and describe how men who are perpetrators of IPV are different than nonperpetrators in terms of their risk behaviors (e.g., substance abuse and condom use).

METHODS

STUDY DESIGN AND SAMPLE

The data for this study come from men who participated in the Rakai Community Cohort Study (RCCS) between March 2003 and June 2011. The RCCS is an ongoing, prospective, open-cohort of approximately 14,000 consenting adolescents and adults (15–49 years of age) interviewed at approximately 12–14-month intervals, drawn from 43 communities in

Rakai, Uganda. Each round of RCCS data is derived from both a household census and an individual survey. The survey includes socio-demographic, sexual and reproductive behavior, and health seeking measures. Trained same-sex interviewers administer the survey in Luganda in a private face-to-face interview and then participants are asked for blood samples to test for HIV and sexually-transmitted infections. The cohort has been described in detail elsewhere (Wawer et al., 1998, 1999).

Using five rounds of survey data from 2003 to 2011, we examined HIV risk and prevention behaviors among men who reported acts of physical and/or sexual violence against their wife/primary partner in the last 12 months. These rounds were selected because they were the only rounds that included the violence perpetration questions. The sample size for these five rounds is 21,157 observations from 10,618 men. Institutional review board (IRB) approvals for these analyses and for RCCS were obtained from Uganda Virus Research Institute's Science and Ethics Committee, Uganda National Council for Science and Technology, and from IRBs at the author's universities in the United States.

VARIABLES OF INTEREST

Demographic characteristics of the sample were obtained from data derived from the household census and the individual survey. The demographic characteristics included: age in years (used to create a categorical variable with categories 15–19, 20–24, 25–29, 30–39, and 40–49), area of residence (rural or peri-urban/trading village), socio-economic status (low, middle, and high) constructed from a question asking about use of modern building materials and household durable goods used to construct the household (Makumbi et al., 2011), marital status (never married, currently married, or previously married), and occupation. Biological and behavioral risk factors were also collected, including male circumcision, alcohol use before sex, consistent condom use in the past year (never/inconsistently vs. always), number of sex partners in the last year and number of sex partners ever. HIV status was determined by two enzyme-linked immunosorbent assays confirmed by Western blot.

Related to intimate partner violence, the cohort survey questions on IPV were modified from the Revised Conflict Tactics Scales (Straus, 1979). Specifically, men are asked a stem question—"In the past 12 months did you do the following to your wife/partner"—followed by a seven-question item on intimate partner violence and a three-question item specifically on sexual violence. The intimate partner violence items include both physical and verbal violence: (1) verbally abuse or shout at her, (2) push her, slap her, or held her down, (3) punch her with fist or with something that could hurt her, (4) kick her or dragged her, (5) tried to strangle her or burn her, (6) threatened her with a knife, gun, or other weapon, and (7) attacked her with a knife, gun, or other type of weapon. The sexual violence question asks men "In the past 12 months, did you do any of the following to your wife/primary partner" followed by the options: (1) used verbal threats to force her to have sex when she did not want to, (2) physically forced her to have sex when she did not want to, and (3) forced her to perform other sexual acts she did not want to do. Only men who report sexual behaviors are asked the sexual violence questions.

We collapsed the men's intimate partner violence perpetration questions into three categories: (1) no violence, (2) only verbal violence (i.e., men reported only verbally abusing or shouting at her), and (3) physical violence (i.e., when men reported any other violence item, possibly in addition to verbal items or standalone). Although there is a range of severity in the types of physical violence these are combined because in the data there was so little reporting of the most severe physical abuse (using a knife, gun, or burning). We also collapsed the men's sexual violence questions into the same three categories: (1) no sexual violence, (2) verbal violence (i.e., used verbal threats to force her to have sex), and (3) physically forced her to have sex or perform other sexual acts she did not want to.

The HIV-related risk and protective factors were selected based on previous Rakai data (Mathur et al., 2015; Santelli et al., 2013) and include: demographic factors (age, area of residence, socio-economic status [SES], marital status), risk factors (drink alcohol before sex and number of sexual partners), and protective factors (male circumcision and consistent condom use).

STATISTICAL ANALYSIS

We estimated the association between HIV-related risk and protective factors and verbal and physical intimate partner violence and sexual violence separately using a proportional odds model. The proportional odds model is an extension of the logistic regression model that allows the response variable to have more than two ordered categories. We accounted for the correlation of the repeated measured observations in the longitudinal data through robust Sandwich estimation (Hedeker & Gibbons, 2006). We screened the marginal effect of each predictor by putting them into the model separately while controlling for the effect of age. We then considered multiple proportional odds models with all predictors and conducted backward selection to identify the final model with only significant variables.

RESULTS

MEN WHO REPORT ACTS OF VIOLENCE

The analytic sample included 21,157 observations with 10,618 unique men. Table 1 reports the percentages of men who reported acts of violence perpetration in the past year—either verbal or physical intimate partner violence or sexual violence. The most common type of violence reported was verbally abusing or shouting at a wife/partner (26%, $n = 5,506$), followed by pushing, slapping, or holding down of the woman (10%, $n = 2,132$). Of the 5,872 men who reported some type of verbal or physical intimate partner violence, 17.3% ($n = 3,664$) reported only verbal acts, while 10.4% ($n = 2,208$) reported physical acts alone ($n = 336$) or in addition to verbal acts ($n = 1,842$). Eight hundred eighty-seven men reported any acts of sexual violence perpetration, with 3% ($n = 567$) reporting using verbal threats and 3% ($n = 615$) reporting using physical threats to force their partner to have sex with them when she did not want to. One percent of men in the sample ($n = 112$) reported forcing their partner to perform other sexual acts when she did not want to. Of the men who reported sexual violence only 32 did not also report any type of verbal or physical intimate partner violence.

PROPORTIONS BETWEEN REPORTS OF VIOLENCE WITH HIV RISK AND PROTECTIVE FACTORS

Table 2 shows the proportions of men's reporting of intimate partner violence and sexual violence perpetration given HIV-related risk and protective factors from 2003 to 2011. HIV status and most sociodemographic variables were not associated with reports of violence perpetration (e.g., area of residence, SES). Men who were currently married did report higher percentages of acts of verbal or physical intimate partner violence. Fishermen, truckers, and bar workers/owners reported more violence, relative to those not in these professions. Bar workers reported almost double the acts of IPV (20.7% of bar workers reported verbal or physical intimate partner violence compared to 10.3% of non-bar workers).

HIV protective and risk factors tell a more definitive story. Men who engaged in fewer HIV risk behaviors and more protective behaviors reported fewer acts of violence perpetration. For example, only 3.5% of men who reported consistent condom use with all partners in the past year reported physical intimate partner violence, while 11.4% of men who did not report consistent condom use in the past year also reported physical intimate partner violence. Similarly, men who reported drinking alcohol before sex were 6.1% more likely to report acts of violence perpetration, compared to nondrinkers. Additionally, reports of all types of violence perpetration increase as the number of sexual partners a man had in the last year increases, as well as the number of lifetime sexual partners.

HIV-RELATED PREDICTORS OF INTIMATE PARTNER VIOLENCE

Table 3 presents the proportional odds models of age-adjusted and all-adjusted variables in predicting verbal or physical intimate partner violence perpetration (excluding sexual violence). After backward selection, nine variables remain as significant variables in predicting verbal or physical intimate partner violence perpetration including: age, SES, marital status, male circumcision, alcohol before sex, consistent condom use in the past year, number of sex partners in the past year, number of sex partners ever, and bar worker or owner as an occupation.

Key demographic factors, such as age and marital status, suggest that age 25–29 married men are more likely to report the perpetration of violence. Additionally, men of low socioeconomic status were significantly more likely to report acts of verbal or physical intimate partner violence perpetration than men of higher socioeconomic status (OR = 0.13, CI [0.02, 0.24], $p = .019$).

Protective HIV behaviors predicted fewer acts of violence perpetration, and HIV-risk behaviors predicted more reports of violence. Men who had been circumcised were significantly less likely to report verbal or physical intimate partner violence in the past year. Similarly, consistent condom use was a protective factor of reporting verbal or physical intimate partner violence or sexual violence. In contrast, HIV-risk behaviors were predictive of reporting acts of violence perpetration. For example, drinking alcohol before sex predicted reports of verbal or physical intimate partner violence perpetration (OR = 0.40, CI [0.31, 0.49], $p = .000$). Similarly, as the number of partners in the past year increased and as

the number of lifetime partners increased, men were much more likely to report acts of verbal or physical intimate partner violence.

HIV-RELATED PREDICTORS OF SEXUAL VIOLENCE

Table 4 presents the proportional odds models of age-adjusted and all-adjusted variables in predicting sexual violence. After backward selection, eight variables remain as significant multivariate variables in predicting sexual violence perpetration including: age, SES, male circumcision, alcohol before sex, consistent condom use in the past year, number of sex partners in the past year, and number of sex partners ever. Unlike verbal or physical intimate partner violence, being a bar worker was not predictive of sexual violence perpetration.

Again, the demographics indicated certain groups as being high-risk for perpetrating violence. Men of low socio-economic status (OR = 0.23, CI [0.02, 0.45], $p = .035$) and men of medium socio-economic status were both significantly more likely to report acts of sexual violence (OR = 0.36, CI [0.13, 0.59], $p = .002$), than men of higher socioeconomic status.

The same trends held with verbal or physical intimate partner violence and sexual violence—reports of HIV-protective behaviors were associated with nonviolence and reports of HIV-risk behaviors predicted violence. Male circumcision and consistent condom use were associated with lower reporting of violence perpetration. In contrast, men with multiple sexual partners in the past year were more likely to also report violence; men with two or more partners were significantly more likely to report violence than men with only one partner. Number of lifetime partners was predictive only at five or more partners, but men with three to four partners were not significantly more likely to report sexual violence than men with one to two lifetime partners.

DISCUSSION

Little research has addressed the behaviors and characteristics of men who report perpetrating acts of intimate partner violence and sexual violence against their partners. This study is one of the first, to our knowledge, to explore the link between men's HIV-risk patterns and reports of violence against their intimate partners in Uganda, an area of high HIV (United Nations Programme on HIV/AIDS, 2015) and violence (United Nations Programme on HIV/AIDS, 2015). Men who reported verbal or physical intimate partner violence and/or sexual violence perpetration in our study also reported engaging in high-risk sexual behaviors and, conversely, men who did not report violence reported more protective behaviors. High-risk sexual behaviors were associated with reporting violence: alcohol before sex, inconsistent condom use in the past year, increase number of sex partners in the past year and ever. Medical male circumcision and consistent condom use aligned with fewer reports of violence. These findings are consistent with and expand upon aforementioned work in South Africa (Abrahams et al., 2004; Jewkes et al., 2006; Rani et al., 2004) and findings corroborate research from other contexts, such as a study done on Indian husband-wife dyads that found IPV was a risk factor for women's HIV infection (Decker et al., 2009).

There are several potential reasons why men who engage in HIV protection may be less likely to perpetrate verbal and physical intimate partner violence. Men who try to protect themselves and others from HIV may also want to prevent IPV. It is possible that men who perpetrate IPV are more likely to have been victims of violence as children or other intimate partner violence throughout their life course, making them more likely to perpetrate and less likely to practice health promotion or disease prevention behaviors. These are both speculative hypothesis, and further research is needed to explore the relationship between HIV and IPV behaviors. Research on adolescents in the United States has also shown a relationship between sexual risk and other risk behaviors (e.g., drug and alcohol use; Valois, Oeltmann, Waller, & Hussey, 1999).

Men who commit only verbal abuse may not identify with campaigns that target physical violence. Social and behavioral communication campaigns need to more carefully tease out and address the different triggers and messages for verbal versus physical violence in order to target men who perpetrate either or both types of intimate partner violence. Verbal abuse may also be a sign of a larger culture of violence and indicate a need for campaigns not only to increase healthy communication between partners and within families but also target social-norms around verbal violence more broadly in the community. Health communication campaigns should not only focus on physical violence; they can also promote patterns of healthy and respectful communication.

This study has several limitations. There may be underreporting and misreporting of acts of violence. We had a limited number of variables to test that may explain the increased likelihood of certain men to perpetrate verbal, physical, or sexual violence. We did not have variables that captured men's previous exposure to violence. The survey also does not include mental health behaviors, which may underline these patterns. High risk HIV and violence behaviors may, for example, be a result of or associated with negative mental health outcomes. The survey also does not confirm the consistency of patterns across behaviors and does not specify details about concurrent relationships (i.e., a man may have drunk alcohol before sex with a different partner than the partner targeted with violence). These limitations do not undermine the many important strengths of this sample. The RCCS data are longitudinal, large, nonclinical, and community-based.

IMPLICATIONS

Additional research is needed to explain these protective and risk-taking patterns among men. Study findings suggest a need to integrate HIV and violence prevention agendas. The Safe Homes and Respect for Everyone (SHARE) Project is a promising intervention that was proven to reduce some forms of IPV towards women and overall HIV incidence (Wagman et al., 2015). The intervention achieved these results, at least in part, through a reduction in forced sex and increase in disclosure of HIV results. Education campaigns should work to design messages that target gender-equitable sexual behaviors and community programs should be undertaken to begin to change long-standing community norms around gender inequity.

The Rakai community has participated in multiple campaigns to reduce HIV, many of which have been successful. One example is the Rakai Stylish Man Campaign aimed to encourage

men to prevent HIV through counselling, male circumcision, and using condoms consistently (Clearinghouse on Male Circumcision for HIV Prevention, 2014). Because these programs have proven effective in increasing HIV prevention behavior, and this study supports the relationship between HIV risk behaviors and IPV perpetration, interventions should couple messaging around IPV with pre-existing campaigns to reduce HIV transmission. These results also suggest that campaigns to address HIV prevention are not reaching a certain population of men. More research needs to be done as to why vulnerable populations of men remain underserved and how to better reach men who are at risk for both HIV and perpetrating IPV.

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TABLE 1.

Men's Reports of Intimate Partner Violence in Past 12 Months ($N = 21,157$ Men in 43 Rakai Communities, 2004–2013)

	No. of observations	%
Verbal and Physical Violence		
In the past 12 months did you do the following to your wife/partner		
Verbally abuse or shout at her?		
No	15,614	74
Yes	5,506	26
Push her, slap her, or held her down?		
No	18,988	90
Yes	2,132	10
Punch her with fist or with something that could hurt her?		
No	20,633	98
Yes	486	2
Kick her or dragged her?		
No	20,657	98
Yes	458	2
Tried to strangle her or burn her?		
No	19,780	100
Yes	9	0
Threatened her with a knife, gun, or other weapon?		
No	21,106	100
Yes	13	0
Attacked her with a knife, gun, or other type of weapon?		
No	21,111	100
Yes	8	0
Sexual Violence		
In the past 12 months, have you done of the following to any of your sexual partners:		
Used verbal threats to force her to have sex when she did not want to?		
No	20,534	97
Yes	567	3
Physically forced her to have sex when she did not want to?		
No	20,485	97
Yes	615	3
Forced her to perform other sexual acts she did not want to do?		
No	20,987	99
Yes	112	1

Note. Most of the missing men reported not having sexual behavior in the past year ($n \sim 5,000$).

TABLE 2.

HIV-Related Risk and Protective Factors on Men's Domestic Violence and Sexual Violence ($N = 21,157$ men in 43 Rakai Communities, 2004–2013)

	No.	Domestic Violence			Sexual Violence		
		No	Only Verbal	Physical	No	Only Verbal	Physical
No. of observations	21,157	15,276	3,664	2,208	20,215	237	650
% of observations		72.2	17.3	10.4	95.8	1.1	3.1
Sociodemographics		%	%	%	%	%	%
Age in years							
15–19	1,781	83.7	9.0	7.3	97.1	1.1	1.8
20–24	3,598	72.2	16.0	11.8	95.3	1.2	3.5
25–29	4,517	68.6	18.9	12.5	95.1	1.3	3.6
30–39	7,492	70.4	18.7	10.9	95.6	1.1	3.3
40–49	3,701	75.0	17.8	7.2	96.9	1.0	2.2
Area of residence							
Rural	18,010	72.4	17.2	10.4	95.7	1.1	3.2
Peri-urban	3,147	71.3	17.9	10.8	96.3	1.0	2.7
Socio-economic status							
High	8,426	72.9	17.4	9.7	96.4	1.1	2.6
Middle	6,398	72.0	17.1	10.9	95.4	1.2	3.4
Low	4,982	71.6	17.5	10.9	95.2	1.2	3.6
Marital status							
Never married	4,640	82.8	10.5	6.8	96.7	1.1	2.3
Currently married	15,127	68.8	19.7	11.5	95.6	1.2	3.3
Previously married	1,385	74.7	14.4	10.9	95.6	1.0	3.4
HIV status							
No	17,093	72.7	17.2	10.2	95.8	1.1	3.1
Yes	2,041	70.0	18.0	12.0	95.8	1.3	2.9
Fishing as an occupation							
No	20,819	72.3	17.3	10.4	95.8	1.1	3.1
Yes	311	65.0	20.9	14.2	94.2	1.6	4.2
Trucker as an occupation							
No	20,556	72.3	17.3	10.4	95.8	1.1	3.1
Yes	574	67.9	18.8	13.2	95.6	1.1	3.3
Bar worker or owner as an occupation							
No	20,908	72.4	17.3	10.3	95.8	1.1	3.1
Yes	222	59.0	20.3	20.7	94.1	1.8	4.1
HIV Protective Factors		%	%	%	%	%	%
Male circumcision							
No	12,275	70.8	18.2	11.0	95.4	1.3	3.3
Yes	8,050	74.6	16.1	9.3	96.5	0.8	2.7
Consistent condom use with all partners in the past year							

	<u>No.</u>	<u>Domestic Violence</u>			<u>Sexual Violence</u>		
		No	Only Verbal	Physical	No	Only Verbal	Physical
No	18,497	70.01	18.56	11.43	95.43	1.2	3.36
Yes	2,637	87.67	8.8	3.53	98.33	0.57	1.1
HIV Risk Factors		%	%	%	%	%	%
Alcohol drink before sex							
No	12,272	77.3	14.8	7.9	96.8	1.0	2.2
Yes	8,775	65.0	21.0	14.0	94.4	1.3	4.3
No. of sex partners in the past year		%	%	%	%	%	%
0	135	84.1	11.1	4.8	100.0	0.0	0.0
1	11,777	78.5	14.7	6.9	97.2	0.8	2.0
2	6,316	66.9	20.0	13.1	95.2	1.3	3.6
3+	2,897	57.9	22.6	19.5	91.2	2.3	6.5
No. of sexual partners ever							
1–2	3,440	83.7	11.3	5.0	98.1	0.6	1.4
3–4	4,527	76.9	15.4	7.7	97.3	0.7	2.0
5–6	1,949	73.4	17.0	9.7	95.7	1.3	3.0
7+	4,585	66.8	19.1	14.1	93.3	1.7	5.0

TABLE 3.

Predictors of Domestic Violence

	Simple Regression				Multiple Regression			
	Estimate	95% CI (low)	95% CI (high)	p value	Estimate	95% CI (low)	95% CI (high)	p value
Sociodemographics								
Age in years								
15–19	–0.68	–0.83	–0.53	.000	–0.02	–0.21	0.17	.842
20–24	ref	ref	ref	ref	ref	ref	ref	ref
25–29	0.16	0.06	0.26	.002	–0.24	–0.37	–0.10	.001
30–39	0.07	–0.03	0.16	.177	–0.50	–0.64	–0.37	.000
40–49	–0.19	–0.30	–0.07	.001	–0.84	–1.00	–0.67	.000
Area of residence								
Rural	ref	ref	ref	ref				
Peri-urban	0.04	–0.06	0.14	.440				
Socio-economic status								
High	ref	ref	ref	ref	ref	ref	ref	ref
Middle	0.06	–0.02	0.14	.132	0.07	–0.03	0.17	.181
Low	0.09	0.00	0.18	.040	0.13	0.02	0.24	.019
Marital status								
Never married	–0.95	–1.08	–0.83	.000	–0.71	–0.87	–0.55	.000
Currently married	ref	ref	ref	ref	ref	ref	ref	ref
Previously married	–0.27	–0.41	–0.14	.000	–0.18	–0.37	0.00	.049
HIV status								
No	ref	ref	ref	ref				
Yes	0.10	–0.02	0.22	.088				
Fishing as an occupation								
No	ref	ref	ref	ref				
Yes	0.31	0.04	0.57	.022				
Trucker as an occupation								
No	ref	ref	ref	ref				
Yes	0.17	–0.03	0.37	.098				
Bar worker or owner as an occupation								
No	ref	ref	ref	ref	ref	ref	ref	ref
Yes	0.65	0.37	0.93	.000	0.56	0.22	0.90	.001
HIV Protective Factors								
Male circumcision								
No	ref	ref	ref	ref	ref	ref	ref	ref
Yes	–0.22	–0.29	–0.14	.000	–0.20	–0.30	–0.11	.000
Consistent condom use with all partners in the past year								
No	ref	ref	ref	ref	ref	ref	ref	ref
Yes	–1.06	–1.19	–0.93	.000	–0.58	–0.74	–0.42	.000

	Simple Regression				Multiple Regression			
	Estimate	95% CI (low)	95% CI (high)	<i>p</i> value	Estimate	95% CI (low)	95% CI (high)	<i>p</i> value
HIV Risk Factors								
Alcohol drink before sex								
No	ref	ref	ref	ref	ref	ref	ref	ref
Yes	0.62	0.54	0.69	.000	0.40	0.31	0.49	.000
No. of sex partners in the past year								
0	−0.27	−0.73	0.19	.256	−0.02	−0.60	0.56	.948
1	ref	ref	ref	ref	ref	ref	ref	ref
2	0.57	0.50	0.64	.000	0.39	0.30	0.49	.000
3+	0.99	0.90	1.09	.000	0.63	0.49	0.77	.000
No. of sexual partners ever								
1–2	ref	ref	ref	ref	ref	ref	ref	ref
3–4	0.39	0.27	0.51	.000	0.26	0.13	0.39	.000
5–6	0.58	0.43	0.72	.000	0.36	0.21	0.52	.000
7+	0.94	0.82	1.07	.000	0.62	0.48	0.77	.000

TABLE 4.

Predictors of Sexual Violence

	Simple Regression				Multiple Regression			
	Estimate	95% CI (low)	95% CI (high)	p value	Estimate	95% CI (low)	95% CI (high)	p value
Sociodemographics								
Age in years								
15–19	–0.51	–0.84	–0.17	.003	–0.08	–0.47	0.31	.698
20–24	ref	ref	ref	ref	ref	ref	ref	ref
25–29	0.06	–0.15	0.28	.6	–0.07	–0.34	0.20	.611
30–39	–0.06	–0.27	0.15	.570	–0.24	–0.51	0.03	.081
40–49	–0.41	–0.68	–0.14	.003	–0.61	–0.96	–0.25	.001
Age-Adjusted								
Area of residence								
Rural	ref	ref	ref	ref				
Peri-urban	–0.17	–0.38	0.05	.127				
Socio-economic status								
High	ref	ref	ref	ref	ref	ref	ref	ref
Middle	0.25	0.08	0.43	.004	0.23	0.02	0.45	.035
Low	0.31	0.12	0.49	.001	0.36	0.13	0.59	.002
Marital status								
Never married	–0.40	–0.64	–0.16	.001				
Currently married	ref	ref	ref	ref				
Previously married	–0.01	–0.29	0.27	.942				
HIV status								
No	ref	ref	ref	ref				
Yes	0.01	–0.25	0.27	.922				
Fishing as an occupation								
No	ref	ref	ref	ref				
Yes	0.31	–0.20	0.82	.235				
Trucker as an occupation								
No	ref	ref	ref	ref				
Yes	–0.01	–0.44	0.42	.973				
Bar worker or owner as an occupation								
No	ref	ref	ref	ref				
Yes	0.42	–0.15	0.99	.145				
HIV Protective Factors								
Male circumcision								
No	ref	ref	ref	ref	ref	ref	ref	ref
Yes	–0.29	–0.46	–0.13	.000	–0.24	–0.46	–0.03	.028
Consistent condom use with all partners in the past year								
No	ref	ref	ref	ref	ref	ref	ref	ref

	Simple Regression				Multiple Regression			
	Estimate	95% CI (low)	95% CI (high)	p value	Estimate	95% CI (low)	95% CI (high)	p value
Yes	−1.04	−1.37	−0.71	.000	−0.75	−1.13	−0.37	.000
HIV Risk Factors								
Alcohol drink before sex								
No	ref	ref	ref	ref	ref	ref	ref	ref
Yes	0.65	0.49	0.81	.000	0.36	0.15	0.56	.001
No. of sex partners in the past year								
0	−13.59	−13.81	−13.37	.000	−13.11	−13.41	−12.81	.000
1	ref	ref	ref	ref	ref	ref	ref	ref
2	0.54	0.37	0.71	.000	0.44	0.22	0.65	.000
3+	1.18	1.00	1.36	.000	0.75	0.49	1.01	.000
No. of sexual partners ever								
1–2	ref	ref	ref	ref	ref	ref	ref	ref
3–4	0.33	0.02	0.65	.038	0.13	−0.19	0.46	.419
5–6	0.82	0.48	1.17	.000	0.55	0.18	0.92	.003
7+	1.34	1.05	1.64	.000	0.89	0.57	1.21	.000