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Alcohol Use by Men Is a Risk Factor for the Acquisition of Sexually Transmitted Infections and Human Immunodeficiency Virus From Female Sex Workers in Mumbai, India

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Abstract

Objective—We investigated whether men who were under the influence of alcohol when visiting female sex workers (FSW) were at greater risk for sexually transmitted infections (STI) and human immunodeficiency virus (HIV).

Study—A cross-sectional analysis using baseline data from a randomized controlled trial of an HIV prevention intervention for high-risk men in Mumbai, India.

Results—The overall HIV prevalence among 1741 men sampled was 14%; 64% had either a confirmed STI or HIV; 92% reported sex with an FSW, of whom 66% reported having sex while under the influence of alcohol (SUI). SUI was associated with unprotected sex (odds ratio [OR]: 3.1; 95% confidence interval [CI], 2.3–4.1), anal sex (OR: 1.5; 1.1–2.0), and more than 10 FSW partners (OR: 2.2; 1.8–2.7). SUI was independently associated with having either an STI or HIV (OR: 1.5; 1.2–1.9).

Conclusion—Men who drink alcohol when visiting FSWs engage in riskier behavior and are more likely to have HIV and STIs. Prevention programs in India need to raise awareness of this relationship.

An estimated 4.1 TO 9.6 million adults and children are living with HIV/AIDS in South and Southeast Asia.¹ India dominates the epidemic, with up to 5.1 million people infected, of whom 86% are thought to have acquired human immunodeficiency virus (HIV) through sexual transmission. Mumbai, the capital of Maharashtra state, has some of the highest HIV infection rates of any urban area in the country.^{2,3} Surveillance data from the Mumbai District AIDS Control Society for 2003 reported that 54% of female commercial sex workers (FSW), 18% of men who have sex with men, 18% of sexually transmitted infections (STIs) clinic attendees, and 1.3% of antenatal clinic women were HIV infected (Dr Alka Gogate, personal communication). Social, economic, and gender-related issues that

influence the spread of HIV in India have received attention in numerous studies.^{4–8} However, the role that noninjection substance use, particularly alcohol, may play in the epidemic in South Asia has not been evaluated in detail.

Alcohol consumption among men in India has been shown in a number of surveys to be common.^{5,9–11} In a country as large and diverse as India, however, estimates of the overall prevalence of drinking varies, from 17% of men who were surveyed in Tamil Nadu to 50% in rural Punjab.¹¹ Drinking was more frequent among those with less education and lower socioeconomic status.^{9,12,13} Among those who drank, the amount of alcohol consumed was high. A survey sponsored by the World Health Organization in south India revealed that 50% of male alcohol users drank to intoxication, consuming more than 5 drinks per session (Dr. Vivek Benegal, personal communication).

Only a few studies reported from India have demonstrated that alcohol users are likely to engage in risky sex, but these reports are primarily among those either being treated for alcohol abuse or for psychiatric disease.^{4,6–8} Studies have not been performed among a more general population of those who drink, or have examined whether there is a specific relationship between using alcohol with sex and being more likely to acquire HIV or STIs. In contrast, numerous studies from elsewhere in the developing and developed world have identified a relationship between alcohol use and high-risk sexual behavior.^{14–22} For example, a recent evaluation by Simbayali et al.²³ conducted in South Africa revealed that those who suffered from problem drinking had a greater number of sex partners, history of condom failure, and STIs. In Zimbabwe, men attending beer halls had a twofold higher HIV prevalence than men who had not attended such venues.¹⁴

Alcohol use can contribute to risky behavior in numerous ways; for example, by causing sexual disinhibition, leading to more sexual partners, difficulty in remembering to use a condom, or being unable to use it correctly. Drinking may promote a social environment in which unprotected sex is more likely to occur or is acceptable. Persons may also use alcohol because they have an expectation that it will enhance their sexual experience or decrease stress and anxiety around seeking sex.²⁴

As part of an HIV behavioral intervention trial, we evaluated the reported use of alcohol by Indian men when visiting FSWs. We sought to determine whether men who were under the influence of alcohol were more likely to have a STI or HIV and whether this relationship was mediated by an increase in specific sexual behaviors.

Methods

Study Design

A cross-sectional analysis was conducted on baseline data from an ongoing randomized controlled trial of an HIV prevention intervention among men attending 2 public STI clinics in Mumbai. All participants completed an interviewer-administered questionnaire after signing informed consent. Subjects underwent a clinical examination and laboratory evaluation for STIs and received treatment according to US CDC guidelines.²⁵ HIV testing was offered with pre- and posttest counseling, and HIV-positive men were referred for further evaluation and care.

Between March 2002 and November 2003, 1968 participants were enrolled into the trial. In this paper, we present information on a subset of 1741 participants. Two hundred twenty-seven men were excluded from the analysis because they reported sex under the influence of drugs but not alcohol, had used intravenous drugs in the past, or had missing information. None of the subjects reported receiving a blood transfusion, and the presence of tattoos was

not associated with HIV infection. Therefore, we considered HIV to be a STI for the purposes of this analysis.

Evaluation of Alcohol Use and Risk Behavior

The interview included questions about sociodemographics, lifetime and most recent sexual behavior with FSW and other partner types, condom use, alcohol use with or without drugs during sex, and HIV knowledge and attitudes. We focused the analysis on sex with FSWs, as this was the most common partner type reported. We obtained data on self-reported condom use with FSWs both over a lifetime and during the prior 3 months. Lifetime condom use was reported and analyzed as being either “consistent” (always) or “inconsistent” (less than always or never). Condom use during the last 3 months was analyzed as the total number of unprotected sex acts, calculated by subtracting the number of times condoms were used from the total number of reported sex acts. Depending on whether analyses focused on behavior over a lifetime or during the prior 3 months, “unprotected sex” was defined as either “inconsistent” condom use with FSWs (lifetime) or having at least 1 episode of sex without a condom (prior 3 months).

Alcohol use during sex was determined by asking: How often were you high or feeling the effects of alcohol alone? and How often were you high or feeling the effects of alcohol *and* drugs while having sex with an FSW? Possible responses included never; less than half the time; more than half the time; or always. Sex under the influence of alcohol (SUI) was defined as using alcohol or alcohol and drugs with sex “less than half the time; more than half the time or always.” Men who were not under the influence of alcohol or alcohol and drugs were considered to have “sober sex.”

STI and HIV Evaluation

Diagnostic testing for STIs and HIV was carried out in the microbiology laboratory at LTMG Hospital, Mumbai. All men regardless of signs or symptoms underwent serologic testing for syphilis using the Venereal Disease Research Laboratory (VDRL) test and the *Treponema pallidum* (TP) haemagglutination assay (TPHA) (Immutrep TPHA, Omega Diagnostics, Alloo, Scotland); for herpes simplex virus-2 (HSV2) using IgG serology (Herpe-Select 2 Elisa, Focus Technologies, Cypress, CA); for HIV antibodies using ELISA (Biokit Elisa, Labsystems, Helsinki, Finland) and a confirmatory Western blot for HIV-1 or 2 (Chiron RIBA*HIV-1/HIV-2 SIA, Ortho Clinical Diagnostics, Emeryville, CA). Urine was collected from all men for polymerase chain reaction (PCR) detection of *Neisseria gonorrhoea* (GC) and *Chlamydia trachomatis* (CT) (Amplicor CT/NG, Roche Diagnostics, Indianapolis, IN). Men with genital ulcers (GUDs) or vesicles were swabbed for detection of *T. pallidum*, HSV2, and *Hemophilus ducreyi* using a home-brew multiplex PCR test (Roche Amplicor reagents). Men with urethral discharge provided a specimen for Gram stain and for culture of GC on chocolate agar plates using standard procedures. The spun urine sediment from men with dysuria but without urethral discharge was evaluated for the presence of white blood cells.

Men were considered to have specific STIs based on the following algorithms. Primary syphilis was defined as having a GUD on physical examination, with a clinical diagnosis of a primary chancre, confirmed with either a positive VDRL and TPHA or a positive PCR test. Secondary syphilis was defined as having signs of secondary disease or *Condyloma lata* with positive VDRL and TPHA tests; latent or previously treated syphilis was defined as a positive TPHA in the absence of clinical signs of primary or secondary disease. Incident HSV2 infection was defined as having a GUD or vesicles on examination, a positive HSV2 PCR test, and absence of HSV2IgG antibodies. Recurrent HSV2 infection was defined as having a GUD or vesicles, presence of HSV2IgG antibodies, and a positive HSV2 PCR test.

Men with a clinical diagnosis of HSV2 with positive serology but a negative PCR test were considered to have recurrent HSV2. Chronic HSV2 infection was defined as having HSV2IgG antibodies in the absence of a clinical diagnosis of HSV and, if in the presence of a GUD, a negative HSV2 PCR. Chancroid was defined by a positive PCR test; we also included those men who had a clinical diagnosis of chancroid and negative serological tests for HSV2 IgG, VDRL, and TPHA. Those GUDs for which PCR tests were positive for more than 1 organism were considered dually infected. Gonococcal urethritis was defined as having either a positive urine PCR test for GC, Gram-negative intracellular diplococci (GND) on smear of urethral discharge, or a positive GC culture. Chlamydial urethritis was defined as having a positive PCR urine test. Nongonococcal urethritis was defined as having symptoms of urethritis, Gram stain without GND, negative culture and PCR tests for GC, but with >10 white blood cells per high-powered field on Gram stain or spun urine sediment. The diagnoses of *Lymphogranuloma venereum* (LGV), *Condyloma acuminata*, and *Molluscum contagiosum* were made clinically.

Data Analyses

Data were entered in MS Access (Microsoft Access, Seattle, WA) and cleaned onsite by trained staff. Data management occurred both onsite and at the University of California, San Francisco. Data were analyzed using SAS (Version 9.0, SAS Institute). A combined variable “STI/HIV” was created as the primary outcome variable. This variable was defined as the presence or combination of *any* of following infections: HIV, primary syphilis, secondary or latent syphilis, incident, recurrent or chronic HSV2, chancroid, gonorrhea, chlamydia, nongonococcal urethritis, LGV, *C acuminata*, or *M contagiosum*. Subjects who were missing either an HIV test (N = 58) or any one of the STI test results were still included in the analysis using the combined outcome variable. However, in Table 1, we evaluated the relationship of specific STIs to HIV infection, and therefore those who were missing HIV test results are excluded from the table. We examined the relationship of demographic variables, risk behaviors, and SUI to STI/HIV using Pearson’s χ^2 statistic, and calculated odds ratios (OR) and 95% confidence intervals (CIs) using logistic regression analyses. A 2-sided *P* value of <0.05 was considered statistically significant. We also evaluated the association of SUI with risk behaviors using logistic regression analysis. Differences in the number of unprotected sex acts during the last 3 months among men having SUI, compared to those having sober sex, were tested using Wilcoxon rank sum test. We used stratified analysis to determine if specific risk behaviors were confounders: unprotected sex with FSW, anal sex with FSW, and more than 10 FSW partners. Since these 3 risk behaviors could be on the causal pathway in the relationship of SUI to STI/HIV, we evaluated them as potential mediators.

Mediation Analysis

We sought to determine whether any of the following 3 primary risk behaviors could be mediating the relationship between SUI and STI/HIV: unprotected sex with an FSW, anal sex with an FSW, and more than 10 FSW partners, all reported over a lifetime. Being a mediating variable implies that the factor is in the casual pathway between predictor and outcome; that is, that SUI causes specific risk behaviors, which in turn increase the possibility of acquiring STI/HIV. This hypothesis is evaluated statistically by observing whether a significant decrease in the OR between the primary predictor (SUI) and outcome (HIV/STI) occurs when both predictor and the mediating variables are included in a logistic model.

We performed a series of bivariate logistic regression analyses. We first determined the bivariate association between SUI and STI/HIV as a direct effect. Second, we analyzed the relationship between SUI and the hypothesized mediators or risk behaviors. We then

evaluated the association of each of the risk behaviors with the outcome, adjusting for SUI. The presence of a mediated effect was defined as a statistically significant decrease in the OR of SUI to STI/HIV and an insignificant change in the OR of a risk behavior to STI/HIV in the final adjusted model. Demographic factors were considered to be upstream variables in the relationship between SUI and STI/HIV and therefore were excluded from this analysis.

Results

Table 1 presents the relationship between specifically diagnosed STIs and HIV infection among subjects. Of the 1683 participants who had HIV test results, 14% had HIV antibodies and 60% had a confirmed STI. HSV2 infection was the most prevalent genital infection (41%) and was also most strongly associated with HIV. Men with incident infections or recurrent HSV2 lesions at presentation were even more likely to have HIV antibodies, compared to those who were diagnosed only by the presence of positive serology. Syphilis was the second most prevalent STI (21% positive).

The relationship between demographic characteristics and having either HIV or an STI, present among 64% of men in the sample, is shown in Table 2. The median age was 26 years; 66% of men were Hindu and 25% were Muslim. The majority (68%) originally came from a state other than Maharashtra. Only 31% of men were married, and of those, 22% lived with their wives in Mumbai. One third of men reported little or no education. Only 33% lived in stable housing, while the remainder lived in slums, a footpath, or in a shop or bar.

Men who were 26 years or older, married, Hindu, living in a slum, or who had less than 4 years of education were more likely to have an STI or HIV infection. Over 90% of men reported sex with an FSW in their lifetime, and 70% had seen a sex worker in the prior 3 months (Table 3). Having more than 10 lifetime FSW partners increased the risk of infection. Seventy-six percent of men reported unprotected sex in the prior 3 months. Almost all men reported vaginal sex, but 14% also had anal sex with an FSW partner.

Being under the influence of alcohol while engaging in sex was common: 66% and 57% of men reported this in their lifetime or in the prior 3 months, respectively. Both SUI and inconsistent condom use (lifetime and past 3 months) were significantly associated with the presence of an STI or HIV infection.

Association of SUI with sexual risk behaviors

We evaluated the association of SUI to unprotected sex, anal sex, and multiple sexual partners (Table 4). Using lifetime recall, SUI was associated with unprotected sex (OR: 3.1; 95% CI, 2.3–4.1); anal sex (OR: 1.5; 1.1–2.0); and more than 10 lifetime FSW partners (OR: 2.2; 1.8–2.7). SUI in the prior 3 months was also associated with unprotected sex (OR: 2.1; 1.6, 2.8) and more than 10 lifetime FSW partners (OR: 1.9; 1.5, 2.4).

Mediation Model of the Association of SUI and STI/HIV

Logistic regression analysis, in the context of the mediation model, was used to explore whether unprotected sex, anal sex, and more than 10 lifetime FSW partners might be mediating the relationship between SUI to STI/HIV infection (Fig. 1). The bivariate OR of SUI to STI/HIV equaled 1.5 (95% CI, 1.2–1.9). When unprotected sex, anal sex, and having more than 10 lifetime FSW partners were included in a logistic model, the OR of SUI to STI/HIV was reduced to 1.4 (95% CI, 1.2–1.8), a change that was not statistically significant. This indicates that these behaviors were not significant mediating variables. In addition to SUI, unprotected sex (OR, 1.7; 1.2, 2.4) remained independently associated with STI/HIV. We evaluated the association between SUI and risk behaviors with other partner

types (regular and casual female partners, wives, other men and transgenders), but found no significant associations with either SUI or STI/HIV.

Discussion

We found that Indian men who were under the influence of alcohol while having sex with female sex workers, compared to those who were sober at the time, were more likely to be infected with HIV or to have an STI. To our knowledge, this is one of the only studies from India to evaluate the relationship between alcohol use with sex and biologic markers of HIV risk. These results suggest that prevention programs need to recognize that alcohol may influence the ability to practice safer sex or be a marker for clients who take greater risks.

Alcohol use with sex may be a prevalent problem in India: a survey of male clients of female sex workers conducted by the National AIDS Control Organization revealed that 19% consumed alcohol regularly before sex.²⁶ In our study, alcohol was by far the most commonly used substance before sex. Because our study was not specifically designed to evaluate alcohol use, we do not have information on the overall proportion of clients who drank or on the quantity, frequency, or types of alcohol consumed. More detailed understanding about the prevalence of alcohol abuse, the context in which drinking takes place, and expectations around drinking (such as whether men drink because they hope it will make them less sexually inhibited or because they feel less self-conscious about going to see a sex worker), are important for designing appropriate HIV prevention messages.

In this study, we tried to explore the means by which alcohol resulted in greater STI/HIV acquisition. We postulated that men who drank had more partners and were less likely to use condoms and for these reasons would be at greater risk. We did find that alcohol use was associated with sexual risk behaviors when analyzed independently and that these behaviors were in turn associated with HIV/STI. However, using statistical mediation analysis, we could not demonstrate that these behaviors were mediating the effects between alcohol use and STI/HIV acquisition. The reasons for this are not entirely clear. We assume that alcohol use itself is unlikely to result in a greater biologic susceptibility to STIs, although research in this area is limited. It is possible that men misreported or underreported their risk behaviors, particularly in the context of alcohol. Alcohol use could also be associated with other behaviors that were not well measured in our study, such as receptive anal sex with high-risk men. Alternatively, men who drink may be more likely to see sex workers who drink, and the prevalence of HIV and STIs might be higher among these women. Although we did not collect data to support this hypothesis, it is conceivable that sex workers who use alcohol may have more partners or more unprotected sex with clients overall or drink because they are ill with HIV. Thus, if these women are more likely to be HIV infected, unprotected sex with them would incur more risk to the client than unprotected sex with other FSWs.

There are several possible explanations as to why alcohol use may facilitate risk behavior. Alcohol use could make a man forget to use a condom or make it difficult for him to use it properly, or he may be disinclined to use one because it prevents him from maintaining an erection when inebriated. Men may drink in social situations with friends or in bars, settings in which peer pressure could encourage seeing sex workers. On the other hand, drinking could be a marker for men who have risk-taking personalities, and thus having sex without a condom would be a type of sensation-seeking behavior. In our study, men who drank were more likely to have anal sex with FSWs, but this was not associated with HIV or STIs. Anal sex has been shown to put a woman at greater risk for HIV, but for a male partner it may be less risky than having insertive vaginal sex.

Even though our sample was recruited from STI clinics, only 60% of men had a confirmed sexually transmitted disease. This is because some men complained of symptoms that were determined on examination not to be due to an STI. Men without symptoms could also be enrolled in the study if they were requesting an HIV test or admitted to having sex without a condom in the last 3 months. HSV2 infection was the most prevalent STI, with incident and recurrent disease strongly associated with HIV. These results are similar to a recent study from Pune that also evaluated the relationship of HSV2 infection to HIV.²⁷ The adjusted hazard ratio for acquiring HIV-1 infection from prevalent HSV2 infection was 1.67; recent incident HSV2 infection was 3.8. These data lend support for the concept, now in clinical trials, that prophylaxis for HSV2 may reduce HIV transmission.

Currently, only limited prevention efforts targeting STD patients exist in Mumbai, and few if any of these include information about the risk of alcohol use with sexual partners. This information could easily be incorporated into HIV test counseling or clinic visits. It is particularly important for men to be aware of the relationship of alcohol use and HIV risk, as sex workers may find it difficult to insist that inebriated clients use a condom.²⁸ Overall, this study demonstrates the need for future evaluation of the extent of alcohol use and the mechanisms by which it affects sexual behavior and STI/HIV risk in India.

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Fig. 1.

Mediation model of the association of sex under the influence of alcohol (SUI) with an FSW and STI/HIV. Note: a, b, c, d are the unadjusted odds ratios for SUI, with FSW predicting STI/HIV, unprotected sex, anal sex, and >10 partners, respectively. The adjusted odds ratios of SUI conditional on all the 3 risk behaviors is shown as a'. The rest of the adjusted odds ratios e', f', g' are showing the relationship of each of the risk behavior, unprotected sex, anal sex, and >10 partners, respectively, predicting STI/HIV conditional on SUI. The unadjusted and adjusted odds ratio and 95% CI for each of these relations are: OR (95% confidence interval), a, 1.5 (1.2–1.9); a', 1.4 (1.2–1.8); b, 3.1 (2.3–4.1); c, 1.5 (1.1–2.0); d, 2.2 (1.7–2.7); e', 1.7 (1.2–2.4); f', 0.8 (0.6–1.2); g', 1.1 (0.9–1.4).

TABLE 1

Prevalence of STIs and Relationship to HIV Infection Among Patients Screened at Baseline Visit

	All Patients		HIV Infected	
	N	(%)	n	(%)
All participants ^{*†}	1683	100	238	14
Primary syphilis				
Yes	48	3	12	25 ^a
No	1629	97	223	14
Secondary or latent syphilis				
Yes	295	18	53	18 ^a
No	1382	82	182	13
HSV2 infection				
Incident	8	1	4	50 ^b
Recurrent	84	5	27	32
Chronic	597	35	131	22
No HSV	994	59	76	8
Chancroid				
Yes	11	1	3	27
No	1660	99	232	14
Chlamydia urethritis				
Yes	24	1	5	21
No	1647	99	231	14
Gonococcal urethritis				
Yes	122	7	28	23 ^b
No	1543	93	208	13
Nongonococcal urethritis				
Yes	135	8	15	11
No	1547	92	223	14
<i>Condyloma acuminata</i>				
Yes	36	2	14	39 ^b
No	1647	98	224	14
<i>Molluscum contagiosum</i>				
Yes	21	1	6	29 ^a
No	1662	99	232	14
LGV				
Yes	5	0	2	40
No	1675	100	236	14
Any sexually transmitted infection				
Yes	1018	60	201	20 ^b
No	665	40	37	6

* Fifty-eight of 1741 participants were missing HIV test results and are excluded from this table. HIV = human immunodeficiency virus; HSV2 = herpes simplex virus-2; LGV = *Lymphogranuloma venereum*.

[†] Participants missing laboratory or clinical information for individual STIs were excluded from relevant sections of the table.

^a $P < 0.05$,

^b $P < 0.001$.

TABLE 2

Demographic Characteristics and History of Frequenting Female Sex Workers: Association With Having an STI or HIV Infection

Characteristic	STI/HIV			
	N	(%)	n	(%)
All participants	1741	—	1105	64
Age				
16–25	830	48	457	55**
26–35	567	33	406	72
36+	340	20	245	72
Religion				
Hindu	1172	67	768	66*
Muslim	428	25	252	59
Other	137	8	88	64
Marital status				
Married	530	31	358	68*
Unmarried	1207	69	750	62
Education (years)				
<4	605	35	417	69**
4–9	773	44	475	61
10+	358	21	215	60
Living situation				
Flat/chawl	571	33	345	60*
Slum/footpath	1165	67	762	65
Birthplace				
Mumbai	46	3	30	65
Maharashtra	506	29	330	65
Another state	1185	68	748	63
Sex with an FSW, ever				
Yes	1590	92	1021	64
No	144	8	87	60
Sex with an FSW, last 3 mo				
Yes	1215	70	762	63
No	517	30	344	67

FSW = female sex worker; HIV = human immunodeficiency virus; STI = sexually transmitted disease.

* $P < 0.05$.

** $P < 0.001$.

TABLE 3

The Relationship of Alcohol Use and Risky Sex With STIs and HIV

Characteristic	STI/HIV			
	N (%)	n (%)	OR	(95% CI)
Lifetime				
Alcohol use during sex with FSW				
Yes	1040 (66)	703 (68)**	1.5	1.2–1.9
No	546 (34)	314 (56)		
Unprotected sex with FSW				
Yes	1388 (87)	920 (66)**	1.9	1.4–2.6
No	200 (13)	101 (51)		
Anal sex with FSW				
Yes	226 (14)	141 (62)	0.9	0.7–1.2
No	1358 (86)	875 (64)		
FSW partners, No.				
1–10	861 (54)	535 (62)		
11+	729 (46)	486 (67)	1.2	1.0–1.5
Prior 3 months				
Alcohol use during sex with FSW				
Yes	693 (57)	463 (67)**	2.1	1.6–2.8
No	521 (43)	296 (57)		
Unprotected sex with FSW				
Yes	923 (76)	602 (65)**	1.6	1.2–2.1
No	292 (24)	160 (55)		
FSW partners, So.				
1	418 (23)	262 (63)	1.00	
2–5	613 (34)	385 (63)	1.00	0.8–1.3
6–10	145 (8)	85 (59)	0.8	0.6–1.2
11+	98 (5)	55 (56)	0.8	0.5–1.2

FSW = female sex worker; HIV = human immunodeficiency virus; STI = sexually transmitted disease.

* $P < 0.05$.** $P < 0.001$.

TABLE 4

Relationship of SUI With an FSW With Sexual Risk Behaviors, Over a Lifetime and in the Last 3 mo

Characteristic, N (%)	Unprotected Sex			Anal Sex			>10 FSW Partners			
	n (%)	OR	(95% CI)	n (%)	OR	(95% CI)	n (%)	OR	(95% CI)	
Lifetime										
SUI with FSW										
Yes	1040 (66)	954 (92)	3.06 ^b	2.3–4.1	164 (16)	1.5 ^a	1.1–1.9	546 (53)	2.2 ^b	1.8–2.7
No	546 (34)	430 (79)			62 (11)			182 (33)		
Prior 3 months										
SUI with FSW										
Yes	693 (57)	567 (82)	2.1 ^b	1.6–2.8	— [*]	—	—	403 (58)	1.9 ^b	1.5–2.4
No	521 (43)	354 (68)						218 (42)		

* Anal sex with FSW was not measured in the prior 3 months.

^a $P<0.05$.

^b $P<0.001$.

FSW = female sex worker; SUI = sex while under the influence of alcohol.