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A comparative study of substance use before and after establishing HIV infection status among people living with HIV/AIDS

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Abstract

Objective—To determine if significant differences exist in substance use among people living with HIV/AIDS (PLWHA) before and after establishing their HIV infection status.

Method—The study participants are HIV positive clients of a community based HIV/AIDS outreach facility located in Montgomery, Alabama. The questionnaire includes demographics, substance use and risky sexual behaviors pertaining to HIV transmission. Each participant completed an anonymous questionnaire. A total of 341 questionnaires were distributed and 326 were fully completed and returned, representing a response rate of 96%.

Results—Findings revealed a statistically significant difference in alcohol consumption before sex among PLWHA before and after establishing their HIV infection status ($p = .001$). No significant differences were observed among participants who reported as having used drugs intravenously ($p = .89$), and among those sharing the same syringe/needle with another person ($p = .87$) before and after establishing their HIV infection status.

Conclusion—There is continued substance use and alcohol consumption before sex among PLWHA after establishing their HIV status despite clear evidence of such risky behaviors that could lead to an increase in exposure to HIV.

Keywords

Substance use; HIV/AIDS; syringe/needle sharing; PLWHA

Introduction

Since the beginning of the HIV/AIDS epidemic, substance use particularly injection drug use (IDU) in conjunction with alcohol consumption, is a major factor in the HIV/AIDS epidemic. Substance abuse usually leads to effects that are detrimental to the individual's physical, biological, psychosocial health, or the welfare of others. In case of HIV/AIDS, this could lead to increased HIV/AIDS risky behaviors, thus further escalating the HIV/AIDS epidemic (Glossary of General Terms for Nebraska Behavioral Health System, 2006). Substance use in terms of HIV/AIDS risk is referred to here as any recurrent consumption of alcohol or drugs that would lead to HIV/AIDS risky behaviors. Substance use is an

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increasingly recognized problem in the world and plays the second largest role in the transmission of HIV/AIDS, and may influence the progression and treatment of HIV infection (Centers for Disease Control and Prevention, 1997). Substance use, particularly alcohol consumption and injection drug use (IDU) can lead to risky behaviors that can result in increased exposure to HIV. For example, IDU can transmit HIV when the blood of an HIV-infected drug user is injected into a drug user who is not yet HIV infected. Needles and syringes are the primary drug injection equipment involved in IDU (Centers for Disease Control and Prevention, 2007). A study assessing the link between HIV and injecting drug users revealed that 49.5% of injecting drug users tested HIV positive in five urban areas in Kenya (Ndeti, Ongecha, Malow, Onyancha, Mutiso, & Kokonya 2006). However, the extrapolated global estimates of the regional midpoint prevalence of HIV among injecting drug users is 18.9% (Mathers, Degenhardt, Phillips, Wiessing, Hickman, Strathdee, Wodak, Samiran, Tyndall, Toufik, & Mattrick, 2008). It is estimated that there were 13.2 million injecting drug users globally at the end of 2003 and around 10% of HIV infections globally are directly a result of transmission through injection drug use (Aceijas, Stimson, Hickman, & Rhodes, 2004). Injection drug use is the second most common route of HIV transmission in the United States (WHO/UNAIDS, 2004; WHO, 2005). A study by the Centers for Disease Control and Prevention (2005) showed that there are approximately 1,000,000 active injection drug users in the United States general population. Since the beginning of the HIV epidemic, the Centers for Disease Control (CDC) estimates that injection drug use has directly and indirectly accounted for approximately one-third (36%) of AIDS cases in the United States. Each year more than 8,000 people are newly infected with HIV through sharing HIV contaminated syringes and needles (CDC, 2005). The activities that aid in the transmission of HIV/AIDS interact directly and/or indirectly with alcohol use and/or its abuse. Alcohol is the most commonly used substance among HIV-infected people in the United States (*ScienceDaily*, 2007). Harmful alcohol use and its relationship to the spread of HIV has been an issue of growing concern. Harmful alcohol use is a pattern of drinking that result in harm to one's health, interpersonal relationships, or ability to work. Although HIV/AIDS and harmful alcohol use are distinct illnesses, each profoundly affects the other. In general, under the influence of alcohol, people lose their inhibitions and have their judgment impaired, and can easily find themselves involved in high-risk sexual behaviors. These include multiple sex partners and unprotected sexual intercourse, which can put them at risk for contracting HIV (Ayisi, ter Kuile, Kolczak, Otieno, & Misore, 2000; Malow, Devieux, Jennings, Lucenko, & Kalichman, 2001; Bryant, 2006; Zablotska, Gray, Serwadda, Nalugoda, Kigozi, Sewankambo, Lutalo, Wabwire-Mangen, & Wawer, 2006). Studies have consistently demonstrated that people, who strongly believe that alcohol consumption facilitates or enhances sexual arousal and performance, are more likely to drink alcohol before sex. In addition, they have a higher probability of engaging in unprotected sex and are therefore at a higher risk of HIV infection than the general population (Dermen, & Cooper, 2000; George, Stoner, Norris, Lopez, & Lehman, 2000; Abderhalden, 2007).

People living with HIV/AIDS (PLWA) are very likely to abuse alcohol at some point in time during their lives (*ScienceDaily*, 2006; Abderhalden, 2007). Various studies show that alcohol use is common among PLWA and is associated with HIV/AIDS risky behaviors (Arnsten, Demas, & Grant, 2003; Palepu, Tyndall, & Li, 2003; Samet, Horton, & Meli, 2004). In the United States a 1-month national representative sample of current alcohol use among PLWA showed a prevalence of 53%, with 8% of them classified as heavy alcohol consumers (Galvan, Bing, Fleishman, London, Caetano, Burnam, Longshore, Morton, Orlando, & Shapiro 2002). The prevalence of harmful alcohol use among HIV-infected people is at least twice that of the general population in the United States (Galvan et al, 2002). Another study shows that 80% of people infected with HIV in the United States consume alcohol, and 30–60% have been diagnosed with an alcohol-related abuse disorder (National Institute on Alcohol Abuse and Alcoholism, 2009). Other studies of HIVinfected

people have reported alcohol-related problems or alcohol use disorders in 22–60% of the patients (Cook, Sereika, Hunt, Woodward, Erlen, & Conigliaro, 2001; Phillips, Freedberg, Traphagen, Horton, & Samet, 2001) and rates of harmful alcohol use or dependence in 12–41% of them (Dew, Becker, & Sanchez, 1997). The mechanism by which substance use influences risky behaviors is associated with situational factors, such as disinhibition effects, cognitive impairment, social modeling, or the fact that substance use and risk taking behaviors often occur in the same social venues (Abderhalden, 2007). In addition, reasons underlying the correlation between substance use and high-risk behaviors among PLWA have been described. These include: decreased inhibitions and risk perception, belief that alcohol and other drugs enhance sexual arousal and performance; deliberate substance use as an excuse of high-risk behaviors; and the indirect association that bars are common places to meet potential sexual partners (*ScienceDaily*, 2006). Substance use including alcohol and drugs gives people more courage (sometimes significantly more) to engage in HIV/AIDS risky behaviors. These may be in the form of having unplanned sexual activities, and unprotected sex, which can lead them to do what they would otherwise not have done and also being less aware of the consequences (*ScienceDaily*, 2006; Abderhalden, 2007). The objective of this study is to determine if significant differences exist in substance use especially alcohol consumption and IDU before sexual intercourse among people living with HIV/AIDS before and after establishing their HIV infection status.

Materials and methods

Study design

The data was collected by a survey of HIV positive clients of a community-based HIV/AIDS outreach facility (CBHAOF) located in Montgomery, Alabama. The CBHAOF provides community based HIV/AIDS treatment and prevention service through education, quality services, and compassionate care to HIV/AIDS clients and their families in 27 counties in Alabama. The CBHAOF has also a medical component or clinic, which provides complete primary health care that includes physician visits, and laboratory tests for diagnosing HIV infection. The questionnaire was designed to collect data on behaviors that could be associated with HIV/AIDS transmissions in the Black Belt Counties (BBC) of Alabama. The BBC of Alabama are the counties that stretch centrally from west to southeast Alabama. The Black Belt countries (BBC) are counties that have a higher percentage (more than 50%) of African American residents compared with Anglo American J Subst Use Downloaded from informahealthcare.com by Tuskegee University on 11/03/10 residents. The questionnaire was pretested in collaboration with CBHAOF to assess whether the materials were understandable to the target respondents and could easily be answered by them. Tuskegee University's Institutional Review Board approved the final questionnaire, informed consent forms, and study protocol. The major modules of the questionnaire included: socio-economic and demographic information; knowledge about HIV/AIDS, HIV testing, substance use, and HIV/AIDS risk behaviors before and after the knowledge of their HIV infection status. Participants filled out a questionnaire anonymously without any individual identifying information

Data collection procedures

The data was collected in collaboration with CBHAOF. The CBHAOF provides community-based HIV/AIDS treatment and prevention service through education, quality services, and compassionate care to HIV/AIDS clients, and their families in 27 counties in Alabama. The CBHAOF also has a medical component or clinic that provides complete primary health care that includes physician visits and laboratory tests for diagnosing HIV infection. The questionnaires and the informed consent forms were given to the facility staff for administration and retrieval. The defined criteria to enroll participants in the study

included: age equal to or greater than 18 years, and diagnosed as being HIV positive by a laboratory test or AIDS by a physician of CBHAOF. A convenience sampling method was used to select the study sample. Eligible participants were informed about the study by the facility's staff during their regular medical visits. Each participant was actively approached at the end of his/her visit by the trained interviewers to explain the goals of the study and request his/her consent to participate. Although a convenience sampling method was used, almost all the clients who were approached were eligible and agreed to participate. Participants agreed to participate in the survey in two ways. These were by either signing or returning the consent form before filling the questionnaire or by directly filling the questionnaire. Participant's names were not included in the questionnaire, thus maintaining their confidentiality. The participants completed the questionnaire during their clinical visits at their own convenience and that of the facility's staff. The facility staff administered and retrieved the questionnaires at its clinical sites. A total of 341 questionnaires were distributed, but only 326 questionnaires were fully completed and returned with a response rate of 96%. The other 15 questionnaires were also returned, but were not fully completed and, as a consequence, they were discarded and not used in the analysis. This represented a 4% refusal/dropout rate of the distributed questionnaires. Each completed questionnaire was returned in a sealed envelope to the CBHAOF staff. Upon receiving the completed questionnaire from the participant, the CBHAOF staff gave each participant a Wal-Mart coupon worth \$15.00, which was provided by the Tuskegee University as an incentive token and compliment for filling out the questionnaire. Researchers at the Center for Computational Epidemiology, Bioinformatics and Risk Analysis (CCEBRA), a research team in the College of Veterinary Medicine, Nursing and Allied Health of Tuskegee University, collected the completed questionnaires from the CBHAOF staff. All completed questionnaires were kept in a secured location. Data was entered into FileMaker Pro 6.0v4 by qualified personnel.

Statistical analyses

The data was analysed using SAS System for Windows (SAS Institute, Inc., Version 9.0.1). The analyses consisted of descriptive statistics (frequencies) for demographic, socioeconomic, and substance use (alcohol consumption) variables. Regression and Pearson's Correlation analysis were used to determine if significant correlations existed between the quantity of alcohol consumed and selected risky sexual behaviors. A paired *t*-test was used to determine if significant differences existed in the prevalence of substance use before and after the knowledge of HIV infection status. The McNemar test was used for testing the differences between proportions in the matched-pair case.

Results

Table I shows a summary of the demographic and socioeconomic characteristics of the participants by number and percentages in relation to sex, race, age group, marital status, level of education, and level of income. Table I indicates that there were more male than female participants (56% vs. 42%). African Americans were more than twice the number of the other races combined. The predominant age groups were those of 40–49 (37%) and 30–39 (30%), respectively. The majority of the participants by marital status were single (56%) and the least was that of widow(er)s (1%). For employment status, most of the participants were employed for wages (39%) and the number of retired ones was least (4%). In terms of levels of education, participants with college level of education and above (44%) were almost the same number with those with grade 12 or GED (39%). More than a third of the participants had an income of \$9999 and under (31%). Findings about the participants' alcohol consumption before and after establishing their HIV infection status are presented in Table II. The variables selected for analysis were about consumption of alcoholic beverages:

frequency and number of alcoholic beverages consumed before sex. A statistically significant difference ($p = .001$) was observed in the variable “drinking alcoholic beverages before sex” among the participants before and after establishing their HIV infection status (Table II). The analysis of the question ‘Did you drink any alcoholic beverage such as beer, wine, wine coolers, or liquor before you had sexual intercourse the last time?’ shows that before establishing their HIV infection status, 35% of the participants had consumed an alcoholic beverage before sex. In comparison, 28% of the participants indicated that they had consumed an alcoholic beverage after establishing their HIV infection status. The difference between drinking alcohol before sexual intercourse before and after the knowledge of HIV infection status among PLWHA is 18.50% with 95% CI from 8.07% to 27.07%, and is statistically significant ($p = .0001$). The questions pertaining to the frequency and usual number of drinks before sex were asked separately. The measure of the frequency and number of drinks was defined as the highest frequency and number of drinks reported for overall drinking before sex. The responses for the variable “frequency of alcohol consumed before sex” were: a few times, half of the time, most of the time, and every time. The responses for the variable “quantity of alcohol consumed before sex” were: 1–2 drinks, 3–4 drinks, and 5 or more drinks before sex. Heavy episodic drinking was measured as the frequency of consuming 5 or more drinks in a single day before sex. Within the frequency of alcohol consumption category, a 5% and 2% decrease was observed for a “few times” and “most of the time” alcohol consumers, respectively. However, there were no significant differences between the frequency of alcohol use before sexual intercourse before and after the knowledge of HIV infection status (Table II). A non-statistically significant decrease of 6% (from 57% to 51%; $p = .32$) was observed for light drinkers after the knowledge of their HIV infection status. However, non-statistically significant increase of 3% was found for both moderate (from 23% to 26%; $p = .61$) and excess alcohol intake (from 20% to 23%; $p = .59$) after establishing their HIV infection status.

No statistically significant differences were observed among participants who reported as having used drugs intravenously ($p = .89$), and among those sharing the same syringe/needle with another person ($p = .87$) before and after establishing their HIV infection status (Table II).

The findings in Table III indicate that high level of alcohol consumption was correlated with two indicators of risky sexual behaviors: having multiple sexual partners (Pearson’s correlation coefficient $r = .17$; $n = 156$; $p = .01$) and having sexual intercourse without a condom ($r = .35$; $n = 157$; $p < .000$). The results in Table III show that there was a significant correlation between number of sexual partners and selected demographic variables including gender ($r = .37$; $n = 242$; $p = .02$), and marital status ($r = .42$; $n = 240$; $p = .01$).

Findings about the number of sexual partners in the past 12 months by gender and marital statuses are presented in Table IV. The analyses revealed that females have more monogamous relationships than males (47% vs. 26%; 95% CI, 8–33%; $p = .001$). Males were more likely than females to have had four or more sexual partners (31% vs. 11%; 95% CI, 9.1–30.1%; $p = .001$). Analysis of the number of sexual partners by marital statuses indicate that married participants were more likely to report having single sexual partners than their single (54% vs. 32%, $p = .03$) and divorced counterparts (54% vs. 17%, $p = .003$). Table IV further shows that separated participants were also more likely to report having single sexual partners than their single counterparts (53% vs. 17%, $p = .01$). The prevalence of multiple sexual partners (four or more) for divorced participants was 31% higher than for married couples (37% vs. 6%, $p = .004$), and the prevalence of multiple sexual partners for single participants was 16% higher than that of married couples (22% vs. 6%, $p = .05$). Despite the fact that all the participants were receiving counseling and engaged in primary

care, they were still unlikely to have reduced high-risk HIV/AIDS transmitting behaviors. These findings suggest that HIV infected people are continuing to engage in HIV/AIDS risky behaviors after knowledge of their HIV status.

Discussion

In this study, substance use especially alcohol is linked to the tendency of having multiple partners and sexual intercourse without condoms. A study by Bagnall, Plant, and Warwick (1990) about alcohol consumption habits and sexual behaviors found that people who frequently combined alcohol use with sexual encounters were generally less likely to use condoms during sexual intercourse. A similar study shows that people who consumed alcoholic beverages and used other drugs before sex were found to be strongly associated with high-risk sexual behaviors (Stall, McKusick, Wiley, Coates, & Ostrowe, 1986). Even those who consumed alcoholic beverages only occasionally at the time of sexual encounters were twice as likely to be categorized as “high risk,” than those who did not consumed alcoholic beverages (Stall et al, 1986). People who did not consume alcohol during sexual encounters were three times more likely to be classified as being in a “no risk” category than people who combined alcohol consumption with sexual activity (Mackenzie & Kiragu, 2007). These reports of simultaneous alcohol use and high-risk sexual behaviors suggest that alcohol can directly influence high risk-taking sexual behaviors that can, in turn, lead to HIV infection and eventually to AIDS. In addition to the increased risk of acquiring HIV, drug and alcohol consumers also are at a greater risk of transmitting HIV to the general population. A study found that 60% of individuals who consumed alcohol had multiple sexual partners (Mackenzie & Kiragu, 2007). The linkages between alcohol use and sexual risk behaviors among PLWHA contribute to the spread of HIV infection and to the global burden of HIV/AIDS related morbidity and mortality.

In this study, the fact that PLWHA modified their alcohol intake post-diagnosis is a significant finding. This highlights the effectiveness of incorporating alcohol-reduction in implementing effective strategies to reduce HIV/AIDS risky behaviors by public health officials and community-based organizations. Education and counseling about alcohol consumption are more effective in reducing alcohol consumption among PLWHA with alcohol problems.

These interventions contributed to the reduction in alcohol consumption. Even though a significant reduction of alcohol consumption was observed in participants after the knowledge of their HIV infection status, PLWHA should be advised not to drink excessive amounts of alcohol. This is because of the fact that alcohol consumption is associated with high-risk sexual and injection-related behaviors that increase the likelihood of HIV transmission (Dag, 2008). This could lead to further spread of the HIV/AIDS epidemic. A likely explanation for the gender discrepancy in self-reported numbers of sex partners is related to differences in risk perception. Women are more likely to perceive themselves as being more at risk than men when participating in risky sexual behaviors (Hyde & DeLamater, 2006). In another study by Hyde and DeLamater (2006) indicates that some of the risks involved in casual sex, for example, pregnancy or social reputation, are more threatening to women than to men. Another possible explanation for gender discrepancy appears to be related to gender differences in sexual activity and fantasy about sex. Studies show that sexual activity appears to be more important in men than women (Wiederman & Allgeier, 1993; Sedikides, Oliver, & Campbell, 1994). In another study it was demonstrated that men are more likely than women to desire multiple sexual partners and the novelty of different partners (Leitenberg & Henning, 1995).

Differences between marital statuses with respect to number of sexual partners can be associated with loneliness and isolation (Harper, Lodico, DiClemente, & Coates, 1994). The fact that divorced and single people are most of the time lonely influences their sexual behavior. To compensate for their loneliness and pain, they might be interested in meeting with many people whom they might become romantically involved. This might lead to casual sex with multiple partners and could lead to higher incidence of casual sex and/or multiple partners, and consequently, a higher risk of HIV infection. Specifically, divorce causes dramatic change in adults' social life. The spouse leaves, and usually the spouse's family also leaves and contacts with the spouse's family members decrease sharply. Hence, divorced adults are more likely to make many new friends compensating for the lost relatives. Instead of making regular friends, divorced people tend to get involved in romantic relationships with many people leading to high risk of HIV/AIDS transmission. The findings suggest that PLWHA are continuing to engage in HIV/AIDS risky behaviors after the knowledge of their HIV status. There are several possible explanations for this finding. First, with the advent of highly active antiretroviral therapy (HAART) in 1996, mortality among PLWHA decreased dramatically (Bouhnik, Preau, & Lert, 2007). Most of the PLWHA who get therapeutic benefits from HAART may attain improved quality of life and functional status with the alleviation of physiological, social, and psychological consequences of HIV/AIDS. These gains may be accompanied by increases in HIV/AIDS risky behaviors that include sharing the same syringe/needle with another person. Secondly, PLWHA may have unrealistic beliefs about the impact of antiretroviral therapy on disease transmission rates, and thus may perceive the consequences of transmitting HIV/AIDS as being less serious than in the past. The proven efficacy of HAART in reducing mother to child transmission of HIV may reinforce these beliefs. The PLWHA who have such beliefs may be less likely to consistently use condoms or may have a higher number of partners than those who do not. Similarly, PLWHA who are using antiretroviral therapy may be less inclined to insist on safer behaviors if they perceive the consequences of HIV infection to be somewhat less terrible because of the availability of this antiretroviral therapy.

Conclusion

In spite of the knowledge of their HIV status, PLWHA are continuing to engage in HIV/AIDS risky behaviors. The participants reported that they consumed alcohol most of the time or every time before sexual intercourse. They also reported as having used drugs and shared the same syringe/needle before sex. Therefore, researchers interested in HIV/AIDS can take advantage of these correlation findings in looking for factors that covary with behaviors that put people at risk for these negative outcomes. Alcohol and drug related interventions might help increase safer sexual behaviors, such as condom use among PLWHA. Developing targeted interventions among populations where the risk is greatest could enhance the design of interventions aimed at reducing substance use in conjunction with addressing other issues such as sexual partner reduction, and mutual monogamy. Education and training programs should develop educational materials to distribute to PLWHA and to the communities that have the dual epidemics of substance use and HIV/AIDS. Understanding of multiple factors that surround sexual risk behaviors linked to substance use and alcohol consumption among PLWHA is very useful to search for alternative ways of dealing with HIV/AIDS related problems.

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Table I

Demographic and socioeconomic characteristics of the participants

Demographic and socioeconomic characteristics	<i>n</i>	%
Sex		
Female	136	42
Male	181	56
Transgender	4	1
Transsexual	5	2
Race		
African American	208	64
White (non-Hispanic)	94	29
Hispanic	10	3
Other races	144	
Age group		
18–29	53	19
30–39	86	30
40–49	104	37
50–59	34	12
60 and above	6	2
Marital status		
Single	183	56
Married	47	15
Divorced	47	15
Separated	31	10
Widow(er)	3	1
Other	13	4
Employment Status		
Employed for wages	122	39
Unable to work	59	19
Unemployed	50	16
Student	25	8
Homemaker	25	8
Self-employed	18	6
Retired	12	4
Level of education		
Graduate school	11	3
College 4 years or more	50	15
College 1 year to 3 years	85	26
Grade 12 or GED	126	39
Grades 9 through 11	40	12
Grades 1 through 8	11	3
Level of income (\$)		

Demographic and socioeconomic characteristics	<i>n</i>	%
9,999 or under	97	31
10,000 to 14,999	45	14
15,000 to 19,999	38	12
20,000 to 24,999	36	11
25,000 to 29,999	23	7
30,000 to 49,999	20	6
50,000 to 74,999	13	4
Don't know	46	14

Table II

The difference between drinking alcohol before and after establishing HIV Infection status

Variable	Before knowledge of HIV infection status	After knowledge of HIV infection status	95% CI and <i>p</i> value for the difference between proportions
Drink any alcoholic beverage before sex (<i>n</i> = 229)			
	Yes	80 (35%)	65 (28%) (95% CI, 8.07–27.87%; <i>p</i> = .001)
	No	149 (65%)	164 (72%)
Frequency of alcohol consumed before sex	<i>n</i> = 175	<i>n</i> = 158	
A few times	101 (58%)	83 (53%)	(95% CI, –6.1–16%; <i>p</i> = .42)
Half of the time	32 (18%)	32 (20%)	(95% CI, –6.8–10.9%; <i>p</i> = .75)
Most of the time	20 (11%)	15 (9%)	(95% CI, –5–8.9%; <i>p</i> = .67)
Every time	22 (13%)	28 (18%)	(95% CI, –3.2–13.3%; <i>p</i> = .27)
Number of drinks before sex	<i>n</i> = 173	<i>n</i> = 162	
1–2 drinks (light drinkers)	99 (57%)	83 (51%)	(95% CI, –5.1–16%; <i>p</i> = .32)
2–4 drinks (moderate drinkers)	39 (23%)	42 (20%)	(95% CI, –6.6–12.6%; <i>p</i> = .61)
5 or more drinks (excess alcohol intake)	35 (20%)	37 (23%)	(95% CI, –6.2–12.2%; <i>p</i> = .59)
Injecting drug use	13% (<i>n</i> = 225)	12% (<i>n</i> = 225)	(95% CI, –6.6–6.7%; <i>p</i> = .89)
Sharing the same syringe or needle with another person	74% (<i>n</i> = 235)	79% (<i>n</i> = 235)	(95% CI, –18.7–27.8%; <i>p</i> = .87)

Table III

Pearson's correlation summary for the quantity of alcoholic beverages consumed, multiple sexual partners, having sexual intercourse without a condom by gender and marital status

Variable	Pearson's correlation coefficient, <i>n</i> and <i>p</i> value for the significant correlations between variables
The correlation between:	
High quantity of alcoholic beverages consumed and multiple sexual partners	$r = .17; n = 156; p = .01$
High quantity of alcoholic beverages consumed and sexual intercourse without a condom	$r = .35; n = 157; p < .0001$
Number of sexual partners and gender	$r = .37; n = 242; p = .02$
Number of sexual partners and marital status	$r = .42; n = 240; p = .01$

Table IV
Number of sexual partners and condom use by gender and marital status in the past 12 months

Responses by gender and marital status									
Dependent variables	Gender			Marital status					
	Female (%)	Male (%)	Points difference	95% CI	<i>p</i>	Single (%)	Married value (%)	Divorced (%)	Separated (%)
Number of sexual partners									
1	47	26	21	8, 33	.001	32 ^a	54 ^b	17 ^a	53 ^{a b}
2-3	17	27	10	-1.4, 20.7	.10	25 ^a	26 ^a	20 ^a	11 ^a
4	11	31	20	9.1, 30.1	.001	22 ^a	6 ^b	37 ^a	21 ^{a b}

CI = Confidence interval.

^{a, b} Different superscripts in the same row indicate significant differences ($p < .05$).

p -values for the number of sexual partners by marital status for Table IV are indicated below.

1 sexual partner by marital status	2-3 sexual partners by marital status	4 or more sexual partners by marital status
p value .03 for single vs. married	p value .92 for single vs. married	p value .05 for single vs. married
p value .13 for single vs. divorced	p value .70 for single vs. divorced	p value .11 for single vs. divorced
p value .12 for single vs. separated	p value .28 for single vs. separated	p value .84 for single vs. separated
p value .003 for married vs. divorced	p value .75 for married vs. divorced	p value .004 for married vs. divorced
p value .83 for married vs. separated	p value .34 for married vs. separated	p value .22 for married vs. separated
p value .01 for divorced vs. separated	p value .64 for divorced vs. separated	p value .37 for divorced vs. separated

Significant values are in bold characters if $p < .05$.