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Intimate Partner Violence Perpetration and Condom Use-Related Factors: Associations with Heterosexual Men's Consistent Condom Use

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Abstract

Intimate partner violence victimization has been linked to sexual HIV risk behavior among heterosexual women. The unique role of perpetration of intimate partner violence (IPV) in sexual risk behavior among men has not been studied as well. Based on interviews with 518 heterosexual men recruited via street-intercept between 2005 and 2007 in New York City, we assessed the relationship between perpetration of IPV against a main female partner and inconsistent condom use with that same partner, while controlling for condom use-related factors. Multivariate logistic regression revealed that men who perpetrated physical IPV were half as likely to report consistent condom use as compared with men who did not use violence, while controlling for sociodemographic, condom use-related and other factors. Physical IPV perpetration by heterosexual men makes an independent contribution to consistent condom use. Designing

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interventions for heterosexual men that simultaneously address both IPV and sexual risk behaviors is critical.

Keywords

HIV; Sexual risk behavior; Condom use; Intimate partner violence

Introduction

In the US, in 2006, 80% of all new HIV cases among women were attributed to high risk heterosexual contact [1]. Among men and women, the estimated number of heterosexually acquired HIV/AIDS cases has increased between 2004 and 2007 [1]. In order to effectively reduce the incidence of heterosexually transmitted infections among women, it is important to understand better the factors that put women at risk. Intimate partner violence (IPV) victimization has been shown to be one of those risk factors [2, 3]. Generally defined as including psychological violence, most research in the area of HIV risk has defined IPV narrowly, focusing on physical or sexual violence victimization experiences alone. Increasingly, studies are beginning to focus not on the risk that women's victimization poses, but on how perpetration of IPV and sexual HIV risk behaviors are related among heterosexual men. This research on men's use of IPV reflects the need to gather baseline data to inform HIV prevention intervention efforts designed for heterosexual men, as actors most in control of their own sexual behaviors.

The majority of existing studies have reported that men who perpetrate IPV report greater sexual risk-taking behaviors. Early research in this area focused on substance using men or HIV-positive men [4, 5], as these men are at the highest risk of transmitting HIV to their female partners. Among men on methadone, El-Bassel et al. [4] found that those who perpetrated IPV were more likely to have multiple sex partners and engage in unprotected anal intercourse with a main female partner. More recently, Kapadia et al. [6] reported that among injection drug using (IDU) men, in multivariate analyses, IPV in the main relationship was associated with inconsistent condom use in that relationship, only among men with multiple partnerships. Frye et al. [7] reported that among male HIV-positive IDUs unprotected vaginal and/or anal sex with a female partner was associated with the use of IPV in a main relationship. One study among a clinical sample of young men found that IPV perpetration was associated with sexual HIV risk behavior [8]. In contrast, in a study of HIV risk among HIV-positive men Bogart et al. [9] found that perpetration of IPV was not associated with sexual HIV risk behavior.

Together these studies strongly suggest that IPV perpetration is correlated with sexual HIV risk behavior among men. However, most of these studies did not control for other factors also related to consistent condom use among men, including female partner pregnancy desire, HIV infection status, or condom use-related factors (such as condom use outcome expectancies and self-efficacy specific to condom use). This is an important consideration, as these factors have been found to be associated with consistent condom use, a critical sexual HIV risk behavior [10]. A range of studies among heterosexual men and women, not

focused on the role of IPV, indicate that condom use-related factors are associated with consistent condom use [11–14]. Here we report results from an analysis of 518 heterosexual men (men who have sex with women only) recruited via street-intercept methods between 2005 and 2007 in New York City (NYC). In the analysis we assessed the roles of both IPV and condom use-related factors in self-reported consistent condom use among men.

Methods

Procedures and Sample

This analysis draws data from the Inner-City Mental Health Study Predicting HIV/AIDS and Other Drug Transitions (IMPACT) study, a cross-sectional study of the relationship between the neighborhood environment and various health outcomes, the details of which have been described elsewhere [15]. Recruitment was conducted using street-intercept sampling in 36 ethnographically defined neighborhoods in four NYC boroughs between 2005 and 2007. All participants had to be 18 years of age or older and had to either live in the target neighborhood or spend at least 50% of their time in that neighborhood. In addition, participants fell into one of the following self-reported categories: non-drug users (except alcohol and marijuana), non-injection drug user (current use of inhaled or snorted heroin, crack, cocaine, or methamphetamines and no reported history of injection drug use); injection drug user (current use of injected heroin, crack, cocaine, or methamphetamines), former drug user (previous use of heroin, crack, cocaine, or methamphetamines, but no reported use within the last 5 years), and club drug user (current use of ecstasy, LSD, PCP, GHB, ketamine and/or methamphetamines). If eligible, and after providing informed consent, participants were administered a face-to-face interview over 2 days on a wide range of topics from drug use to sexual behavior to perceptions of their neighborhood. IPV data was collected on day 2 of the interview. Out of the 870 men sampled in the larger IMPACT study at the time of this analysis, 667 (76.7%) completed the second day of the interview and reported a main sexual partner (defined as “someone whom you feel close to in your heart, like a steady girlfriend/boyfriend or a spouse”) in the last 12 months. Of these men, $n = 45$ (6.7%) were excluded because they reported sex with men only. Finally, an additional 104 (15.6%) were excluded due to missing or incomplete data on sexual behaviors and condom use in the last month. Thus, the final study sample was 518 men.

Measures

Dependent Variable—The dependent variable in this analysis was self-reported consistent condom use (defined as using a condom during every sex act) during vaginal and/or anal sex in the past month with a main female partner. This variable was created by assessing the number of times that the participant had vaginal and/or anal sex with the main partner in the past month and then asking the number of times that either a male or female condom was used.

Independent Variables—The main independent variable assessed was perpetration of moderate and/or severe physical IPV against a main female partner. IPV perpetration was measured using a modified version of the Revised Conflict Tactics Scale (CTS2) [16]. Thus, 17 items assessed the use of moderate physical IPV (e.g., “you threw something at your

partner that could hurt" and "you twisted your partner's arm") and severe physical IPV (e.g., "you choked your partner" and "you used a knife or gun on your partner") in the past 12 months. The internal consistency of the entire scale with the data obtained was good (a = 0.842). We dichotomized the scale to model any moderate and/or severe physical IPV perpetration as compared with no moderate and/or severe physical IPV perpetration in the past year. We chose to focus on moderate and/or severe levels of violence as it has generally been this level of violence that has been found to be associated with sexual risk behavior in the literature [4–7]; as the crux of our analysis was to assess the specific contribution of IPV to consistent condom use, but while controlling for condom use-related and other factors, we sought consistency with previous research into this relationship.

We assessed a range of covariates in four domains for their associations with the perpetration of moderate and/or severe physical IPV perpetration: sociodemographic factors, substance use, partner and relationship, and condom use and related HIV factors. Sociodemographic factors included age (assessed as a 5 category variable: 18–25; 25–26–35; 36–45 and 46+), race (White, Black, Latino, Other), sexual orientation (self-reported heterosexual vs. bisexual or unknown), income level (more than $5,000 per year vs. less than $5,000 per year), public assistance receipt (yes/no) in past 6 months, employment status (paid job, full or part time vs. no paid job), receipt of illegal income in past 6 months (yes/no), education level (high school education or more vs. less than high school education), born in the US (yes/no), and lifetime history of incarceration (yes/no). In addition, we assessed acculturation, using items from the Welfare Reform Baseline Interview as adapted by Marin et al. [17].

Substance use factors assessed included lifetime and past 6 month alcohol and drug use, including *any* use of cocaine and other stimulants (e.g., crack, speed, etc.), use of heroin and other depressants *only* (e.g., methadone, vicodin, etc.), hallucinogen use *only* and marijuana use *only*. We also evaluated heroin, crack and cocaine dependence using items from The National Household Survey on Drug Abuse, designed to measure dependence using DSM-IV criteria [18]. Partner and relationship factors evaluated included partner's age, length of relationship, perceived partner HIV and STI status ("Since you have been together, do you think __ has had an STD" and "What is the HIV status of ___?"), perception of partner's sexual fidelity ("Since you've been together, do you think ___ has been having sex with other people besides you?"), partner's desire for a pregnancy ("Since you've been together, has *your partner* wanted to have a baby with you?") and relationship decision making dominance. This last construct was measured using 5 items from the relationship decision making dominance sub-scale of Pulerwitz' Relationship Power Scale [19]; items specific to decision making power around condom use were omitted (α = .776). A higher score indicates greater decision making dominance.

Finally, we assessed condom use-specific and HIV-related factors including respondent HIV status, condom use outcome expectancies, condom use self-efficacy and relationship control (with items specific to condom use). Condom use outcome expectancies were measured using a 7-item scale which assessed anticipated partner reactions (e.g., one's partner would be mad, supportive, distrustful, etc.) in response to requests for condom use; a 5-point response scale (strongly agree to strongly disagree) was used and a higher score indicates

more positive anticipated partner reactions related to condom use requests (α = 0.831) [19]. Condom use self-efficacy was measured using 4 items adapted from a scale that taps the ability to use a condom [20]; items included: I can use a condom even if "you lose arousal/erection," "you or your partner have not used them before," "you are very turned on," or "you are high on alcohol or drugs." Responses were assessed using a 4 item scale (absolutely sure I cannot to absolutely sure I can) and a higher score indicates greater feelings of self-efficacy to overcome barriers to condom use (α = 0.910). Relationship control was measured using the Relationship Control subscale of the Pulerwitz' Relationship Power Scale, a 15-item scale with several items specific to condom use in sexual activities, which is why it was grouped analytically with condom use related factors; responses were assessed using a 4-point scale (strongly agree to strongly disagree) with a higher score indicating greater relationship control (α = 0.863) [19].

Analysis

Univariate statistics were generated for descriptive purposes and to assess the extent of moderate and severe IPV perpetration among respondents. Associations between independent variables and the outcome were calculated using chi-square and *t*-tests, as applicable. Logistic regression models were built; modeling was performed by adding variables significant at $P < 0.10$ to the equation in conceptually related sets, starting first with sociodemographic, substance use, partner and relationship, and condom use and related HIV factors. Several of the condom use-related factors were associated with other covariates, such as HIV status and partner's pregnancy desire. Using linear regression models, variance inflation factors (VIF) were calculated for all regressors in the models to assess problems with multicollinearity [21]. No VIFs exceeded 10, the generally accepted cut point for problems with multicollinearity among independent variables. We used the −2 log likelihood value and the Deviance statistic to guide modeling decisions. We obtained the model of best fit by first obtaining a final set for each set of variables and then considered whether each successive set of variables improved the fit.

Results

Sociodemographic Characteristics of the Sample

The average age of the men in the sample was 38.2 (SD = 11.0) and the majority of men in the sample were African–American (48%) or Latino (43%). Over three quarters (78%) were born in the US. The sample was generally very low income, with approximately three quarters earning less than $5,000 per year and approximately 71% reporting current receipt of public assistance. Over half possessed a high school degree or the equivalent and less than a quarter were employed in paid or salaried, full-time positions. Over 90% reported a lifetime history of incarceration (Table 1). The average age of the main partner was 35.8 (SD = 10.3) and the average length of the relationship was 6.0 years (SD = 7.4). Sixty-three percent of relationships were of 5 years or less (Table 2).

Univariate and Bivariate Results

Consistent condom use with a main female partner was infrequent, with less than a third of the sample reporting condom use during each and every sex act in the past month. Over 40%

of men reported perpetrating moderate or severe physical IPV against their main female partner in the past year. Bivariate analyses (Table 2) revealed that men who engaged in consistent condom use with their main female partners were less likely to perpetrate IPV against them than were men who did not use condoms consistently (24% vs. 34%; $\chi^2(1, N = 518) = 5.68, P < .017$).

Consistent condom use was also associated with several sociodemographic factors; men who reported consistent condom use tended to be the youngest and oldest men in the sample, as compared with men in the middle of the age range (aged 26–45) who were less likely to report consistent condom use (43%, 52% vs. 25%; $\chi^2(4, N = 518) = 21.17, P < .001$). Men who reported consistent condom use were more often Black men (56% vs. 45%; $\chi^2(2, N = 518) = 6.34, P = .042$) and did not report receipt of illegal income (67% vs. 49%; $\chi^2(1, N = 518) = 13.12, P < .001$) (Table 1). Men who reported consistent condom use with a main female partner were less likely to report lifetime heroin dependence (26% vs. 34%; $\chi^2(1, N = 518) = 3.58, P = .058$) and lifetime and current use of any cocaine or other stimulants (51% vs. 61%; $\chi^2(1, N = 518) = 4.97, P = .026$); men who reported consistent condom use were more likely to report current use of marijuana only (19% vs. 9%; $\chi^2(1, N = 518) = 10.21, P = .001$). Men who used condoms consistently with their main female partners were more likely to be HIV-positive (8% vs. 2%; $\chi^2(1, N = 518) = 12.32, P < .001$) and to not report that their partners desired a pregnancy (51% vs. 28%; $\chi^2(1, N = 518) = 25.82, P < .001$). Finally, men who used condoms consistently were more likely to report more positive condom use outcome expectancies (78% vs. 33%; $\chi^2(1, N = 514) = 90.31, P < .001$), greater condom use self-efficacy (84% vs. 49%; $\chi^2(1, N = 516) = 55.16, P < .001$), and greater condom use decision making (61% vs. 46%; $\chi^2(1, N = 513) = 10.37, P = .001$) (Table 2).

Multivariate Results

In multivariate analyses, we entered factors in conceptually related sets into the model; Table 3 displays the final model. The baseline model included the total association between IPV perpetration and consistent condom use. The second model includes those sociodemographic factors found to be associated with consistent condom use in bivariate analyses (see Table 2) *and* that remained significant when entered as a block (age and receipt of illegal income); the third model includes the drug use factors and the fourth the HIV-related factors. In the fifth model we present the condom use-related factors; the sixth and final model, and the one presented, is the best fit model and includes IPV perpetration, HIV status, partner desire for pregnancy, and three condom use-related factors: negative outcome expectancies, condom use self-efficacy and relationship control.

In the final adjusted model, men who perpetrated violence against their main female partners were approximately 50% less likely to use condoms consistently with these main female partners (AOR .49; 95% CI 0.27, 0.86), while controlling for age, partner pregnancy desire, condom use outcome expectancies, condom use self-efficacy and HIV status, all factors found to be associated with consistent condom use in bivariate analyses. As compared with the youngest men, men aged 26–45 were less likely to report consistent condom use (AOR = 0.33; 95% CI 0.15, 0.71, among men aged 26–35; AOR = 0.46; 95% CI 0.23, 0.92, among men aged 36–45). As expected, several HIV-, pregnancy- and condom use-related factors

were also important to consistent condom use. Controlling for age and IPV use, men who were HIV-positive were almost 8 times more likely to report consistent condom use (AOR = 7.78; 95% CI 2.59, 23.37); similarly, men who reported that their partners desired a pregnancy were approximately 60% less likely to report consistent condom use with those female partners (AOR = 0.42; 95% CI 0.25, 0.68). Men who anticipated positive outcomes related to condom use were 4½ times more likely to use condoms consistently (AOR = 4.45; 95% CI 2.09, 6.82); men who reported feeling confident in their ability to use condoms were over twice as likely to use them consistently with their main female partners (AOR = 2.09; 95% CI 1.51, 2.90). Finally, men who reported greater relationship control were about half as likely to report using condoms consistently (AOR = 0.48; 95% CI 0.25, 0.92) (Table 3).

Discussion and Conclusions

This analysis revealed that IPV perpetration is prevalent among the men sampled in this study and represents an independent risk factor for a key sexual HIV risk behavior, inconsistent condom use. Thus, men who perpetrate IPV are significantly less likely to report using condoms consistently with their main female partners, even when HIV status, pregnancy desire and condom use-related factors are controlled. This result is important because it is one of the only studies that we are aware of that simultaneously assesses the roles of IPV perpetration and HIV-related factors that have been shown to be strongly associated with consistent condom use. Previous evaluations of the role of IPV in sexual risk have not adequately controlled for these important covariates, thus the field has not established whether the association between IPV perpetration was confounded by these factors or represented an independent association. These results support the latter conclusion.

Before discussing the potential import of these findings, some limitations of the study should be discussed. First, the sampling plan, designed to achieve a large sample of distinct drug-using and non drug-using sub-populations, was not representative of the general neighborhood population, but reflected a higher risk group with a large proportion of current and/or former (approximately 80%) drug users. Thus the prevalence of IPV and sexual risk behavior may have been overrepresented, as such behaviors tend to cluster. However, our results are generally consistent with previous samples of drug using men [4, 5]. Although lifetime and current drug use factors were not retained in multivariate models, the high prevalence of lifetime drug use may have diminished our ability to capture the relationship between drug use, IPV perpetration and consistent condom use; further, we did not measure incident-specific drug and alcohol use. The IMPACT interviews are face-to-face, thus the issue of social desirability is a concern. However, we do not believe that socially desirable responding on either the main independent or dependent variables would be systematic resulting our having found an association where none existed. Another limitation is that we were unable to assess the temporal relationship between IPV perpetration and consistent condom use, as the measure of IPV tapped only the past year, whereas the condom use measure evaluated the past month only. As with much research, there may be important covariates that we were unable to assess, for example peer and partner norms around condom use, although we did assess outcome expectancies specific to the main partner.

Finally, as with all cross-sectional research, we cannot infer causation from these associations.

Although this study found that IPV perpetration was associated with reduced likelihood of consistent condom use, the estimate of association was smaller than self-reported HIV status and the condom use-related factors assessed. This is important information to have as we design and test HIV prevention interventions and intervention to prevent partner violence. These findings lend support to the focus of existing behavioral interventions on encouraging HIV testing (and subsequent status knowledge) and promoting facilitators of condom use, such as positive outcome expectancies and increased self-efficacy to use condoms. Previous research has also found that some of the most important correlates of consistent condom use are HIV status of both partners and condom use-related factors. In our results, self-reported (positive) HIV status was associated with nearly an 8 times greater likelihood of using condoms consistently, once again reinforcing the utility of HIV testing as a prevention method.

The association between HIV-positive status and consistent condom use among this high risk group of men is very important and suggests that the current prevention focus on HIV testing is well-placed. Knowledge of HIV status is strongly associated with reduced HIV risk behavior [22, 29–31], which is why testing is central to local and national prevention efforts. This paper offers added evidence that relative to other psychosocial factors, HIV-positive status is strongly correlated with consistent condom use among this group of men. Further research into barriers to rapid testing and reducing the proportion of people who test but do not return for results is needed, as well as evaluations of programs that support individuals who test positive earlier and with less preparation than previously. In addition, research using mathematical and predictive models to tell us how many people need to be tested to achieve what level of change in sexual risk behavior would be very useful for further practical planning purposes. Testing must continue to be prioritized as an outcome of HIV prevention interventions for heterosexual men, as it is so strongly associated with consistent condom use.

In addition to HIV status, barriers to condom use were important correlates of consistent condom use, with outcome expectancies showing a particularly strong association with consistent condom use. Research into barriers to condom use reveal that expectations that a partner will react negatively to condom use has been found in previous research to be associated with reduced condom use [19, 22, 23]. Some items on these measures capture what has been called the symbolic meaning of condom use—that is that condoms symbolize infidelity and distrust, and that attempting to use them results in suspicion and anger [19, 24–28]. Also consistent with previous research [19, 29–31], self-efficacy to use condoms is an important factor in whether they are used consistently. Finally, interference with sexual pleasure is often reported by men [32] and concerns about sexual performance have also been identified as barriers to condom use among men [33, 34].

Our results support previous reviews of factors associated with sexual HIV risk behaviors among heterosexuals that reveal that the psychosocial factors most strongly associated with condom use include positive intention to use condoms, and condom use self-efficacy [22].

And, consistent with other research, young age is associated with consistent condom use, reinforcing the possibility that older men may believe that their age confers some protection from risk associated most strongly with youth [35, 36]. The finding that key relationship factors were associated with consistent condom use also merits discussion. When a female partner reportedly desires pregnancy, men were less likely to report consistent condom use; thus, integrating discussion of pregnancy planning and family size are important potential components to HIV prevention interventions for heterosexual men. Additionally, men who exercised more relationship control were also less likely to report consistent condom use, reinforcing the notion that more egalitarian relationships offer supportive contexts for consistent condom use [34].

In sum, the results of this paper highlight the need to integrate a range of interpersonal and relationship-level factors into HIV prevention programming. It adds significantly to this literature by identifying among this sample of mostly drug-involved men the relative impact of IPV on consistent condom use. IPV perpetration is significantly and independently associated with consistent condom use and must be systematically and consistently integrated into HIV prevention programming for men who have sex with women. While we should continue to focus on individual-level condom use-related factors, such as outcome expectancies and self-efficacy, integrating the issues of partner violence and gendered power dynamics is crucial as well. Finally, the results suggest that prevention programs of both HIV/AIDS and partner violence must begin to integrate prevention messages and content on both issues in order to enhance behavior change among individuals affected by partner violence and at risk for HIV.

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Table 1

Sociodemographic characteristics and consistent condom use among heterosexual men: IMPACT study, 2005–2007

	All		Consistent condom use (<100% vs. 100%)				χ^2	*P*-value
			No		Yes			
	n	%	*n*	%	*n*	%		
Total sample	518	100	354	68.3	164	31.7		
Sociodemographics								
Age mean (SD)	38.2 (11.0)		37.7 (10.2)		39.2 (12.5)		1.29	0.197
Age (categorical)							21.17	0.000
18–25 years	86	16.6	49	13.8	37	22.6		
26–35 years	111	21.4	90	25.4	21	12.8		
36–45 years	187	36.1	135	38.1	52	31.7		
46–55 years	111	21.4	69	19.5	42	25.6		
56+ years	23	4.4	11	3.1	12	7.3		
Racial/ethnic background							6.34	0.042
Hispanic	208	40.2	155	43.8	53	32.3		
Black	250	48.3	159	44.9	91	55.5		
White/other	60	11.6	40	11.3	20	12.2		
High school degree/equivalent							0.70	0.404
No	235	45.4	165	46.6	70	42.7		
Yes	283	54.6	189	53.4	94	57.3		
Income greater than 5 K per year							1.62	0.204
No	394	76.1	275	77.7	119	72.6		
Yes	124	23.9	79	22.3	45	27.4		
Employed full time in salaried/paid position							0.0002	0.990
No	395	76.3	270	76.3	125	76.2		
Yes	123	23.7	84	23.7	39	23.8		
Report illegal income							13.12	0.000
No	284	54.8	175	49.4	109	66.5		
Yes	234	45.2	179	50.6	55	33.5		

	All		Consistent condom use (<100% vs. 100%)				χ^2	*P*-value
			No		Yes			
	n	%	*n*	%	*n*	%		
Received public assistance							0.05	0.816
No	152	29.3	105	29.7	47	28.7		
Yes	366	70.7	249	70.3	117	71.3		
Lifetime incarceration							0.35	0.557
No	45	8.7	29	8.2	16	9.8		
Yes	473	91.3	325	91.8	148	90.2		
Born in United States							3.06	0.080
No	116	22.4	87	24.6	29	17.7		
Yes	402	77.6	267	75.4	135	82.3		
Self-reported HIV status							12.32	0.001
Yes								
No								
Unknown								

Table 2

Partner violence, drug use, partner and relationship and condom use-related characteristics among heterosexual men: IMPACT study, 2005–2007

	All		Consistent condom use (<100% vs. 100%)				χ^2	*P*-value
			No		Yes			
	n	%	*n*	%	*n*	%		
All	518	100	354	68.3	164	31.7		
Partner violence								
Moderate physical partner violence							4.61	0.032
No	372	71.8	244	68.9	128	78.0		
Yes	146	28.2	110	31.1	36	22.0		
Severe physical partner violence							3.67	0.055
No	438	84.6	292	82.5	146	89.0		
Yes	80	15.4	62	17.5	18	11.0		
Moderate and/or severe partner violence							5.68	0.017
No	358	69.1	233	65.8	125	76.2		
Yes	160	30.9	121	34.2	39	23.8		
Sexual partner violence							0.001	0.970
No	493	95.2	337	95.2	156	95.1		
Yes	25	4.8	17	4.8	8	4.9		
Drug and alcohol use								
Lifetime heroin dependence							3.58	0.058
No	356	68.7	234	66.1	122	74.4		
Yes	162	31.3	120	33.9	42	25.6		
Lifetime crack dependence							0.16	0.688
No	373	72	253	71.5	120	73.2		
Yes	145	28	101	28.5	44	26.8		
Lifetime cocaine dependence							2.56	0.109
No	341	65.8	225	63.6	116	70.7		
Yes	177	34.2	129	36.4	48	29.3		
Lifetime use of any stimulants							9.32	0.002

	All		Consistent condom use (<100% vs. 100%)				χ^2	*P*-value
			No		Yes			
	n	%	*n*	%	*n*	%		
No	88	17	48	13.6	40	24.4		
Yes	430	83	306	86.4	124	75.6		
Lifetime use of only depressants							0.08	0.774
No	514	99.2	351	99.2	163	99.4		
Yes	4	0.8	3	0.8	1	0.6		
Lifetime use of only hallucinogens							0.46	0.496
No	517	99.8	353	99.7	164	100.0		
Yes	1	0.2	1	0.3	0	0.0		
Lifetime use of only marijuana							10.21	0.001
No	445	85.9	316	89.3	129	78.7		
Yes	73	14.1	38	10.7	35	21.3		
Lifetime alcohol use							1.95	0.162
No	26	5	21	5.9	5	3.0		
Yes	492	95	333	94.1	159	97.0		
Last 6 month use of stimulants							0.50	0.026
No	219	42.3	138	39.0	81	49.4		
Yes	299	57.7	216	61.0	83	50.6		
Last 6 months use of only depressants							0.31	0.576
No	516	99.6	353	99.7	163	99.4		
Yes	2	0.4	1	0.3	1	0.6		
Last 6 months use of only hallucinogens								–
No	518	100	354	100.0	164	100.0		
Last 6 months use of only marijuana							10.21	0.001
No	455	87.8	322	91.0	133	81.1		
Yes	63	12.2	32	9.0	31	18.9		
No use of alcohol last 12 months							0	0.995
No	420	81.1	287	81.1	133	81.1		
Yes	98	18.9	67	18.9	31	18.9		

AIDS Behav. Author manuscript; available in PMC 2015 May 07.

	All		Consistent condom use (<100% vs. 100%)				χ^2	*P*-value
			No		Yes			
	n	%	*n*	%	*n*	%		
Less than daily use of alcohol last 12 months							0.34	0.560
No	199	38.4	139	39.3	60	36.6		
Yes	319	61.6	215	60.7	104	63.4		
Daily use of alcohol last 12 months							0.50	0.478
No	417	80.5	282	79.7	135	82.3		
Yes	101	19.5	72	20.3	29	17.7		
Partner and relationship factors								
Main partner age	35.8	10.3	36.1	10.0	35.3	11.0	0.73	0.467
Length of relationship	6.0	7.4	5.3	7.0	1.2	7.4	1.77	0.078
Partner pregnancy desire							25.82	<.0001
No	184	35.5	100	28.2	84	45.7		
Yes	334	64.5	254		80	4.0		
Think partner has STD since together?	327						0.10	0.756
No	497	95.9	339	95.8	158	96.3		
Yes	21	4.1	15	4.2	6	3.7		
Perceived partner HIV status							12.32	0.000
Negative	499	96.3	348	98.3	151	92.1		
Positive	19	3.7	6	1.7	13	7.9		
Think partner has had sex with others?							2.75	0.098
No	408	78.8	286	80.8	122	74.4		
Yes	110	21.2	68	19.2	42	25.6		
Condom use-related factors								
Condom use outcome expectancies[a]	3.47	0.85	3.20	0.80	4.04	0.60	90.31	<0.001
Condom use self-efficacy[a]	2.83	0.98	2.62	0.90	3.28	0.70	55.16	<0.001
Relationship control (condom use decision making)[a]	1.03	0.35	1.0	0.40	1.10	0.30	10.37	0.070

[a]Mean and SD displayed

Table 3

Multivariate associations among partner violence perpetration, sociodemographic, relationship and condom use-related factors and consistent condom use among heterosexual men: IMPACT study, 2005–2007

Variable	Adjusted OR (95% CI)
Moderate/severe partner violence	0.49 (0.27, 0.86)*
Age	
Age 26–35 years versus 18–25 years	0.33 (0.15, 0.71)*
Age 36–45 years versus 18–25 years	0.46 (0.23, 0.92)*
Age 46+ years versus 18–25 years	0.70 (0.34, 1.45)
HIV-positive status	7.78 (2.59, 23.37)**
Partner pregnancy desire	0.42 (0.25, 0.68)*
Relationship control (condom use decision making)	0.48 (0.25, 0.92)*
Condom use outcome expectancies	4.45 (2.90, 6.82)**
Condom use self-efficacy	2.09 (1.51, 2.90)**

* $P < .05$;

** $P < .01$