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Preexposure Prophylaxis and Predicted Condom Use Among High-Risk Men Who Have Sex With Men

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Abstract

Objectives—Preexposure prophylaxis (PREP) is an emerging HIV prevention strategy; however, many fear it may lead to neglect of traditional risk reduction practices through behavioral disinhibition or risk compensation.

Methods—Participants were 180 HIV-negative high-risk men who have sex with men recruited in New York City, who completed an Audio Computer Assisted Self Interview-administered survey between September 2007 and July 2009. Bivariate and multivariate logistic regression models were used to predict intention to use PREP and perceptions that PREP would decrease condom use.

Results—Almost 70% (n = 124) of participants reported that they would be likely to use PREP if it were at least 80% effective in preventing HIV. Of those who would use PREP, over 35% reported that they would be likely to decrease condom use while on PREP. In multivariate analyses, arousal/pleasure barriers to condom use significantly predicted likelihood of PREP use (odds ratio = 1.71, $P < 0.05$) and risk perception motivations for condom use significantly predicted decreased condom use on PREP (odds ratio = 2.48, $P < 0.05$).

Discussion—These data provide support for both behavioral disinhibition and risk compensation models and underscore the importance of developing behavioral interventions to accompany any wide-scale provision of PREP to high-risk populations.

Keywords

HIV/AIDS; MSM; preexposure prophylaxis; condom use; behavioral disinhibition; risk compensation

INTRODUCTION

Preexposure prophylaxis (PREP) represents a new biomedical approach to HIV prevention with the potential to become a powerful tool within the HIV prevention arsenal. Research on perinatal transmission and postexposure anti-retroviral treatment[1–4] and data from animal models,[5–7] suggests that daily administration of antiretroviral therapy can significantly

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reduce or delay the risk of HIV infection. Preliminary results from a randomized controlled trial of PREP among humans[8] provided data on safety of PREP use but did not have sufficient power to conduct planned efficacy analyses. At present, clinical trials of PREP are underway in 13 countries and the Centers for Disease Control and Prevention has called PREP "one of the most important new prevention approaches being investigated today."[9]

Although there is optimism about PREP as a prevention strategy, many worry that the availability of PREP may encourage reliance on "chemical prevention" in place of traditional risk reduction strategies such as condom use or reducing numbers of sexual partners.[10] Some warn that such increases in high-risk behavior may actually undermine the potential benefits of PREP in reducing transmission rates.[11] There are 2 widely accepted models that describe mechanisms through which PREP might increase risk taking. The first model, Behavioral Disinhibition, argues that PREP availability will increase risk taking by reducing self-imposed constraints on high-risk behavior.[10] Behavioral Disinhibition focuses on affective and pleasure-driven aspects of risk taking and argues that individuals who desire condomless sex will view PREP as a substitute for exercising behavioral control.[12] Behavioral Disinhibition is particularly relevant in the context of substance use, as substance use itself is often associated with disinhibitory effects that may lead to increased sexual risk taking.[12] The second model, Risk Compensation, suggests that PREP availability will decrease condom use by decreasing individuals' perceptions of transmission risk.[11] Risk Compensation focuses on the cognitive aspects of risky decision making and argues that individuals who base decisions about condom use on the perceived risk of a given encounter will view unprotected sex as an acceptable risk in the context of PREP.[13]

Cost-effectiveness models of PREP impact have considered these factors and included behavioral impacts that might decrease its effectiveness, including reduced condom use and increased number of sexual partners. These models demonstrate significant reductions in infection risk with adoption of PREP but conclude that the positive impact of PREP may be offset by even modest increases in risk behavior.[14–17] Little evidence is available regarding the actual impact of PREP on risk taking. In 1 randomized controlled trial of women in Ghana,[18] PREP use did not increase risk behavior and subanalyses indicated that women characterized as "riskiest" at baseline showed improvement in risk management strategies such as refraining from anal sex or increasing condom use. Similarly, studies of sexual behavior after postexposure prophylaxis have not demonstrated increases in unprotected sex.[3,19] However, increases in risk behavior have been documented in the context of vaccine[20] and microbicide trials,[21,22] and among HIV-positive patients those who believe that highly active antiretroviral therapy (HAART) protects against HIV transmission.[23] If PREP is to be introduced as a prevention strategy, a better understanding of its implications for condom use and other risk reduction practices is critical, especially among populations at highest risk for infection.

Although much is known about the determinants and dynamics of high-risk sexual behavior in general, few investigations have examined factors relating to the reciprocal effects of combining biomedical and behavioral approaches to HIV prevention. The development of effective programs to provide PREP and support PREP users in maintaining risk reduction will require new knowledge production in 2 main areas. First, we must understand present awareness and attitudes toward PREP among high-risk populations, including perceptions of how it relates to traditional risk reduction efforts. Second, we must understand the psychosocial and behavioral factors that may enhance (or reduce) motivation for and maintenance of risk reduction practices in the context of ongoing PREP use. With 3 Centers for Disease Control and Prevention–sponsored studies of PREP's safety, tolerance, and effectiveness set to complete in 2010,[24] we are currently at a critical moment at which to assess dynamics that might impact risk reduction behaviors so that we can develop

empirically based interventions to support them. The present study was designed to examine demographic, behavioral, and psychosocial correlates of PREP acceptability and predicted condom use in the context of PREP among high-risk men who have sex with men (MSM).

METHODS

Participants and Procedures

This article presents baseline data collected from MSM recruited in New York City for a randomized controlled trial testing the efficacy of a brief intervention designed to reduce substance use and sexual risk behavior. Between September 2007 and July 2009, 180 participants completed a quantitative survey. To be eligible, participants had to be men, at least 18 years of age, self-report a negative or unknown HIV serostatus, and report at least 5 instances of substance use (including cocaine, methamphetamine, gamma hydroxybutyrate, ecstasy, ketamine, or poppers) and at least 1 incident of unprotected anal intercourse with a casual or serodiscordant main male partner in the last 3 months. Men completed baseline assessments consisting of psychosocial measures via ACASI and an interviewer-administered timeline followback of recent (30-day) substance use and sexual behavior, as described more fully below. The Hunter College Institutional Review Board approved all procedures and measures in the study.

Men were recruited and screened actively at local bars and clubs catering to gay men or passively via recruitment cards and tear-off flyers. Potential participants were then screened over the phone, provided additional information about the study, and scheduled for a baseline assessment. Study visits took place at the Center for HIV Educational Studies and Training in New York City. Participants were compensated $40 for a 2-hour visit.

Measures

PREP Intentions and Impact on Condom Use—Participants were provided with a brief description of PREP and asked, “Suppose that PREP is at least 80% effective in preventing HIV, How likely would you be to take PREP, if it were available for free?” Participants were asked to report their intention on a 5-point scale: 1 (*I would definitely take it*) to 5 (*I would definitely not take it*). To provide a conservative estimate of PREP intentions, data were dichotomized into “likely to use PREP” (score of 1 or 2) and “not likely to use PREP” (3 or higher). Participants were then asked, “If you began taking PREP, do you think it would affect how likely you would be to use condoms?” Participants were asked to rate the impact of condom use on a 5-point scale: 1 (*taking PREP would make me significantly more likely to use condoms*) to 5 (*taking PREP would make me significantly less likely to use condoms*). Again, data were dichotomized into “likely to decrease condom use on PREP” (score of 4 or 5) and “not likely to decrease condom use on PREP” (3 or lower).

Sexual and Substance Use Behavior—The timeline followback[25] semistructured interview was used to collect information about sexual risk and substance use in the preceding month. Using a calendar, interviewers asked participants to report the type of sexual activity (anal or oral intercourse; protected or unprotected) by partner type (main or casual) on each day of the preceding 1-month period. High-risk sex was defined as unprotected anal intercourse with a casual partner or with an HIV-positive or status-unknown main partner. For each sexual behavior, participants also reported whether they were sober or under the influence of drugs. Participants also reported days of drug use when sexual activity did not occur. Because of skewness in behavioral measures, both sexual behavior and substance use acts were trichotomized based on percentiles (25/75) to reflect meaningful differences in behavior patterns across the sample. Substance dependence was

assessed using the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders (DSM) Disorders Substance Abuse Module,[26] modified to assess present dependence within the last year for the 5 drugs of interest in the study (cocaine, methamphetamine, ecstasy, ketamine, and gamma hydroxybutyrate).

Psychosocial Determinants of Condom Use

The Sexual Expectancies of Substance Use Scale: (Kuder-Richardson 20 coefficient = 0.86) was used to assess beliefs regarding the impact of substance use on sexual thoughts, feelings, and behaviors.[27] The scale consists of 11 yes or no items, such as "My sexual pleasure is enhanced by the use of club drugs" and "I am more likely to have sex when using club drugs." Higher scores indicate higher sexual expectancies associated with substance use.

The Arousal Barriers to Condom Use Scale: (Cronbach alpha = 0.86) was used to assess the extent to which sexual pleasure or arousal is perceived to inhibit condom use. The scale consists of 7 items, such as "Sex feels better without a condom," and "I am tempted to have unprotected sex when I am very sexually aroused." Participants rate each item on a 5-point Likert scale, with higher scores indicating stronger endorsement of arousal-related barriers to condom use. We used the arousal barriers to condom use scale to identify MSM who might be most vulnerable to Behavioral Disinhibition on PREP because their negative attitudes toward condoms would motivate them to perceive PREP as a prevention alternative.

The Risk Perception Motivations for Condom Use Scale: (Cronbach alpha = 0.67) was used to assess the extent to which risk perceptions directly impact condom use. The scale consists of 7 items, such as "Condoms reduce HIV risk" and "I am tempted to have unprotected sex when I think the risk for HIV is low." Participants rate each item on a 5-point Likert scale, with higher scores indicating stronger endorsement of risk perception motivations for condom use. We used the risk perception motivations to identify MSM who might be most vulnerable to Risk Compensation because their condom use is motivated by a risk calculus that would be shifted in the context of PREP.

Data Analysis

All data were analyzed with SPSS version 16.0. Pearson χ^2 tests were conducted to examine associations between PREP use intentions or the impact of PREP on condom use and demographic variables, sexual behavior, and substance use. Independent samples *t* tests were conducted to examine the associations between PREP use intentions or the impact of PREP on condom use and continuous psychosocial predictors of condom use. Multivariate logistic regression was then performed to identify the best predictors of these 2 primary dichotomous outcome measures: intention to use PREP and perception that PREP would decrease condom use. The goal of these analyses was to identify a set of predictors for both outcomes that satisfied both parsimony and goodness of fit. Consistent with procedures outlined by Hosmer and Leme-show,[28] variables with *P* values less than 0.25 in bivariate testing were entered into the multivariate logistic model. Due to our multiple indicators of sexual risk (eg, number of sex acts, number of high-risk acts, number of high-risk acts under the influence), multicollinearity among these variables was assessed, with intercorrelation above 0.80 considered to be problematic. When multicollinearity was present, the variable thought to be most theoretically important in the analysis was retained and the others were dropped. Using a backward stepwise procedure, predictors with adjusted *P* values greater than 0.20 were removed from the final model. The Hosmer–Lemeshow goodness of fit test was used to assess model fit. Both unadjusted odds ratios (ORs) and adjusted ORs from the final multivariate model are presented below.

RESULTS

Demographics

Participant demographics are presented in Table 1, stratified by likelihood of PREP use. Participants ranged in age from 18 to 49 years (mean = 29.4, SD = 7.0), with 21.1% identifying as black or African American, 28.3% Hispanic/Latino, 40.6% white, and 1% multiracial. Forty percent of the sample reported an annual income of under $20,000 per year, and over half the sample (57.8%) had less than a college education.

Substance Use and Sexual Risk

Almost half the sample (48.9%) met criteria for substance dependence on 1 or more of the 5 club drugs. This high percentage is likely due to eligibility criteria of the study from which these data were drawn, which included at least 5 instances of club drug use in the past 90 days. Number of drug use days in the past 30 days ranged from 0 to 30 (median = 6, interquartile range [IQR]: 3–12). In Table 1, patterns of drug use are trichotomized to better reflect meaningful distributions in the sample. One-third of the sample (33.9%, n = 61) reported 10 or more drug use days in the past 30 days. Participants reported a range of 1 to 515 anal sex acts in the past 30 days (median = 7, IQR = 3–12). The top tertile of participants (n = 47) reported 12 or more anal sex acts in the past 30 days. The number of high-risk sex acts ranged from 0 to 515 (median = 3, IQR: 1.0–6.75). The top tertile of participants (29.4%, n = 53) reported 6 or more high-risk sex acts in the past 30 days. Finally, the number of high-risk sex acts under the influence of club drugs ranged from 0 to 515 (median = 2, IQR = 0–5). The top tertile of participants (n = 47) reported 5 or more high-risk acts under the influence of club drugs in the past 30 days.

PREP Knowledge And Experience

Only 23.2% (n = 42) of participants reported that they had ever heard of PREP. Over 50% (n = 22) of these participants had read about PREP in newspapers or magazines, 6.7% had heard about it on the TV or radio, and 2.3% had heard about it through a health care professional or HIV service agency. Three participants (1.7%) reported having used PREP. Two of these participants reported getting PREP for free from a friend (one reported getting PREP from an HIV-positive friend, and one reported getting PREP from an HIV-negative friend). The third participant reported buying PREP for $50 from someone whom he did not know. All 3 participants reported being in a private home when they took PREP, and all 3 reported having unprotected anal sex after taking PREP. Two participants reported that they were motivated to take PREP to have sex with a status-unknown partner, and the third reported that he took PREP specifically to have sex with an HIV-positive partner.

Predictors Of Likelihood Of Future Prep Use

Assuming that PREP was at least 80% effective in prevention of HIV transmission, 68.5% (n = 124) of participants reported that they would be likely to use PREP if it were to become available. Analyses of demographic, behavioral, and psychological correlates of predicted PREP use are presented in Table 1. Participants who said they would be likely to use PREP did not differ from those who would not on age, education, or income. In bivariate analyses, black participants were more likely than white participants to say they would use PREP (OR = 2.47, 95% confidence interval [CI]: 1.00 to 6.14). Likelihood of PREP use did not differ by substance dependence or recent drug use. Participants who reported 6 or more high-risk sex acts were more likely to indicate that they would use PREP (OR = 2.71, 95% CI: 1.15 to 6.40) compared with their lower risk counterparts. Similarly, likelihood of PREP use was also associated with reporting at least 1 high-risk sex act while drunk or high in the past 30 days. In terms of psychological factors, participants who reported being likely to use PREP

had significantly higher scores on sexual expectancies associated with substance use compared with those who said they were not likely to use PREP (OR = 1.14, 95% CI: 1.03 to 1.25). Participants who reported being likely to use PREP also scored higher on both arousal barriers (OR = 1.85, 95% CI: 1.24 to 2.75) and risk perception motivations for condom use (OR = 1.76, 95% CI: 1.08 to 2.87).

Multivariate logistic regression analysis was conducted to examine the association between the set of significant bivariate predictors and reported likelihood of future PREP use. The model demonstrated adequate goodness of fit, Hosmer and Lemeshow $\chi^2_8 = 10.82$, $P = 0.21$, and accounted for 15% of the variance, $\chi^2_5 = 20.26$, $P < 0.01$. Arousal barriers to condom use emerged as the only significant independent predictor of likelihood of using PREP, such that greater endorsement of sexual arousal as a barrier to condom use was associated with increased likelihood using PREP if it were to become available.

Predictors Of Decreased Condom Use With Prep

Table 2 presents data on perceptions of the impact of PREP on condom use among participants who reported being likely to use PREP (n = 124). Overall, 35.5% of these participants (n = 44) reported that they would be likely to decrease their condom use while on PREP. Participants who said that PREP would decrease their condom use did not differ from those who said it would not decrease their condom use on age or race. Participants who reported that PREP would reduce their condom use were more likely to have a college degree (OR = 2.56, 95% CI: 1.19 to 5.47) and report being in the highest income bracket (OR = 3.03, 95% CI: 1.15 to 8.04). There were no significant behavioral differences (ie, number of drug use days, frequency of high-risk sexual behavior) between those who reported that PREP would decrease their condom use compared with those who reported that it would not. Individuals who reported that PREP would decrease their condom use were significantly less likely to meet criteria for substance dependence (OR = 0.37, 95% CI: .17 to 0.80). Participants who reported that PREP would decrease their condom use scored higher on both arousal barriers (OR = 1.76, 95% CI: 1.10 to 2.82) and risk perception motivations for condom use (OR = 2.48, 95% CI: 1.34 to 4.62).

Multivariate logistic regression analysis was conducted to examine the association between the set of significant bivariate predictors and reported likelihood of decreased condom use on PREP. The model demonstrated adequate goodness of fit (Hosmer and Lemeshow $\chi^2_8 = 10.18$, $P = 0.25$) and accounted for 29% of the variance, $\chi^2_5 = 28.23$, $P < 0.001$. Three significant independent predictors emerged from the final model. Individuals who reported that PREP would decrease their condom use were significantly less likely to meet criteria for substance dependence (OR = .23, 95% CI: 0.09 to 0.63). Controlling for other variables in the model, individuals with greater sexual expectancies associated with substance use were more likely to report that PREP would decrease their condom use (OR = 1.24, 95% CI: 1.05 to 1.45). Higher scores on risk perception motivations for condom use were also associated with decreased condom use on PREP (OR = 2.30, 95% CI: 1.15 to 4.6).

DISCUSSION

Almost 70% of the high-risk MSM in this sample reported that they would be likely to use PREP if it were at least 80% effective in preventing HIV. Compared with those who reported that they would not be likely to use PREP, participants who would use PREP were more likely to be black and reported a higher number of high-risk sex acts in the past month. Participants who were likely to use PREP also scored higher on sexual expectancies of substance use, arousal barriers to condom use, and risk perception motivations for condom use. In a multivariate model, only arousal barriers to condom use emerged as a significant predictor of participants' likelihood of using PREP.

Over 35% of high-risk MSM in this sample reported that they would be likely to decrease condom use while on PREP. Participants who reported that taking PREP would decrease their condom use were more likely to be college educated, more likely to make over $50,000 per year, and less likely to be substance dependent compared with those who reported that taking PREP would not decrease their condom use. Participants who reported that taking PREP would decrease their condom use also scored higher on both arousal barriers and risk perception motivations for condom use. In a multivariate model, only substance dependence, sexual expectancies of substance use, and risk perception motivations for condom use emerged as significant independent predictors of decreased condom use on PREP.

In this sample, psychosocial factors associated with condom use—arousal barriers to condom use and risk perception motivations for condom use—emerged as the most important correlates of both intentions to use PREP and predicted decreased condom use while on PREP. These psychosocial factors were hypothesized to identify MSM who might be most vulnerable to the 2 mechanisms through which PREP might increase risk taking: behavioral disinhibition and risk compensation. Arousal barrier to condom use—that is, a focus on arousal-related drawbacks of condoms combined with increased temptation for unprotected sex in situations in which arousal is high—was the strongest multivariate predictor of intention to use PREP. On the one hand, these data are quite encouraging; MSM who find it difficult to use condoms in situations of high arousal are looking for an acceptable alternative prevention strategy. However, a Behavioral Disinhibition model would suggest that these MSM are also most likely to use PREP as a risk reduction *substitute* and might significantly reduce their baseline condom use in the context of PREP. In past studies, risk reduction counseling combined with PREP administration produce decreases in high-risk behavior.[18] Our findings underscore the importance of combining PREP availability with behavioral interventions that target specific psychosocial factors—such as arousal barriers to condom use—that are most relevant to high-risk populations.

Risk perception motivations for condom use—that is, a focus on risk reduction benefits of condom use combined with increased temptation for unprotected sex in situations in which risk of HIV transmission is perceived to be low—was most strongly associated with expectations of decreasing condom use on PREP. These data provide support for a Risk Compensation model of behavior change on PREP. If the availability of PREP changes the perception of transmission risk among MSM, it will have the strongest behavioral impact on those who are motivated to use condoms based on their risk calculus. In a meta-analysis, perceptions that HAART decreased transmission risk were associated with significant increases in sexual risk among HIV-positive individuals and their partners.[23] Our findings highlight the importance of future public information campaigns about biochemical prevention options. Consistent with previous findings regarding PREP awareness among MSM,[29,30] only a fifth of this sample had ever heard of PREP. If PREP trials do prove effective, then clinicians and public health officials will have an opportunity to shape the way in which PREP is first presented and explained to high-risk populations. The increase in high-risk behavior associated with “treatment optimism” after the advent of HAART was not fully anticipated by researchers or clinicians.[31] In contrast, a better understanding of the emergent issues inherent in the provision of PREP will allow for the development of both individual-level interventions supporting PREP users and community-level interventions designed to increase awareness and acceptability of PREP.[32]

It is important to note that in bivariate analyses, MSM who reported more risk behavior in the past 30 days were more likely to say they would use PREP. This association may be an optimistic scenario for PREP, potentially reducing the impact of Behavioral Disinhibition or Risk Compensation Models. To the extent that MSM who adopt PREP are already engaging

in high-risk behavior, PREP may merely reduce risk in situations in which these men were unlikely to use condoms regardless of PREP use.

Our findings are subject to several limitations. These data were collected in the context of a risk reduction intervention, so our sample may not generalize to all high-risk MSM more broadly. In particular, a high percentage of participants (48.9%) met criteria for substance dependence. Additional research is needed to assess perceptions of PREP use and its impact on risk behavior across high-risk populations. Perhaps most important, these data represent participants' responses to a hypothetical scenario and may not generalize to actual behavior once they are on PREP, nor can they be used to draw conclusions about a casual relationship between PREP use and risk behavior. Our data may be subject to social desirability bias, meaning that high-risk MSM may have be reluctant to report that using PREP would decrease their condom use. However, assuming these data to be an underestimate, our findings suggest that at least 35% of high-risk MSM would decrease condom use on PREP. Finally, the scales used to measure arousal and risk perception barriers to condom use were not developed specifically for this purpose and may be subject to measurement error. Future research is needed to better study the impact of psychosocial motivations on condom use during PREP.

Despite these limitations, our data provide important information for PREP planning and the creation of behavioral interventions to accompany it. Over two-thirds of high-risk MSM reported that they would be willing to use PREP if it were at least 80% effective. This number is consistent with reported intent-to-use PREP in a study of Boston MSM,[33] although that study did not specify a hypothetical efficacy cutoff. Both studies suggest a willingness to adopt PREP as an HIV prevention strategy among this high-risk population.

These data provide support for both Behavioral Disinhibition and Risk Compensation in shaping both PREP intentions and condom use while on PREP among high-risk MSM. These data represent one of the first examinations of the role of these factors in MSM predictions of their own behavior in the context of PREP. These issues will be critical to the development of effective behavioral interventions to accompany any prevention program that incorporates chemoprophylaxis. PREP has the potential to make an extraordinary contribution to the fight against HIV, but its implications for risk perception and behavior must be fully acknowledged and better understood.

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TABLE 1

Bivariate and Multivariate Predictors of Likelihood of PREP Use (n = 180)

	Not likely to use PREP (n = 56)		Likely to use PREP (n = 124)		Likely to Use PREP Compared With Not Likely		Multivariate Model	
	n/M	%/SD	n	%	OR	95% CI	OR[†]	95% CI
Age								
18–29 (n = 114)	32	57.1	82	66.1	1.00	—	1.00	—
30–49 (n = 66)	24	42.9	42	33.9	0.68	0.36 to 1.30	‡	—
Race								
Black (n = 38)	8	14.3	30	24.2	2.47*	1.00 to 6.14	2.47	0.95 to 6.40
Hispanic (n = 51)	13	23.2	38	30.6	1.97	0.90 to 4.22	1.75	0.79 to 3.88
White (n = 73)	29	51.8	44	35.5	1.00	—	1.00	—
Other (n = 18)	6	10.7	12	9.7	1.38	0.45 to 3.91	‡	—
Income								
,<$20,000 (n = 72)	21	37.5	51	41.1	1.00		—	—
$20,000–$49,999 (n = 63)	19	33.9	44	35.5	0.95	0.46 to 2.00	—	—
>$49,999 (n = 45)	16	28.6	29	23.4	0.75	0.34 to 1.65	—	—
Education								
No bachelor's degree (n = 104)	27	48.2	77	62.1	1.00	—	1.00	—
Bachelor's degree (n = 76)	29	51.8	47	37.9	.57	0.30 to 1.08	‡	—
Substance dependent[‡]								
No (n = 87)	30	55.6	57	52.9	1.00	—	—	—
Yes (n = 88)	24	44.4	64	47.1	1.40	0.73 to 2.67	—	—
Drug use days in the past 30 days								
Occasional (0–3) (n = 51)	19	33.9	32	25.8	1.00	—	—	—
Weekend (4–9) (n = 68)	22	39.3	46	37.1	1.24	0.58 to 2.66	—	—
Regular (10–30) (n = 61)	15	26.8	46	37.1	1.82	0.80 to 4.11	—	—
Sex acts in the last 30 days[§]								
1–3 acts (n = 53)	15	26.8	38	30.6	1.00	—	§	—
4–11 acts (n = 80)	30	53.6	50	40.3	0.85	0.31 to 1.39	§	—
12 or more acts (n = 47)	11	19.6	36	29.0	1.29	0.52 to 3.18	§	—
High-risk sex acts in the last 30 days								

	Not likely to use PREP (n = 56)		Likely to use PREP (n = 124)		Likely to Use PREP Compared With Not Likely		Multivariate Model	
	n/M	%/SD	n	%	OR	95% CI	OR†	95% CI
0–1 acts (n = 62)	24	42.9	38	30.6	1.00	—	1.00	—
2–5 acts (n = 65)	22	39.3	43	34.7	1.23	0.60 to 2.55	‡	—
6 or more acts (n = 53)	10	17.9	43	34.7	2.71*	1.15 to 6.40	1.76	0.75 to 3.92
High-risk acts under the influence in the last 30 days§								
0 acts (n = 46)	22	39.3	24	19.4	1.00	—	§	—
1–4 acts (n = 87)	24	42.9	63	50.8	2.41*	1.14 to 5.07	§	—
5 or more acts (n = 47)	10	17.9	37	29.8	3.39*	1.37 to 8.40	§	—
Sexual expectancies (sum)	4.8	3.4	6.2	3.2	1.14**	1.03 to 1.25	1.08	0.97 to 1.20
Arousal barriers (average Z score)	−0.292	0.848	0.133	0.831	1.85**	1.24 to 2.75	1.71*	1.11 to 2.65
Risk perception barriers (average Z score)	−0.162	0.595	0.086	0.686	1.76*	1.08 to 2.87	‡	—

Boldface = $P < 0.25$ in bivariate χ^2 and t tests and factor qualified to be entered in multiple logistic model.

*$P < 0.05$;

**$P < 0.01$;

***$P < 0.001$.

†Adjusted for those variables in the final model.

‡Variables are excluded in the final model in backward stepwise selection procedure, adjusted $P > 0.20$.

§Variable excluded from the multivariate model due to concerns of multicollinearity.

TABLE 2

Bivariate and Multivariate Predictors of Decreased Condom Use on PREP Among Those Likely to Use PREP (n = 124)

	Not Likely to Decrease Condom Use on PREP (n = 80)		Likely to Decrease Condom Use on PREP (n = 44)		Likely to Decrease Condom Use on PREP Compared With Not Likely		Multivariate Model	
	n/M	%/SD	n/M	%/SD	OR	95% CI	OR[†]	95% CI
Age								
18–29 (n =82)	56	70.0	26	59.1	1.00		1.00	—
30–49 (n = 42)	24	30.0	18	40.9	1.62	0.75 to 3.48	‡	—
Race								
Black (n = 30)	21	26.3	9	20.5	0.56	0.21 to 1.51	—	—
Hispanic (n = 38)	28	35.0	10	22.7	0.47	0.18 to 1.20	—	—
White (n = 44)	25	31.3	19	43.2	1.00	—	—	—
Other (n = 12)	6	7.5	6	13.6	1.32	0.037 to 4.73	—	—
Income								
>$20,000 (n = 51)	39	48.8	12	27.3	1.00	—	1.00	
$20,000–$49,999 (n = 44)	26	32.5	18	40.9	2.25	0.93 to 5.44	‡	—
<$49,999 (n = 29)	15	18.8	14	31.8	3.03*	1.15 to 8.04	‡	—
Education								
No bachelor's degree (n = 77)	56	70.0	21	47.7	1.00	—	1.00	—
Bachelor's degree (n = 47)	24	30.0	23	52.3	2.56*	1.19 to 5.47	2.26	0.96 to 5.31
Substance dependent[‡]								
No (n = 57)	30	38.5	27	37.2	1.00	—	1.00	—
Yes (n = 64)	48	61.5	16	62.8	0.37*	0.17 to0.80	0.23**	0.09 to 0.63
Drug use days in the past 30 days								
Occasional (0–3) (n = 32)	17	21.3	15	34.1	1.00	—	—	—
Weekend (4–9) (n = 46)	32	40.0	14	31.8	0.65	0.37 to 1.15	—	—
Regular (10–30) (n = 46)	31	38.8	15	34.1	0.70	0.40 to 1.21	—	—
Sex acts in the last 30 days[§]								
1–3 acts (n = 38)	23	28.8	15	34.1	1.00	—	§	—
4–11 acts (n = 50)	31	38.8	19	43.2	0.49	0.19 to 1.27	§	—
12 or more acts (n = 36)	26	32.5	10	22.7	0.55	0.22 to 1.39	§	—

	Not Likely to Decrease Condom Use on PREP (n = 80)		Likely to Decrease Condom Use on PREP (n = 44)		Likely to Decrease Condom Use on PREP Compared With Not Likely		Multivariate Model	
	n/M	%/SD	n/M	%/SD	OR	95% CI	OR†	95% CI
High-risk sex acts in the last 30 days								
0–1 acts (n = 62)	22	27.5	16	36.4	1.00	—	1.00	—
2–5 acts (n = 65)	26	32.5	17	38.6	0.90	0.37 to 2.19	‡	—
6 or more acts (n = 53)	32	40.0	11	25.0	0.47	0.19 to 1.21	0.525	0.21 to 1.32
High-risk sex acts under the influence in the last 30 days§								
0 acts (n = 24)	14	17.5	10	22.7	1.00	—	§	—
1–4 acts (n = 63)	38	47.5	25	56.8	0.92	0.35 to 2.40	§	—
5 or more acts (n = 37)	28	35.0	9	20.5	0.45	0.15 to 1.36	§	—
Sexual expectancies (sum)	5.9	3.3	6.9	3.1	1.10	0.98 to 1.24	1.24*	1.05 to 1.45
Arousal barriers (average Z score)	0.001	0.862	0.372	0.722	1.76*	1.10 to 2.82	‡	—
Risk perception motivations (average Z score)	−0.049	0.708	0.331	0.573	2.48**	1.34 to 4.62	2.30*	1.15 to 4.6

Boldface = $P < 0.25$ in bivariate χ^2 and t tests and factor qualified to be entered in multiple logistic model.

*$P < 0.05$;

**$P < 0.01$;

***$P < 0.001$.

†Adjusted for those variables in the final model.

‡Variables are excluded in the final model in backward stepwise selection procedure, adjusted $P < 0.20$.

§Variable excluded from the multivariate model due to concerns of multicollinearity.