

Barebacking identity among HIV-positive gay and bisexual men: demographic, psychological, and behavioral correlates

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Objectives: To determine the correlates associated with barebacking identity among HIV-positive gay and bisexual men.

Design: An analysis of data from the baseline quantitative assessment of a randomized controlled intervention study of 1168 HIV-positive gay and bisexual men from New York City and San Francisco.

Methods: Participants were actively and passively recruited from mainstream gay venues, AIDS service organizations, and public and commercial sex environments. Participants completed a computerized quantitative questionnaire assessing their identity as a barebacker, sexual behavior, demographic factors, psychosocial states, perceptions of health risks, and substance use.

Results: Men of color were less likely to identify themselves as barebackers. Men who did identify themselves as barebackers were slightly younger. They were more likely to miss a dose of medication; report drug use (non-injection and injection); exhibit higher levels of sexual compulsivity and lower personal responsibility for safer sex; and report higher rates of unprotected insertive anal intercourse, unprotected receptive anal intercourse, and unprotected insertive oral intercourse with all partners, regardless of their HIV serostatus.

Conclusion: Barebacking and its corresponding behaviors pose immediate public health risks for HIV-positive gay and bisexual men. Further work is needed to understand this phenomenon more fully in relation to the psychological, sociological, biomedical, and cultural realities.

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Introduction

Nearly two decades after the initial diagnoses of HIV in the United States, some gay and bisexual men continue to engage in unprotected sexual behaviors [1–7]. Recent behavioral trends have resulted in an accelerated increase

in the rate of HIV seroconversions [8], specifically for young men who have sex with men (MSM) and MSM of color [9–11]. Unprotected anal intercourse (UAI), a primary risk behavior for HIV seroconversion [12], has been related to the increasingly popular behavioral phenomenon of barebacking [13–21].

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HIV prevention research has shown that UAI among MSM has traditionally been related to relapse, or the inability to practice safer sex consistently [22]. Although relapse continues to be a reason for unprotected sex [22], such unintentional behavior must be differentiated from the increasing intentional practice of UAI, known colloquially as 'barebacking' [23]. Barebacking appears to permeate behavior, and includes factors by which gay and bisexual men define themselves [17]. However, experts in public health and psychology disagree regarding the actual operationalization of barebacking behavior and barebacking identity, and do not understand how men construct, define, and negotiate barebacking [17–20]. Nonetheless, barebacking has become an increasingly important and compelling behavior for some HIV-positive gay and bisexual men, who believe that it enhances intimacy, wholeness, and connectedness [16,21].

Barebacking may pose salient health implications. For HIV-negative men, initial infection with HIV is the most immediate consequence, and is exacerbated by the potential for infection with medication-resistant and untreatable mutant variants of HIV [24–28]. For HIV-positive men, consequences include superinfection [29–31], the rapid loss of CD4 cells [32], opportunistic infections [33–35], co-infection with hepatitis C [36–38], and sexually transmitted diseases (STD) that can lead to further immune system deterioration [39,40].

Despite the public health implications, barebacking is poorly understood. The prevalence of barebacking among gay and bisexual men is only speculative because few empirical investigations have been published with regard to this sexual behavior, and each has used slightly different approaches [17–19]. Moreover, there is a growing belief that barebacking has come to be understood simply as sex without a condom, regardless of intention [41], and that men who identify themselves as barebackers may represent a very different subset of men who engage in bareback sex. In effect, barebacking behavior and barebacking identity may be very different constructs, just as gay identity is not necessarily synonymous with same-sex behavior. Although barebacking may transmit disease, the social identity it creates may be an important factor in determining whether men in general, and HIV-positive men in particular, engage in the behavior. To this end, social identity as a barebacker may facilitate connection between men who are seeking bareback sex within the larger gay male community, and may be associated with greater sexual risk-taking. Given that there is a subgroup of HIV-positive men who identify themselves as barebackers [16,41], it is therefore important to understand their behavior.

The purpose of our analysis is thus threefold: (i) to provide descriptive data on barebacking identity among HIV-positive gay and bisexual men from two HIV

epicenters; (ii) to determine how sociodemographic, health, psychological, substance use, and perceived health risk factors relate to barebacking identity; and (iii) to examine the relationship between barebacking identity and sexual risk-taking behaviors of HIV-positive gay and bisexual men.

Methods

Participants and procedures

The data were collected as part of the Seropositive Urban Men's Intervention Trial (SUMIT), a randomized controlled intervention trial funded by the Centers for Disease Control and Prevention and conducted from 1999 to 2002. The primary aim of SUMIT was to test the efficacy of a behavioral intervention for reducing unprotected insertive anal intercourse (UIAI), unprotected receptive anal intercourse (URAI), and unprotected insertive oral intercourse (UIOI) by HIV-positive gay and bisexual men and their partners who were HIV-negative or of unknown HIV serostatus. Participants were assessed at three points: baseline, 3 months post-intervention, and 6 months post-intervention.

We analysed the data from the SUMIT baseline assessment. All data were gathered using the audio computer-assisted self-interview (Audio-CASI) system [42]. The study was undertaken simultaneously at two HIV epicenters: New York City and San Francisco. The community review panels and institutional review boards of the cooperating institutions and the Centers for Disease Control and Prevention approved the intervention protocol and assessments.

Participants were actively and passively recruited from mainstream gay venues, AIDS service organizations, and public and commercial sex environments. To be eligible for the study, participants were required to be 18 years of age or older, document their HIV-positive serostatus, report having had sex with at least one partner of HIV-negative or unknown serostatus during the past year, and reside in New York City or San Francisco. At enrollment, participants were informed that they would be randomly assigned to one of two interventions: the 6-week SUMIT programme or a one-session educational control programme. Participants were provided monetary incentives at each of the assessment points. A total of 1168 participants completed baseline assessments.

Measures

Barebacking identity

Participants were asked to respond to the following question: "Some people have started using a term called 'barebacking'. Do you think of yourself as a barebacker?" According to their responses, participants were categorized into one of the following groups: barebackers,

non-barebackers, and those unfamiliar with the term 'barebacker'. Participants who reported identifying with the term were asked: 'Who do you bareback with?' (i.e. HIV-positive men only, HIV-negative men only, men of unknown HIV status only, all of the above, refuse to answer). For this investigation we sought to ascertain barebacking as an identity and not as a behavior.

Sociodemographic characteristics

Participants were asked to indicate their race/ethnicity, date of birth, sex (i.e. male, transgender), sexual orientation (i.e. gay, bisexual, heterosexual, none of the above/unsure), educational background, employment status, personal income, partnership status (i.e. whether participant has a primary partner), and city of residence.

Health characteristics

Participants reported the year in which they first received a positive HIV test result and whether they had received an AIDS diagnosis since that time. Participants also reported their most recent CD4 cell count and HIV plasma viral load. CD4 cell counts were assessed using a continuous variable and viral load with a categorical variable (i.e. undetectable; detectable but less than 5000; 5001–10 000; 10 001–30 000; 30 001 to more; don't know; refuse to answer). In addition, participants reported a subjective rating of overall health based on a five-point Likert-type item, ranging from (1) I never feel fine to (5) I always feel fine. Participants also indicated whether they were taking HIV medications, the name(s) of medications taken, and whether they had missed one or more doses of any medications within 30 days before assessment.

Psychological factors

Subscales of the Brief Symptom Inventory [43] were used to assess for depression, anxiety, and hostility. In the present study, alpha coefficients were 0.89, 0.86, and 0.77, respectively. Loneliness was assessed using a shortened version of the University of California at Los Angeles Loneliness Scale [44], and yielded an alpha of 0.60 in this study. Sexual compulsivity was measured by a six-item, five-point Likert-type categorical variable (1, not at all like me; 2, slightly like me; 3, mainly like me; 4, very much like me; 5, refuse to answer) [45]. Personal responsibility was assessed on a 10-item Likert scale (1, strongly disagree to 5, strongly agree) with an alpha of 0.78. Sample items included 'I feel responsible for protecting my partners from HIV', 'It is very important for me to use condoms to protect my partners from HIV', and 'I feel it is my partner's responsibility to protect himself from HIV'.

Substance use

Three separate sets of items asked participants to report their use of alcohol, non-injection recreational drugs, and injection recreational drugs in the 3 months before assessment. Participants who indicated recreational drug

use were asked to check the specific drugs they had used from the following list: amphetamines, barbiturates, cocaine, 3-4 methylenedioxyamphetamine (ecstasy), ketamine, marijuana, inhalant nitrates (poppers), gamma hydroxybutyrate, and methamphetamine. Similarly, participants who indicated injection drug use were asked to check the specific drugs from the following list: amphetamines, cocaine, heroin, speedball (cocaine and heroin combined), and methamphetamine. From the checklists, we computed a total for both non-injection and injection drugs used in the previous 3 months. Furthermore, participants indicated the total number of times that they had used each of these three categories of substances in conjunction with sex during the past 3 months.

Perceptions of health risks

We used six individual items to assess the risk that participants associated with unprotected sexual behaviors (i.e. 'Because of progress made in developing new HIV vaccines, HIV-negative men do not need to be as worried about getting HIV', 'Condoms give good protection from STD other than HIV', 'It is very unlikely that a person who is taking HIV medications would transmit HIV during sex', 'Once you have HIV, getting another STD is no big deal', 'Most sexually transmitted diseases are easy to treat and get rid of', and 'Sexually transmitted diseases can have a very serious impact on the health of someone living with HIV'). Participants responded to each question based on a five-point, Likert-type item ranging from (1) absolutely false to (5) absolutely true.

Sexual behavior

Participants were asked whether, within the 3 months before assessment, they had engaged in any of the following three behaviors with partners who were HIV negative or of unknown serostatus: UIAI with and without ejaculation; URAI regardless of ejaculation; and UIOI with and without ejaculation. The frequency of any UAI and UIOI with seroconcordant HIV-positive partners was further assessed. Assessments were performed with instruments used in previous investigations of the sexual behaviors of HIV-positive MSM [46]. Composite scores were calculated for each participant. Repeated measures analysis of variance were used to assess further the differences in the frequency of unprotected acts across partner serostatus between barebackers and non-barebackers.

Differentiating barebackers from non-barebackers

To disentangle the relative contribution of the person-level (age, sexual compulsivity, perceived responsibility), psychological, and drug use (all significant and non-injection and injection drugs, as well as the frequency of non-injection drug use with sex) variables in explaining whether one identified himself as a barebacker, we conducted a binary logistic regression analysis. We used hierarchical entry based on the significant bivariate

results. Person-level factors were entered first, followed by drug-use variables, and finally, the contextual variable of the city of residence.

Results

Overall sample

A total of 1168 men completed baseline measures for SUMIT. Of these, 590 (50.5%) were from the New York City metropolitan area and 578 (49.5%) were from the San Francisco Bay area. On average, men were 41 years old ($SD = 7.91$). In terms of race/ethnicity, 327 (28.0%) identified themselves as black, 197 (16.9%) as Latino (either black or white), 528 (45.2%) as white (not Latino), and 112 (9.6%) as another or mixed race. Four men did not answer this question.

Results for barebacking identity were as follows: 316 (27.2%) identified themselves as barebackers, 664 (57.1%) identified themselves as non-barebackers, and 182 (15.7%) indicated no knowledge or familiarity with the term 'barebacker'. Six men did not respond to this question and were excluded from the analyses.

Subsequent analyses indicated differential rates of identification of the term 'barebacker' according to race/ethnicity [$\chi^2(6) = 62.76, P < 0.001$]. In particular, 33.1% of white men identified themselves as barebackers, compared with 20.4% of black men, 22.4% of Latino men, and 27.7% of men of other or mixed races. Similarly, although only 7.6% of white men were not familiar with the term, 25.0% of black men, 21.4% of Latino men, and 14.3% of men of other or mixed races were not familiar with the term, indicating some differential use of the term across race/ethnicity. Furthermore, those who were unfamiliar with the term tended to have been HIV-positive for fewer years ($M = 7.66, SD = 4.74$) than were those who identified themselves as barebackers ($M = 8.78, SD = 5.05$) and those who did not ($M = 8.69, SD = 4.91$) [$F(2, 1144) = 3.55, P = 0.03$]. Finally, men from New York City were less likely to know the term 'barebacking' than were those in San Francisco [$\chi^2(2) = 29.59, P < 0.001$]. In particular, 10.4% of the men from San Francisco and 20.8% of the men from New York City were unfamiliar with the term.

Barebackers versus non-barebackers

For subsequent analyses, we omitted the group of men who were not familiar with the term 'barebacker'.

Sociodemographic characteristics

Our subsample consisted of 980 men, who were on average 41 years old ($SD = 7.91$) and received their first positive HIV test result 9 years ($SD = 4.96$) before baseline assessment (Table 1). Those who labeled themselves as barebackers differed from those who did not in terms of age [$F(1, 978) = 8.32, P < 0.01$]. In

particular, barebackers were slightly younger than non-barebackers ($M = 40.24$ versus $M = 41.79$). However, the two groups did not differ in terms of race/ethnicity, educational background, employment status, personal income, sexual identification, partnership status, or history of sexual abuse. Barebacking identity was related to the city of residence [$\chi^2(1) = 5.81, P = 0.02$]; men from San Francisco were more likely than men from New York City to identify themselves as barebackers (35.7 versus 28.4%).

Health characteristics

Barebackers did not differ from non-barebackers in terms of years living with HIV or AIDS. Furthermore, no differences were demonstrated in men's subjective rating of their overall health, as well as their self-reported CD4 cell count and viral load. The men in each group were equally likely to be taking highly active antiretroviral therapy. However, in terms of adherence to therapy, barebackers were more likely than non-barebackers to report having missed a dose in the 30 days before assessment [$\chi^2(1) = 10.24, P = 0.001$]. In particular, 68.2% of barebackers reported at least one missed dose, compared with 55.8% of non-barebackers.

Psychological factors

Barebackers did not differ from non-barebackers with regard to depression, anxiety, hostility, or loneliness. However, they reported higher levels of sexual compulsivity [$F(1, 975) = 9.16, P = 0.003; M = 1.80$ versus $M = 1.66$] and lower levels of perceived responsibility for safer sex [$F(1, 974) = 129.07, P < 0.001; M = 3.75$ versus $M = 4.27$].

Substance use

Barebackers were more likely than non-barebackers to report the use of substances [$\chi^2(1) = 22.78, P < 0.001$]; 69.0% of barebackers reported drug use compared with 52.9% of non-barebackers. The likelihood of injecting drugs was also greater for barebackers [$\chi^2(1) = 4.51, P = 0.03$]; 24.4% of barebackers and 18.6% of non-barebackers injected drugs. Furthermore, barebackers reported using a greater number of non-injection drugs in the past 3 months than did non-barebackers [$F(1, 975) = 47.70, P < 0.001$]. In particular, although barebackers reported a mean of 1.83 ($SD = 1.95$) drugs used, non-barebackers reported only 1.06 ($SD = 1.44$). In addition, significance was reached for the number of drugs injected [$F(1, 841) = 6.64, P = 0.01$], although the finding is not meaningful, with barebackers reporting 0.21 ($SD = 0.67$) drugs injected and non-barebackers reporting 0.11 ($SD = 0.48$) drugs injected. No significant differences were noted in alcohol use.

The use of specific substances differed significantly between the two groups. Those who identified themselves as barebackers were more likely to report the use of all the drugs assessed than those who did not, as follows:

Table 1. Characteristics of HIV-positive men.

Sociodemographic characteristics	Non-barebackers (<i>n</i> = 664)		Barebackers (<i>n</i> = 361)	
	<i>n</i>	(%)	<i>n</i>	(%)
City of residence				
New York	464	(47.3)	132	(41.8)
San Francisco	516	(52.7)	184	(58.2)
Race/ethnicity				
Black/African American	240	(24.5)	66	(20.9)
Hispanic/Latino	154	(18.7)	44	(13.9)
Other	96	(9.8)	31	(9.8)
White	486	(49.6)	174	(55.1)
Sex				
Male	971	(99.1)	312	(98.7)
Transgender (with penis)	9	(0.9)	4	(1.3)
Sexual orientation				
Gay	845	(86.2)	279	(88.3)
Bisexual	116	(11.8)	31	(9.8)
Heterosexual	5	(0.5)	2	(0.6)
None of the above/unsure	13	(1.3)	3	(0.9)
Educational background				
Did not complete high school	78	(8.0)	25	(7.9)
High school diploma or GED	179	(18.3)	42	(13.3)
Some college/associate's degree	369	(37.7)	130	(41.1)
Bachelor's degree	216	(22.0)	68	(21.5)
Postgraduate degree	138	(14.1)	51	(16.1)
Employment status				
Employed full-time or part-time	336	(34.3)	107	(33.9)
On disability	507	(51.9)	159	(40.4)
Unemployed	135	(13.8)	50	(15.8)
Total personal income				
Less than US\$10 000	349	(35.6)	99	(31.3)
US\$10 000–19 999	226	(23.1)	77	(24.4)
US\$20 000–49 999	259	(26.4)	89	(28.2)
US\$50 000–74 999	94	(9.6)	39	(12.3)
US\$75 000 or more	46	(4.7)	9	(2.8)

GED, Graduate equivalency diploma.

amphetamines [12.3% versus 4.2%; $\chi^2(1) = 22.19$, $P < 0.001$], barbiturates [9.2% versus 3.5%; $\chi^2(1) = 13.91$, $P < 0.001$], cocaine [21.8% versus 13.7%; $\chi^2(1) = 10.36$, $P < 0.001$], 3–4 methylenedioxy-methamphetamine [12.0% versus 5.9%; $\chi^2(1) = 11.19$, $P = 0.001$], ketamine [8.9% versus 3.8%; $\chi^2(1) = 10.87$, $P = 0.001$], marijuana [49.4% versus 38.3%; $\chi^2(1) = 10.87$, $P = 0.001$]; inhalant nitrates [35.8% versus 23.9%; $\chi^2(1) = 14.90$, $P < 0.001$]; gamma hydroxybutyrate [7.6% versus 2.7%; $\chi^2(1) = 12.45$, $P < 0.001$], and methamphetamine [20.6% versus 6.5%; $\chi^2(1) = 43.37$, $P < 0.001$]. In terms of injection drugs, differences were with regard to amphetamine injection [7.1% versus 3.5%; $\chi^2(1) = 5.31$, $P = 0.02$] and methamphetamine injection [9.3% versus 3.8%; $\chi^2(1) = 10.38$, $P = 0.001$].

Barebackers reported more sexual experiences in which non-injection drugs were used than did non-barebackers [$F(1, 964) = 28.07$, $P < 0.001$]. Barebackers reported 10.85 (SD = 31.45) instances of combining sex and drug use in the previous 3 months, and non-barebackers reported 3.53 (SD = 11.18) of these instances. Significance was approached for the frequency of using

injection drugs in sexual situations [$F(1, 975) = 3.50$, $P = 0.06$], but no difference was noted with regard to using alcohol.

Perception of health risks

For all but one item, barebackers and non-barebackers had similar perceptions. Barebackers were less concerned than non-barebackers about getting a STD that could seriously affect their health [$F(1, 977) = 9.67$, $P = 0.002$; $M = 4.61$ versus $M = 4.77$]. However, no differences were detected with regard to the notions that condoms provide 'good protection from STDs other than HIV', 'HIV medications produce difficult strains to transmit', 'Getting an STD is no big deal', 'STDs are easy to treat and get rid of', and 'HIV-negative men do not need to worry about getting HIV because of the development of vaccines'.

Sexual behaviors

Among those HIV-positive men who identified themselves as barebackers, 42.7% ($n = 134$) reported that they engaged in bareback sex with only other HIV-positive men, 2.2% ($n = 7$) with only HIV-negative men, 11.7%

Table 2. Percentage of men reporting sexual risk behaviors.

Behavior	Barebacker (<i>n</i> = 316) (%)	Non-barebacker (<i>n</i> = 664) (%)	$\chi^2(1)$	<i>P</i>
UIAI Partners HIV negative or of unknown serostatus	38.6	12.3	89.56	< 0.001
UIOI Partners HIV negative or of unknown serostatus	69.3	51.2	28.62	< 0.001
URAI Partners HIV negative or of unknown serostatus	46.8	19.9	76.23	< 0.001
UIAI Partners HIV positive	47.5	13.1	137.59	< 0.001
UIOI Partners HIV positive	57.9	35.3	44.77	< 0.001
URAI Partners HIV positive	43.4	14.9	94.49	< 0.001

UIAI, Unprotected insertive anal intercourse; UIOI, unprotected insertive oral intercourse; URAI, unprotected receptive anal intercourse.

(*n* = 37) with only men of unknown HIV status, and 43.0% (*n* = 136) with all of the above. Two men (< 1.0%) refused to answer this item.

Those who identified themselves as barebackers were significantly more likely to report unprotected sexual behaviors with partners who were HIV negative, of unknown HIV status, and HIV positive (Table 2). The frequency with which men in our sample practised these behaviors is differentiated across HIV identity. In particular, HIV-positive gay and bisexual men who identified themselves as barebackers reported more UIAI and UIOI both with and without ejaculation than did men who did not identify themselves as barebackers. Furthermore, barebackers reported more URAI with serodiscordant partners and more UIAI, URAI, and UIOI with seroconcordant partners (Table 3).

All men, regardless of barebacking identity, reported more UIAI with partners who were HIV positive than with partners who were HIV negative or of unknown serostatus [$F(1, 977) = 20.78, P < 0.001$]. Furthermore,

there was an interaction between barebacking identity and the rates of these acts across the serostatus of partners [$F(1, 197) = 15.49, P < 0.001$]. For barebackers, the rates of UIAI were significantly greater with HIV-positive partners; for non-barebackers, the rates were approximately equivalent to the rates of UIAI across partner serostatus. However, across all men and between those who identified themselves as barebackers and those who did not, the rates of URAI did not differ according to partner serostatus. Finally, all men were more likely to report UIOI with partners who were HIV positive than partners who were HIV negative or of unknown serostatus [$F(1, 977) = 22.21, P < 0.001$], but interaction between these rates across partner status and bareback identity was not significant.

Binary logistic regression analysis

The model fitted in two steps [$\chi^2(12) = 67.03, P < 0.001$] with Nagelkerke $R^2 = 35.5\%$ and correct classification equal to 72.2%; the third step, which included city of residence, did not improve the prediction. The results of the final model are further shown in Table 4, and

Table 3. Mean frequency of sexual behaviors.

Behavior	Barebacker (<i>n</i> = 316)	Non-barebacker (<i>n</i> = 664)	<i>t</i>	<i>P</i>
UIAI Partners HIV negative or of unknown serostatus	3.17 (7.92)	0.51 (2.58)	5.83	< 0.001
UIOI Partners HIV negative or of unknown serostatus	12.18 (31.23)	4.55 (8.80)	4.26	< 0.001
URAI Partners HIV negative or of unknown serostatus	5.99 (16.18)	1.06 (5.15)	5.29	< 0.001
UIAI Partners HIV positive	5.92 (14.24)	0.71 (3.90)	6.40	< 0.001
UIOI Partners HIV positive	9.01 (24.41)	2.64 (7.79)	4.53	< 0.001
URAI Partners HIV positive	6.12 (20.06)	0.79 (3.59)	4.69	< 0.001

UIAI, Unprotected insertive anal intercourse; UIOI, unprotected insertive oral intercourse; URAI, unprotected receptive anal intercourse.

Table 4. Factors predicting barebacking identity: results of binary logistic regression.

Predictor	b	df	Exp(b)	P
Person factors				
Age	-0.03	1	0.98	0.003
Sexual compulsivity	0.35	1	1.41	0.002
Perceived responsibility	-0.73	1	0.49	< 0.001
Drug use factors				
Amphetamine use	0.37	1	1.45	0.35
Barbiturate use	-0.05	1	0.95	0.91
Cocaine use	0.41	1	1.41	0.07
MDMA use	0.20	1	1.22	0.59
Ketamine use	-0.31	1	0.73	0.50
Marijuana use	-0.01	1	0.99	0.96
Inhalant nitrate use	0.27	1	1.31	0.16
GHB use	-0.41	1	0.67	0.38
Methamphetamine use	0.83	1	2.30	0.008
Injection amphetamine use	0.26	1	1.30	0.61
Injection methamphetamine use	-0.02	1	0.99	0.98
Frequency of non-injection drug use with sex	0.36	1	1.04	< 0.001

GHB, Gamma hydroxybutyrate; MDMA, 3-4 methylenedioxy-methamphetamine. $\chi^2(12) = 67.03, P < 0.001$.

demonstrate that those who identify themselves as barebackers are younger, have higher levels of sexual compulsivity, have lower levels of perceived responsibility, are more likely to use methamphetamine, and report more occasions of using non-injection drugs during sexual encounters.

Discussion

Consistent with the results of other empirical studies, our investigation showed that 27% of our sample identified themselves as barebackers [17,18]. Rates of identification with the term 'barebacker' did not differ in terms of sociodemographic characteristics. More men of color were unfamiliar with the term 'barebacker'; however, among those familiar with the term, there was an equal distribution of race/ethnicity. In addition, men with more recent HIV-positive test results were more likely to be unfamiliar with the term. These findings suggest the potential importance of culture and contexts in understanding barebacking. For example, men of color may be using other terms to label intentional unprotected sex. And since the term emerged in the gay community, it may have been adopted and understood differently by men who identify themselves as gay and are immersed in gay contexts than by those who socialize outside the gay community [17]. Some research has suggested that gay men do not represent a homogenous group, and that, as a result, targeted approaches to addressing HIV prevention should be implemented [21].

Those who identified themselves as barebackers demonstrated significantly more risk in terms of substance use and sexual behavior. In particular, barebackers reported more recreational drug use (non-injection and injection

drugs), HIV transmission risk behaviors, and combined substance use with HIV sexual risk taking. For example, barebackers were more likely than non-barebackers to report the use of amphetamines, barbiturates, 3-4 methylenedioxy-methamphetamine, ketamine, gamma hydroxybutyrate, and methamphetamine. Very often, the phenomenon of barebacking is interwoven with the use and abuse of illicit substances, especially methamphetamine [20]. Other recent investigations showed that 70% of gay and bisexual men indicated that barebacking was more likely to occur when club drugs were being used [17], and the use of club drugs has previously been associated with sexually charged environments such as bathhouses and circuit parties [18]. These findings suggest a potential overlap with barebacking identity and behavior. For example, some researchers have suggested that barebacking, as an identity, permeates various aspects of HIV-positive men's lives, and indicates that the associated behaviors often function to affirm one's self, life, and physical attractiveness [16]. In addition, recent research has shown that barebackers report more physical connectedness with their partners because of engaging in sex without a condom [19].

It should be noted, however, that rates of unprotected behaviors were related to partner serostatus and type of behavior. In particular, all the men in our sample reported more UIAI and UIOI with their partners who were HIV positive than with partners who were HIV negative or of unknown serostatus. However, the rates of URAI were consistent across partner serostatus. In addition, those who identified themselves as barebackers reported much more UIAI with partners who were HIV positive than with partners who were HIV negative or of unknown serostatus. Together, these data suggest a type of harm-reduction strategy used by HIV-positive men regardless of their barebacking identity.

A salient finding of this investigation is the differing levels of perceived responsibility between barebackers and non-barebackers towards protecting sex partners from HIV. The role of responsibility to sex partners has been noted elsewhere [47,48]. This finding suggests that men who identify themselves as barebackers are more likely to perceive that responsibility for safer sex rests with their partners and not themselves. That higher levels of sexual compulsivity were also found among the barebackers in our study may be related to this finding. As is shown in our study and others [19], barebackers report significantly higher levels of UAI than non-barebackers.

A limitation of our study is that we chose to focus on barebacking identity instead of barebacking behavior. Our findings should thus be considered in terms of how we chose to assess barebacking as an identity: 'Do you consider yourself a barebacker?' From a psychometric perspective, this leaves us wide open to participants' various interpretations of the terms. From our perspective,

the construct of barebacking is one that encompasses both behavior and identity. The associated behaviors may have more immediate and important ramifications for those who identify themselves as barebackers than for those who simply practise this behavior without incorporating the identity into their self-definitions. For these reasons, we should view these data with some caution. However, it can be argued that by not providing a clear definition for barebacking in our study, we did not limit men's understanding of this phenomenon with our own scientific biases.

Another limitation is that our data did not sufficiently capture the various permutations of partner serostatus with whom the participants barebacked (e.g. HIV positive and HIV negative only; HIV positive and HIV unknown only, etc.).

Although our sample was large and diverse along many lines (e.g. race/ethnicity, educational level, and socio-economic status), the data are based on men from two of the largest gay communities in the United States. Although these HIV epicenters are legitimate sites for this study, they are also environments in which the gay movement was born and has evolved over the past 30 years. The men in these cities are thus not necessarily representative of gay and bisexual men or MSM from smaller regional areas in other parts of the United States. Furthermore, as has been shown by our data, there were differences between these two cities with regard to identification as a barebacker.

As with all studies that seek to capture behavioral data, our study was limited with regard to the nature of self-report. However, the use of the audio-CASI system may result in higher self-reports of stigmatized behaviors.

In conclusion, traditionally, unprotected anal sexual acts among gay and bisexual men have been related to relapse, or the inability to apply safer sex behaviors consistently. Whereas the increases in UAI have not been related to the role of intentions on the part of these men, it is likely that many of these unprotected acts are associated with the increasingly popular sexual and sociological phenomenon of barebacking. The term 'barebacking' has been defined in numerous ways in the mainstream and academic literature [15,17,19,21,49]. In short, it is poorly understood. Although the term 'barebacking' was originally applied solely to the sexual behavior of HIV-positive men [50], it is now equally applied to the behaviors of men who are HIV negative and men of unknown serostatus [16]. Regardless of how men define this behavior, there has clearly been a recent increase in HIV seroconversions among MSM [8], suggesting to some a second coming of the AIDS epidemic [6]. To this end, it is essential to understand why these increases in seroconversions are being noted. If, in fact, barebacking is central to this understanding, then it is imperative for those working in

public health to attempt to decipher the meaning of this behavior, the factors that drive it, and the methods by which it can be curtailed.

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