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CURRENT SEXUAL ACTIVITY AND RISKY SEXUAL BEHAVIOR IN OLDER MEN WITH OR AT RISK FOR HIV INFECTION

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Abstract

In a cross-sectional analysis, we investigated frequency of sexual activity and factors associated with risky sexual behavior among 624 older men, aged 49–80, with or at risk for HIV infection. During the prior 6 months, 75% reported sexual activity with at least one partner, and one quarter of both the HIV-negative and HIV-positive men had more than one sexual partner. Only 18% of the HIV-negative men and 58% of the HIV-positive men always used condoms with their sexual partners. Factors independently and positively associated with risky sexual behavior included lack of HIV infection, any drug use in the past 6 months, greater importance of sex in one's life, weekly or more frequent sexual activity in the past 6 months, and ever taking sildenafil. These results suggest that older men with or at risk for HIV infection are sexually active, participate in risky sexual behavior, and need safer sex interventions.

Early in the AIDS epidemic, persons with HIV infection were not expected to live into old age, and older persons were not generally considered to be at risk for HIV infection. However, widespread availability of highly active antiretroviral therapy (HAART) have enabled HIV-infected persons to live longer and sexually active lives. Although the number of newly diagnosed HIV/AIDS cases among older adults has remained stable in recent years, (Centers for Disease Control and Prevention [CDC], 2005; Daniels, Curtins, & Klevens, 2004), HIV-positive persons over age 50 constitute a substantial proportion of the HIV-positive population in the United States (more than 15% of cases of HIV/AIDS reported in the United States in 2004 [CDC, 2005]). Many studies have shown that sexual activity is desirable and continuous throughout adulthood and into later life (Araujo, Mohr, & McKinlay, 2004; CDC, 2005; DeLamater & Sill, 2005; Enzlin, Mak, Kittel, & Demyttenaere, 2004; Jung & Schill, 2004). Persons with a history of HIV risk behavior (including both those who are and those who are not HIV-infected) may therefore be continuing to participate in risky sexual practices later in life. Older HIV-positive and HIV-negative persons who are sexually active are thus at risk for transmitting or acquiring HIV infection, respectively. Research investigating risky behavior among older adults has increased in recent years; however, little is known about whether HIV risk behavior earlier in life continues into later years, or about how HIV status and other factors are associated with risky sexual behavior after midlife.

Although it is commonly thought that sexual activity and desire decrease with age, studies have shown that both men in the general population and HIV-positive men over age 50 experience sexual desire and that many men are sexually active well into their senior years (Gott & Hinchliff, 2003). A longitudinal study among 1085 men aged 40–70 found that although sexual activity did decline with age, the men studied participated in sexual activity an average of 6.5 times per month at baseline and 4.7 times per month 9 years later (Araujo et al., 2004). In

another study among 63 older individuals with HIV, researchers found that only 36% of men had been celibate for at least 2 months since their diagnosis (Siegel & Schrimshaw, 2003).

Although studies have shown that both HIV-positive and HIV-negative men are sexually active in later life, some research suggests that older men with HIV infection may be less sexually active than other men their age. A qualitative study of 35 HIV-positive persons aged 30–65 found that those with symptomatic HIV infection lacked sexual desire and attributed this to low testosterone levels, antiretroviral treatment, or psychological factors (Maticka-Tyndale, Adam, & Cohen, 2002). In addition, compared with younger HIV-infected persons, in older persons HIV progresses faster, and the physical symptoms associated with HIV may impact sexual desire and ability (Bender, 1997; Goodkin et al., 2003; Jung & Schill, 2004; Maticka-Tyndale et al., 2002). Finally, it has been reported that some older HIV-positive individuals decrease or cease sexual activity in response to their HIV diagnosis in an attempt to protect their partners or because of fear of reinfection, stigma, or rejection (Nichols et al., 2002; Siegel & Schrimshaw, 2003; Weinhardt, 2005).

Among HIV-positive or at-risk men who are sexually active later in life, information about risky sexual behavior is growing but still limited. Some studies in both general and at-risk populations have shown that older people do participate in risky sexual behaviors (Maes & Louis, 2003; Ward, Disch, Levy, & Schensul, 2004). Dolcini, Catania, Stall, and Pollack (2003) examined HIV risk behavior among 507 older men who have sex with men (MSM), and found that while the median number of sexual partners declined with age, 50% had had multiple partners in the past year. In fact, among men aged 60–69, 25% reported nine or more sexual partners, and 15% reported 15 or more sexual partners. In another sample of 110 older Latino and Black MSM, 20% reported unprotected anal sex with men, and many reported sexual activity under the influence of drugs (Jimenez, 2003). Kwiatkowski and Booth (2003) found that injection drug users and crack smokers over age 50 were less sexually active in the past month than those younger than 50, but older drug users who were sexually active were equally as likely as younger drug users to have had more than one sexual partner, to have exchanged sex for drugs or money, or to have had sex with an intravenous drug user.

Few studies have examined factors associated with risky sexual behavior among HIV-positive or at-risk older men. Dufour et al. (2000) investigated correlates of risky behaviors among 810 older and younger MSM, and found that having more than five casual partners and using drugs or alcohol were significantly related to unprotected anal sex in both older and younger men. Difficulties in sexual functioning related to aging or HIV, such as decreased desire or erectile dysfunction, might impact risky sexual behavior by affecting sexual frequency, number of partners, or condom use (Bancroft et al., 2004; Cove & Petrak, 2004). For example, in a qualitative study of older MSM, erectile dysfunction was related to decreased desire to use condoms (Murray & Adam, 2007). However, sildenafil use allowed some men with erectile dysfunction to increase sexual activity (Murray & Adam, 2007), and several studies have shown that sildenafil use is correlated with HIV infection and risky sexual behavior (Chu et al., 2003; Kim, Kent, & Klausner, 2002; Sanchez & Gallagher, 2006; Sherr, Bolding, Maguire, & Elford, 2000).

Factors known to be associated with risky sexual behavior in other populations, such as older women or younger men, may also be associated with risky sexual behavior in older men (Neundorfer, Harris, Britton, & Lynch, 2005; Topolski, Gotham, Dean, Klinkenberg, & Brooks, 2004). Depression and life-satisfaction are also known to be related to risky sexual behaviors in various populations (Brown et al., 2006; Kalichman, Rompa, & Muhammad, 1997; Williams & Latkin, 2005). In addition, sexual and physical abuse have been shown to be related to risky sexual behavior in younger men and older women and may be related to the same behavior in older men (Braitstein et al., 2006; Malow et al., 2006; Neundorfer et al.,

2005). The current study will help to determine whether factors associated with risky sexual behavior in other populations are also associated with risky sexual behavior among older men.

To expand the research on risky sexual behavior among older men, we examined risky sexual behaviors in a cohort of HIV-positive and at-risk men. The inclusion of both HIV-positive and HIV-negative men provided us with the unique opportunity to compare older HIV-positive men to older men with similar risk behavior histories and to determine the association of HIV status with current sexual behavior. Because HIV-positive men may have more physical limitations than HIV-negative men and are more aware of HIV risk, we hypothesized that HIV-positive men would be less likely to be sexually active than HIV-negative men and also less likely to participate in risky sexual behavior. We further hypothesized that variables associated with risky sexual behavior in previous studies with older men and other populations, including drug or alcohol use, sexual or physical abuse history, psychological well-being, and factors related to overall sexual functioning (such as erectile dysfunction, sildenafil use, sexual desire, and overall health) would be associated with risky sexual behavior in the current sample of HIV-positive and at-risk older men.

METHODS

PROCEDURES

The Cohort of HIV At-Risk Aging Men's Prospective Study (CHAMPS) is an ongoing longitudinal study of selected outcomes in older men with or at risk for HIV infection (Klein, Lo, Santoro, & Dobs, 2005). Participants were recruited through word of mouth, flyers in HIV and medical clinics, advertisements in the community, and research staff presentations at HIV community groups. Men were eligible for the study if they were (1) within 1 year of their 50th birthday or older and (2) either HIV infected or at risk for HIV through injection drug use; having had five or more sexual partners in the past 5 years; having had unprotected sex with a man or injection drug user; exchanging sex for drugs or money; or having had unprotected sex with a woman known to have HIV, a history of injection drug use, or a history of unprotected sex with a bisexual man or injection drug user. Exclusion criteria included inability to provide a blood specimen or to participate in a detailed interview. Study participants provided written informed consent; participated in a standardized interview; and gave a blood sample for HIV antibody testing, lymphocyte subtests, and HIV-1 viral load. Follow-up interviews and blood tests were scheduled at 6-month intervals. Baseline data were analyzed for the present report.

MEASURES

Physical Health—Participants were asked if they had ever had a blood test for HIV, and for the results if they had. Though HIV antibody testing was also conducted for all participants at baseline, self-reported HIV status was used in these analyses to determine how perceived HIV status was associated with sexual behavior. Blood tests were conducted to determine viral load and CD4 counts for HIV-positive participants. HIV-positive participants reported whether they had an AIDS diagnosis or took antiretroviral medications in the previous 6 months. In addition, all participants rated their overall health on a four point scale from 1 (poor) to 4 (excellent) and were asked whether they had ever taken testosterone or other male hormones.

Drug and Alcohol Use—Participants reported whether they used cocaine, crack, heroin, or speedball during the previous 6 months. They also indicated how often they used marijuana or illicitly obtained tranquilizers, uppers, or any other pills during the previous 6 months on a scale from 0 (never) to 6 (more than once a day). A dichotomous variable was created to indicate any illicit drug use during the previous 6 months. Participants were also asked how often they drank beer, wine, or hard liquor during the previous 6 months, on a scale from 0 (never) to 8

(4 or more drinks per day). A dichotomous variable indicating daily or less than daily alcohol use was created.

Psychological Well-Being—Life satisfaction during the past month was measured with one question which was rated on a four point scale from 1 (very dissatisfied) to 4 (very satisfied). Depression was measured with the Center for Epidemiologic Depression Scale (CES-D), which measures depressive symptoms during the past week. Total CES-D scores range from 0 to 60, with 16 or higher indicative of increased depressive symptoms. Studies have supported the validity and reliability of the scale (Radloff, 1977). Cronbach's alpha for the CES-D was .90 in our sample.

Physical and Sexual Abuse—Participants were asked whether they were ever beaten, physically attacked, or physically abused as a child and whether they were ever beaten, physically attacked, or physically abused as an adult. Participants were asked whether they were ever sexually attacked, raped, or sexually abused as a child and whether they were ever sexually attacked, raped, or sexually abused as an adult.

Sexual History and Importance of Sex—Participants were asked to indicate whether they had ever had sex with a man, with someone who was HIV-infected, or with an injection drug user. They were also asked to rate the importance of sex in their lives with one question, rated on a 5-point scale from 1 (not at all important) to 5 (extremely important).

Sexual Activity and Functioning—Participants were asked if they had had sex (defined as vaginal, anal, or oral sex) with a partner, both ever and in the previous 6 months. Participants were asked how often they had vaginal, anal, or oral sex with their most frequent partners and with their other partners on a six point scale from 0 (never) to 5 (daily). A dichotomous variable was created indicating weekly or more sexual activity with a partner in the past 6 months. Frequency of desire for any form of sexual activity (either alone or with a partner) during the previous 6 months was measured with one question rated on a 5-point scale from 1 (not at all) to 5 (daily). In addition, participants were asked whether they were ever unable to have an erection or used sildenafil during the past 6 months.

Risky Sexual Behavior—Participants were asked about the number of men and women they had had sex with in the previous 6 months, and a dichotomous variable was created to indicate “greater than one sexual partner” or “zero to one partner.” Frequency of condom use during vaginal, anal, or oral sex during the past 6 months was measured on a 5-point scale from 0 (never) to 4 (always), and a dichotomous variable was created to indicate using condoms “always” or “less than always.” Participants also indicated whether they paid or received money or drugs for sex in the past 6 months. A final dichotomous variable was created to indicate any risky sexual behavior in the previous 6 months, including having had more than one sexual partner, using condoms less frequently than “always,” or having paid or received money or drugs for sex.

STATISTICAL ANALYSES

First, we compared demographic characteristics, physical health, drug and alcohol use, psychological well-being, sexual and physical abuse history, sexual history and importance of sex, sexual activity and functioning, and risky sexual behavior, among the HIV-positive and HIV-negative, at-risk men, utilizing chi-square tests, *t* tests (for normally distributed data), and Mann-Whitney *U* tests (for non-normally distributed data). We then conducted bivariate analyses (using chi-square tests, *t* tests, and Mann-Whitney *U* tests) to determine associations between independent variables (including demographic characteristics, physical health, psychological well-being, drug and alcohol use, sexual and physical abuse history, sexual

history and importance of sex, and sexual activity and functioning) and the dependent variable (participation in any risky sexual behavior, including greater than one sexual partner, less than “always” using a condom during sexual activity, or the receipt or payment of drugs or money for sex in the previous 6 months). Finally, independent variables that were significantly ($p \leq .05$) associated with the outcome of risky sexual behavior in bivariate analyses were entered into a multivariate logistic regression model.

RESULTS

PARTICIPANT CHARACTERISTICS

Baseline interviews were conducted with 643 men, of whom 624 reported previous HIV testing. Because we wanted to determine the influence of known HIV status on sexual behavior, we excluded from the analyses 19 men who had not been previously tested for HIV. Among the 624 men who reported previous HIV testing, 356 (57%) reported that they had HIV infection. The mean age of participants was 55 (range 49–80), and 71% had at least a high school education. Almost 80% of the participants were Black or Hispanic. The HIV-positive and HIV-negative men had similar ratings for overall health, and more than one-half of the participants reported any illicit drug use in the previous 6 months. The mean CES-D scores were below the threshold of 16 for both HIV-positive and HIV-negative men, indicating low levels of depressive symptoms in both groups. However, we did find that almost 43% of participants had taken psychotropic medications, including antidepressants, in the past 6 months. Physical abuse in childhood was reported by 37% and in adulthood by 36% of men; and sexual abuse in childhood was reported by 15% and in adulthood by 4%. On average, the HIV-positive and HIV-negative men provided similar ratings for the importance of sex in their lives.

The HIV-positive men were significantly more likely than the HIV-negative men to be Black, to have ever taken testosterone or other male hormones, to have a history of childhood sexual abuse, or to have ever had sex with a man, an intravenous drug user, or an HIV-positive person. In addition, the HIV-positive men reported significantly greater life satisfaction than the HIV-negative men. A significantly greater proportion of HIV-negative than HIV-positive men drank alcohol daily and experienced elevated depressive symptoms. (See Table 1.)

SEXUAL BEHAVIOR

Sexual Activity and Functioning—Three quarters of the sample had engaged in any sexual activity (vaginal, anal, or oral sex) with a partner during the past 6 months, with a significantly higher percentage of HIV-negative than HIV-positive men engaging in any sexual activity during this time period. In addition, the HIV-negative men had more frequent sexual activity than the HIV-positive men. The HIV-positive men and the HIV-negative men reported sexual desire at similar frequencies. Significantly more HIV-positive than HIV-negative men reported inability to achieve an erection or taking sildenafil during the past 6 months. (See Table 2.)

Risky Sexual Behavior—Overall, more than half of participants reported risky sexual behavior (multiple sex partners, using condoms less than “always,” or trading sex for money or drugs) in the past 6 months, with significantly more HIV-negative than HIV-positive men participating in any risky sexual behavior. In particular, a significantly smaller percentage of HIV-negative men than HIV-positive men “always” used condoms, though approximately one quarter of both groups had multiple sexual partners during the past 6 months. In addition, almost 10% of men reported that they had paid drugs or money for sex, and 3.5% had received money or drugs for sex, with no significant differences by HIV status (see Table 2).

Factors Associated With Any Risky Sexual Behavior in Bivariate Analysis—The following factors had a significant positive association with risky sexual behavior in the previous 6 months: any drug use in the past 6 months, daily alcohol use in the past 6 months, greater importance of sex in one's life, more frequent sexual activity in the past 6 months, more frequent sexual desire during the past 6 months, and taking sildenafil in the past 6 months. HIV-positive men were significantly less likely than HIV-negative men to report risky sexual behavior in the previous 6 months. (See Table 3.)

Factors Independently Associated With Risky Sexual Behavior in Multivariate Analysis—HIV status, any drug use in the past 6 months, greater importance of sex in one's life, more frequent sexual activity in the past 6 months, and taking sildenafil in the past 6 months remained significantly associated with risky sexual behavior in the multivariate model. Even after adjustment for frequency of sexual activity, daily alcohol use, and taking sildenafil in the past 6 months (variables significantly associated with HIV-status), HIV-status remained significant in the multivariate model. (See Table 4.)

DISCUSSION

The results of this study indicate that both HIV-positive and at-risk HIV-negative men, aged 49 and older, desire sex and are sexually active. Furthermore, substantial percentages of both groups are putting themselves or others at-risk for HIV infection by having unprotected sex or multiple partners, or participating in the exchange of sex for money or drugs. However, as hypothesized, HIV-positive men are less active sexually and participate in significantly less risky sexual behavior than the HIV-negative men. In addition, some variables hypothesized to predict risky sexual behavior (i.e., drug and alcohol use, greater importance of sex in one's life, greater sexual desire, greater sexual frequency, and use of sildenafil) had significant positive relationships to risky sexual behavior. However, other variables that have been shown to be predictive of risky sexual behavior in other populations (i.e. psychological well-being, physical or sexual abuse history) were not significantly related to risky sexual behavior in our sample.

Although the HIV-positive men in our study were significantly less sexually active than the HIV-negative men, there were no differences in sexual desire or the importance of sex in one's life between HIV-positive and HIV-negative men. The small yet significant difference in sexual activity between HIV-positive and HIV-negative men may be due in part to the significantly greater prevalence of erectile dysfunction among the HIV-positive men. Studies have indicated that HIV infection may be related to decreased androgen levels and erectile dysfunction (Cove & Petrak, 2004; Jung & Schill, 2004; Klein et al., 2005). In fact, a significantly greater percentage of the HIV-positive men in our sample reported taking sildenafil in the past 6 months and ever taking testosterone or other male hormones during their lifetime. Reported overall health did not differ significantly between the HIV-positive and HIV-negative men, so overall health differences appear to be an unlikely explanation for the difference in sexual activity between the HIV-positive and HIV-negative men. It is possible that side effects related to antiretroviral therapy could have an impact on sexual functioning; however, more specific health related questions are necessary to elucidate if and how physical health relates to decreased sexual activity in older HIV-positive men.

The decreased sexual activity we observed among the HIV-positive men compared with the HIV-negative men could also be due to self-consciousness about their HIV status, issues with disclosure, fear of reinfection, concern about infecting others, an ill partner, or lack or loss of an available partner, as noted in previous studies (Maticka-Tyndale et al., 2002; Siegel & Schrimshaw, 2003). In a qualitative study of sexual desire and practice among 31 HIV-positive men and 4 women, some study participants reported believing that others would not be sexually

interested in them owing to their HIV status. Therefore, as a result of fear about telling potential partners about their HIV status, they avoided social interaction. Another qualitative study about the reasons for celibacy in older HIV-positive men and women found that study subjects abstained from sex owing to fear of infecting others, reinfecting themselves, or compromising their health (Siegel & Schrimshaw, 2003). Furthermore, some of the men determined that the stress of disclosure and anxiety about infecting others made sex undesirable and too much trouble. Others reported that changes in their bodies owing to illness prevented sexual activity, and that the loss of partners to HIV contributed to their celibacy.

In our sample, HIV-positive men participated in significantly less risky sexual behavior than HIV-negative men, and the relationship between HIV status and risky sexual behavior remained significant after controlling for frequency of sexual activity, daily alcohol use, and sildenafil use. However, this finding was associated only with greater condom use among HIV-positive men. Similar proportions of HIV-positive men and HIV-negative men participated in the trade of sex for money or drugs, and about a quarter of both groups had greater than one sexual partner in the past month. Though it is encouraging that the HIV-positive men were more likely to use condoms (which may be due to increased awareness of HIV risk, greater linkages to the healthcare system, or higher likelihood of being exposed to HIV risk education), 42% of the HIV-positive men did not always use condoms. Additionally, over 80% of the HIV-negative men did not always use condoms. These results indicate an urgent need for interventions that address condom use among older men with HIV or a history of risk behavior.

In addition to HIV status, several other variables hypothesized to be associated with risky sexual behavior were significant in our sample. As shown in other studies (Morrison, DiClemente, Wingood, & Collins, 1998; Nadeau, Truchon, & Biron, 2000), drug and alcohol use were associated with risky sexual behavior in bivariate analyses, and drug use remained associated in multivariate analysis. However, alcohol use dropped out of the multivariate model, likely due to the highly significant positive relationship between drug and alcohol use. Intoxication from drug and alcohol use is known to impair judgment, increase impulsivity, and impair ability to negotiate social interactions, perhaps impacting condom use in sexual situations (Abbey, Saenz, & Buck, 2005; Cook et al., 2006; MacDonald, MacDonald, Zanna, & Fong, 2000; Maisto, Carey, Carey, Gordon, & Schum, 2004;). The importance of sex in one's life and frequency of sexual activity were both significant predictors of risky sexual behavior. Sexual desire in the past 6 months was associated with risky sexual behavior only in bivariate analyses, probably owing to significant intercorrelations with frequency of sexual activity and importance of sex in life. Those who placed greater importance on and had greater desire for sex possibly participated in more frequent sexual activity to satisfy their desire, creating more opportunities to avoid condom use.

As reported in other studies (Sanchez & Gallagher, 2006), those who used sildenafil in the past 6 months were more likely to participate in risky sexual behavior. Although using sildenafil was positively associated with both risky sexual behavior and HIV-positive status, significantly fewer HIV-positive men participated in risky sexual behavior than HIV-negative men. Some studies have reported that risky sex is associated with sildenafil use when sildenafil is combined with club drugs such as ecstasy, methamphetamine, or amyl nitrate to enhance the sexual experience (Chu et al., 2003; Crosby & DiClemente, 2004; Kim et al., 2002). It is possible that the HIV-positive men in this sample were less likely to use sildenafil recreationally than the HIV-negative men. Because the HIV-positive men were more likely than the HIV-negative men to have erectile dysfunction, they may have been more likely to use sildenafil to treat erectile dysfunction as opposed to using it in combination with illicit drugs, facilitating risky sexual behavior. Further research is necessary to understand the relationships among sildenafil usage, HIV-status, and risky behavior.

Despite its strengths, this study has some limitations. The data are based on self-report of sensitive and private information collected through interviews; there is no independent confirmation for the data's accuracy. The study sample included mostly minority men and men who knew they had HIV infection or who had engaged in high-risk behaviors, so the findings should not be generalized to other groups of older men. Also, behaviors of men in New York City might not be completely generalizable to other locations. Because this was a cross-sectional analysis, cause-effect relationships cannot be determined. Further research on the temporal relationships between HIV-diagnosis and risky sexual behaviors appears warranted. Finally, this was a secondary data analysis of an existing database, and we were limited to examining the variables available. Future qualitative and longitudinal studies would further enhance our knowledge on risky sexual behavior among men with and at risk for HIV.

Nonetheless, these findings have important implications for HIV prevention programs. Historically, HIV prevention education and intervention has focused primarily on younger segments of the population. Most HIV health education materials and publications currently available do not adequately address issues specific to older adults (Orel, Spence, & Steele, 2005), and many health care workers are not equipped or knowledgeable enough to address issues related to both aging and HIV (Emlet & Poindexter, 2004). Yet our findings show that aging men with HIV infection and those who have a history of engaging in HIV risk behaviors continue to participate in risky sexual behavior and also need to be targeted for intervention. They suggest that better training for HIV care providers on issues related to aging, additional education on HIV risk for those who provide services to older adults, and outreach with publications and materials that are appropriate for the risk prevention needs of older adults would be appropriate. In particular, HIV risk prevention outreach should be targeted to older drug users, and men over age 50 who have a history of HIV-risk behavior, value sex, participate in frequent sexual activity, and use sildenafil.

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TABLE 1

HIV Status and Participant Characteristics

	All N = 624	HIV-Positive n = 356	HIV-Negative n = 268	Difference Between HIV-Positive and Negative p-value
	Percentage or Mean (SD)	Percentage or Mean (SD)	Percentage or Mean (SD)	
Demographic characteristics				
Age	54.86 (4.74)	54.62 (4.46)	55.21 (5.11)	.237
High school education or higher	71.4	72.7	69.6	.453
Race				.007
Black	52.8	58.7	44.9	
Hispanic	26.2	23.0	30.3	
White	14.4	12.1	17.6	
Other race/Ethnicity	6.7	6.2	7.1	
Physical health				
Overall health (self-reported)	2.45 (.75) ^a	2.45 (.75) ^a	2.48 (.76) ^a	.613
Ever taken testosterone or other male hormones	15.3	23.7	4.5	<.001
AIDS diagnosis		40.8		
Took antiretroviral medication during past 6 months		88.9		
Viral load (copies/ml)		21,118 (57,072)		
CD4 (cells/ml)		427 (285)		
Drug and alcohol use				
Any drug use in the past 6 months	54.3	51.4	57.5	.133
Daily alcohol use in the last 6 months	13.5	11.0	16.8	.034
Psychological well-being				
Depression (sum CES-D score)	12.69 (10.19)	11.83 (9.46)	13.90 (11.01)	.040
Clinical depression (CES-D ≥ 16)	32.7	29.6	37.3	.042
Life satisfaction during the past month	2.78 (.94) ^b	2.93 (.88) ^b	2.59 (.98) ^b	<.001
Physical and sexual abuse				
Physically abused as a child	36.8	38.4	35.2	.412
Sexually abused as a child	15.1	18.7	10.5	.005
Physically abused as an adult	35.8	37.6	33.2	.261
Sexually abused as an adult	4.3	5.4	3.0	.151
Sexual history and importance of sex				
Ever had sex with a man	25.6	34.0	14.7	<.001
Ever had sex with an intravenous drug user ^c	53.8	61.0	41.4	<.001
Ever had sex with an HIV-positive individual ^c	49.0	63.0	27.2	<.001
Importance of sex in one's life	2.79 (1.00) ^d	2.81 (1.11) ^d	2.77 (1.11) ^d	.632

^a A score of 2 = "fair" on a scale from 1 (poor) to 4 (excellent).

^b A score of 3 = "somewhat satisfied" on a scale from 1 (very dissatisfied) to 4 (very satisfied).

^c Only 513 participants were asked about history of sex with an intravenous drug user or HIV-infected individual (HIV-positive, n=318; HIV-negative, n=191).

^d A score of 3 = "moderately important" on a scale from 1 (not at all important) to 5 (extremely important).

TABLE 2

HIV Status and Sexual Behavior in Past Six Months

	All <i>N</i> = 624	HIV-Positive <i>n</i> = 356	HIV-Negative <i>n</i> = 268	Difference Between HIV-Positive and Negative <i>p</i> -Value
	% or Mean (SD)	% or Mean (SD)	% or Mean (SD)	
Sexual activity and functioning				
Engaged in sexual activities with at least one person in last 6 months ^a	74.7	71.5	78.9	.036
Weekly or more sexual activity in past 6 months	42.9	38.6	48.5	.014
Frequency of desire to have sex in past 6 months	3.36 (1.29) ^b	3.35 (1.29) ^b	3.38 (1.28) ^b	.771
Unable to get an erection in the past 6 months	33.0	40.3	23.9	<.001
Took sildenafil during past 6 months	18.4	24.7	10.1	<.001
Risky sexual behavior				
Participated in any sex risk behavior in the past 6 months	53.2	41.9	68.3	<.001
Always used condoms during the past six months ^c	39.4	57.8	18.1	<.001
>1 sexual partner during the past 6 months (vs. 0-1 partners)	26.0	26.1	24.3	.612
Received money or drugs for sex in past 6 months	3.5	3.7	3.4	.844
Paid money or drugs for sex in past 6 months	9.6	9.3	10.1	.736

^a Any sexual activity with a partner, including vaginal, anal, and oral sex.

^b A score of 3 = "about once a week" on a scale from 1 (not at all) to 5 (daily).

^c Among those who engaged in any sexual activity with at least one partner in the past 6 months (All, *N* = 464; HIV-positive, *n* = 254; HIV-negative, *n* = 210)

TABLE 3

Factors Associated With Any Risky Sexual Behavior During the Previous 6 Months in Bivariate Analysis

	No Risky Sexual Behavior in Past 6 Months <i>n</i> = 292 % or Mean (<i>SD</i>)	Any Risky Sexual Behavior in Past 6 Months <i>n</i> = 332 % or Mean (<i>SD</i>)	Difference Between Groups <i>p</i> -Value
Demographic characteristics			
Age	55.0 (5.1)	54.7 (4.5)	.464
High school education or greater	70.3	72.7	.549
Race			.161
Black	50.0	55.3	
White	14.4	14.5	
Hispanic	30.1	22.7	
Other	5.5	7.6	
Physical health			
HIV-positive	70.9	44.9	<.001
Overall health	2.4 (.7) ^a	2.5 (.8) ^a	.146
Ever taken testosterone or other male hormones	17.1	13.9	.266
AIDS diagnosis ^b	40.9	40.9	.989
Took antiretroviral medication during past 6 months ^b	87.8	89.9	.568
Viral load (copies/ml) ^b	18,610 (51,978)	22,619 (57,749)	.491
CD4 (cells/ml) ^b	417 (258)	442 (319)	.414
Drug and alcohol use			
Any drug use in the past 6 months	45.2	61.7	<.001
Daily alcohol use in the past 6 months	9.2	17.2	.004
Psychological well-being			
Depression (sum CES-D score)	12.5 (9.7)	12.9 (10.6)	.620
Clinical depression (CES-D ≥ 16)	31.2	34.4	.385
Life satisfaction in the past month	2.8 (.9) ^c	2.8 (.9) ^c	.587
Physical and sexual abuse			
Child physical abuse	37.1	37.0	.970
Child sexual abuse	17.6	13.0	.107
Adult physical abuse	33.0	38.1	.187
Adult sexual abuse	3.4	5.1	.295
Sexual history			
Ever had sex with a man	26.9	24.8	.546
Ever had sex with an intravenous drug user	56.1	51.5	.301
Ever had sex with an HIV-positive individual	46.4	53.1	.131
Importance of sex in one's life	2.8 (1.1) ^d	3.5 (1.0) ^e	<.001
Sexual activity and functioning			
Weekly or more sexual activity in past 6 months	24.9	58.7	<.001
Frequency of desire to have sex in past 6 months	3.1 (1.4) ^f	3.6 (1.2) ^g	<.001
Unable to get an erection in the past 6 months	34.8	31.9	.459
Took sildenafil during past 6 months	14.4	22.0	.015

^a A score of 2 = "fair" on a scale from 1 (poor) to 4 (excellent).^b Analysis conducted only with HIV-positive men, *n*=268.^c A score of 3 = "somewhat satisfied" on a scale from 1 (very dissatisfied) to 4 (very satisfied).^d A score of 3 = "moderately important" on a scale from 1 (not at all important) to 5 (extremely important).^e A score of 4 = "quite important" on a scale from 1 (not at all important) to 5 (extremely important).^f A score of 3 = "about once a week" on a scale from 1 (not at all) to 5 (daily).^g A score of 4 = "more than once a week" on a scale from 1 (not at all) to 5 (daily).

TABLE 4
Factors Independently Associated With Risky Sexual Behavior During the Previous 6 Months in Multivariate Analysis (N = 624)

	<i>B</i>	Standard Error	Significance	Odds Ratio	95% Confidence Interval	
					Lower	Upper
HIV-positive	−1.26	.20	<.001	.29	.19	.42
Any drug use during the past 6 months	.63	.19	.001	1.87	1.29	2.71
Daily alcohol use in the past 6 months	.46	.29	.111	1.58	.90	2.76
Importance of sex in one's life ^a	.43	.10	<.001	1.54	1.27	1.86
Weekly or more sexual activity in past 6 months	1.17	.20	<.001	3.21	2.17	4.73
Frequency of desire to have sex during the past 6 months ^b	.05	.08	.515	1.05	.90	1.24
Took sildenafil during past 6 months	.60	.25	.014	1.83	1.13	2.97

^aImportance of sex in one's life measured on a scale from 1 (not at all important) to 5 (extremely important).

^bFrequency of sexual desire in the past 6 months measured on a scale from 1 (not at all) to 5 (daily).