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Sexual Risk Taking and Club Drug Use Across Three Age Cohorts of HIV-positive Gay and Bisexual Men in New York City

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Abstract

This study examined club drug use, (i.e., cocaine, ecstasy, ketamine, GHB, and methamphetamine) and unprotected anal intercourse (UAI) in an ethnically and racially diverse sample of 166 New York City-based seropositive, club drug-using, gay and bisexual men, ages 19 to 61, and considered these behaviors in relation to age category (20s, 30s, 40+) and number of years living with HIV. Club drug use was common across all age categories, with differences arising only in the type of club drug used. Multivariate logistic regression modeling indicated older participants (30s, 40+) were more likely to use cocaine and methamphetamine and less likely to use GHB and ketamine than those in their 20s. We examined unprotected anal intercourse (UAI) with casual partners in relation to age category, the number of years living with HIV, and club drug use. The likelihood of engaging in UAI with seronegative casual partners was greater among those in their 20s than those in their 30s or 40+. Further, participants were equally likely to engage in unprotected receptive anal intercourse and unprotected insertive anal intercourse with each casual partner serostatus type. With regard to number of years living with HIV, those living longer with the disease were more likely to report UAI with casual partners with a seropositive status than with a negative or unknown serostatus. Our findings suggest that UAI and club drug use is common among seropositive gay and bisexual men regardless of age category, but that differential patterns of risk emerge in relation to the number of years one has been living with HIV and age. These findings are of significance as both the aging population of seropositive gay and bisexual men and HIV infection rates continue to grow, and demonstrate a need for differentiated and tailored prevention strategies across the age continuum.

Keywords

HIV; club drugs; unprotected anal intercourse; gay; seropositive

Introduction

The HIV/AIDS epidemic is no longer affecting only youth and young adults in the United States. As we enter the third decade of the HIV/AIDS epidemic, approximately 33% of all individuals living with the disease in the United States are ages 50 and older and this proportion is projected to rise to nearly 50% by 2015 (Centers for Disease Control and Prevention, (CDC), 2009; Gay Men's Health Crisis (GMHC), 2010; Myers, 2009). In New York City, one of the HIV/AIDS epicenters, nearly one third of people living with HIV are over age 50, and more than 70% are over age 40, most likely a result of antiretroviral

therapy (ART) which became available in 1996 (Grabar, Weiss, & Costagliola, 2006; Karpiak, 2008; Myers, 2009).

Research has suggested an association between ART and high-risk sexual behavior in men who have sex with men (MSM), and consequently an increased likelihood of HIV transmission. Studies demonstrate both HIV-negative and HIV-positive MSM reported an increase in unprotected anal intercourse (UAI) after ART became available (Dukers, Goudsmit, de Wit, Prins, Weverling, et al., 2001; Miller, Granoff, & Ayala, 2000; Stolte, Dukers, Gekus, Coutinho, & de Wit, 2004), and an increase in unprotected sexual behavior with partners of negative or unknown serostatus among HIV-positive MSM was noted six months after beginning ART (Miller et al., 2000).

Studies clearly document the relations between unprotected sexual behavior and illicit drug use among gay and bisexual men across age and serostatus type (Halkitis, Gomez, & Wolitski, 2005; Halkitis, Pandey Mukherjee, & Palamar, 2007; Halkitis, Wilton, Wolitski, Parsons, Hoff, et al., 2005; Wilton, Halkitis, English, & Roberson, 2005). Although behavioral research has described the relations between unprotected sexual behavior and illicit drug use in seropositive gay and bisexual men, few have sought to differentiate these patterns by age or by the number of years living with HIV, an area of particular interest given the “graying of AIDS.” The purpose of the ensuing analysis was to (1) characterize and differentiate club drug use among seropositive gay and bisexual men in relation to age group (20s, 30s, and 40+) and in relation to the number of years living with HIV; (2) to characterize UAI with seropositive, seronegative, and unknown serostatus casual partners, and in relation to the number of years living with HIV; and (3) to determine the extent to which age factors (age category and the number of years living with HIV) and club drug of choice explain UAI with casual partners of varying serostatus types.

Methods

Design overview

The analyses were based on data collected from HIV-positive MSM participants who constituted a subset of a larger study locally named Project BUMPS (Boys Using Multiple Party Substances). Funded by the National Institute on Drug Abuse, Project BUMPS was a longitudinal, mixed-methodologies study of 450 club drug-using gay and bisexual men in New York City. Participants completed both quantitative and qualitative assessments that examined frequency of club drug use at four-month intervals for one year. Club drugs included gamma-hydroxybutyrate (GHB), ketamine, 3,4-methylenedioxy-N-methylamphetamine (MDMA; “ecstasy”), crystal methamphetamine, and powder cocaine. Potential participants were recruited in bars, bathhouses, dance clubs, and other community sites through active and passive methods. Eligibility required reporting to be: 18 or older, gay or bisexual, biologically male, and having engaged in club drug use six times in the previous year with at least one in combination with male-to-male sex in the previous six months. Participants received an incentive for their participation. New York University's IRB approved all procedures. Although all participants ($N = 450$) were assessed at four points, only the baseline quantitative assessments of the HIV-positive participants ($n = 166$) were included in our analyses. Seropositive participants ($n = 150$) provided proof through a doctor's note, ADAP card, or an ART medication bottle at the assessment. Additionally, those seronegative or of unknown/never tested status underwent HIV antibody testing using the OraSure® system, through which an additional 16 seropositives were detected, yielding a total baseline of $n = 166$. Quantitative data from the confirmed seropositive participants were used in the ensuing analyses.

Measures

Below is a subset of quantitative measures administered at the baseline assessment via the *Audio Computer-Assisted Self Interview (ACASI)*. Turner, Ku, Rogers, Lindberg, Pleck et al. (1988) found *ACASI* to be an effective method of surveying as it eliminates the effect reading ability has on internal validity.

Sociodemographics

Participants reported their age, race/ethnicity, and the year they were diagnosed with HIV. We categorized age into three groups: 20's, 30's, 40+.

Club drug use

Club drug use was assessed using a version of a scale by Halkitis, Parsons, and Wilton (2003). This variable was dichotomized to indicate "use" or "no use" for each of the club drugs. If participants reported use, they were asked to report number of days of use in the four months prior to assessment.

Sexual behavior

Three pre-established scales (Wolitski, Parsons, & Gomez, 2004) assessed the number of seropositive, seronegative, and unknown serostatus casual partners and the frequency of unprotected anal intercourse (UAI) with each casual partner serostatus type in the four months prior to assessment. Casual partners were defined as men other than the participant's main partner or boyfriend.

Sample

The analytic sample consisted of 166 gay and bisexual men living with HIV for an average of 4.46 years ($SD = 5.19$, $Mdn = 2$, Range = 1.0-18.25 years). More than 50% identified as Black, Mixed/Other, or Latino. The majority ($n = 146$, 88%) identified as gay with the remainder as bisexual. In terms of age, 18.7% ($n = 31$) were in their 20s, 50.6% ($n = 84$) in their 30s, and 30.7% ($n = 51$) were 40+. Age category was related to the number of years living with HIV ($F(2, 158) = 10.41$, $p < .001$). Sample characteristics are further shown in Table 1.

Results

Club drug use in relation to age category and the number of years living with HIV

Analyses indicated 67.5% ($n = 112$) used methamphetamine in the four months prior to assessment with 10.48 ($SD = 13.42$) average days of use. Patterns for the other four club drugs were as follows: ecstasy (60.8%, $n = 101$, $M = 8.13$, $SD = 11.47$), ketamine (46.4%, $n = 77$, $M = 7.87$, $SD = 9.34$), GHB (24.7%, $n = 41$, $M = 5.12$, $SD = 10.28$), and cocaine (84.9%, $n = 141$, $M = 21.11$, $SD = 27.12$). Five binary logistic regression models explained club drug use from years living with HIV and age category. To accomplish this, years living with HIV were z-transformed and the 20s were set as the criterion group for age. Please refer to Table 2. Age was related to club drug use but number of years living with HIV was not. Men in their 30s ($OR = 4.14$, 95% $CI = 2.40, 7.22$) and 40+ ($OR = 8.69$, 95% $CI = 3.48, 21.68$) were more likely to use cocaine than those in their 20s, and men in the 30s were also more likely to use ecstasy than men in their 20s ($OR = 1.88$, 95% $CI = 1.19, 2.98$). A different pattern emerged for ketamine with men 40+ less likely to use than men in their 20s ($OR = .38$, 95% $CI = .20, .72$). For GHB, both men in their 30s ($OR = .49$, 95% $CI = .31, .78$) and men 40+ ($OR = .12$, 95% $CI = .05, .29$) were less likely to use than men in their 20s, and for

methamphetamine, men in their 30s were more likely to use than men in their 20s (OR = 2.43, 95% CI = 1.51, 3.91).

UAI in relation to age, number of years living with HIV, and club drug use

Among the sample, 29.3% ($n = 47$) reported having seropositive partners, 27.1% ($n = 45$) reported having seronegative partners, and 41.0% ($n = 68$) reported having partners of unknown serostatus. Spearman rank correlations were undertaken to examine relations between UAI with age category and club drug use. Number of years living with HIV was found to be negatively related UAI with seronegative casual partners, indicating that those living with HIV longer were less likely to engage in UAI with serodiscordant partners ($r = -.18, p < .05$), and tangentially related to engaging in UAI with seroconcordant partners ($r = .15, p = .056$). We also considered age in relation to UAI with each casual partner serostatus types and found an association with seronegative casual partners ($\chi^2(2, 156) = 6.73, p = .04$), with 16% ($n = 8$) of men 40+, 32.5% ($n = 25$) of men in their 30s, and 41.4% ($n = 12$) of men in their 20s reporting UAI with seronegative partners. Lastly, we computed odds ratios between the use of each club drug and UAI with each of the casual partner serostatus types for all ages. These are shown in Table 3. Use of ecstasy, GHB, and methamphetamine was related to the likelihood of UAI with seropositive and seronegative casual partners. Ketamine was related to UAI with seropositive casual partners. None of the club drugs were related to UAI with casual partners of unknown serostatus.

Multivariate Modeling to Explain UAI

We tested three binary logistic regression models to examine the extent to which age category, years living with HIV, and club drug use explained the likelihood of UAI with each of the casual partner serostatus types. In each model the data were entered in two blocks: Block 1 (years living with HIV ((z-transformed) and age category), and Block 2 (club drug use). Model characteristics are shown in Table 4. The model for UAI with seronegative and seropositive partners achieved significance. The model for unknown serostatus casual partners did not. Results indicate that seropositive men in their 30s are 2.78 times less likely (OR = .36) than men in their 20s to engage in UAI with seronegative casual partners, and men 40+ are 5.56 times (OR = .18) less likely than those in their 20s to engage in UAI with seronegative casual partners. The likelihood of engaging in UAI with seropositive casual partners was explained both by cocaine use and number of years living with HIV. Cocaine users were about four times less likely (OR = .27) and those living with the virus longer were about two times more likely (OR = 1.66) to engage in UAI with seropositive partners. To further the latter point, the data supports that with each additional year living with HIV the probability of engaging in UAI with seropositive casual partners doubles.

Discussion

The findings suggest that seropositive gay and bisexual men, regardless of age, engage in unprotected sexual behaviors and club drug use throughout the course of their HIV disease. However one's age does seem to be related to both drug of choice and type of sexual risk in which one is more likely to engage. A critical finding is that younger seropositive gay and bisexual men were more likely to engage in UAI with serodiscordant casual sex partners, a pattern not demonstrated in the older cohort. Given that age and the number of years living with HIV are highly positively correlated, it is possible that older men have developed strategies, such as serosorting (Siconolfi & Moeller, 2007) to avoid serodiscordant sexual partnering. This is particularly noteworthy when coupled with the finding that the older segment of our sample was more likely to report methamphetamine use, which leads to

sexual disinhibition and has been implicated in the transmission of HIV in this population (Halkitis, 2010; Halkitis, Parsons, & Stirrat, 2001).

Moreover, the men who reported living with HIV longer were also more likely to report UAI with seropositive casual partners complementing our previous belief that older men may be consciously choosing to engage in risk but opting for seropositive partners where the transmission of HIV cannot occur, despite the possibility of HIV “superinfection.” Again, suggesting that serosorting may be a mechanism enacted by older gay men to reduce harm and which may be associated with a greater sense of altruism (Nimmons & Nimmons, 1998; O'Dell, Rosser, Miner, & Jacoby, 2008) and feelings of responsibility to the community (Wolitski, Baily, O'Leary, Gomez, & Parsons, 2003). It's also possible that the sheer probability of seropositive men meeting other seropositive men is increased given the prevalence of aging HIV-positive gay men (Stall, Duran, Wisniewski, Friedman, Marshal, et al., 2009).

Our findings corroborate previous studies that show high rates of sexual risk taking among seropositive men with unknown serostatus casual partners (Chen, Gibson, Weide, & McFarland, 2003; Purcell, et al., 2001). The literature has supported this pattern throughout the epidemic and is supported in our findings where neither drug use nor age sufficiently explains UAI with casual partners of unknown serostatus. Our work takes this idea one step further by demonstrating the existence of these patterns across the lifetime, and may present in the older seropositive population as cognitive deficits due to the general aging process (Stoff, 2004; Valcour, Shikuma, Shiramizu, Watters, Poff, et al., 2004), long-term ART, (Justice, McGinnis, Atkinson, Heaton, Young, et al., 2004), current or past substance use, or dementia. One or a combination of these conditions can impair decision-making, leading to HIV medication non-adherence, increased viral load, and in the absence of protected sex, a higher likelihood of HIV transmission. This risk potential is supported by our data that indicate an equal likelihood of being the receptive partner as insertive partner with casual sex partners of all three serostatus types.

In totality, the findings demonstrate that club drug use and sexual risk taking is a lifelong pattern for many seropositive gay and bisexual men. However, patterns of risk appear to vary across developmental stages, and thus, services providers must be aware of the role age plays in directing the risk behaviors in the lives of their patients and clients. HIV prevention and care must be tailored to a new population of seropositive gay and bisexual men spanning the age continuum from adolescents to seniors, with the latter presenting with unique challenges complicated by the aging process. The seminal ROAH study revealed that many aging HIV-positive gay and bisexual men reported feeling rejected by doctors, family, friends, and potential sex partners. This rejection, in turn, can lead to social isolation and a lack of social support and for many, poor mental health, substance abuse, and poverty, epidemics commonly associated with aging and HIV (Karpiak, Shippy, & Cantor, 2006.) Those currently serving aging populations are not equipped to take on the growing number of adults living with HIV, nor are there enough medical professional trained in geriatrics to meet the growing demands of this population (GMHC, 2010). To this end, we must continue to enact research to delineate the unique needs of seropositive individuals across the lifespan and train physicians and mental health professionals to test the effectiveness of programs that are designed to maintain and prolong the health of these men.

Limitations

The authors acknowledge several limitations in this study. All self-reported data are subject to social desirability bias therefore the findings should be interpreted with prudence. Since all participants self-selected to participate in this research study on sexual behavior and club

drug use, the rates of UAI and club drug use may not be representative of the general population. Further, eligibility criteria required 6 or more instances of club drug use in 12 months prior to screening, eliminating those who use club drugs but to a lesser degree. The study excluded non-club drug users and those who use “softer” drugs such as marijuana or poppers. Those who consumed alcohol only were excluded. Therefore, these findings may not be generalizable to all club drug-using men, “softer” drug users, or to non-users.

Conclusions

Our results should be considered in light of the fact that there is a rapidly growing population of aging seropositive gay and bisexual men ages 50 years and older (CDC, 2009; GMHC, 2010; Myers, 2009), and that men are acquiring HIV at an older age (Gebo, 2006; Shah & Mildvan, 2006), creating a population comprised of both long-term survivors and recent seroconverters, who, in comparison to their younger counterparts, experience multiple overlapping psychosocial stressors and decreased social support (Emlet & Poindexter, 2004; GMHC, 2010). Older seropositive gay and bisexual men must confront the ongoing demands of HIV as well as myriad physical and cognitive changes that accompany the normal aging process. The needs of aging seropositive gay men differ widely from both aging seronegative gay men as well as younger seropositive gay men (GMHC, 2010). As suggested by Halkitis (2010), future prevention and intervention efforts targeting seropositive gay and bisexual men must consider not only context, but the historical, political, and social milieus in which they exist, in concert with temporal factors such as age and number of years living with HIV, both factors likely to influence drug use and sex risk behaviors.

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Table 1
Sample characteristics by age group (*N* = 166)

	20s (<i>n</i> = 31)	30s (<i>n</i> = 84)	40+ (<i>n</i> = 51)	Total (<i>n</i> = 166)
Race/Ethnicity				
Black	19.4% (6)	29.8% (25)	17.6% (9)	24.1% (40)
Latino	25.8% (8)	22.6% (19)	11.8% (6)	19.9% (33)
White	35.5% (11)	40.5% (34)	54.9% (28)	44.0% (73)
Mixed/Other	19.4% (6)	7.1% (6)	15.7% (8)	12.0% (20)
Sexual Orientation				
Gay	83.9% (26)	89.3% (75)	88.2% (45)	88.0% (146)
Bisexual	16.1% (5)	10.7% (9)	11.8% (6)	12.0% (20)

Table 2
Logistic regression explaining club drug use by number of years living with HIV and age

OR (95% CI)					
	Cocaine	Ecstasy	Ketamine	GHB	Meth
Years					
Living with HIV	0.74 (0.49, 1.13)	0.93 (0.67, 1.29)	1.04 (0.74, 1.45)	1.29 (0.88, 1.89)	1.11 (0.79, 1.55)
Age ⁺					
30	4.16*** (2.40, 7.22)	1.89** (1.19, 2.98)	0.95 (0.62, 1.47)	0.49** (0.31, 0.78)	2.43*** (1.51, 3.91)
40+	8.69*** (3.48, 21.68)	0.91 (0.51, 1.62)	0.38** (0.20, 0.72)	0.12*** (0.05, 0.29)	1.44 (0.81, 2.58)
Model Fit					
$\chi^2(3)$	67.26***	8.23*	10.11*	44.02***	16.89**
Nagelkerke R	45.5%	6.7%	8.1%	31.9%	13.3%

⁺ Age category criterion group set at 20s

* p≤.05;

** p≤ .01;

*** p ≤ .001

Table 3
UAI with casual partners of three serostatus types in relation to club drug use (OR (95% CI))

	UAI with HIV+ (n = 47)	UAI with HIV- (n = 45)	UAI with HIV UNK (n = 68)
Cocaine	0.39 (0.16, 0.95)	1.02 (0.37, 2.81)	0.39 (0.15, 1.00)
Ecstasy	2.64* (1.22, 5.71)	2.43* (1.12, 5.30)	1.94 (0.99, 3.81)
Ketamine	3.52* (1.71, 7.24)	1.93 (0.96, 3.90)	1.00 (0.53, 1.88)
GHB	2.75* (1.29, 5.85)	2.76* (1.28, 5.98)	1.72 (0.82, 3.61)
Methamphetamine	4.79* (1.88, 12.20)	3.04* (1.29, 7.13)	1.33 (0.67, 2.63)

*
p ≤ .05

Table 4
Binary logistic regressions explaining UAI with casual partners of three serostatus types
from age, number of years living with HIV, and club drug use (OR (95% CI))

	UAI with HIV ⁺ (n = 47)	UAI with HIV- (n = 45)	UAI with HIV UNK (n = 68)
Years			
Living with HIV	1.66** (1.12, 2.45)	0.91 (0.61, 1.38)	0.79 (0.55, 1.13)
Age ⁺			
30s	0.62 (0.27, 1.42)	0.36** (0.16, 0.81)	0.99 (0.47, 2.12)
40 ⁺	0.48 (0.17, 1.38)	0.18*** (0.07, 0.52)	0.82 (0.33, 2.01)
Cocaine	0.27*** (0.13, 0.57)	0.78 (0.37, 1.66)	0.55 (0.27, 1.10)
Ecstasy	0.76 (0.29, 1.98)	1.19 (0.48, 2.96)	1.91 (0.83, 4.41)
Ketamine	0.26 (0.13, 1.57)	0.78 (0.37, 1.66)	0.53 (0.23, 1.22)
GHB	1.52 (0.64, 3.66)	1.90 (0.76, 4.74)	1.52 (0.36, 3.11)
Methamphetamine	2.03 (0.77, 5.40)	1.50 (0.60, 3.74)	1.25 (0.55, 2.85)
Model Fit			
$\chi^2(3)$	39.09***	45.67***	12.19
Nagelkerke R ²	30.8%	34.2%	10.5%

⁺ Age category criterion group set at 20s

**
p ≤ .01;

p ≤ .001