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Methamphetamine use and Other Club Drug use Differ in Relation to HIV Status and Risk Behavior Among Gay and Bisexual Men

Ellen T. Rudy, PhD^{*}, Steven Shoptaw, PhD[†], Megan Lazzar, MPH^{*}, Robert K. Bolan, MD[‡], Swanand D. Tilekar, MPH, MSC[‡], and Peter R. Kerndt, MD, MPH^{*}

^{*} Department of Public Health, Los Angeles County, STD Program, Los Angeles, California

[†] Department of Family Medicine and Psychiatry David Geffen School of Medicine at UCLA, Los Angeles, California

[‡] LA Gay and Lesbian Center, Los Angeles, California

Abstract

This study compared associations between methamphetamine use, drug use other than methamphetamine, and HIV transmission factors among men who have sex with men, attending an sexually transmitted disease clinic. Of 6435 participants, newly recognized HIV status (OR: 3.02 95% CI: 2.30, 3.99) was associated with methamphetamine use compared with nondrug users, an association not found among other club drug users.

The HIV epidemic in the United States continues to predominantly affect men who have sex with men (MSM).¹ Among MSM, stimulant drug use, and in particular methamphetamine, is associated with concomitant high-risk sexual behaviors^{2,3} and complicates efforts toward prevention of new HIV infections. Surveillance at HIV testing sites in San Francisco found a 3-fold increase in HIV incidence among MSM who reported methamphetamine use compared to those who did not report its use (methamphetamine users: 6.3% vs. nonmethamphetamine users: 2.1%).⁴ At follow-up visits in the Multisite AIDS Cohort Study sample, MSM who reported methamphetamine use were approximately three times more likely to seroconvert than those who did not report such use.⁵ Wong et al reported strong correlations between methamphetamine use and early syphilis infection among gay and bisexual men attending the San Francisco City Clinic.⁶

Studies have also documented high prevalence of other club drug use (volatile nitrites also known as “poppers,” erectile dysfunction (ED) medications, ecstasy, ketamine) or poly-drug use (methamphetamine use in combination with other club drugs) among MSM.^{7–9} Use of these other drugs is also associated with concomitant HIV-risk behaviors such as multiple sex partners of unknown HIV serostatus and unprotected sex.^{10,11} Among MSM interviewed in a random-digit dial telephone survey in San Francisco, ED medication use alone was not associated with sero-discordant unprotected anal intercourse, however, its combined use with methamphetamine was associated with sero-discordant unprotected anal intercourse.¹² Additional research is needed from diverse samples of MSM to evaluate whether methamphetamine use is the predominant predictor of HIV-transmission behaviors compared to the other club drugs. The current study draws upon surveillance data from a

large, ethnically diverse sample of MSM attending a sexually transmitted disease (STD) clinic in Los Angeles. The objective was to measure the prevalence of reported methamphetamine use in MSM seeking treatment for a suspected STD, and analyze associations between methamphetamine use and HIV prevalence, HIV transmission behaviors, and STD infections.

We analyzed routine clinic data collected between 2006 and 2007 at the Los Angeles Gay and Lesbian Center's sexual health program (SHP) that primarily serves MSM. All SHP clients received a face-to-face risk assessment interview by a trained counselor and were offered complete STD/HIV screening, which included tests for urethral and rectal chlamydia; urethral, rectal and pharyngeal gonorrhea; syphilis and HIV. Because some clients had multiple visits within the study period we limited these analyses to clients' first visit, to focus on unique patients rather than unique clinic visits. We classified clients into 1 of 4 HIV status categories: negative HIV, known HIV-positive, newly-recognized HIV-positive, and unknown HIV status. HIV status was determined by 2 variables collected at the risk assessment: self-reported HIV status and the HIV test results (if the client was screened for HIV at that visit). Clients who reported their HIV status as negative or unknown and who tested HIV-positive at the visit were classified as newly recognized HIV-positive status. Clients who reported their HIV status as positive were classified as known HIV-positive. Clients who reported unknown HIV status and who did not take an HIV test result and who did not have any previous positive test results in their records were classified as unknown HIV status. Self-reported use of the following drugs during the past year was also collected: methamphetamine, ecstasy, volatile nitrites (poppers), ketamine, ED medications, and injection drug use (IDU). Data were not collected on cocaine/crack use or alcohol use.

We created a 3-category outcome variable that was mutually exclusive and hierarchical: methamphetamine use in the past year alone or in combination with other club drug use, club drug use other than methamphetamine in the past year, and no reported drug use in the past year. This strategy recognized that there are few "pure" methamphetamine users, i.e., persons who only use methamphetamine, and that there is value in testing whether mention of methamphetamine, either alone or in combination with other drugs, increases associations with HIV, with risk behaviors, and with other STIs compared with users of drugs other than methamphetamine or with nondrug users. The category Other Club Drug Use combined the report of one or more of any of the following club drugs: nitrites, ED medications, ecstasy and ketamine. We created one high-risk sexual behavior variable which was the combination of clients' reported unprotected anal receptive sex at their last sexual encounter and reported multiple sexual partners in the past 3 months (unprotected anal receptive and multiple partners in past 3 months).

We calculated separate Pearson chi-square tests for the independent variables and computed a multinomial logistic model to examine associations with the polytomous drug use outcome.

Between 2006 and 2007, 6435 MSM attended the SHP at least once. In the composite three category drug use variable: 4271 (74%) reported no illicit drug use in the past year; 856 (13%) reported other club drug use other than methamphetamine in the past year; and 827 (13%) reported methamphetamine use in the past year. Of those who reported methamphetamine use in the past year, 302 (37%) only reported methamphetamine use. Of the 525 (63%) who reported at least one other drug in addition to methamphetamine use in the past year, 262 reported ED medications use, 316 reported nitrite use, 252 reported ecstasy use and 136 reported ketamine use, nonexclusively. Of those who reported club drugs other than methamphetamine 270 (32%) reported nitrite only, 24% (209) reported ED medications only, 136 (16%) reported ecstasy only, 8 (1%) reported ketamine only, and 233

(27%) reported 2 or more of the other club drugs other than methamphetamine in the past year.

After adjusting for demographic and risk factors and using the nondrug use category for comparison (Table 1), known HIV-positive status, newly recognized HIV status, laboratory-confirmed positive rectal and urethral gonorrhea infection as well as sex for drugs or money in the past year and sex with an injection drug user in the past year were associated with methamphetamine use. These associations were not significant in the other club drug use analysis. Blacks had lower odds associated with methamphetamine use.

Our findings reinforce the significance of methamphetamine use in the ongoing AIDS epidemic faced by MSM and their sexual and drug using partners in Los Angeles. Among MSM seeking care for a suspected STD newly-recognized HIV-positive status or known HIV-positive status emerged as strong correlates to reported methamphetamine use, even after controlling for high-risk sexual behavior. Additionally, we found independent and significant associations between methamphetamine use and MSM who were laboratory-diagnosed with rectal or urethral gonorrhea, MSM who reported sex with an injection drug user, and MSM who report sex for drugs or money, associations that were not found among MSM who reported club drug use other than methamphetamine. These results also provide evidence that MSM who use methamphetamine are engaging in high risk behaviors for HIV transmission yet MSM who use club drugs other than methamphetamine may not behave with similar risk and as such remain at less risk of acquiring HIV.

Our report has limitations. All analyses are correlational and there is no inference of causality intended. Our study is limited by the absence of data on alcohol use and crack/cocaine use. Compared to nonusers, alcohol and/or cocaine use increases likelihood of high-risk sexual behaviors in MSM and for HIV infection.^{13–16} Combining ecstasy, ketamine, nitrite, ED medication use into one category does not represent associations between the demographic and behavioral characteristics of the sample and any individual drug use. Findings may be distorted by reliance on self-report of HIV status when lab data were not available, though such biases are likely minor.¹⁷ Misclassification bias was minimized by including all available HIV test results. Collection of sexual risk data through face-to-face interviews may have decreased self-report of sexual risk behaviors.^{18,19} Los Angeles Gay and Lesbian Center's has a culturally sensitive and peer-based counseling staff to create a comfortable environment for clients to discuss health issues. Finally, findings are based on a clinic-based sample of mostly gay-identified MSM and men who have sex with women in Los Angeles and may not be generalizable to other cities in the United States.

Although club drugs, particularly ED medications used as a club drug, have roles in facilitating risky sexual behavior¹² findings from the current study underscore the unique and perhaps pivotal association of methamphetamine with positive HIV status. Given the consistent and strong associations between methamphetamine and HIV transmission factors found in this study and corroborated in other studies,^{4–6} MSM who seek testing or treatment for a suspected STD in metropolitan centers in the Western United States should be surveyed for methamphetamine use, other club drug use, and poly drug use as a key first step in an overall strategy for HIV prevention. With appropriate intervention resources available, the simple step of asking about methamphetamine use may catalyze an efficient way to reduce HIV transmission among MSM and their sexual partners in cities with epidemics similar to Los Angeles.

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TABLE 1

Results From Polytomous Outcome Logistic Regression for Clients Who Attended the Los Angeles Gay and Lesbian Center Using Nondrug User as the Main Reference Category

Characteristic	Odds Ratio (95% Confidence Intervals) [†]		
	N = 6435 (% of the Column)	Methamphetamine Users* (n = 739)	Other Club Drug Users* (n = 810)
Age			
18–24	975 (15)	0.90 (0.70, 1.16)	0.68 (0.52, 0.90)
25–34	2362 (37)	Reference	Reference
35–50	2621 (41)	1.15 (0.95, 1.40)	1.30 (1.10, 1.55)
51+	477 (7)	0.67 (0.44, 1.02)	1.50 (1.12, 1.99)
Race/ethnicity			
White	3337 (52)	Reference	Reference
Hispanic	1797 (28)	0.84 (0.68, 1.03)	0.59 (0.48, 0.73)
African American	454 (7)	0.51 (0.35, 0.75)	0.73 (0.53, 0.99)
Other/mixed ethnicity/race	846 (13)	0.78 (0.59, 1.03)	0.74 (0.58, 0.95)
Education			
High school or less	1137 (18)	2.08 (1.65, 2.62)	0.75 (0.58, 0.97)
Some college	1643 (26)	1.79 (1.46, 2.19)	1.11 (0.92, 1.33)
College degree or more	3345 (52)	Reference	Reference
Missing	310 (5)	1.53 (0.82, 2.85)	0.98 (0.53, 1.79)
HIV status			
Negative	5264 (82)	Reference	Reference
Known positive	393 (6)	2.79 (1.98, 3.93)	1.32 (0.86, 2.02)
Newly recognized	230 (4)	3.02 (2.30, 3.99)	1.19 (0.86, 1.65)
Unknown	548 (9)	1.22 (0.83, 1.80)	0.94 (0.65, 1.36)
Laboratory-diagnosed Rectal GC	118 (2)	2.16 (1.30, 3.58)	1.15 (0.62, 2.16)
Laboratory-diagnosed Urethral GC	237 (4)	1.79 (1.23, 2.59)	1.27 (0.85, 1.90)
Laboratory-diagnosed Rectal CT	98 (2)	1.01 (0.54, 1.90)	1.54 (0.86, 2.77)
Laboratory-diagnosed Urethral CT	202 (3)	1.03 (0.65, 1.63)	1.41 (0.94, 2.10)
Sex for drugs or money in past year	257 (4)	2.83 (2.02, 3.96)	1.28 (0.84, 1.96)
Sex with an IDU [‡] in past year	138 (2)	12.1 (7.73, 18.8)	0.99 (0.43, 2.26)
UAR [‡] and multiple partners in past 3 mo	583 (9)	1.89 (1.48, 2.41)	1.36 (1.05, 1.76)

* Methamphetamine users include all participants who report methamphetamine use in past year. Other club drug users include erectile dysfunction medications, ketamine, ecstasy, and nitrites “poppers” but not methamphetamine use in past year.

[†] Seven hundred forty participants deleted because of missing data.

[‡] UAR indicates unprotected anal receptive sex.