Short communication

Methamphetamine and other substance use trends among street-recruited men who have sex with men, from 2008 to 2011

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ARTICLE INFO

ABSTRACT

Background: It is particularly important to survey substance use trends in populations most impacted by the consequences of substance use. Men who have sex with men (MSM) exhibit rates of methamphetamine and other substance use that exceeds those observed among other populations in the United States. Such substance use has been associated with numerous negative health sequelae.

Methods: An outreach program performed street encounters with 5599 unique substance-using MSM from January 1, 2008 through December 31, 2011 to collect data on self-reported sociodemographics and recent substance use. Data were aggregated into six-month cohorts for comparisons of recent substance use patterns across time

Results: Participants averaged 33 years of age (SD = 8), most were Caucasian/white (47%) or Hispanic/Latino (32%), and the self-reported HIV seroprevalence rate was 13.4%. Across cohorts, reported use of alcohol (range = 91–93%), marijuana (range = 36–46%), and/or methamphetamine (range = 23–27%) was common; prevalence of amyl nitrite (max = 14%), ecstasy (max = 12%), powder cocaine (max = 8%) and/or crack cocaine (max = 4%) use, although less common, were still elevated relative to the United States general population.

Conclusions: Methamphetamine and other substance use remained common among substance-using MSM, demonstrating the need for continued substance use interventions geared toward this high-risk population.

1. Introduction

Rates of substance, particularly methamphetamine, use are higher among men who have sex with men (MSM) than other United States populations (Mansergh et al., 2006; Substance Abuse and Mental Health Services Administration [SAMHSA], 2011; Solomon et al., 2012). In Los Angeles County (LAC), rates of methamphetamine use among MSM have been estimated at 20 times the national average (HIV Epidemiology Program, 2009). Methamphetamine use among MSM has been associated with increased HIV prevalence and transmission (Shoptaw and Reback, 2006; Centers for Disease Control and Prevention, 2008; Plankey et al., 2007). Methamphetamine use has also been associated with major

physical harm (Darke et al., 2008), dental disease (Shetty et al., 2010), psychological harm including depression (Darke et al., 2008; Peck et al., 2005; Solomon et al., 2010), and neurological damage (Baicy and London, 2007; Sekine et al., 2006).

Given the tendency among MSM to use methamphetamine concurrently with other substances (e.g., cocaine, ecstasy; Solomon et al., 2012), it is important to monitor the longitudinal trends of methamphetamine and other substance use in this population. Our report detailing methamphetamine use trends among gay and bisexual males in LAC from 1999–2007 revealed that rates of recent methamphetamine use peaked from 1999–2005, reaching the highest level of 53.2% (min: 11.1%; Reback et al., 2008). These levels reduced sharply and stabilized during the final two years of the reporting period (2006–2007), raising the question of whether the observed reductions would be sustained, or whether rates of use would return to their previously elevated levels. This report extends the timeframe of the original study by four additional years to observe levels of methamphetamine and other substance use among street-recruited MSM in Hollywood and West Hollywood, California.

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2. Methods

2.1. Participants

Participants were MSM who reported any substance use in the previous 30 days when contacted via HIV prevention outreach encounters on the street or in high-risk venues (e.g., commercial sex venues, public sex environments) in the Hollywood and West Hollywood areas of LAC. Although residency was not a requirement for participation, this 7-mile region has a high density of MSM residents and accounts for the highest concentration of annual AIDS cases in LAC (Perez, 2011).

2.2. Procedure

Outreach work was carried out by a team of indigenous, ethnically diverse, bilingual (English and Spanish) outreach workers who provided low-intensity health education and risk-reduction interventions. Although a formal time–space sampling methodology (Semaan, 2010) was not implemented, venues and street locations were identified through ongoing community mapping. Outreach activities were scheduled according to venue-specific, day-time periods, e.g., bathhouse every Saturday from 4:30 pm to 1:00 am (MacKellar et al., 2007). All men at these high-risk locations were approached to participate in a HIV prevention outreach encounter. However, those who did not self-report their sexual identification as gay or bisexual or, if heterosexually identified, sex with a male in the previous 30 days, and did not report using any substance in the previous 30 days were removed from the analysis. Procedures and the intervention design have been reported elsewhere (Reback et al., 2008).

Outreach workers recorded participant responses on a brief instrument that assessed demographics (sexual identification, age, race/ethnicity), self-reported HIV status, alcohol and other substance use in the previous 30 days (including injection drug use). Unique identifiers derived from durable sociodemographic information (Whalen et al., 2000) ensured that if the same individual was encountered more than once, data from that individual could be linked. All data were self-reported. Participants were not compensated for their participation. All program materials and procedures were approved by the Los Angeles County, Department of Public Health, Division of HIV and STD Programs.

2.3. Statistical analysis

Assessments were completed manually and then scanned into an electronic database. Once electronic versions of the assessments were created they were sorted by date and duplicate unique identifiers were deleted, leaving only the first unique identifier from each individual for analysis. Data were then aggregated by date of assessment into six-month cohorts, allowing for comparisons of recent substance use patterns across unique community samples over time. Tests for equality of variance were carried out to contrast the magnitudes of variation in substance use observed in the original sample (i.e., 1999–2007; Reback et al., 2008) with the current sample. Brown and Forsythe's (1974) robust method (10% trimmed mean) of variance comparison was used, as underlying distributions of substance use violated assumptions of normality. Adjusted substance use prevalence rates (Fig. 1) were estimated using log-Poisson generalized linear models with robust standard error estimates (Wolkewitz et al., 2007) after log-binomial models failed to converge (as is common; Deddens and Petersen, 2008; Lindquist, 2013). All prevalence estimates were adjusted for participants' age, race/ethnicity, HIV-status, and six-month cohort. All analyses were conducted using Stata v10SE.

3. Results

3.1. Sociodemographic characteristics

From January 1, 2008 through December 31, 2011, the outreach team collected assessments yielding 5599 unique identifiers (Table 1). Participants ranged from 16 to 88 years of age (mean = 32.9; standard deviation = 8.2; interquartile range = 27–38). The most common racial/ethnic categories were Caucasian/white (47.0%), Hispanic/Latino (31.7%), and African American/black (10.4%). Results revealed noticeable demographic shifts since the prior report, with significantly fewer Caucasian/white participants (53% vs. 47%; $p < .001$) and more Hispanic/Latino participants (22% vs. 32%; $p < .001$). Most participants self-reported their sexual identification as gay (83.6%). There was a significant decrease in self-reported HIV-positive serostatus compared to the prior report (20.7% vs. 13.4%; $p < .001$).

3.2. Substance use trends

Fig. 1 provides prevalence estimates for each substance, adjusting for participant sociodemographics and six-month cohort. Alcohol was the most commonly reported substance, with rates of use in the previous 30 days ranging from 91.2% to 92.6%. Marijuana followed alcohol as the next most frequently reported substance, evidencing a continuous increase from 35.9% in the first half of 2008 to 46.2% in the second half of 2011. Methamphetamine was the most frequently reported substance following alcohol and marijuana, with rates of recent use never falling below 23%. The mean rate of methamphetamine use over the entire time period was 24.9%, though it reached a low of 23.2% in the first half of 2009, and a high of 27.4% in the second half of 2011. Participants also commonly reported recent use of amyl nitrite ("poppers"; 13.0–14.3%), powder cocaine (4.5–8.4%), and crack cocaine (1.4–3.7%). Results of the robust log-Poisson trend analyses revealed that, after applying the Bonferroni correction for iterated hypothesis testing (i.e., $\alpha = .05/7 = .007$), the self-reported prevalence of marijuana (Relative Risk [RR] = 1.04), methamphetamine (RR = 1.04), ecstasy (RR = 1.06), cocaine (RR = 1.10), and crack (RR = 1.16) use increased across six-month cohorts (all $p < .007$). When comparing observed (i.e., unadjusted) rates, Brown and Forsythe trimmed mean F-tests revealed that rates of marijuana ($F_{1,24} = 16.1$) and crack ($F_{1,24} = 20.3$) use across cohorts were significantly more stable during the reporting period from 2008 to 2011 than from 1999 to 2007 (both $p < .007$).

4. Discussion

The number of self-identified Hispanic/Latino participants significantly increased across the two studies, a trend mirroring demographic shifts occurring in LAC. In the period from 2000 to 2010, there was a 16% increase in self-identified Hispanic/Latino residents in California, with much of the population growth occurring in the urban areas of Southern California (United States Census Bureau, 2003, 2012). Self-reported HIV prevalence also decreased from levels observed in the original report, though they remained far above the estimated HIV prevalence for the general populace in LAC (13.4% vs. 0.6%; Perez, 2011). This field-based finding is consistent with recent evidence from testing sites suggesting HIV incidence may have decreased among MSM in LAC since 2007 (Scheer et al., 2012).

Findings also revealed that reported rates of recent methamphetamine use declined when compared to the prior study, despite a slight but significant upward trend from 2008 through 2011. In Hollywood and West Hollywood, our estimates show that reported

Table 1
Participant sociodemographic characteristics ($N = 5599$).

Variable	Mean (SD) or n (%)
Age	
	32.9 (8.2)
Range	16–88
Race/ethnicity	
Caucasian/white	2629 (47.0%)
Hispanic/Latino	1775 (31.7%)
African American/black	584 (10.4%)
Multiracial/other	611 (10.9%)
Sexual identification	
Gay	4682 (83.6%)
Bisexual	887 (15.9%)
Heterosexual	30 (0.5%)
HIV status	
HIV-positive	750 (13.4%)
HIV-negative	4620 (82.5%)
DK/refused	229 (4.1%)