

Interventions for Non-Injection Substance Use Among US Men Who Have Sex with Men: What is Needed

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Published online: 15 March 2011

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Introduction

Men who have sex with men (MSM) remain disproportionately infected with HIV. MSM accounted for 53% of the 56,300 new HIV infections in the US in 2006, despite representing only 4% of the national male population [1, 2]. This high HIV disease burden coincides with high prevalence of non-injection substance use and alcohol consumption among US MSM. A national MSM sample found a 42% previous year prevalence for any non-injection substance use [3]. The recently released United States National HIV/AIDS strategy highlights the need to address substance use among MSM as a critical component of reducing HIV incidence in the United States [4]. To advance this goal, it is imperative to: (1) redress the knowledge gaps on patterns of non-injection substance use among substance using MSM (SUMSM); (2) improve upon existing interventions; (3) develop effective, scalable interventions for the spectrum of users; and (4) determine how to best identify and address the structural and cultural factors that may contribute to non-injection substance use in the MSM population.

Non-injection substance use may increase susceptibility to HIV infection in multiple ways [5, 6]. Many epidemiological studies document the association between these substances and sexual risk behaviors [7–24]. These sexual risks are paralleled by high rates of incident and prevalent HIV cases and sexually transmitted infections among

SUMSM. Most notably, methamphetamine, cocaine, poppers, and alcohol use have each been associated with an increased risk for HIV and other STD infections [9, 12, 24–30]. The contribution of polysubstance use may also be considerable [9, 28, 31].

Patterns of Substance Use among MSM

Drug use among MSM is not an all or nothing phenomenon. There needs to be more emphasis on addressing the specific patterns of non-injection substance use among SUMSM, and what implications these patterns have for intervention approaches. Most SUMSM are not drug-dependent, but rather use episodically (i.e., using substances less than weekly). National HIV Behavioral Surveillance (NHBS) data show that 69–86% of SUMSM report less than weekly substance use [32–35]. Episodic binge drinking is also common among high-risk MSM [36, 37]. Importantly, episodic patterns are associated with high-risk sexual behaviors, suggesting that while perhaps less concerning from a drug-dependence perspective, they may nonetheless contribute substantially to HIV transmission rates among SUMSM [24, 38].

Polysubstance use patterns (i.e., taking more than one substance concurrently, or periodically over a period of time) are often the norm among SUMSM. For example, exclusive of alcohol use, 93% of non-injection methamphetamine using MSM in the San Francisco NHBS sample reported polysubstance use during the prior 12 months before interview; similarly, 94% of cocaine and 90% of poppers users reported using other substances [39]. In a sample of HIV-positive methamphetamine using MSM, 95% of respondents were polysubstance users [40]. Similar findings were reported among samples of MSM club drug users and African American MSM [41–43]. Among various

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MSM samples, 11–44% of participants reported recent use of three or more substances [44–48].

We need to better understand how to address the wide spectrum of non-injection substance use patterns among MSM. At one extreme are the substance-dependent MSM for whom risk behavior and substance use morbidity may be especially high. Yet, there is also the larger population of MSM whose substance use is infrequent, but for whom it is associated with harmful use and HIV risk. It is unclear where on the substance use spectrum interventions should be invested to have the maximum effectiveness. There is also little understanding as to why, with overall substance use being so prevalent among MSM, only a small proportion develops dependence. Similarly, there is a paucity of understanding as to why some MSM do not use substances, and what factors confer protective effects or relative resiliency with regard to substance use [49]. Finally, how substance use patterns vary across the life trajectories of MSM and how those variations coincide with major life milestones (e.g., sexual debut, coming out, dating, aging, etc.), remains largely unexplored.

Current Interventions

Interventions in Drug Treatment Settings

SUMSM intervention trials have largely mirrored traditional addiction research, with a focus on treating those with drug dependence in substance use treatment settings. Most interventions emphasize cognitive or psychosocial approaches to reduce non-injection substance use and related risks [5, 50, 51]. Some trials focusing on treatment-seeking, methamphetamine-dependent MSM have been associated with reduced substance use and sexual risk behavior [52]. There is limited evidence that behavioral interventions with gay-specific components have a greater effect on reducing methamphetamine use, lending support for developing more culturally tailored interventions [5]. The support for contingency management's acceptability and efficacy is mixed [52, 53]. While intensive behavioral interventions appear in some cases to reduce cocaine use and sexual risk among general populations, there is little evidence of what may work best among MSM [50, 51, 54, 55]. Similarly, for alcohol, the most commonly used substance among MSM, there is a marked paucity of behavioral trials specific to the population [56, 57].

Interventions Outside of Drug Treatment Settings

Most SUMSM do not access drug treatment, reinforcing the need to develop interventions outside of treatment settings that may reduce HIV risk behavior [58–60].

Project MIX, one of the largest randomized controlled trials specific to SUMSM to date, tested a group intervention outside of treatment centers. The study focused on reducing sexual risk behavior, taking a risk-reduction approach rather than an abstinence-based approach. Project MIX enrolled a diverse cohort of SUMSM, including polysubstance users and SUMSM of color. Compared to an attention control arm, the intervention was not more efficacious in reducing sexual risk behaviors or substance use; substantial reductions occurred in both arms [61]. Another recent trial evaluating motivational interviewing among MSM club drug users found significant reductions in self-reported club drug use in the intervention arm compared with the control arm but only among the subset of non-severely dependent participants. Moreover, the study found no significant differences in sexual risk reduction [62]. While these trials showed it is possible to enroll and retain SUMSM in interventions outside of drug treatment settings, and that participation is associated with reduced risk, it remains to be determined which interventions are efficacious.

Pharmacologic Interventions for Dependent SUMSM

Given their cost, potential side effects, and the potential monitoring required, it is likely that pharmaceutical treatments would be targeted to dependent SUMSM, for whom even intensive behavioral interventions may be insufficient to address the underlying chemical and psychological changes that occur as a result of drug dependency. Like any biomedical intervention, medications should not be viewed as stand-alone interventions. Pharmacotherapies may have the most potential to complement existing behavioral strategies [55, 63]. A recent NIDA-funded study conducted by our group determined that it was feasible to enroll and retain methamphetamine-dependent, actively-using MSM in a pharmacologic trial with a behavioral platform of risk-reduction counseling [64]. Unfortunately, effective pharmacotherapies for most non-injection substances, including cocaine and methamphetamine, remain elusive [5, 55, 65, 66]. While a variety of medications have shown efficacy in reducing alcohol use, we are unaware of published studies demonstrating their acceptability among MSM, or their efficacy in reducing alcohol-related sexual risk behavior.

Because of the high prevalence of polysubstance use among SUMSM, medications that can help reduce dependence on various classes of drugs may be optimal. One promising option is naltrexone, an FDA approved medication to treat alcohol dependence that in one study reduced amphetamine relapse [67]. Given the potential barriers to medication adherence among non-injection substance users, interventions with adherence support and formulations that will minimize patient burden (e.g.,

slow-release intramuscular medications or non-daily dosing) could be explored [68, 69].

Future Research Directions for SUMSM Outside of Drug Treatment Settings

The Centers for Disease Control and Prevention-funded Project ECHO study is an ongoing behavioral intervention trial for non-treatment seeking MSM who are episodic substance users (clinicaltrials.gov identifier: NCT01279044) [70]. The study will determine whether brief, personalized cognitive risk-reduction counseling is effective in reducing sexual risk behavior in the setting of substance use. This study's underlying hypothesis is that a brief intervention may be sufficient to change risk among non-dependent, episodic users whose lives may be less complicated by substance abuse-related factors compared with drug-dependent MSM [70].

Specific areas that may require increased attention include settings and dimensions that facilitate non-injection substance use among MSM, such as party events, sex clubs, and websites that cultivate the “party and play” (i.e., sex with drugs) subculture. Potential interventions that may warrant further investigation include: Ghaziani and Cook's 5-by-5 circuit party matrix strategy of engaging critical circuit party stakeholders and participants by using theoretically-based harm reduction messages; Internet-based outreach strategies such as the “Cyber-Based Education and Referral/Men for Men” (CyBER/M4 M); and behavioral change theory-based risk reduction interventions delivered via mobile text messages or smartphone applications to MSM [71–74]. Other programs for SUMSM, such as support groups, economic incentive programs, and mobile harm reduction services, could be implemented and tested in community settings to engage hard to reach populations [75–77]. The effectiveness of these interventions in reducing HIV risk, substance use, and substance use-related harms needs to be proven.

Addressing Other Health Needs of SUMSM

Routine testing for HIV and other sexually transmitted infections should also be expanded among SUMSM. Given the high rates of sexual risk associated with this population, screening every 3–6 months is prudent. Other important general healthcare approaches include outreach efforts to expand HIV testing and treatment among SUMSM not engaged in care, expanding beyond partner notification to encourage for routine testing for sex partners and social network associates of SUMSM. As is the case with substance users in general, ongoing non-injection substance use should not preclude consideration of antiretroviral therapy (ART) for HIV-infected SUMSM. Aggressive

efforts should be made to effectively engage HIV-positive SUMSM into care and provide support necessary for voluntary initiation of ART and attendant virologic suppression for their own individual health benefit, as well as to reduce forward transmission. The National Institute of Health's “Test and Treat” initiatives, including NIDA's support for “Seek, Test, Treat and Retain” research, may be excellent opportunities to determine how to best get SUMSM tested and into medical care [78, 79].

Additionally, SUMSM may have co-morbidities or life experiences that additively exacerbate susceptibility to HIV infection and may perpetuate substance use [49]. These may include mental illness, post-traumatic stress, sexual trauma, domestic violence and other underlying sociocultural factors [5, 49, 59, 80, 81]. How to best intervene on these multiple, intertwined and highly complex factors that converge to create “syndemics” among MSM remains an area of active research [80, 82].

Structural Factors

The structural factors that may contribute to substance use among MSM remain largely unexplored and under-researched. This is concerning because addressing these factors to improve MSM health overall may have a larger population-level impact than individual interventions [83]. Certainly, legalizing syringe exchange and making clean supplies available to injectors can be expected to benefit the SUMSM who inject [84]. However, it is unclear what other policies, laws, or social forces contribute to the high prevalence of non-injection substance use and related harms, including sexual risk, among MSM. Substance use is a largely criminalized and stigmatized practice. Evidence shows limited success from prohibitive approaches to drug control. For example, precursor regulation for methamphetamine production had mixed and mostly short-term effects on the supply and purity of the drug [5, 85]. Decriminalization may reduce substance use-related harms [86–88]. “Wars on drugs” are expensive, have little or no apparent effect, and in some cases have led to catastrophic casualties and egregious human rights violations [5, 86, 89]. In recognition of these failures, The Vienna Declaration, released at the XVIII International AIDS Conference, calls for reorienting drug policies toward those that are evidence-based [86].

Conclusion

SUMSM are at high risk for HIV infection, yet there are critical gaps in knowledge regarding the contribution of non-injection substance use to the HIV epidemic among US MSM. The field will benefit from additional insights on

the natural history of non-injection substance use and the predictors of different drug use trajectories. Substance treatment and HIV prevention services should be employed to address the needs of SUMSM. Efforts to develop evidence-based interventions need to be accelerated. Emphasis should be placed on finding sustainable, effective strategies that deal with non-injection substance use and risk for HIV infection. While we have focused on US MSM, emerging evidence indicates that non-injection substance use is also driving the MSM HIV epidemic in other regions; yet, the majority of intervention trials have been conducted within the US and other Western countries [5, 90–94]. Ultimately, researchers should strive to develop efficacious intervention strategies that are scalable, cost-effective and sustainable for the diversity of SUMSM.

Acknowledgments The authors would like to thank Michaela Varisto for her editorial assistance. The authors were partly funded by the US National Institute for Drug Abuse (R01-DA022190).

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