



Substance use and drinking outcomes in Personalized Cognitive Counseling randomized trial for episodic substance-using men who have sex with men^{☆,☆☆}



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ABSTRACT

Background: Non-dependent alcohol and substance use patterns are prevalent among men who have sex with men (MSM), yet few effective interventions to reduce their substance use are available for these men. We evaluated whether an adapted brief counseling intervention aimed at reducing HIV risk behavior was associated with secondary benefits of reducing substance use among episodic substance-using MSM (SUMSM).

Methods: 326 episodic SUMSM were randomized to brief Personalized Cognitive Counseling (PCC) intervention with rapid HIV testing or to rapid HIV testing only control. Both arms followed over 6 months. Trends in substance use were examined using GEE Poisson models with robust standard errors by arm. Reductions in frequency of use were examined using ordered logistic regression.

Results: In intent-to-treat analyses, compared to men who received rapid HIV testing only, we found men randomized to PCC with rapid HIV testing were more likely to report abstaining from alcohol consumption (RR = 0.93; 95% CI = 0.89–0.97), marijuana use (RR = 0.84; 95% CI = 0.73–0.98), and erectile dysfunction drug use (EDD; RR = 0.51; 95% CI = 0.33–0.79) over the 6-month follow-up. PCC was also significantly associated with reductions in frequency of alcohol intoxication (OR = 0.58; 95% CI = 0.36–0.90) over follow-up. Furthermore, we found PCC was associated with significant reductions in number of unprotected anal intercourse events while under the influence of methamphetamine (RR = 0.26; 95% CI = 0.08–0.84).

Conclusion: The addition of adapted PCC to rapid HIV testing may have benefits in increasing abstinence from certain classes of substances previously associated with HIV risk, including alcohol and EDD; and reducing alcohol intoxication frequency and high-risk sexual behaviors concurrent with methamphetamine use.

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1. Introduction

Alcohol and substance use are prevalent among men who have sex with men (MSM). Based on National HIV Behavioral Surveillance (NHBS) data, 42% of MSM used substances recreationally in the past year (Sanchez et al., 2006). Moreover, National Household Survey on Drug Abuse (NHSDA) data show that MSM have higher lifetime prevalence of substance use and higher prevalence of “dysfunctional” use (i.e., having any symptoms of drug dependence) relative to other men in the United States (Cochran et al., 2004). NHBS data also suggest that among MSM, heavy episodic drinking (“binge-drinking”), defined as having five or more drinks on a

single occasion, exceed rates reported for the general population (Finlayson et al., 2011; Centers for Disease Control and Prevention, 2012).

It is important to note, however, that most alcohol and/or substance-using MSM (SUMSM) do not meet criteria for dependence (Colfax et al., 2004; Santos et al., 2011); only 5.7% of MSM have drug dependence syndrome in NHSDA (Cochran et al., 2004). Nevertheless, alcohol and/or substance use have important public health implications in their own right: 4.8% of the global burden of disease and 2.9 million deaths attributed to alcohol and drug use in 2010 (Lim et al., 2012). Moreover, use of alcohol/substances are independently associated with HIV-related sexual risk behaviors, as well as HIV seroconversion among MSM (Drumright et al., 2006; Koblin et al., 2006; Ostrow et al., 2009; Sander et al., 2013; Vosburgh et al., 2012). This may be compounded by the limited number of evidence-based behavioral interventions for non-dependent substance users; none of which are efficacious among MSM (Centers for Disease Control and Prevention, 2013). Although brief behavioral interventions, such as motivational interviewing have shown promise in addressing substance and alcohol abuse in the general population (Baker et al., 2001, 2005; Daepfen et al., 2011; Smedslund et al., 2011), efficacy of brief interventions is less compelling among MSM (Colfax et al., 2010; Morgenstern et al., 2009). Given the high prevalence of non-dependent substance use patterns among MSM, there is a great need to develop brief interventions that may be more suitable to this population than traditional intensive treatment programs for abuse/dependence.

We previously reported that the evidence-based Personalized Cognitive Counseling (PCC) intervention (Dilley et al., 2007), adapted for episodic SUMSM (Knight et al., 2013), was associated with significant reductions in number of unprotected anal intercourse (UAI) events with most recent non-primary partners among a subgroup of non-dependent participants (Coffin et al., 2014), compared to rapid HIV testing only. As a secondary data analysis, we sought to evaluate whether PCC added to rapid HIV testing had collateral effects on alcohol/substance use outcomes among episodic SUMSM.

2. Methods

2.1. Study design

This is a secondary data analysis testing the efficacy of PCC in reducing alcohol and substance use outcomes. The study, Project ECHO, was conducted in San Francisco, CA from May, 2010 to May, 2012 (clinicaltrials.gov = NCT01279044; trial ended when target enrollment accrued and planned 6-month follow-up completed). Study procedures were approved by the institutional review board for the University of California, San Francisco.

Study methods have been reported elsewhere (Coffin et al., 2014). Briefly, 326 HIV-negative, SUMSM, ≥ 18 years old, were randomized 1:1 (using sequentially numbered opaque envelopes from a computer-generated allocation sequence provided by an offsite statistician) by research associates to PCC adapted for SUMSM (Knight et al., 2013) or control, and followed at 3 and 6 month visits. SUMSM were eligible if they reported no more than episodic use (defined as less than weekly use (Colfax et al., 2004)) within two hours before/during sex of one of the following target substances previously identified as drivers of HIV risk among MSM: methamphetamine, cocaine/crack, amyl nitrite (“poppers”), and binge-drinking. Sample size of 326 was determined based on parameters for primary outcomes of the trial (Coffin et al., 2014).

PCC sessions were delivered at baseline, with booster sessions at 3-month visits. PCC involved discussion of participants' self-justifications (e.g., “Alcohol and/or drugs make it easier to have

sex. . .”) to minimize known risks during a recent UAI event while intoxicated from alcohol/substances. Sessions were tailored to specific substances and UAI events reported. Counselors also explored strategies to avoid future similar high-risk situations (Dilley et al., 2002, 2007). Rapid HIV testing was conducted at all visits.

2.2. Data collection/analysis

Self-reported alcohol/substance use was collected using audio computer-assisted self-interview (ACASI) with a 90-day recall period for all visits. The severity of dependence scale (SDS) for our target substances was also measured (Gossop et al., 1995). Event-level data were collected on substances used within 2 h before/during UAI events (Colfax et al., 2004; Leigh and Stall, 1993). We analyzed between group differences by intention-to-treat, without any regard to adherence to study procedures, but did not impute missing outcomes. We used generalized estimating equations (GEE) models to evaluate group-specific linear trends outcomes across the three study visits, with robust standard errors to account for within-subject correlation as well as potential overdispersion of count outcomes. Binary and count outcomes were examined using Poisson and negative binomial models, respectively, while ordinal outcomes including SDS, frequency of alcohol intoxication (i.e., being “drunk or buzzed”), and frequency of substance use were assessed using the proportional odds/ordered logistic regression model. In all models, the effect of the intervention was estimated by the interaction between the treatment assignment indicator and a linear term in time. The exponentiated coefficient for interaction in the Poisson and negative binomial models is interpretable as the ratio of the intervention and control rates of change in the mean value of the outcome, or rate-ratio (RR). We checked for imbalances at baseline, departures from linear trends, and violations of the proportional odds assumption. Analyses were conducted with STATA 12.0 (College Station, TX).

3. Results

The study recruited a diverse sample of 326 SUMSM (47% white, 26% Latino/Hispanic, 11% Asian/Pacific Islander, 10% black/African American, and 6% mixed/other race). Mean age was 33.6 years, and 71% attended some/finished college. Participant baseline characteristics in the two arms were similar (see Supplementary Table).

3.1. Alcohol and substance use prevalence

At baseline, the most common substances used were marijuana (61.7%), cocaine (32.5%), ecstasy (22.4%), erectile dysfunction drugs (EDD; 18.7%), prescription drugs (11.3%), and methamphetamine (9.5%). Nearly all participants (96.6%) consumed alcohol. Alcohol and substance use patterns between study arms presented in Table 1. There were 3 and 11 participants lost to follow-up in the control and PCC groups, respectively. In intention-to-treat analysis, 164 control and 162 PCC participants were included, regardless of adherence to group assignment. There were no study related adverse events.

3.2. Changes in substance use

A greater proportion of men in PCC abstained from alcohol, marijuana, and EDD during follow-up (Fig. 1). Over the study period, PCC participants reported significantly greater rates of abstinence from alcohol (RR = 0.93; 95% confidence interval (CI) = 0.89–0.97), marijuana (RR = 0.84; 95% CI = 0.73–0.98) and EDD (RR = 0.51; 95% CI = 0.33–0.79), than controls. In addition, PCC participants reported greater declines in mean number of UAI events while under the influence of methamphetamine (RR = 0.26; 95% CI = 0.08–0.84) and

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