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## ABSTRACT

Although sexual risk behavior among substance users is associated with HIV transmission, gender-specific patterns in sexual risk have previously received less systematic study within this population. This study examined gender differences in a variety of sexual risk behaviors, such as multiple partners, type of partner (primary or non-primary), site of penetration (vaginal or anal), protection (condom use or no condom use), substance use before engaging in sexual intercourse and partners' HIV status (HIV-positive, negative, and unknown). Participants were 777 men who have sex with women (men) and 504 women who have sex with men (women). All clients were from 12 US community-based substance use disorder treatment programs. Zero-inflated negative binomial (ZINB) and Negative binomial (NB) models were used in the statistical analysis. Compared to women, men reported significant greater odds of abstinence from unprotected sex acts with primary partner (OR=1.27, 95% CI=1.03-1.57), non-primary partners (OR=1.4, 95% CI=1.00-1.97) and with HIV unknown serostatus partners (OR=1.62, 95% CI=1.25-2.1). In those who are non-abstinence of sexual risk behaviors, men reported significantly more unprotected sex acts with their non-primary partners (IRR=1.8, 95% CI=1.21-2.69) and unprotected anal sex acts (IRR=1.74, 95% CI=1.11-2.72), but fewer unprotected sex partners (IRR=0.87, 95% CI=0.77-0.99), unprotected vaginal sex acts (IRR=0.83, 95% CI=0.69-1.00), and unprotected sex acts within two hours of using drugs or alcohol (IRR=0.7, 95% CI=0.53-0.90). Results were controlled for time, ethnicity, age, education, marital status, income and history of incarceration. No significant gender differences were identified in overall unprotected sex acts or unprotected sex acts with HIV-negative partners. Gender specific intervention approaches may be indicated.

**Key words:** Sex risk behavior - Gender difference - Substance use treatment