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Associations of Drug Use, Violence, and Depressive Symptoms with Sexual Risk Behaviors Among Women with Alcohol Misuse

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A B S T R A C T

Background: Alcohol misuse is associated with increased human immunodeficiency virus sexual risk behaviors by women. Drug use, intimate partner violence (IPV), and depressive symptoms frequently co-occur, are well-recognized alcohol misuse comorbidities, and may interact to increase risk behaviors. Using a syndemic framework we examined associations between drug use, IPV, and depressive symptoms and sexual risk behaviors by 400 women with alcohol misuse attending an urban sexually transmitted infections clinic.

Methods: Participants completed computer-assisted interviews querying drug use, IPV, and depressive symptoms and sexual risk behavior outcomes—unprotected sex under the influence of alcohol, sex for drugs/money, and number of lifetime sexual partners. We used multivariable analysis to estimate prevalence ratios (PR) for independent and joint associations between drug use, IPV, and depressive symptoms and our outcomes. To investigate synergy between risk factors we calculated the relative excess prevalence owing to interaction for all variable combinations.

Results: In multivariable analysis, drug use, IPV, and depressive symptoms alone and in combination were associated with higher prevalence/count of risk behaviors compared with women with alcohol misuse alone. The greatest prevalence/count occurred when all three were present (unprotected sex under the influence of alcohol [PR, 2.6; 95% confidence interval, 1.3–4.9]), sex for money or drugs [PR, 2.6; 95% confidence interval, 1.7–4.2], and number of lifetime partners [PR, 3.2; 95% confidence interval, 1.9–5.2]). Drug use, IPV, and depressive symptoms did not interact synergistically to increase sexual risk behavior prevalence.

Conclusions: A higher prevalence of sexual risk behaviors by women with alcohol misuse combined with drug use, IPV, and depressive symptoms supports the need for alcohol interventions addressing these additional comorbidities.

Alcohol misuse or unhealthy alcohol use—including heavy alcohol use, binge drinking, and alcohol use disorder—is a significant public health concern with wide ranging social, psychological, and physical consequences (Public Health Service, 2016). Alcohol misuse in women is defined by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) as more than drinks on any single day or more than seven drinks per week (NIAAA, 2015a). Among women in the United States who consume alcohol, an estimated 13% have more than seven drinks per week (NIAAA, 2015b). For women, alcohol use is intertwined with both intrapersonal and interpersonal factors.

Romantic partners, for example, have been found to significantly influence women's heavy episodic drinking (Bartel et al., 2017). In a study of women attending a sexually transmitted infections (STI) clinic, binge drinking was associated with a history of multiple sexual partners, a current STI diagnosis, and engagement in receptive anal sex (Hutton, McCaul, Santora, & Erbelding, 2008). Anal sex is more likely to be associated with condomless sex compared with vaginal sex and unprotected

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receptive anal sex is the riskiest sexual behavior for human immunodeficiency virus (HIV) transmission (Baggaley, White, & Boily, 2010). Unprotected sexual intercourse, multiple sexual partners, and a prior history of STIs are several examples of associations between risky sexual behaviors and alcohol use (Cooper, 2002; Hutton et al., 2008; Kiene, Barta, Tennen, & Armeli, 2009; Rehm, Shield, Joharchi, & Shuper, 2012).

Drug use, intimate partner violence (IPV), and depressive symptoms are well-recognized comorbidities of alcohol misuse (Boden & Fergusson, 2011; La Flair et al., 2012; Stinson et al., 2005). Like alcohol misuse, these comorbidities are independently associated with risky sex behaviors for HIV acquisition. Intravenous drug use is a direct method of HIV transmission (Centers for Disease Control and Prevention, 2017). Both injection and noninjection drug use can also lead to greater disinhibition, impaired cognition, increased likelihood of multiple sexual partners, and consequently increased HIV risk through engagement in risky sexual behaviors (Browne & Wechsberg, 2010; Stockman, Campbell, & Celentano, 2010). IPV is linked to condomless sex, difficulty negotiating condom use, and having multiple partners (Cohen, Deamant, & Barkan, 2000; Hamburger et al., 2004; Senn et al., 2006). Depressive symptoms have also been associated with increased HIV-related risk factors such as negative condom-related attitudes, which influenced greater engagement in unprotected sex and a prior history of STIs (Orr, Celetano Santelli, & Burwell, 1994; Laughon et al., 2007; Klein, Elifson, & Sterk, 2008). Klein, Elifson, and Sterk (2008) hypothesized that this relationship between depressive symptoms and risky sexual behaviors may be explained by the hopelessness more women with depression experience, which in turn makes them less willing to engage in healthy protective behaviors against HIV.

Drug use, IPV, and depression are each independently associated with HIV sexual risk behaviors and all are frequently comorbid with alcohol misuse, yet the possible interaction of these factors on sexual risk behaviors by women with alcohol misuse is not as well-described. Where co-occurring risk factors operate synergistically to produce worse health outcomes than do the risk factors independently, this effect is characterized as syndemic (Singer & Clair, 2003). Identifying a syndemic is critical because it directs interventions to address the risk factors simultaneously to increase intervention effectiveness.

Syndemic models have been widely used in describing the co-occurring epidemics of substance use, violence, and HIV/AIDS on health outcomes (Meyer, Springer, & Altice, 2011). More recent studies have demonstrated the usefulness of syndemic frameworks to examine psychosocial factors' impact on sexual risk (Koblin et al., 2015; Batchelder et al., 2016; Senn et al., 2010). Fewer studies have examined how syndemic factors may influence HIV risk behaviors in the context of alcohol misuse (Peasant, Sullivan, Weiss, Martinez, & Meyer, 2015). A number of substance abuse, violence, and HIV/AIDS studies and studies that investigated HIV risk behaviors among women at risk of HIV group alcohol with other psychoactive drugs as a "substance use" variable (Illangasekare, Burke, Chander, & Gielen, 2013; Senn, Carey, & Vanable, 2010; Surratt, Kurtz, Chen, & Mooss, 2012). We contend that collapsing alcohol into a single variable with other illicit drugs precludes an estimate of the relationship between risky sexual behaviors and alcohol misuse in comparison with polysubstance use. Separating alcohol use from other substances also presents an opportunity to examine if there is an interaction between alcohol misuse with drug use, IPV, and depressive symptoms in a way that influences involvement in risky sexual behaviors. This study's objective was to use a syndemic framework to investigate individual and joint relationships between drug use, IPV, and depressive symptoms on risky sexual behaviors by women at risk for HIV who are also engaged in alcohol misuse.

Methods

Study Sample

We analyzed baseline data from a randomized controlled trial testing the effectiveness of an alcohol and sexual risk reduction intervention among women attending an urban STI clinic. The study recruited women 18 years of age or older from a Baltimore STI clinic between June 2012 and May 2015. Eligible women reported sexual activity with men in the previous 6 months, and endorsed any of the following in the prior 3 months: 1) at least two binge drinking episodes, 2) an average of more than seven drinks per week, or 3) at least two episodes of sex under the influence of alcohol. We collected baseline data through an audio computer administered self-interview that included questions on drug use, alcohol use, depressive symptoms, experience of physical and sexual IPV, number of sexual partners and sexual risk behaviors, and a variety of demographic characteristics including age, race, education, and housing status. This research protocol was approved by the Johns Hopkins University School of Medicine Institutional Review Board.

The randomized controlled trial enrolled 439 women. We excluded 39 women who declined to respond to IPV questions ($n = 1$) or who did not meet NIAAA criteria for unhealthy alcohol use ($n = 17$, eligible for the parent study because they reported sex under the influence of alcohol) or who disclosed that they were HIV positive ($n = 21$). Alcohol misuse/unhealthy drinking was determined by self-reported frequency and average quantity of alcohol consumed, and was defined using the NIAAA criteria in the past 6 months (NIAAA, 2015a). The final analytic sample included 400 women.

Syndemic Risk Factors

Drug use

Women were asked how often they used cocaine, amphetamines or stimulants, heroin, benzodiazepines, prescription opioids for nonmedical use, and marijuana in the prior 6 months (e.g., never, once or twice, monthly, weekly, daily, or almost daily; World Health Organization, 2006). We classified women who reported cocaine, amphetamines or stimulants, heroin, benzodiazepines, and/or prescription opioids for nonmedical purposes in the prior 6 months as positive for drug use. Marijuana use was excluded from the drug use variable owing to its high prevalence in our sample (57%) and less frequent association with risky sexual behavior compared with other illicit drugs (Andrade, Carroll, & Petry, 2013; Hendershot, Magnan, & Bryand, 2010; Kingree, Braithwaite, & Woodring, 2000).

IPV

In the context of "relationships they had in the prior year," we classified women who responded affirmatively to "Has your partner ever abused you physically?" or "Has your partner ever abused you sexually?" as positive for IPV. This binary measurement of IPV defined as physical or sexual violence is consistent with prior research (Abramsky et al., 2011; Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006).