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Gender-based violence and HIV sexual risk behavior: Alcohol use and mental health problems as mediators among women in drinking venues, Cape Town

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ABSTRACT

Gender-based violence is a key determinant of HIV infection among women in South Africa as elsewhere. However, research has not examined potential mediating processes to explain the link between experiencing abuse and engaging in HIV sexual risk behavior. Previous studies suggest that alcohol use and mental health problems may explain how gender-based violence predicts sexual risk. In a prospective study, we examined whether lifetime history of gender-based violence indirectly affects future sexual risk behavior through alcohol use, depression and post-traumatic stress disorder (PTSD) in a high-risk socio-environmental context. We recruited a cohort of 560 women from alcohol drinking venues in a Cape Town, South African township. Participants completed computerized interviews at baseline and 4 months later. We tested prospective mediating associations between gender-based violence, alcohol use, depression, PTSD, and sexual risk behavior. There was a significant indirect effect of gender-based violence on sexual risk behavior through alcohol use, but not mental health problems. Women who were physically and sexually abused drank more, which in turn predicted more unprotected sex. We did not find a mediated relationship between alcohol use and sexual risk behavior through the experience of recent abuse or mental health problems. Alcohol use explains the link between gender-based violence and sexual risk behavior among women attending drinking venues in Cape Town, South Africa. Efforts to reduce HIV risk in South Africa by addressing gender-based violence must also address alcohol use.

Introduction

More than any country in the world, South Africa has the highest number of people living with HIV/AIDS, with an estimated 5.6 million people in 2009. The HIV/AIDS epidemic in this country is primarily driven by heterosexual sex, and women comprise the majority of HIV infections (UNAIDS, 2009, p. 364). Thus, it is important to examine the factors that drive heterosexual risk behavior among women in South Africa. Gender-based violence has long been recognized and continues to be a strong factor in determining women's HIV risk within sub-Saharan Africa and in South Africa in particular (Campbell, 2002; Dunkle et al., 2004; Dworkin & Ehrhardt, 2007; García-Moreno & Watts, 2000; Ghanotakis, Mayhew, & Watts, 2009; Maman, Campbell, Sweat, & Gielen, 2000; UNAIDS & WHO, 2005). Intimate relationship violence directed at women is prospectively associated with HIV infection in women. For example, Jewkes and colleagues showed that among women in South Africa, those who were HIV negative at a baseline assessment were more likely to become HIV infected if they experienced violence from a male partner compared to women who did not experience such violence (Jewkes, Dunkle, Nduna, & Shai, 2010). Thus, research has confirmed a link between gender-based violence and HIV infection. Unfortunately, little is known about the conditions and mechanisms that may *explain* this relationship. That is, research has not examined mediating processes by which gender-based violence may be indirectly affecting sexual risk behavior and ultimately, HIV infection. Two potential mediating factors in explaining the relationship between intimate partner violence and HIV risk are alcohol use and mental health problems.

Violence, alcohol use, and mental health represent a co-occurring triad in relation to HIV risk (Meyer, Springer, & Altice, 2011). Syndemic Theory has described how the co-occurrence of multiple risk factors (e.g., abuse, substance use, depression)

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compounds risk for HIV infection (Singer, 2009; Singer & Clair, 2003). The Substance Abuse, Violence, and AIDS (SAVA) model, derived from Syndemic Theory, explains how the simultaneous prevalence of these risk factors and epidemics interact and mutually reinforce one another (Singer, 1996). For example, research has shown how alcohol use is associated with mental health problems (Thornton et al., 2012). For example, drinking may be used as a coping behavior with the aim of reducing stress and negative emotions (Bizzarri et al., 2009; Currie, Hodgins, el-Guebaly, & Campbell, 2001; Gonzalez, Zvolensky, Vujanovic, Leyro, & Marshall, 2008; Grant, Stewart, & Mohr, 2009). In addition, individuals with alcohol problems are at an increased risk of depression (Fergusson, Boden, & Horwood, 2009) and PTSD symptoms, or an exacerbation of such symptoms (Kofoed, Friedman, & Peck, 1993). Further, both alcohol use and mental health problems are also associated with gender-based violence. Women who experience violence often engage in alcohol use. The WHO's multi-country study on women's health and domestic violence showed that across countries alcohol use was a robust correlate with experiences of violence (Abramsky et al., 2011). Further, violent victimization is associated with poor mental health. Women who experience violence from a male sex partner experience significant mental health problems, sometimes lasting for years after the incidents (Wang & Rowley, 2007). Data from large population-based surveys in countries around the world have shown that experiencing gender-based violence is associated with higher rates of mental disorders, including depression and post-traumatic stress disorder (PTSD) (Ludermir, Schraiber, D'Oliveira, França-Junior, & Jansen, 2008; Rees et al., 2011). Studies in South Africa have also provided evidence that support this relationship. One study by Sikkema et al. (2011) has shown that among heavy drinkers in Cape Town, South Africa, lifetime experiences of physical violence from a sex partner are associated with both a greater likelihood of depression and PTSD. However, limited research has examined how alcohol use, mental health problems, and violence may not only co-occur or be linked, but also how these three may be causally related through a single or multiple processes.

In addition to gender-based violence, drinking and poor mental health are each associated with sexual high risk behavior. In fact, alcohol use is among the most prevalent behaviors associated with sexual risk for HIV (Kalichman, Simbayi, Kaufman, Cain, & Jooste, 2007; Morojele et al., 2006; Weinhardt & Carey, 2000). Consumption of alcohol increases risk via a number of mechanisms, including reducing social and sexual inhibitions, risk-related expectations, and the psychogenic effects of alcohol on decision-making (Cook & Clark, 2005). Research has also shown that poor mental health, including depression and PTSD, is associated with greater sexual risk behaviors. For example, among urban STI clinic patients, depressed individuals had more lifetime sex partners and were more likely to have sex while "high" on drugs or drunk on alcohol, even after controlling for substance use (Hutton, Lyketsos, Zenilman, Thompson, & Erbelding, 2004). In addition, among men who have sex with men, research has shown that having PTSD symptoms was positively associated with engaging in unprotected anal sex (Reisner, Mimiaga, Safren, & Mayer, 2009). Finally, among African American women, higher depression was associated with higher HIV risk behaviors, including unprotected sex and having sex with an injection drug user (Klein, Elifson, & Sterk, 2008). In their study, Sikkema et al. (2011) showed that among female patrons of alcohol-serving venues, depression and PTSD were both positively associated with sexual risk behavior.

Altogether, gender-based violence, alcohol use, mental health problems, and sexual risk behavior are known to have significant associations with one another. In the current study, we aim to show a prospective mediating process of these relationships. We surveyed a cohort of women recruited from informal drinking venues in a Cape Town, South Africa Township at two time points. High rates of drinking are found in these venues, and they are places where individuals often meet sex partners (Kalichman et al., 2007; Morojele et al., 2006). Thus, these venues represent an intersection of women's risk for relationship violence and HIV infection (Weir et al., 2003).

In an effort to better elucidate how gender-based violence, alcohol use and mental health problems each relate to HIV sexual risk behavior, we examined two alternate models. In the first model, we predicted that gender-based violence would be prospectively associated with sexual risk behavior through alcohol use and mental health problems. We therefore predicted that there is an indirect effect of gender-based violence on sexual risk that is mediated by alcohol use, depression, and PTSD. In this model, we examined alcohol use and mental health problems as simultaneous mediators, thereby allowing us to examine whether both independently predict sexual risk behavior. In the alternative model, we examined whether higher alcohol use prospectively predicts later higher sexual risk behavior, as mediated by recent experience with gender-based violence and mental health problems. To our knowledge, this is the first study to prospectively examine the mediating processes by which gender-based violence affects risk for HIV infection in a high HIV prevalence setting.

Method

Participants and setting

Participants were a cohort of women attending shebeens in a peri-urban township in Cape Town, South Africa. The township is located within 20 km of Cape Town's central business district and consists of people of mixed race (i.e., Coloreds) and Black Africans. A relatively new township, the community was established in 1990 and is one of the first townships in South Africa to racially integrate. Large numbers of indigenous Black Africans started settling in and around the township during the 1990's after government policies of racial segregation during Apartheid ended. The township sampled for this study, therefore, offers the opportunity to survey women of varying cultures residing within one South African community.

Venue selection

Using an adaptation of the Priorities for Local AIDS Control Efforts (PLACE) community mapping methodology (Weir, Morroni, Coetzee, Spencer, & Boerma, 2002), we located and defined alcohol serving establishments in the township for the current study. Alcohol serving venues were systematically identified by approaching a total of 509 members of the community at public places such as bus stands and markets, and asking them to identify places where people go to drink alcohol. Venues were eligible if they had space for patrons to sit and drink, reported $>$50 unique patrons per week, had $>$10% female patrons, and were willing to have the research team visit periodically over the course of a year.

Cohort recruitment

Women were recruited from the 12 study venues. Following a week of regular observations in the venues, during which time research staff gained familiarity with the setting and patrons, the staff invited female patrons in the venue to be part of a cohort study to examine drinking and sexual behavior over the course of one year. Informed consent was obtained from those interested in participating. Women were eligible to participate if they were (a) at least 18 years of age; (b) drank in the venue and (c) lived in the