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### Research paper

# Substance use and HIV infection awareness among HIV-infected female sex workers in Lilongwe, Malawi



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#### ABSTRACT

Background: HIV diagnosis, the first step in HIV care and treatment engagement, may be inhibited by substance use among female sex workers (FSW). We assessed the relationship between alcohol and cannabis use and lack of HIV infection awareness among HIV-infected FSW in Lilongwe, Malawi. *Methods:* From July to September, 2014, 200 FSW aged ≥18 years were enrolled using venue-based sampling to examine substance use, HIV testing history, and serostatus ascertained by HIV rapid test. We used Poisson regression with robust variance estimates to estimate the associations of alcohol and cannabis use and lack of HIV infection awareness.

Results: Of the 138 HIV-infected FSW, 20% were unaware of their HIV infection, with 70% not testing within 6 months prior. According to the Alcohol Use Disorder Identification Tests (AUDIT), 55% of FSW unaware of their HIV infection reported hazardous, harmful, or dependent alcohol consumption. We observed a dose–response relationship between alcohol use and lack of HIV infection awareness, with alcohol dependency significantly associated with lack of HIV infection awareness (adjusted prevalence ratio: 3.0, 95% CI: 1.3, 6.8). Current cannabis use was uncommon (26%) among unaware HIV-infected FSW and weakly associated with lack of HIV infection awareness adjusted prevalence ratio: 1.1, 95% CI: 0.5, 2.5)

*Conclusion:* Increased levels of alcohol use is associated with lack of HIV infection awareness among HIV-infected FSW in Malawi. Frequent, consistent HIV testing integrated with alcohol reduction strategies could improve the health and infection awareness of substance-using FSW.

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## Introduction

Female sex workers (FSW) have been a key focus for HIV prevention efforts for over three decades, but their risk for acquiring HIV remains disproportionately high (Baral et al., 2012; Centers for Disease Control and Prevention, 2013; Matovu & Ssebadduka, 2012; Scorgie et al., 2012; Vuylsteke et al., 2012; Zachariah et al., 2003). The global prevalence of HIV among FSW is approximately 12% and even higher in sub-Saharan Africa, at 37%

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(Baral et al., 2012; Chersich et al., 2013; Shahmanesh, Patel, Mabey, & Cowan, 2008). In Malawi, the HIV prevalence among FSW is about 70%, the highest reported globally (Baral et al., 2012; Lancaster et al., 2016). Within high HIV prevalence settings, targeting HIV-infected FSW who are unaware of their infection status is imperative for the success of test and treatment strategies that provide immediate antiretroviral therapy for HIV-infected persons to improve health outcomes and reduce HIV transmission at the population level (Cohen et al., 2011; Gardner, McLees, Steiner, Del Rio, & Burman, 2011; Lundgren et al., 2015).

FSW must first be aware of their HIV infection to prevent ongoing transmission and successfully engage in HIV care and treatment. While, the World Health Organization (WHO) recommends that high-risk persons undergo HIV testing at least every 12 months, FSW would highly benefit from more frequent testing

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at least every 6 months (World Health and Organization, 2012). Yet, many FSW do not access HIV testing and counseling, often because of individual, social, and structural barriers, such as the fear a positive result (Family Planning Association of Malawi, 2011; Munoz, Adedimeji, & Alawode, 2010), lack of personal motivation (Batona, Gagnon, Simonyan, Guedou, & Alary, 2015; Dugas et al., 2015), insufficient support during testing process (Dugas et al., 2015; Scorgie et al., 2013; Wang et al., 2011), limited access or distance to HIV testing services (Dugas et al., 2015), and provider stigma and discrimination (Munoz et al., 2010; Scorgie et al., 2013). Many FSW become aware of their HIV infection as a result of opt out testing during pregnancy (Family Planning Association of Malawi, 2011; Papworth et al., 2015; Schwartz et al., 2015). FSW commonly undergo voluntary HIV testing for frequent illness or deterioration of health (Family Planning Association of Malawi, 2011). To improve uptake of HIV care and treatment and prevent ongoing transmission, the barriers to HIV testing for FSW in sub-Saharan Africa must be delineated.

Substance use among FSW may further exacerbate known barriers to HIV testing and subsequently HIV infection awareness. FSW often engage in alcohol use to facilitate soliciting sex and cope with stressors associated with sex work (Abdool Karim et al., 2010; Wechsberg et al., 2009). Our conceptual framework draws on the self-regulation and coping theories, in which women engage in substance use to help cope with negative life events and dysregulate emotional states brought on by sex work which in turn may influence health seeking behaviors (Fig. 1) (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979; Gonzalez, Mimiaga, Israel, Andres Bedova, & Safren, 2013: Shiffman, 1985), Substance use also adversely affects these health seeking behaviors by impairing cognitive functions and judgment, likely resulting in delayed HIV infection awareness (Chitwood, McBride, French, & Comerford, 1999; Simmonds & Coomber, 2009; Sohler et al., 2007; Tucker, Burnam, Sherbourne, Kung, & Gifford, 2003). These factors of substance use and heath-seeking behaviors are all placed within the larger context of gender norms and inequality within sub-Saharan Africa (Boutayeb, 2009; Jewkes, Levin, & Penn-Kekana, 2003; Koenig et al., 2004; MacPherson, Richards, Namakhoma, & Theobald, 2014). Understanding the context of sex work, psychoactive factors, and interpersonal factors are necessary to examine the relationship of substance use and HIV status awareness among FSW.

Among FSW in the region, substance use, including alcohol, cannabis, and opioids, is high (Abdool Karim et al., 2010; Lambdin et al., 2013; Mbonye et al., 2013; Wechsberg et al., 2009). FSW who injected drugs are likely to have previously received an HIV test, in settings where injecting drug use is common (Deering et al., 2015; Xu et al., 2011). However in Malawi, alcohol and cannabis are the most commonly used substances (Abdool Karim et al., 2010: Mbonye et al., 2013; Wechsberg et al., 2009). In Malawi, nearly 45% of FSW report consuming four to five bottles of alcoholic beverages per day, putting them at serious risk for alcohol dependency (Chersich et al., 2007; Family Planning Association of Malawi, 2011; Schuckit & Alcohol-use, 2009). Estimates of cannabis use among FSW in Malawi are lacking, but cannabis is widely available and inexpensive in this setting (Bisika, Konyani, & Chamangwana, 2004; Peltzer, 1989; United Nations Office on Drugs and Crime, 2012). Concurrent use of alcohol and cannabis use is also common among FSW in sub-Saharan Africa (Luseno & Wechsberg, 2009; Mbonye et al., 2012). FSW in South Africa who used both substances were more likely to have received an HIV test in their lifetime (Luseno & Wechsberg, 2009).

To date, the association between alcohol and cannabis use and HIV testing, particularly among FSW in sub-Saharan Africa, has rarely been examined (Bengtson, L'Engle, Mwarogo, & King'ola, 2014; Luseno & Wechsberg, 2009). In this study, we examined associations between alcohol and cannabis use and lack of awareness of HIV infection among FSW in Lilongwe, Malawi. We also describe the frequency and history of HIV testing among HIV-infected FSW.

#### Methods

Study setting and participants

This cross-sectional evaluation was conducted in Lilongwe, the central region of the Republic of Malawi. The study population included FSW, defined per the Family Planning Association of Malawi as someone "who had received money in exchange for sex either regularly or occasionally up to 12 months prior to the

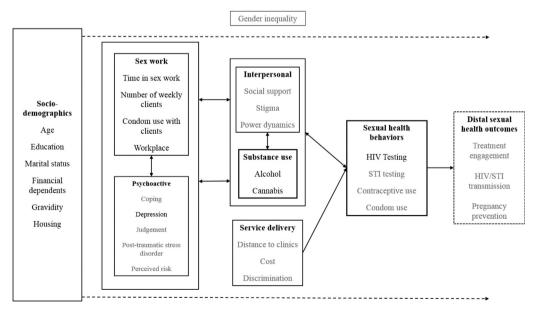


Fig. 1. Conceptual framework. This multidimensional conceptual model focuses on the potential impact of alcohol and cannabis use on engagement in sexual health behaviors, specifically HIV testing. The model depicts the influence of individual, interpersonal, and structural factors on each other, while simultaneously affecting alcohol and cannabis use among female sex workers. Additionally, gender inequality permeates all of these factors and influences how they relate to each other. The factors in grey are unmeasured, while the factors in black were measured as part of this study.

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