



Research paper

Injection drug use among female sex workers in Iran: Findings from a nationwide bio-behavioural survey



Mohammad Karamouzian^{a,b}, Ali Mirzazadeh^{c,a}, Angeli Rawat^b, Mostafa Shokoohi^{d,a},
Ali A. Haghdost^e, Abbas Sedaghat^f, Armita Shahesmaeili^a, Hamid Sharifi^{a,*}

^a HIV/STI Surveillance Research Center, and WHO Collaborating Center for HIV Surveillance, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran

^b School of Population and Public Health, University of British Columbia, Vancouver, BC, Canada

^c Department of Epidemiology and Biostatistics, University of California San Francisco, San Francisco, CA, USA

^d Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry, The University of Western Ontario, London, ON, Canada

^e Modeling in Health Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran

^f Center for Disease Control (CDC), Ministry of Health and Medical Education, Tehran, Iran

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ABSTRACT

Background: Globally, one in three women who inject drugs is involved in sex work which increases their vulnerability to sexually transmitted infections including HIV. This study was conducted to improve our understanding of injection drug use practices among Iranian female sex workers (FSWs) and shed light on the high-risk profile of FSWs who inject drugs (FSW-IDUs).

Methods: This survey was conducted in 2010, by recruiting 872 FSWs through facility-based sampling from 21 sites in 13 cities in Iran. Data were collected through face-to-face interviews and lifetime injection drug use was assessed through the responses to the question “Have you ever injected any illicit drugs?”. Independent variables included a range of socio-demographic and risk characteristics. Logistic regression models were applied to investigate the correlates of lifetime history of injection drug use.

Results: Median (Q1, Q3) age of the participants was 30 (25, 37) and a total of 127 (14.6%, 95% confidence interval (CI): 12.3–17.1) had ever injected drugs. In the multivariable logistic regression model, older age (adjusted odds ratio (AOR) = AOR_{25–34} vs. <18 = 3.37, 95% CI: 1.64, 7.70; AOR_{≥35} vs. <18 = 2.80, 95% CI: 1.11, 7.10), longer duration (>5 years) of involvement in sex work (AOR = 1.06, 95% CI: 1.02, 1.10), and history of drinking alcohol (AOR = 4.42, 95% CI: 2.67, 7.32) were positively associated with lifetime history of drug injection and younger age at sex work debut (AOR = 0.52, 95% CI: 0.28, 0.96) was negatively associated with lifetime history of illicit drug injection among FSWs.

Conclusion: The prevalence of injection drug use among FSWs in Iran is concerning. Given the potential of this sub-population in bridging HIV into the general population, gender-sensitive and peer-led harm reduction programs should be further scaled up to meet the special needs of this vulnerable population.

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Introduction

Global estimates suggest the number of women who inject drugs (WWID) to be approximately 3.5 million (Azim, Bontell, & Strathdee, 2015; Iversen, Page, Madden, & Maher, 2015; Roberts, Mathers, & Degenhardt, 2010). Numerous individual, social and structural factors have been shown to negatively impact the health of WWID (Iversen et al., 2015; Roberts et al., 2010). While studies suggest that WWID are at a higher risk of acquiring HIV compared

to men who inject drugs (MWID), their participation in harm reduction programs is lower than MWID (Iversen et al., 2015; Malinowska-Sempruch, 2015). This could be attributed to WWID's higher experiences of multiple layers of stigma (e.g., stigma associated with their involvement in sex work and injection drug use practices, socio-cultural constructs around drug use that show a higher tolerance for MWID) at various social, organizational, and structural levels compared to MWID (Azim et al., 2015; Iversen et al., 2015; Malinowska-Sempruch, 2015; Roberts et al., 2010; Sedaghat et al., 2015).

Around 30% of WWID are involved in sex work which increases their vulnerability to sexually transmitted infections (STIs), especially HIV (Azim et al., 2015; Iversen et al., 2015; Malinowska-Sempruch,

* Corresponding author at: Department of Biostatistics and Epidemiology, Kerman University of Medical Sciences, Kerman, Iran.

E-mail addresses: hsharifi@kmu.ac.ir, sharifhami@gmail.com (H. Sharifi).

2015). While some women become injection drug users after their involvement in sex work, others may initiate selling sex to cover their or their partners' expenses related to drug use. Several social and structural factors are at play placing female sex workers who inject drugs (FSW-IDUs) in more vulnerable positions with limited alternatives to participating in high-risk forms of sex work (Azim et al., 2015; Iversen et al., 2015; Karamouzian, Haghdoost, & Sharifi, 2014; Malinowska-Sempruch, 2015; Roberts et al., 2010). While most FSW-IDUs are under economic pressure to support themselves and their families (Karamouzian, Foroozanfar et al., 2016; Karamouzian, Haghdoost et al., 2014; Roberts et al., 2010; Zolala, Mahdavian, Haghdoost, & Karamouzian, 2016) they are more likely to sell sex to clients with high-risk profiles (e.g., under the influence of substances, infected with HIV/STIs) or practice unsafe penetrative sex in exchange for more money (Iversen et al., 2015; Karamouzian, Foroozanfar et al., 2016). Moreover, economically burdened FSW-IDUs may choose to share or reuse needles in their injection drug use practices to reduce their expense which exacerbates their risk of HIV infection (Azim et al., 2015; Iversen et al., 2015; Karamouzian, Foroozanfar et al., 2016; Zolala et al., 2016). Furthermore, FSW-IDUs' condom negotiation practices and decisions about protected sex may be impaired due to the influence of drug use during or before sex (Azim et al., 2015; Iversen et al., 2015).

In the context of Iran, HIV prevalence among the general population is 0.14% (Karamouzian, Mirzazadeh et al., 2016). While the HIV epidemic continues to be driven by injection drug use among MWID, cases of sexual transmission of HIV are on the rise; for example, 36.8% of registered cases in 2014 have contracted HIV through unsafe sexual practices (Karamouzian, Mirzazadeh et al., 2016). Given the elevated risk of HIV among FSW-IDUs and their potential role in bridging HIV into the general Iranian population, Iranian health policy makers have recently recognized their importance for controlling HIV in Iran (Fahimfar, Sedaghat, Hatami, Kamali, & Gooya, 2013; Karamouzian, Nasirian, Sedaghat, & Haghdoost, 2014). Current harm reduction services and educational interventions cater towards both MWID and WWID and their sexual partners (Alipour, Haghdoost, Sajadi, & Zolala, 2013; Fahimfar et al., 2013; Karamouzian, Haghdoost et al., 2014; Khajehkazemi et al., 2013; Roberts et al., 2010; Sajadi et al., 2013). Nonetheless, studies on drug use practices of Iranian FSWs are limited due to the criminalization of sex work in Iran and the highly marginalized and hard-to-reach nature of this subpopulation (Karamouzian, Foroozanfar et al., 2016). Although few studies have identified concerning levels of injection among FSWs, all have focused on small samples sizes with limited geographic reach (Kassaian, Ataei, Yaran, Babak, & Shoaei, 2011; Kazerooni et al., 2014; Navadeh et al., 2012; Taghizadeh et al., 2015). Moreover, while previous reports of nationwide estimates of HIV prevalence among FSW-IDUs (11.2%) are available (Mirzazadeh et al., 2014; Sajadi et al., 2013), our knowledge of the characteristics of FSW-IDUs and the correlates of injection drug use among this 'dual-risk' population remains very limited. Therefore, there is an urgent need to understand HIV-related risky behaviours among FSW-IDUs across the country. Using data from the first nationwide survey of FSWs, we aim to describe the demographic and behavioural risk factors of lifetime injection drug use among Iranian FSWs. This evidence can be used inform policy makers to adequately tailor harm reduction services to address the special needs of this subpopulation with dual-risk behaviours for HIV infection.

Materials and methods

Study design and data collection

The first bio-behavioural surveillance survey of FSWs in Iran was conducted between April and July 2010. Methodology and

sampling strategies details are described elsewhere (Karamouzian, Mirzazadeh et al., 2016; Sajadi et al., 2013; Shokoohi et al., 2016). In brief, participants were recruited from 21 facilities that catered towards vulnerable women (e.g., FSWs, partners of people who inject drugs (PWID), and WWID) across 13 major cities. Facilities were selected based on the presumed level of HIV prevalence in FSWs and input from the local HIV experts on facilities' logistical and capacity constraints. Eligibility criteria were women with Iranian citizenship who were 18 years of age, had sold sex in the previous year, were residing in the survey cities and provided verbal informed consent. Demographic and behavioural data were collected through an anonymous pilot-tested risk assessment questionnaire. Due to the unavailability of rapid HIV testing at the time of the survey, HIV serostatus was determined using the dried blood spot (DBS) technique (Parker & Cubitt, 1999) and ELISA test (817 FSWs provided blood samples for HIV test). Out of a convenience sample of 1005 women initially approached (30–45 participants per facility), 33 were excluded for not meeting the eligibility criteria, and 100 were excluded for the low data quality in Sistan & Baloochestan province. Out of the 872 eligible participants, one did not answer the question on lifetime injection drug use (final analytic sample for this study = 871).

Dependent variable: lifetime drug injection

The current analysis explores the correlates of lifetime drug injection among FSWs through a self-reported history of having ever injected drugs. Lifetime injection drug use was treated as a binary variable and the responses to the question "Have you ever injected any illicit drugs?" were coded as yes or no.

Independent variables

Independent variables examined included age at interview (18–24, 25–34, or ≥ 35 years old), highest educational level (never attended school or ≤ 8 th grade or \geq high school), ever married (yes or no), age at first marriage (≤ 18 or > 18 years old), having children (yes or no), having income sources other than sex work (yes or no), and length of involvement in sex work (≤ 5 or > 5 years). In addition, variables investigating the sexual behaviour of the participants included age at first sex (≤ 18 or > 18 years old), age at sex work debut (≤ 18 or > 18 years old), consistent condom use with paying partners (yes or no), consistent condom use with non-paying partners (yes or no), history of working in brothels (yes or no), and street-based solicitation (yes or no). Data were also collected on FSWs' self-perceived risk of HIV (yes or no), history of testing for HIV and receiving the result (i.e., had ever tested for HIV and received their test results; yes or no), and sufficient knowledge towards HIV transmission (yes or no). Lastly, substance-related variables included drug use before sex (yes or no), ever used alcohol (yes or no), alcohol use before sex (yes or no), age at first drug use (≤ 18 or > 18 years old), and ever accessed drug treatment services (yes or no). Among FSWs with a history of injection, data were also collected on the following variables: age at first injection, ever injected drugs in the past month (yes or no), daily injection in the past month (yes or no), shared needles in the past month (yes or no), shared needles in the last injection (yes or no), and received free needles in the past year (yes or no).

Statistical analysis

Frequencies and descriptive statistics were computed for all variables. As FSWs were recruited from different facilities across the country, facilities were treated as sampling units, and Stata

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