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Crystal methamphetamine use and its correlates in women engaged in sex work in a developing country setting

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ABSTRACT

Background: Worldwide, crystal methamphetamine (CM) use and associated high-risk sexual behaviors are a concern, but they are less studied among female sex workers (FSW) in developing countries. This study aimed to characterize the prevalence and individual, interpersonal, and structural correlates of self-reported past-month CM use among FSW in Iran.

Methods: FSW aged ≥ 18 years who reported penetrative sex with more than one client in the last year were recruited (analytic sample: 1295). Data were collected in one-on-one interviews using a standardized behavioral questionnaire. Poisson regression model was used to assess the correlated of past-month self-reported CM use by crude and adjusted prevalence ratio (APR) and 95% confidence intervals (CI).

Results: Non-injecting and injecting CM use was reported by 15.0% (95% CI: 8.7, 24.7) and 0.9% (95% CI: 0.4, 2.1) of participants. CM use was positively associated with concurrent use of opioids (APR from 2.08 to 3.84, P-value < 0.01), higher number of sexual partners (APR: 2.05, P-value: 0.018), housing instability (APR: 3.54, P-value: 0.001), and history of forced sex (APR: 1.47, P-value: 0.050).

Conclusions: A considerable number of FSWs use CM along with opioids, have a higher number of sexual partners, forced sex, and housing instability. Both prevention strategies as well as strategies to reduce harm associated with CM need to be added to current programs that predominantly focus on opioid dependency and male drug injectors.

1. Introduction

Globally, widespread use of amphetamines including methamphetamine (all forms) has been reported from all regions with an overall prevalence of 0.8% (35.6 million) among adults (ages 15–64) (UNODC, 2016). In comparison with other amphetamines, crystal methamphetamine (CM) has a longer half-life (8–12 h) (Gonzales et al., 2010) and a potential for abuse that may lead to severe psychological and physical dependence (Fairbairn et al., 2008; McKetin et al., 2008). In Iran, where opiates remain the primary drug used by problem drug users, CM (street name Shisheh) use has become a public health concern in recent years (Alam-mehrjerdi et al., 2015). Both single and combined use of

CM with other drugs such as opiates have been reported in Iran (Shariatirad et al., 2013b). Lack of awareness about signs and symptoms of CM use, the misconception that CM is not addictive, and its availability and affordability for young adults have been suggested as the main reasons for widespread use of CM in Iran (Shariatirad et al., 2013a).

Beyond studies of CM use among opioid drug users at drug treatment sites (Lashkaripour and Torbati, 2012), only a few studies have measured CM use in Iran, and none have studied use among female sex workers (FSW). Using a network scale-up method, the CM use prevalence among Iranian adults was estimated at 0.59% in 2013 (Nikfarjam et al., 2016). Another household survey in 2011 reported

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past-year amphetamines use disorder prevalence as high as 0.35% in adults (Amin-Esmaeili et al., 2016). Among youth aged 19–29, the lifetime prevalence of non-injecting and injecting CM use was estimated at 5.74% (95% CI: 4.21, 7.90) and 1.80% (95% CI: 1.13, 2.83), respectively (Sharifi et al., 2017).

In the context of HIV/AIDS, amphetamine use has been associated with HIV risk behaviors and an elevated risk of HIV acquisition. Research among female sex workers (FSW) has also reported such positive association (Colfax et al., 2010; Couture et al., 2012; Couture et al., 2011; Strathdee et al., 2015). CM has been reported as one of the most common substances used by FSW. For example, around one-third of Canadian FSW reported lifetime CM use (Shannon et al., 2011). FSW used CM to help them stay awake, see more clients, escape daily life challenges, increase sexual desire and pleasure, and improve their sexual performance (Shannon et al., 2011; Strathdee et al., 2015). FSW who reported CM use were more likely to have unprotected risky sexual contacts with multiple partners (Kang et al., 2011; Liao et al., 2011).

While overall CM use prevalence seems to be relatively low in Iran, no study has measured the CM use prevalence and its associated risk behaviors among FSW in Iran. In 2015, we studied various health and risk-taking measures among Iranian FSW in 13 large cities in Iran. In this paper, for the first time, we reported the prevalence of CM use among Iranian FSW and factors associated with CM use. We used a social-ecological model (McLeroy et al., 1988) to assess factors associated with self-reported CM use at individual (e.g., socio-demographic variables), interpersonal (e.g., number of paying clients and non-paying partners), and structural/environmental (e.g., housing instability, incarceration history) levels.

2. Methods

2.1. Study design and setting

We used the data collected in the second national bio-behavioral survey of Iranian FSW in 2015. We recruited 1337 participants, of which 1185 FSW were recruited from 20 centers for vulnerable women and the rest from street venues (i.e., outreach spots using peer recruitment) in 13 large cities representing different geographical regions across the country. More details are described elsewhere (Shokoohi et al., 2017). The vulnerable women facilities provide harm reduction (HR) programs and services (e.g., free access to condom, HIV testing, and counselling services) to vulnerable women including FSW (Fahimfar et al., 2013). These facilities are operated by non-governmental organizations and supervised mainly by the Ministry of Health and in part by the Social Welfare Organization.

2.2. Eligibility criteria

Participants were eligible if they were female, ≥ 18 years old, reported having any type of sex (i.e., vaginal, anal, oral) in exchange for money, good, services, or drugs with more than one male client in past 12 months, had Iranian nationality, and resided or worked in the city where the study was conducted. Participants (42 persons) who did not answer the CM use questions were excluded from the analysis.

2.3. Data collection

In each city, one supervisor oversaw recruitment, interviews and data quality. Participants were interviewed one-on-one in a private room by a trained female interviewer using a standardized questionnaire. The study questionnaire included various sections such as demographics, sexual behaviors, HIV testing and status, and history of drug use and injection. The interview took less than an hour and was followed by an HIV test and counselling. Separate informed consents were collected for interview and HIV test. HIV test was done by two rapid tests; if the first rapid test (HIV/syphilis Dual rapid test) was

reactive, a second rapid test (Unigold HIV rapid test) was performed to confirm the result. Discordant results were confirmed by blood draw and a laboratory test (enzyme-linked immunosorbent assay – ELISA). Participants received a monetary incentive for participating in the interview (70,000 Iranian Rials equivalent to ~ 2 US dollar) and HIV test (30,000 Iranian Rials equivalent to ~ 1 US dollar). Research Ethics Committee of Kerman University of Medical Sciences approved the study protocol and procedures (K/93/209).

2.4. Measures

2.4.1. CM use (outcome variable)

The outcome variable was the self-reported use of CM (injecting or non-injecting) in the past month. Participants were asked whether they have recently used CM. If so, they were further asked about their frequency of use: a) no use over the past month, b) once a month or less, c) several times in a month, d) two to three times in a week, and e) four or more times in a week. FSW who reported CM use several times in the past month or more (i.e., options 'c', 'd', and 'e') were categorized as past-month frequent users. Those who did not use at least several times in the past month were categorized as others (i.e., never used or used once a month or less (options 'a' and 'b')).

2.4.2. Covariates

We assessed covariates (exploratory variables) that may be associated with CM use among FSW using a three-level social-ecological model (McLeroy et al., 1988). This model considered the complex interplay between individual, interpersonal, and structural/environmental factors and allowed us to understand the range of factors that put FSW at risk of using CM. To run the model, we first classified the covariates into three categories: individual, interpersonal, and environmental/structural factors.

The first category, individual factors included the following: age (< 25 vs. 25–34 vs. ≥ 35 years old), highest level of education (illiterate vs. primary school or less vs. middle and high school vs. diploma and above), income source other than sex work (yes vs. no), current marital status (single vs. married vs. widow or divorced vs. temporary marriage), duration of sex work (≤ 2 vs. 3–5 vs. 6–10 vs. > 10 years; in the regression model we used the continuous form to avoid the loss of information), HIV risk perception (no vs. yes), HIV knowledge (sufficient vs. insufficient), use of other substances including last-month opium use (yes vs. no), last-month heroin use (yes vs. no), last-month norjesic/tamjizak use (yes vs. no), last month non-prescribed Methadone use (yes vs. no), HIV sero-status (positive vs. negative), tested for HIV in last year and knew the results (yes vs. no), and currently on any drug treatment program such as 12-step program, outpatient consultations, methadone maintenance therapy (MMT), or detoxification (yes vs. no). Enrollment in a drug treatment program was contingent on the history of drug use; therefore, we excluded this variable from the multiple regression models. Norjizak/tamjizak is a narcotic drug mostly used through injection and is produced by a combination of different opioids, steroids, and benzodiazepines (Sadeghi et al., 2015). Although we measured crack use, we decided to exclude it from the analysis due to misclassification with heroin. Crack in Iran is mainly heroin-based substances; however, other forms of crack (crack-cocaine) have also been reported (Farhoudian et al., 2014).

The second category included interpersonal factors: forced sex with a client in the last year (yes vs. no), number of paying partners in the last month (0 vs. 1 vs. 2–5 vs. > 5), number of non-paying partners in the last month (0 vs. 1 vs. > 1), group sex event participation in the last year (yes vs. no), frequency of condom use with all partners including clients in last month (consistent vs. inconsistent), and history of injecting or sharing syringes/needles (three categories: never used or injected drug vs. injected drugs but never shared (safe injection) vs. ever shared syringes/needles).

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