



Original article

Characterizing the relationship between incarceration and structural risks among female sex workers in Iran: findings of a nationwide biobehavioral surveillance survey



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ABSTRACT

Purpose: Given the adverse impacts of enforcement-based approaches toward sex work on female sex workers' (FSWs') health, safety, and well-being, we explored the prevalence and correlates of recent incarceration among FSWs in Iran.

Methods: From January to August 2015, we recruited FSWs from 21 harm reduction facilities and 152 FSWs from street venues in 13 major cities across Iran. Correlates of recent (i.e., last year) incarceration were assessed through an exploratory multivariable logistic regression model.

Results: A total of 90 of 1326 (6.8%) FSWs reported a recent incarceration; primary reasons for incarceration were drug-related ($n = 48/90$; 52.9%). Having a recent incarceration was significantly and positively associated with history of illicit drug use/injection (adjusted odds ratio [aOR] = 3.22, 95% confidence interval [CI]: 1.67, 6.19), rape in last year (aOR = 2.67, 95% CI: 1.65, 4.31), unstable housing (aOR = 2.28, 95% CI: 1.16, 4.91), and working in brothels (aOR = 2.22, 95% CI: 1.18, 4.16).

Conclusions: In sum, recent incarceration was significantly associated with history of drug use and sociostructural vulnerabilities. Taken together, these data suggest the potential health impacts of the integration of programs to mitigate substance use, sexual violence, and living conditions into comprehensive services for FSWs in Iran.

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Introduction

Female sex workers (FSWs) are often characterized as those who have sex in exchange for money, food, transportation, or other goods [1]. Globally, FSWs bear a disproportionately high rate of

human immunodeficiency virus [2] and other sexually transmitted infections because of a number of individual-level determinants, such as higher number of sexual partners, condomless sex, and substance use, as well as community-level determinants, such as limited social capital [3], and structural-level determinants including criminalization of and stigma affecting sex work, sexual and physical violence, and incarceration [1,4–6]. Addressing the individual-level risk factors and promoting community-level empowerment interventions have long been at the center of sex work harm reduction [7]; however, a growing body of international evidence points to the restricted impact of such interventions in reducing HIV infection among this key population [1,5]. A recent

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review of the sex work literature suggests the decriminalization of sex work to have the highest impact on controlling the HIV epidemic in settings with concentrated or generalized HIV epidemics. Specifically, legislation changes that decriminalize sex work are predicted to avert up to 46% of new HIV infections among sex workers and their clients in Canada, Kenya, and India in the next 10 years [1].

Several studies have highlighted the significant role of criminalization and policing activities in forcing FSWs underground, which puts individuals engaging in sex work at risk of violence, HIV infection, mental health conditions, reduced access to services, limited condom negotiation abilities, and reduced engagement in HIV harm reduction services [8,9]. Despite the body of evidence on the limited public health benefits of punitive laws related to sex work [1,4], criminalization of sex work seems to be the dominant approach globally and is applied in a number of forms from banning the sex work act itself to prohibiting solicitation and loitering [1,5,6,10]. These criminalizing practices are often more pronounced in conservative and Muslim majority countries (MMCs) such as those in the Middle East where selling sex and organizing commercial sex are often illegal and subject to harsh penalties [10,11].

In the context of Iran, which has the highest number of people living with HIV (PLHIV) in the Middle East, FSWs are estimated to be the second most-affected key population at risk of HIV, after people who inject drugs [2]. Before the 1979 Islamic Revolution, female sex work was only tolerated in the red-light districts (e.g., *Shahr-e-No* neighborhood in Tehran). However, such neighborhoods were demolished after the revolution and female sex work was regarded as a criminal act punishable by law and subject to incarceration [12–14]. Conversely, although premarital and extramarital sex continue to be criminalized in Iran, temporary marriage (i.e., *Nikah mut'ah*—a contract where a married/unmarried man could marry an unmarried woman for a fixed term in exchange for a predetermined sum of money, which can last for a few minutes or 99 years [15] may render some sex work practices legal, adding to the complexity of the sex work landscape in Iran [10,12,13,15].

Despite the cultural and religious sensitivities and complexities around female sex work in Iran, Iranian health policy makers have been proactive in reaching and providing care for FSWs through centers for vulnerable women (i.e., “*Zanaan-e Aaseeb Pazeer*”), which provides services for marginalized women including FSWs,

homeless women, and women who use/inject drugs [16–18]. There are over 60 centers across the country, which provide an array of harm reduction services, including HIV testing and counseling, sexual health education, distribution of free condom and needles, as well as empowerment interventions for FSWs [16]. However, FSWs have been reported to have frequent interactions with law enforcements and face incarceration because of current classification of sex work as a crime in Iran [13]. Previous studies on FSWs in Iran have reported incarceration to be significantly associated with increased crystal meth use [19], polydrug use [20], and HIV testing [21]. Despite the vulnerabilities associated with incarceration in the complicated history and landscape in which female sex work takes place in Iran, there has been limited characterization of the risk environment associated with FSWs' incarceration. In response, this study aims to assess the prevalence and correlates of recent incarceration among FSWs in Iran to help inform the implementation of evidence-based sex work harm reduction and policy interventions.

Methods

In this study involving 21 recruitment sites across 13 large urban centers situated across Iran (Fig. 1), a total of 1347 FSWs were recruited. Methods of accrual have been previously described [19]. Briefly, recruitment took place between January and August 2015 and FSWs were included in the study if they met the following eligibility criteria: i) assigned female sex at birth, ii) aged 18 years or older, iii) reported selling vaginal, oral, or anal sex for money, goods, or favors in the last year, iv) held Iranian citizenship, v) lived in the city where the study was done, and vi) consented for participation.

The sampling process, data collection, and data quality check in each site were overseen by a project manager affiliated with the local medical school (i.e., one in each of the 13 urban centers). The harm reduction facilities were chosen from a list of all available facilities across the country based on the feedback from local and Ministry of Health's expert opinion on their logistics and capacity constraints. These harm reduction facilities are often operated by nongovernmental organizations under the supervision of the Ministry of Health and Social Welfare Organization and provide services to vulnerable women [16]. A nonprobability sample of the clients of the harm reduction facilities included in the study were



Fig. 1. Cities included in the second round of biobehavioral surveillance survey of female sex workers in Iran, 2015*. * The figure is created using the Google Fusion Tables.

Table 1
Recent incarceration in female sex workers with different sociodemographics and risky behaviors in Iran (2015)

Variables	N (%)	Recently incarcerated, n (% [95% CI])	Crude odds ratio	P-value
Overall	1326 (100)	90 (6.8 [4.6–9.9])		—
Recruitment site				
Harm reduction facilities	1175 (88.6)	83 (7.1 [4.7–10.4])	Ref.	
Street-based venues	151 (11.4)	7 (4.6 [2.7–7.7])	0.63 (0.38–1.07)	.086
Age categories (y)				
<25	137 (10.3)	15 (10.9 [5.1,22.1])	Ref.	
25–34	523 (39.5)	31 (5.9 [3.3,10.4])	0.51 (0.19–1.33)	.160
≥35	664 (50.2)	44 (6.6 [4.5,9.7])	0.57 (0.28–1.15)	.112
Current marital status				
Single	84 (6.4)	7 (8.3 [3.9,16.8])	Ref.	
Married	435 (32.9)	18 (4.1 [2.1,8.1])	0.47 (0.20–1.11)	.084
Temporary marriage	220 (16.6)	14 (6.4 [3.4,11.6])	0.74 (0.42–1.31)	.293
Widowed/divorced	584 (44.1)	51 (8.7 [6.0,12.5])	1.05 (0.49–2.23)	.889
Education				
Illiterate	133 (10.1)	13 (9.8 [5.0,18.3])	Ref.	
≤High school	836 (63.0)	66 (7.9 [5.3,11.7])	0.79 (0.42–1.46)	.437
Diploma and above	357 (26.9)	11 (3.1 [1.8,5.2])	0.29 (0.11–0.76)	.015
Income other than sex work				
No	783 (59.3)	53 (6.8 [4.2,10.6])	Ref.	
Yes	537 (40.7)	37 (6.9 [4.3,10.8])	0.98 (0.56–1.71)	.9437
Number of paying partners (LM [*])				
0	292 (22.5)	12 (4.1 [2.0,8.4])	Ref.	
1	184 (14.2)	7 (3.8 [1.7,8.3])	0.92 (0.32–2.63)	.875
2–5	432 (33.3)	32 (7.4 [4.7,11.6])	1.86 (0.94–3.67)	.069
6+	388 (29.9)	37 (9.5 [5.6,15.8])	2.45 (1.07–5.60)	.034
Number of nonpaying partners (LM)				
0	625 (47.5)	39 (6.2 [3.6,10.5])	Ref.	
1	534 (40.7)	33 (6.2 [4.2,9.0])	0.98 (0.58–1.66)	.967
2+	155 (11.8)	17 (11.0 [7.7,15.4])	1.85 (1.13–3.01)	.016
Group sex (last year)				
No	1224 (92.7)	77 (6.3 [4.2,9.3])	Ref.	
Yes	96 (7.3)	13 (13.5 [6.2,27.0])	2.33 (0.93–5.82)	.068
Early sex work initiation				
≥18 y	1097 (85.4)	67 (6.1 [4.3,8.6])	Ref.	
<18 y	188 (14.6)	22 (11.7 [6.5,20.3])	2.03 (1.19–3.46)	.011
Illicit drug use/injection (ever)				
No	533 (40.2)	13 (2.4 [1.1,5.2])	Ref.	
Yes	792 (59.8)	77 (9.7 [6.6,14.1])	4.30 (2.10–8.80)	.0002
Age at first drug use				
<18 y	202 (26.0)	27 (13.4 [6.7,25.0])	Ref.	
≥18 y	575 (74.0)	48 (8.3 [5.8,11.8])	0.59 (0.29–1.18)	.130
Rape (last year)				
No	1098 (83.1)	56 (5.1 [3.2,8.0])	Ref.	
Yes	224 (16.9)	34 (15.2 [10.8,20.8])	3.32 (2.01–5.49)	.0001
Unstable housing				
No	1193 (90.1)	67 (5.6 [3.7,8.4])	Ref.	
Yes	132 (9.9)	23 (17.4 [8.9,31.3])	3.54 (1.56–8.04)	.004
Primary solicitation venue				
Street [†]	655 (49.9)	42 (6.4 [4.3,9.6])	Ref.	
Brothel [‡]	278 (21.2)	35 (12.6 [8.1,19.1])	2.10 (1.21–3.64)	.011
Independent [§]	379 (28.9)	13 (3.4 [1.6,7.0])	0.51 (0.28–0.95)	.035

* LM: Last Month.

† Street includes streets, shopping malls, parks, and public transit.

‡ Brothels do not “officially” exist in Iran, and the term brothel here refers to underground houses where sex work takes place. These spaces are controlled by pimps.

§ Independent includes cellphone, party, online, and fixed clients.

approached by a peer FSW who explained the details of the study for potential participants and sought their interest in taking part in the study. Also, some FSWs were also approached and recruited through a peer-led outreach team from street-based venues. FSWs completed a paper-based interviewer-administered validated risk assessment questionnaire, which took about 1 hour. The questionnaire was implemented in Persian and included several modules such as demographic, drug use, sexual practices, and incarceration history. Consenting FSWs also provided a blood sample for an HIV rapid test. Monetary incentives were 7000 Tomans (~2 USD) for the interview and 3000 Tomans (~1 USD) for the HIV test. For the purpose of the present study, participants were excluded if they did not provide any responses to the main outcome of the study (i.e., history of incarceration) and the final analytic sample included 1326 FSWs.

Dependent variable: Recent incarceration

The present study examines the prevalence and correlates of recent incarceration (i.e., last year) among Iranian FSWs using a self-reported measure. Recent incarceration was treated as a binary variable, and responses to the question “Have you been incarcerated in the past 12 months?” were coded as yes or no.

Independent variables

Independent variables of interest included a range of socio-demographic, behavioral, and structural-level correlates, including age group (<25 or 25–34 or ≥35 years), current marital status (single, married, temporary marriage, or widowed/divorced), educational level (illiterate, ≤high school, or ≥Diploma), and

income other than sex work (yes or no). Sex work–related variables included number of paying partners in the past month (0 or 1 or 2–5 or 6+), number of nonpaying partners in the past month (0 or 1 or 2+), early sex work initiation (<18 years or ≥18 years), and group sex in the last year (yes or no). Substance use–related variables included age at first drug use (<18 years or ≥18 years) and history of illicit drug use/injection (yes or no). Finally, other independent variables included recruitment type (facility or outreach), history of rape in the past year (yes or no), current unstable housing (yes or no), and primary solicitation venue (street-based, independent, or brothel-based). It is important to note that brothels do not “officially” exist in Iran and the term brothel, here, refers to underground houses (i.e., “*Khaaney-e-Teami*”), controlled by pimps, where sex work takes place.

Statistical analysis

Descriptive statistics were computed and reported for all variables. Bivariable and multivariable logistic regression models were constructed to examine the correlates of recent incarceration among FSWs. Variables with a *P*-value less than 0.2 in the bivariable regression were entered into the multivariable regression model [22]. Potential multicollinearity was assessed using variance inflation factor [23], and no multicollinearity was detected (Mean variance inflation factor = 1.96). The final model was selected based on the likelihood ratio test and lowest Akaike’s Information Criterion value through a backward selection approach. Crude and adjusted odds ratios (aORs) along with their 95% confidence intervals were reported. Given that FSWs were recruited from different locations across Iran, cities were considered as clusters and the survey package of Stata was used to adjust their clustering effects [24]. We also investigated the potential interaction effects of primary solicitation venue on other significant correlates of incarceration; none of the interaction terms were significant at the significance level of 0.1 and therefore were not included in the final model. As a sensitivity analysis of our modeling approach, we used stepwise forward selection modeling and compared the findings with our backward selection model. All statistical analyses were performed using Stata v.14 (Stata Corp., College Station, Texas), and *P*-values less than 0.05 were considered statistically significant.

Ethical approval

Ethical considerations included obtaining verbal informed consent for the risk assessment interview and HIV test. Services provided to FSWs who declined to take part in the study were not affected in any way. The Research Ethics Board at the Kerman University of Medical Sciences reviewed and approved the study protocol and waived the need for written consent (Ethics Code: K/93/209).

Results

The median (Q1, Q3) age of all participants in the study was 35 (29, 41), and 1175 (88.6%) were facility-based. The characteristics of FSWs with a history of recent incarceration are presented in Table 1. Overall, a total of 90 (6.8%) participants reported being incarcerated and 197 (14.8%) reported being arrested in the past year. The median (Q1, Q3) age of recently incarcerated FSWs was 35 (29, 42). Moreover, among those with a history of incarceration, the median (Q1, Q3) age at first illicit drug use 20 (16, 25) was significantly lower than that of first sex work of 23 years (19, 28).

Higher prevalence of recent incarceration was reported among FSWs who had lower education (9.8%), had higher number of paying (9.5%) and nonpaying partners (11.0%), and had initiated sex work at a younger age (11.7%). Recent incarceration was also higher

Table 2

Correlates of recent incarceration in female sex workers in the second national biobehavioral surveillance survey in Iran (2015)

Variables	Adjusted OR ^a	95% CI	<i>P</i> -value
Illicit drug use/injection (ever)			
Yes versus No	3.22	1.67–6.19	.001
Rape (last year)			
Yes versus No	2.67	1.65–4.31	.0001
Unstable housing			
Yes versus No	2.28	1.16–4.91	.035
Primary solicitation venue			
Brothel ^b versus Street ^c	2.22	1.18–4.16	.015
Independent ^d versus Street ^c	0.72	0.44–1.17	.182

^a Variables with a *P*-value less than 0.1 in the bivariable analysis were entered into multivariable analysis. The final model was run on 1306 observations.

^b Brothels do not “officially” exist in Iran, and the term brothel here refers to underground houses where sex work takes place. These spaces are controlled by pimps.

^c Street includes streets, shopping malls, parks, and public transit.

^d Independent includes cellphone, party, online, and fixed clients.

among FSWs who had ever used/injected illicit drugs (9.7%), had been raped in the previous year (15.2%), had unstable housing (17.4%), and were brothel-based (12.6%). Primary reasons for recent incarcerations were having possession or use of drugs (*n* = 48; 52.9%) and involvement in sex work (*n* = 18; 20.0%).

The findings of the bivariable and multivariable analyses are presented in Table 2. The stepwise forward selection approach yielded comparable results to that of the backward selection. In the multivariable logistic regression model, history of illicit drug use/injection (aOR = 3.22), rape in last year (aOR = 2.67), unstable housing (aOR = 2.28), and working in brothels (aOR = 2.22) were significantly and positively associated with recent incarceration.

Discussion

Our study suggests that one in 14 of FSWs in Iran had been incarcerated in the past year. Moreover, recent incarceration was significantly associated with history of illicit drug use, rape, unstable housing, and working in brothels. These findings are consistent with a 2007 study in Tehran where 13% of FSWs had a history of detention or incarceration during their sex work career [13]. However, our estimate (i.e., 6.8%) is considerably lower than rates of recent incarceration or arrest among FSWs from international settings [6], such as Canada (26.8%) [25]; Mexico (49.0%) [26], India (14.5%) [27], and Russia (16.5%) [28]; differences that could be attributed to the contextual and methodological differences across the studies.

Low rate of recent incarceration among FSWs could be attributed to Iran’s shift in understanding and addressing the needs of FSWs in the past few years, which has led to scaling up centers for vulnerable women and sex work harm reduction efforts across the country [16]. Changing the former lexicon around FSWs (i.e., “prostitutes” or “street-based women”) to the religiously acceptable and culturally sensitive and nonstigmatizing term of “vulnerable women” (i.e., women who need help) through the efforts and advocacies of the Ministry of Health, Social Welfare Organizations, and nongovernmental organizations may have resulted in a paradigm shift toward FSWs among law enforcement officials in Iran and increased their tolerance for sex work–related practices [29,30]. Although our idea that the sex work laws in the books may not necessarily reflect the laws on the streets of Iran warrants further research, it might help explain our observation that street-based FSWs were *not* more likely to be incarcerated than other types of FSWs. Further evidence of Iran’s shift about the needs of FSWs is reflected in the result that the most common reason for

incarceration among FSWs was reported to be drug-related charges and not sex-work related.

Although lower rates of FSWs' incarceration might be promising compared with numerous international settings where policing activities often use loitering, public disorder, and condom possessions as evidence for arrest [4,5,14], incarcerating FSWs based on drug use or possession charges is concerning and points to the unmet need of Iranian FSWs' in accessing addiction treatment services. Indeed, FSWs who use or inject drugs have been shown to experience multiple layers of social, organizational, and structural stigma because of intersections of gender with involvement in sex work and substance use, as well as the patriarchal context of Iran that tends to show a higher tolerance level for men who use drugs than women [31]. These findings are also consistent with previous studies indicating FSWs who use drugs to be disproportionately underrepresented in service provision. For example, a recent report issued by the Social Welfare Organization in Iran states that only around 10% of people seeking substance use treatment are women [32]. Although the increasing number of women-only substance use treatment centers is promising, most are located in Tehran (i.e., the Capital) and fail to meet the needs of drug using FSWs in other parts of the country [32,33]. This shortage of substance use treatment centers for women is particularly important given that the median age of FSWs' for drug use initiation was significantly lower than that of sex work debut. Although the association between drug use and sex work is complex, economic-compulsive models suggest that a considerable proportion of FSWs who use drugs might have started sex work as a means to support their drug habit expenses [12]. Moreover, receiving opioid maintenance treatments have been associated with less involvement in sex trade among people who use opioids [34]. Therefore, considering the vulnerabilities associated with drug use among FSWs and the fact that FSWs with a history of drug use were over three times more likely to have been recently incarcerated, these results support the clear need for removing the barriers to seeking substance use treatment among FSWs and scaling up comprehensive gender-specific substance use treatment centers across the country [31,32].

The results including the significance of housing and working arrangements and sexual violence affecting FSWs in Iran reinforced the importance of community- and structural-level determinants. These findings are consistent with a large body of evidence suggesting that FSWs with a history of incarceration are more likely to experience social exclusion, face physical and sexual violence from their clients, have reduced control over safe sex negotiation and personal safety, and have diminished access to health services and police protections [1,6,7]. Promoting sex work social cohesion and community empowerment interventions that enable FSWs to take collective ownership of their services and programs have proven successful in protecting FSWs' health and human rights in several low- and middle-income countries (e.g., India, Swaziland, Brazil, Dominican Republic) [35]. Such interventions could help revise and reform existing sex work harm reduction services in Iran. Moreover, numerous studies and organizations including the Joint United Nations Programme on HIV/AIDS, the United Nations Development Program, and the Global Commission on HIV and the Law have identified the decriminalization of female sex work as an essential evidence-based public health intervention in addressing the individual- and structural-level vulnerabilities associated with involvement in sex work [1,36,37]. Although the feasibility of such interventions is debatable in the conservative context of MMCs [11], Iran's successful experience with destigmatizing and depenalization of drug use and implementation of a large-scale substance use harm reduction program in the past 15 years [38] highlights the potential for cultural, societal, and legal reform for other nonviolent

“transgressions,” such as sex work. Iran could also learn from the experience of decriminalization policies aimed at reducing the vulnerabilities associated with FSWs' encounters with law enforcement in Islamic countries, such as Bangladesh, Indonesia, Lebanon, Tunisia, and Turkey [11,14].

There are several limitations associated with the study reported here. Similar to other studies with key populations that rely on voluntary participation and self-reported measures, these findings are prone to selection, social desirability, and recall biases. We might have underestimated the recent incarceration rate given that FSWs already incarcerated had zero chance to be recruited in our study. Furthermore, women who experienced a confrontation with the law enforcement might be less willing to engage with a research project. Moreover, the cross-sectional design of our study limited our ability to assess the cause-effect relationships. Our convenience sampling approach has also limited the generalizability of our findings to all FSWs in Iran. Indeed, the most vulnerable FSWs with no access to harm reduction services, those who find their clients online, or highly paid FSWs are often underrepresented in such surveillance studies; however, we managed to include 158 FSWs from street-based venues to provide some insight on nonfacility-based marginalized FSWs. Nonetheless, while collecting a representative sample of FSWs in Iran continues to be a challenge, efforts were made to reduce potential biases by including outreach FSWs and involving experienced interviewers and local staff. We were also unable to collect information on the length of incarceration.

Conclusions

Given the vulnerabilities associated with incarceration among FSWs, evidence-informed comprehensive interventions that focus on both high-risk sexual and substance-use practices simultaneously are essential to reduce the health disparities associated with incarceration among FSWs in Iran. Future mixed-methods studies on the interactions between FSWs and law enforcements in Iran are needed to help shed more light on the perceptions and experiences of both groups. Future research would also benefit from comparing the risk profiles of FSWs before, during, and after incarceration and their access to prevention and care services at these intervals. Evidence-based and human rights-affirming structural-level interventions used in other MMCs might be considered to help shape future progressive sex work harm reduction policies in Iran.

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