



Frequency and Factors Associated with Violence Against Female Sex Workers in Tehran, Iran

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Abstract

Female Sex Workers are among those women who are significantly more vulnerable to violence. Apart from the human rights perspective, assessing the frequency of violence among sex workers is especially important because of its relation to the spread of HIV and other sexually-transmitted infections. This cross-sectional, observational study was conducted among 263 female sex workers in southern parts of Tehran and their suburban regions in 2017 where the population is considered more socially and economically vulnerable. To evaluate univariate analysis between sexual violence and physical violence as dependent variables and the assumed exposures as well as confounders, the models were built distinctly. The models included exposures of the questionnaire as independent variables. The exposure factors with a *p* value of less than 0.2 were moved into the multiple logistic regression models. The rates of sexual violence and physical violence were reported as 72.2% and 82.3% respectively. According to our results, sexual violence is associated with higher education, working in streets, drug usage, having the experience of forced unprotected sex and feeling of discrimination. Physical violence is associated with low education, drug usage and feeling of discrimination in multiple analyses. Addressing the violence against female sex workers is a complex multifactorial issue in Iran. It requires structural changes in some social, legal, economic and health infrastructure programs.

Keywords Female sex workers · Sexual violence · Rape · Physical violence · Tehran · Iran

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Introduction

Violence has been defined by the World Health Organization's report on violence and health as "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation (WHO c). In 1993, the UN Declaration on the Elimination of Violence against Women offered the first official definition of the term "Gender-based Violence" as "Any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivations of liberty, whether occurring in public or in private life." It is estimated that at least one out of every three women in the world has experienced physical or sexual violence in her life-time (WHO d). According to WHO's definition, sexual violence can take place in different forms including rape, forced marriage, denial of the right to use contraception, forced abortion, violent acts against the sexual integrity of women and forced prostitution (WHO b). Female Sex Workers (FSWs) are among those women who are significantly more vulnerable to different kinds of the violence. Studies show that FSWs are subjected to being beaten, raped, intimidated, arrested, or forced into the sexual act (Amogne et al. 2019; Hubbard and Zimba 2003). They face high frequency of violence and other human rights' violations due to criminalization and stigmatization of sex workers in many countries, gender-based inequality and discrimination and their status of sexually-transmitted infections (WHO a). Limited studies have been conducted to estimate the prevalence of violence against Iranian women. In a systematic review and meta-analysis study, the prevalence of domestic violence was estimated to be 66% (CI 95% 55–77) among Iranian women. History of previous marriage, drug abuse, crowded family situation, and lower socioeconomic status increased the risk of domestic violence against women in Iran (Hajnasiri et al. 2016).

It is estimated that 228,700 FSWs are living in all Iranian urban settings (Sharifi et al. 2017). Findings indicate that the sex work industry in Iran is individual-based and the traditional market base for prostitution and sex trafficking, typical to other countries does not exist in Iran (Madani et al. 2012). There are some reports that some Iranian women are trafficked locally to big cities as well as other Gulf countries and Iraq for sex trade (US Department of State 2019). Although there is no special law criminalizing sex working in Iran, many FSWs are subjected to arrest and violence under Articles 637 and 638 of Islamic Penal Code.¹ However, the status of violence among Iranian FSWs has never been widely evaluated. Lack of access to the FSWs due to illegal nature of sex trade, unorganized form of this activity in

¹ Article 637- When a man and a woman who are not married to each other, commit indecent acts other than zina, such as kissing or sleeping next to one another, they shall be sentenced to up to ninety-nine lashes; and if the act is committed by force only the one who has used force shall be punished. An act that is not punishable but violates public prudency, they shall only be sentenced to 10 days to 2 months' imprisonment or up to 74 lashes.

Iran (Madani et al. 2012) and the constant move of FSWs to conceal their identity (Karamouzian et al. 2015) contribute to the paucity of available data. One recent qualitative study, conducted in Shiraz, shows the high prevalence of six forms of violence (physical, barbaric, psychological, sexual, deception and robbery, and hidden slavery) among 18 street-based sex workers (Kalateh et al. 2019). Apart from the human rights perspective (Goodyear and Cusick 2007) and its profound effect on mental (Chivers-Wilson 2006) and physical health, assessing the frequency of violence among the FSWs is especially critical because of its relation to the spread of HIV and other sexually-transmitted infections within society. The findings of several studies indicate that reducing violence against FSWs decreases their HIV infection significantly (Decker et al. 2013; Shannon et al. 2015, 2009; WHO e). FSWs are the second most affected population by HIV in Iran (Shokoohi et al. 2016). In a national survey conducted in 14 cities among FSWs, the rate of HIV prevalence was measured as 4.5% (95% CI 2.4–8.3) overall and 11.2% (95% CI 3.4–18.9) for FSWs with a history of injection drug use (Mirzazadeh et al. 2014). This rate is significantly higher considering that HIV incidence among Iranians of all ages was 0.05% in 2018 (UNAIDS 2018). Considering the changing pattern of HIV transmission in Iran with the increased transmission through sexual relationship (UNAIDS 2015), it is predicted that the number of new cases of HIV infected through informal sex activities will continue increasing. Also, the recent worsening economic situation and high rate of unemployment in Iran may result in a growing the number of FWSs as well as the incidents of violence against FSWs since both are mainly rooted in poverty (Crossroad Women Center 2018; Granldine 2004; Lima et al. 2017).

Rapid urbanization and rural to urban migration have resulted in growth of marginalization and slum dwellers in southern parts of Tehran. Apart from poverty and lack of access to health services, the populations living in the southern parts of Tehran are suffering from environmental, social, cultural and psychological problems (Zebardast 2016). Survey results show that physical and psychological violence by intimate partners are more prevalent among married women living in the southern parts of Tehran compared to those residing in the north, east and west of Tehran (ISNA 2016). Another study conducted by Tehran Municipality on Life Quality Atlas of Tehran indicates that Tehran's south-central municipal districts had the highest number of homeless people who are mostly rough sleepers and drug dealers. The same study also revealed that two southern districts of Tehran had the highest number of FSWs. Poverty, addiction and street-based sex activity were more prevalent among FSWs living in these districts. Women living in the suburb and southern parts of Tehran come from mostly female-headed households or women with addicted husbands who need to support their family financially (The Atlas of Life Quality in Tehran 2019; Kayhan life 2019). Since the subculture of the southern parts of Tehran present with an unusual incidence of violence, addiction and sex activity, we have limited our study to these districts in Tehran. This study evaluates the frequency of physical/sexual violence among FSWs who mainly work in the southern and suburb parts of Tehran and identifies the factors associated with them.

Although FSWs are subjected to different kinds of violence, we have limited our study to the factors associated with sexual and physical violence since both have high implications on the health status of FSWs and findings suggest that related

factors may assist policymakers and authorities to improve the health status of the affected population and society as a whole.

Methods

Setting and Study Design

This cross-sectional, observational study was conducted among 263 FSWs in southern parts of Tehran, Karaj and their suburban regions in 2017. In total, 282 including 8 transgender FSWs were interviewed and 263 who provided complete responses were included in the final study. The participants were selected from Family Health Associations (Mikhak), Homeless women health care center (Saraye Mehr), drug rehabilitation center (Rebirth Charity), FSWs who participated in Narcotics Anonymous (NA) meetings and those working in the street and indoor premises located in southern parts and suburban areas of Tehran. The stated selected places are the main centers in southern parts of Tehran where the sex workers seek health care. Although it is difficult to access FSWs in Iran, the authors focused their efforts on observing and studying the diversity of FSWs based in Southern parts of Tehran.

Enrolment Criteria and Variables

Women older than 18 years who reported having exchanged sex for money during the previous 6 months were considered eligible for the survey. Volunteers who provided informed consent were interviewed by a face-to-face trained female interviewer. To ensure the FSWs would feel more comfortable in answering the questions, the interviewers were selected from the assistants of health care centers who previously worked with FSWs for more than 10 years. For each interview, six thousand Tomans (1.5 US \$) was given to the interviewer to incentivize FSWs by giving them different non-monetary gifts such as lipsticks or cigarettes. Participants could refuse to answer any questions. In order to answer all questions and give necessary explanation for questions such as of kinds of violence or other ambiguous questions for participants, we dedicated approximately 20 min to each interview. The questionnaire included a total 24 questions. Physical violence was defined to the participants as any unlawful use of physical power resulting in injuries and health problems while sexual violence was defined, to participants, as being sexually raped (forced sexual relationship that includes penetration (anal or vaginal)). The first section of the questionnaire was based on socio-demographic characteristics: age, education level, residential, marital status, and drug/alcohol usage. Additional variables related to characteristics of FSW activity including place of sex, duration of sex work activity, age at first sexual relationship, and information on how they sought out to find customers. The final portion of the questionnaire included questions related to sexual and physical violence, such as type of perpetrators (intimate partners, costumers, staff or owners of brothels, police, others), frequency and time of occurrence of last

violence, experience of forced unprotected sex, and the experiences of arrest (a copy of questionnaire was annexed).

Statistical Analysis

Baseline characteristics were described using mean and standard deviation for continuous variables, counts and percentages for categorical variables. Chi-square test or Fisher's exact test were used to compare proportions. Since the participants were allowed to refuse any answers, there were some incomplete random missing data for some questions (range 0.4–3%) but these had no significant effect on the results. As such listwise deletion was used to deal with missing data.

To evaluate univariate analysis between sexual violence and physical violence as a dependent variable and the assumed exposures and confounders, the models were built distinctly. The models included exposures of the questionnaire as independent variables. Variables such as age, education level, time of first sexual relation, duration as a sex worker, using drugs, place of work (streetwalking versus indoor premises), experience of discrimination, use of contraceptive materials and experience of forced unprotected sex were included in the regression logistic model to calculate the crude odds ratio (OR), 95% confidence interval (CI) and fitness to move into the final multiple model. Selection of the variables was based on evidence from literature reviews of additional studies conducted in other parts of the world including several studies in Iran. The exposure factors with a p value of less than 0.2 were moved into the multiple logistic regression models (Kleinbaum and Klein 2010). Multicollinearity was not an issue since the independent variables were not correlated.

To compensate for the limited sample size, entry level selection methods were used to build a multiple model for sexual and physical violence models. Adjusted ORs with p values of less than 0.05 and 95% CIs were reported as significant variables that were associated with violence. Likelihood-Ratio test was used for model fit.

Confounding bias was identified as a consequence of the change in OR before and after adjustment for the other variables. Education, place of sex and residential status was assumed as confounding variables. All reported p values were two-sided; p values, 0.05 were considered to be statistically significant. All the analyses were performed with computer software (SPSS 22, SPSS, Inc.).

Results

Socio-demographic and Sex Work Characteristics

A total of 263 FSWs who mainly work in the southern and suburban parts of Tehran and Karaj participated in the survey. Of the participating FSWs, 54.2% were more than 30 years old and 30% were between 26 and 30 years of age. The majority of cases (92.5%) lived in Tehran and its suburb, while 7.5% lived in Karaj and

its suburb. In relation to education, 62.8% of cases reported having less than high school diploma level education, 33% had a diploma or had completed an upper diploma education and 3.8% were illiterate. Of the FSWs, 32.6% were single, 33.3% married (permanent or temporary)² and 34.1% divorced or widows. Regarding the duration of sex work activity, most of the FSWs (53.3%) had worked between 1 and 5 years and 25% of them had more than 5 years' experience in this work. Of FSWs surveyed, 70% found their customers using miscellaneous approaches such as street walking, phone calls, indoor premises, the internet, and assistance of dealers/pimps. The most common way of finding the clients. (24%) was in the streets. In 51.1%, the first sexual relation occurred between 15 and 20 years of age while 35.1% of FSWs had their first sexual contact when they were 15 years old or younger. The mean age of first sexual relation is 17.1 (SD 3.5, range 5–27 years). As for drug usage, 48.5% admitted to have used drugs (IV or inhalant drugs), while 51.5% denied any drug usage; while 86.6% reported alcohol consumption. "Rare" alcohol consumption was reported in 56.6% and 39.4% reported "occasional use", and 38.4% reported having been arrested by police because of their sex work activity (Table 1).

Frequency of Violence and Associated Factors

Sexual Violence

The majority of FSWs (72.2%) experienced sexual abuse during their lives; 51.9% were sexually raped by either their intimate sex partners and customers or both, and 42.3% were raped only by their intimate sex partners. Intimate sex partner violence was reported as the main perpetrator of violence in 94.2% of cases which includes 8.3% of rape by one of the family members such as brother, step-father, uncle and cousins. In 42.6% of raped FSWs, the experience of rape was reported as having taken place within the previous 6 months.

Of FSWs, 51.7% reported more than a four time incidence of rape during their lives. With 96.2% of them reporting the experience of being forced to have unprotected sex; 54.2% experienced forced unprotected sex by both their Intimate sex partners and clients while 35.5% reported intimate sex partners were the perpetrators of forced unprotected sex.

Of total FSWs 6.7% had never used and 31.3% had rarely used condoms; and 37.6% of FSWs who experienced sexual violence more than four times also reported irregular use of condoms or other preventive materials, while 33.8% reported rare use condoms and 3.8% had never used them.

² Temporary marriage is a kind of marriage in Shia Islam, in which an unmarried Muslim woman can marry a married/unmarried Muslim man for a fixed-time of period in return for a set amount of money.

Reference: Inhorn (2006). Making Muslim babies: IVF and gamete donation in Sunniversus Shi'a Islam. *Culture, Medicine, and Psychiatry*, 30, 427–450.

Table 1 Socio-demographics, sex work and violence characteristics among FSWs working in southern parts of Tehran

	N	%
<i>Age</i>		
15–20	9	3.4
21–30	111	42.4
Above 30	142	54.2
<i>Education</i>		
Illiterate	10	3.8
Under high-school (Diploma)	164	62.8
Graduated (Diploma and higher)	87	33.3
<i>Marital status</i>		
Single	85	32.6
Married	87	33.3
Divorced/widow	89	34.1
<i>Residential status</i>		
Tehran and suburb	235	92.5
Karaj and suburb	19	7.5
<i>First sexual relation age</i>		
Under 15 year	92	35.1
15–20	134	51.1
Above 20	36	13.7
<i>Years in sex work activity</i>		
Under 1 year	30	11.6
1–5 years	135	52.3
Above 5 years	93	36.1
<i>Place of sex</i>		
Public places (streets, parks and etc.)	163	64.7
Private indoor premises	51	20.2
Other	38	15.1
<i>Have ever used drugs</i>		
Yes	127	48.5
No	135	51.5
<i>Use of contraceptive materials</i>		
Irregular	156	38.1
Regular	96	61.9
<i>Type of perpetrators of sexual violence</i>		
Intimate partners ^a	80	42.3
Clients	11	5.8
Both	98	51.9
<i>Frequencies of experienced sexual violence (rape)</i>		
0	73	27.8
1–4	54	20
More than 4	136	51.7

Table 1 (continued)

	N	%
<i>Type of perpetrators of physical violence</i>		
Intimate partners	83	41.3
Clients	15	7.5
Police	7	3.5
Intimate partners and clients	49	24.4
All	47	23.4
<i>Frequencies of experienced physical violence (rape)</i>		
0	51	19.4
1–4	50	19
More than 4	162	61.6
	Mean	SD
Mean age at first sex	17.18	3.65

^aThe category of intimate sex partner includes spouse, boyfriends, intimate partners and family members

Physical Violence

Of FSWs, 82.3% had the experienced physical violence during their lives as a result of selling sex. This violence occurred with intimate sex partners (89.1%), costumers (55.3%) and police (3.5%) as the main perpetrators of physical violence. The majority of FSWs (80.7%) have experienced physical violence more than four times during their lives. A total of 41.9% of FSWs were arrested because of their sex work.

Discrimination

Of FSWs, 43% reported experiencing at least one form of discrimination because of their job, with 37.5% experiencing all forms of discrimination (feeling discriminated among their family members and society such as being subjected to violence or abandonment, lack of access to legal authorities, lack of access to health services and related information). An additional followed by 24.1% experienced the lack of access to legal authorities and 21.4% experienced discrimination among their family members.

Univariable and Multiple Analyses

Sexual Violence

Univariate and multivariate analyses of the association of sexual violence and other risk factors are described in Table 2.

In multiple analyses, the risk of being raped is 0.14 lower in those who did not graduate (under high school diploma and illiterate) among sex workers compared to those who graduated (having high school diploma or upper-diploma). Sex workers

Table 2 Univariate and multivariate analysis of sexual violence and associated factors against female sex workers

Factor name	Yes (n)	No (n)	Univariate		Multivariate	
			OR crude (CI 95%)	PV	OR adjusted (CI 95%)	PV
<i>Age</i>						
15–20 years	7	2	1.62 (0.32–8.12)	0.55	4.21 (0.25–70.38)	0.31
21–30 years	85	26	1.51 (0.86–2.66)	0.14	0.99 (0.36–2.70)	0.99
More than 30 years	97	45	Reference			
<i>Education</i>						
Not graduated	119	55	0.54 (0.29–1)	0.05	0.14 (0.04–0.54)	0.004
Graduate	71	18	Reference			
<i>The first sexual relationship</i>						
≤ 15 years	75	17	Reference			
15–20 years	97	37	0.59 (0.31–1.13)	0.11	0.83 (0.27–2.51)	0.74
> 20 years	18	18	0.22 (0.09–0.52)	0.001	0.34 (0.07–1.56)	0.16
<i>Years in sex work activity</i>						
Under 1 year	14	16	Reference			
1–5 years	100	35	3.26 (1.44–7.37)	0.004	1.74 (0.40–7.57)	0.45
Above 5 years	71	22	3.68 (1.55–8.73)	0.003	1.35 (0.27–6.74)	0.71
<i>Life-time drug usage</i>						
Yes	104	23	2.57 (1.45–4.56)	0.001	2.67 (1.03–6.93)	0.04
No	86	49	Reference			
<i>Place of sex</i>						
Public places	138	25	Reference			
Indoor	6	45	0.02 (0.009–0.06)	<0.001	0.01 (0.003–0.04)	<0.001
Other	36	2	3.26 (0.73–14.41)	0.11	2.26 (0.43–11.82)	0.33
<i>Experience of discrimination</i>						
Yes	91	20	2.20 (1.21–3.99)	0.009	2.82 (1.04–7.63)	0.04
No	99	48	Reference			
<i>Use of contraceptive materials</i>						
Regular	104	52	Reference			
Irregular	77	19	2.02 (1.10–3.70)	0.02	1.24 (0.44–3.48)	0.68
<i>Forced unprotected sex</i>						
Yes	189	64	26.57 (3.30–231.88)	0.002	21.94 (1.46–328.22)	0.02
No	1	9	Reference			

95%CI, 95% confidence interval; OR, odds ratio; PV, prevalence

who are drug abusers were 2.67 times more vulnerable to sexual rape which is significant in multiple analyses. The FSWs working in indoor premises are significantly less prone to rape compared to those working in public places. Also, sex workers who had the experience of sexual violence are 2.82 times more likely of being discriminated. Finally, Sex workers who were sexually raped are 22 times more likely to have experienced forced unprotected sex.

In univariate analysis, the risk of being sexually raped is increased by decreasing the age of the first sexual relationship as well as increasing the duration of working in the sex sector. However these correlations are not statistically significant in multiple analyses. In univariate analysis, the sex workers who used condoms irregularly are 2 times more at the risk of sexual rape. The correlation is not statistically significant in multiple analyses.

Physical Violence

The association between experiences of physical violence and other variables are shown in Table 3.

In contrast to sexual violence, FSWs with low education are 2.5 times more vulnerable to physical violence which is significant in multiple analyses. Conforming to the pattern of sexual violence, FSWs using drugs are 2.6 times more at risk of physical violence in multivariate analyses. Sex workers who had the experience of physical violence are 4.9 times more likely to have experienced discrimination.

In univariate analysis, FSWs who had the experience of forced unprotected sex and FWSs who work in indoor premises are 4.3 times more and 0.3 less prone to physical violence respectively. These correlations are not statistically significant in multiple analyses.

Discussion

The majority of FSWs in our study reported to be more than 20 years old, living in Tehran and had limited education. Comparing to other countries (Goldenberg et al. 2012.), it is estimated that the age of entering into sex work is higher in Iran between 16 and 22 years (Asadi Ali Abadi et al. 2018b; Madani et al. 2012). As a result, middle-aged FSWs were the majority in our study. The single, married and divorced/widowed FSWs had almost the equal share in our sample. The concept related to married women entering to sex work is rather complicated considering the temporary marriage which legal in Iran. In another study, married FSWs stated that they were forced to enter to sex work by their addicted husband in order to support their family financially (Merghati et al. 2018). Of FSWs, 88.4% had at least 1 year of sex activity. The majority of them had their first experience of sex between 16 and 20 years old. The rates of sexual violence were reported as 72.2% and physical violence as 82.3%. In addition, 42.6% of FSWs have reported being raped during past 6 months and 51.7% reported more than four occurrences of rape in their life which is relatively high compared to other studies (Argento et al. 2014; Decker et al. 2013).

Table 3 Univariable and multiple analyses of physical violence and associated factors against female sex workers

Factor name	Yes (n)	No (n)	Univariate		Multivariate	
			OR crude (CI 95%)	PV	OR adjusted (CI 95%)	PV
<i>Age</i>						
15–20 years	8	1	1.96 (0.23–16.36)	0.53		
21–30 years	88	23	0.94 (0.50–1.74)	0.84		
More than 30 years	114	28	Reference			
<i>Education</i>						
Not graduated	149	25	2.59 (1.39–4.82)	0.003	2.56 (1.18–5.55)	0.01
Graduated	62	27	Reference			
<i>The first sexual relationship</i>						
≤ 15 years	78	14	Reference			
15–20 years	107	27	0.71 (0.35–1.44)	0.34	1.32 (0.54–3.20)	0.53
> 20 years	25	11	0.40 (0.16–1.01)	0.05	0.75 (0.23–2.43)	0.64
<i>Years in sex work activity</i>						
Under 1 year	19	11	Reference			
1–5 years	111	24	2.67 (1.12–6.35)	0.02	2.70 (0.96–7.57)	0.05
Above 5 years	76	17	2.58 (1.04–6.42)	0.04	2.23 (0.74–6.7)	0.15
<i>Life-time drug usage</i>						
Yes	110	17	2.26 (1.19–4.29)	0.01	2.52 (1.17–5.43)	0.01
No	100	35	Reference			
<i>Place of sex work</i>						
Public places	138	25	Reference			
Indoor	33	18	0.33 (0.16–0.67)	0.003	0.55 (0.23–1.30)	0.17
Other	31	7	0.80 (0.31–2.02)	0.64	1.25 (0.43–3.6)	0.67
<i>Experience of discrimination</i>						
Yes	103	8	4.98 (2.22–11.13)	<0.001	4.91 (1.97–12.18)	0.001
No	106	41	Reference			
<i>Use of contraceptive materials</i>						
Regular	122	34	Reference			
Irregular	80	16	1.39 (0.72–2.69)	0.32		
<i>Forced unprotected sex</i>						
Yes	206	47	4.38 (1.21–15.75)	0.02	1.48 (0.30–7.25)	0.62
No	5	5	Reference			

95%CI, 95% confidence interval; OR, odds ratio; PV, prevalence

Forced unprotected sex was reported among 96.2% of FSWs. Although WHO has categorized the denial of the right to use contraception to protect against sexually transmitted diseases as a form of sexual violence (WHO b), we have limited the

scope of sexual violence in our study only to the sexual rape (forced intercourse) which was defined in the method section. Therefore, denial to use contraceptive materials or forced unprotected sex was not included in the category of sexual violence in our study. As a result, discrepancy exists between the rates of sexual violence and forced unprotected sex.

The high rate of violence may be related to the clandestine nature of this highly stigmatized working life-style in the religious country of Iran. The government had totally ignored the remunerated-sex activity in Iran until very recently when the female sex workers recognized as the main population who are at risk of HIV in the studies (Karamouzian et al. 2016). As a result, the women working in this sector are among the most vulnerable groups in the society who do not have consistent access to legal authorities for claiming their rights and remain an easy target of violence. In addition, this study was conducted among the FSWs who mainly work in the south and suburb parts of Tehran. Most of them lived in very poor situations such as public shelters, streets, parks and some were young girls who escaped from their abusive homes. These factors intrinsically increase the rate of violence.

Sexual violence is associated with higher education, working in streets, drug usage, having the experience of forced unsafe sex and feeling of discrimination. The association between sexual violence and higher education is in contrast to the findings of most studies (Blanchard et al. 2005; Deering et al. 2014; Choi 2011). One explanation for this finding is that there is scant knowledge available to the population on the concept of violence, especially sexual violence in Iran. Sex workers with lower education may not have an appropriate understanding of what can be categorized as sexual violence and they may consider the violent actions as a routine hardship of their work. This is especially common in countries such as Iran where there is limited information and education on sexual issues. However by acquiring for more education and knowledge, sex workers become more aware of the real concept of violence and are encouraged to report their victimization. As a result, it is suggested that in our study sex workers with higher education reported more sexual violence than not-graduated ones.

Like many other studies, working in the public places such as streets (Odinokova et al. 2014; Shannon et al. 2009) and using drugs (Alemayehu et al. 2015; Amogne et al. 2019; Lima et al. 2017) are important risk factors for sexual violence. Addicted FSWs in need of drugs are particularly more vulnerable to coercion (Shannon et al. 2008). The majority of FSWs in our study (64.7%) work in the streets and public places while this rate is much lower (38.7%) in other countries such as Brazil where the prostitution itself (exchanging sex for money) is legal (Lima et al. 2017). While in Iran there is not any legal brothels for prostitution, study's finding (Krüsi et al. 2012) shows that brothels are more violence-protected places for FSWs.

In the multivariate analyses having the experience of forced unprotected sex showed the strongest association to sexual violence. This is especially important in terms of the sexually transmitted diseases. In recent years, the pattern of HIV transmission has changed in Iran with the increased transmission through sexual relationship (National AIDS Committee Secretariat 2015; Shokoohi et al. 2017). Findings of a national bio-behavioural surveillance survey among Iranian FSWs showed that less than one-third of FSWs in Iran knew their recent HIV status or had ever been tested for HIV (Shokoohi

et al. 2016). However in our samples, only 18.3% of cases reported they have never been tested for HIV. Considering that large numbers of our cases were recruited from the FSWs who referred to health services, the rate is reasonably lower than other studies. Also, our findings also show that more than 38% of FSWs do not use condoms regularly. Among FSWs who were interviewed in this study, three have declared to be HIV positive while all reported irregular condom use. Given the high rate of unprotected sex among FSWs as well, both prevention and protection programs are needed to be addressed by Iranian health care providers and policy makers.

There is also a significant correlation between the year of the first experience of sexual relation and the year of the first experience of rape (at 0.01 level). This shows that many FSWs experienced their first sexual relationship as a rape. Studies show that in some African countries one-third of adult girls reported their first sexual relation as being forced (Jewkes et al. 2001). Study has also found that childhood sexual abuse significantly contributes to engagement in sex work during adulthood (Farley et al. 2005). A national study of violence against women in the United States found that women who were raped before the age of 18 years were twice as likely to be raped as adults, compared with those who were not raped as children or adolescents (Tjaden and Thoennes 2000).

The frequency of physical violence is reported as 82.3%, slightly more than sexual violence alone. Physical violence is associated with low education, drug usage and feeling of discrimination in multiple analyses. In contrast to sexual violence, physical violence is increased 2.5 times with low education. The explanation of this difference may be related to the fact that physical violence has a clear concept and is perceived by both educated and uneducated FSWs in a same manner.

In our study, a significant correlation was found between physical violence and the experience of arrest (at 0.01 level). The finding is in parallel with other studies (Erausquin et al. 2011; Shannon et al. 2009) indicating that police practices increase the rate of violence against sex workers, reemphasizing the need for decriminalization of sex work activity.

Addressing the violence against FSWs is a complex issue in Iran. It requires structural changes in some social, legal, economic and health infrastructure programs. The Iranian government has recently enhanced its effort to provide some health and rehabilitation services to FSWs including free health consultations, providing free HIV testing, distributing free contraceptive materials such as condoms and providing accommodations for homeless women. However, studies show that only a few FSWs use these services (Asadi-Ali Abadi et al. 2018; Saffari et al. 2017; Shokoohi et al. 2016) because of fear of being officially diagnosed with an HIV infection and failure to trust these centers to keep their information confidential or to provide support for them (Shokoohi et al. 2017).

Conclusion

The study shows a high burden of physical and sexual violence against female sex workers in Iran. Sex workers face many barriers to access health, financial, legal and educational services and commonly do not report their status due to fear of being arrested, punished or stigmatized.

Addressing violence against sex workers needs a multi-sectoral approach. Decriminalization of sex work and establishing laws to protect FSWs against violence, promoting gender equality and women empowerment through improving socio-economic and cultural factors are priority protective actions for the government.³ The paucity of reliable data on the patterns and roots of violence among Iranian women especially female sex workers shall be addressed by the logistic and financial support of government to implement national-based scientific researches as well as planning training programs for FSWs on how to protect themselves and access to their rights. Establishing of more health care centers with trained personnel to support and educate FSWs is also recommended. The findings of this study can be used as a basis for other interventional studies.

Limitations

Although it is very difficult to access FSWs in Iran due to the illegal, clandestine and unorganized nature of sex work in Iran, the authors were successful in observing and documenting the diversity and unique culture of FSWs based in Southern parts of Tehran. The sampling size was limited for two reasons: First, the study was conducted by independent researchers without any support of governmental organizations who have wider access to FSWs. Second, there was the inherent difficulty in accessing FSWs in Iran due to the multiple societal barriers mentioned above. Since the researchers had not any financial support, the HIV test could not be performed on the participants and their status about HIV were self-reported. As a result, the association between rape and HIV status was not evaluated in this study and needs to be investigated in future studies.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of Ethical Committee of Islamic Azad University, Tonekabon Branch and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

³ Iran has a Gender Inequality Index (GII) value of 0.461, ranking it 109 out of 148 countries in the 2017 index.

Reference: <http://hdr.undp.org/en/composite/GII>.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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