

The Impact of Drug and Alcohol Consumption and Socio-demographic Variables on the Age of First Selling Sex among Iranian Female Sex Workers

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Original Article

Abstract

Background: A significant proportion of Female Sex Workers (FSWs) as a vulnerable population begin selling sex at an early age, which may lead the person to develop sexually-transmitted infections (STIs) and human immunodeficiency virus (HIV). Thus, this study seeks to identify the factors which influence the age of first sex for sale among the Iranian FSWs.

Methods: In 2010, 872 FSWs from 21 centers in 12 Iranian provinces were selected through multistage sampling and were interviewed individually by a standard questionnaire. Survival analysis of interval censored data was used to investigate factors which influence the age of first selling sex. The collected data were analyzed using Weibull parametric model and the hazard ratio (HR) index was reported. The software employed in this study was R version 3.4.2 and icenReg package was used.

Findings: The mean age of first selling sex was 24.94 ± 7.34 years. About 22% of the participants started to sell sex before the age of 18. The risk of experiencing the first selling sex was 23% higher in those individuals who had experienced alcohol consumption (HR = 1.23) and 51% higher in those who had drug injections (HR = 1.51). Also, age, education, and marital status were significant variables.

Conclusion: In order to cope with the issue of first selling sex at an early age, the following strategies are suggested: providing necessary trainings and building culture about the dangers of alcohol consumption and drug injections, poverty reduction, facilitating education and marriage for young females, and combating sex trafficking.

Keyword: Sex workers; Age of onset; Iran; Survival analysis

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Introduction

The title "Female Sex Workers" (henceforth referred to as FSWs) is designated to women who do sex services in return for earning money, goods, food, place, drug, or other benefits. Sex work is usually divided into two direct (formal) and indirect (informal) categories. In the former, women directly introduce themselves as sex workers and meet all their living expenses through sex work.¹

In the latter, however, women get involved in sex work alongside other jobs and meet part of their living expenses in this way. FSWs, as one of the three most vulnerable groups of a society [the two other being homosexual men and injecting drug users (IDUs)], are at the risk of developing human immunodeficiency virus (HIV). Thus, in order to prevent these harms and provide care programs, it is crucial to carefully study this group.^{1,2} According to what experts state, FSWs belong to underprivileged, barely accessible, and hidden social classes, because in Iran and many other countries, sex work is considered illegal and illegitimate. That is why FSWs do their best to hide their presence in the society.¹ Therefore, the exact population of FSWs is largely unknown and in many countries, there are no precise statistics. The limited available data indicate that the prevalence of FSWs in urban areas of East, South, and West Africa is 3.6%, 2.4%, and 0.6%, respectively. In Eastern Europe countries, the median prevalence of FSWs was estimated 0.6%. This figure was 0.4% in Western Europe and 0.6% in the former Russian Federation countries. According to the national statistics conducted in Latin American region, the rate of FSWs was reported between 0.2% and 2% in 2010 in a number of countries of this region, except in Belize, where the prevalence of FSWs was very high and was reported 7.4%. In a number of Asian countries including Vietnam, Philippines, Indonesia, and Cambodia, the rate of FSWs was reported between 0.2% to 2.5%.¹ In Iran, the rate of FSWs among adult women ranges from 0.14% (in Tabriz) to 2.44% (in Isfahan).² A significant percentage of these women start selling sex at an early age. Various studies show that about 40% sell sex before the age of 18. Studies which have been conducted in countries such as India, Nepal, Thailand, and Canada show that the low age of selling sex raises

one's vulnerability in a variety of areas, including physical and sexual violence and increases the likelihood of HIV infection by two to four times.³

Among the various factors which increase the risk of HIV at an early age, reference can be made to this fact that these individuals are less able to negotiate about safe sex. Due to being less experienced, they are more likely to get exposed to risky sex partners. In addition, they have less access to health services compared to older sex workers. Also, in lower ages, the mucosal immunity of the female reproductive system is lower.³⁻⁸ On the other hand, young FSWs have more clients than their older counterparts.⁹ This also raises the risk of sexually-transmitted infections (STIs) and HIV in young FSWs and increases the likelihood of transmission of the disease to other people. Given these facts, this study seeks to determine the factors influencing the age of first sex for sale in FSWs and then report these factors to the social and cultural authorities and policy makers and thus propose appropriate executive strategies to eliminate this illegal action as well as to reduce HIV risk and vulnerability in these people and their related subgroups.

Methods

The study at hand was a cross-sectional study whose data were collected in 2010 through a standard questionnaire and face-to-face interviews by trained individuals. The questionnaire included demographic information, sex work experience, drug-related risks, and sexual relations.

In this study, 872 Iranian vulnerable women from 12 selected provinces were included (8 were excluded as their age was not available). The provinces were sampled by multistage cluster sampling; the 12 selected provinces were geographically representative of all the 31 provinces in the country. The sampled centers included 13 non-governmental and governmental organizations dedicated to vulnerable women and 8 centers for services to vulnerable men and women. A maximum of two centers were selected from each city and 30 to 45 qualified individuals were selected through simple sampling method. Inclusion criteria included having at least 18 years of age, having experience of sex work during the past 12 months in return for money, goods, or drugs, and having sex work for at least 6 months.

A group of trained and experienced individuals explained the benefits of the study and the potential harms to the interviewees and received their informed verbal consent. Also two dollars was given to each participant as a gift (except for in Tehran which was 3 \$).¹⁰ This study was conducted at Kerman University of Medical Sciences, Kerman, Iran, with the registered code of ethics IR.KMU.REC.1396.2196.

Dependent variable: FSWs were asked this question: "At what age did you first receive money, food, goods, shelter, or drugs in return for sexual intercourse (any vaginal, anal, or oral sexual intercourse)?" This age was considered the age of their first sex for sale. For those who did not answer this question, two possibilities were taken into account: in the first case, if the age of first sexual intercourse (any vaginal, anal, or oral sex for the first time for monetary or non-monetary purposes) was clear, the distance between this age and the person's current age was considered to be the distance at which the first sale of sex may have occurred. Second, for those whose age of first sex was unanswered, the distance between the lowest age of selling sex (12 years old was found in the data) and the person's current age was considered as the distance during which the first sale of sex may have occurred.

Independent variables: Age, drug abuse experience, alcohol consumption experience, drug injection experience, level of education (illiterate, reading and writing literacy, elementary degree, middle school, high school or high school diploma, university degree), marital status, people living with FSWs (permanent spouse or sexual partner, friends, family, living alone, other), having a non-sex way of earning income, people guarded by FSWs (family, no one), duration of sex work (sex work means having sexual intercourse in return for receiving money, goods, food, shelter, drugs, or any other amenities) in city or village of residence.

Survival analysis is a set of diverse statistical techniques for analyzing data which involve times of a specific event. Since the present analysis seeks to examine the factors affecting the age of first sex for sale in FSWs and since the time of a specific event is under study, survival analysis is an appropriate method for doing this study. Since some of the participants of this

study did not remember the exact age of their first sex for sale, the interval censor issue came up. This age can be regarded as the interval between the first sex and the person's current age. If the age of the first sex is unknown, the interval between the lowest age of first sex as found among the participants (e.g., 12 years old) and the person's current age is conceived as the age of person's first sex for sale. In fact, interval censor happens when a response occurs within an interval rather than a precise observation.¹¹ Data were analyzed using Weibull parametric survival model. The univariate model was first fitted with the data and those variables whose P-value was above 0.20 were excluded and other variables were allowed to enter the Weibull multiple model as the main variables. Using backward method, those variables whose P-value was above 0.05 were excluded and for other significant variables at 0.05 level, P-value, hazard ratio (HR), and 95% confidence interval (CI) were reported. The software used in this study was R version 3.4.2 and the icenReg package was used.

Results

In the present study, 864 qualified FSWs were interviewed. These women had an average age of 31.65 ± 9.04 years, ranging from 18 to 67 years. Their mean age of first sex for sale was 24.94 ± 7.34 years; nearly, 22% had their first sex for sale before 18 and about 6% had started selling sex before the age of 15. The age of their first sex for sale ranged from 12 to 55 years. Half of the participants had experienced alcohol consumption ($n = 460$ or 53.2%), most had abused drugs ($n = 618$ or 71.5%), and some had drug injections ($n = 126$ or 14.6%). The majority of participants had elementary or junior high school degrees ($n = 230$ or 26.6%) and a small number of them had university degrees ($n = 37$ or 4.3%). The average duration they had sex in their own city or village was 6.54 ± 7.75 years. A large number of participants were married (706 persons or 81.7%) and were living with their families (293 persons or 33.9%). Most of them had no other way of earning income other than sex work (565 persons or 65.4%). 540 participants (62.5%) had no one under their guardianship and 324 (37.5%) of them guarded their own families (Table 1).

Table 1. Descriptive statistics for the qualitative variables studied in the group of Female Sex Workers (FSWs) over 18 in Iran

Variables		n (%)
Drug abuse experience	Yes	618 (71.5)
	No	246 (28.5)
Alcohol consumption	Yes	460 (53.2)
	No	404 (46.8)
Drug injection experience	Yes	126 (14.6)
	No	738 (85.4)
Education	Illiterate	124 (14.4)
	Reading and Writing literacy	68 (7.9)
	Elementary degree	192 (22.2)
	High junior degree	230 (26.6)
	High school or high school diploma	213 (24.7)
	University degree	37 (4.3)
	Married	706 (81.7)
Marital status	Single	158 (18.3)
	Permanent spouse	252 (29.2)
	Concubine spouse or permanent sex	88 (10.2)
People living with FSWs	Partner	
	Friends	41 (4.7)
	Family	293 (33.9)
	Living alone	145 (16.8)
Having a way of earning income other than sex work	Yes	299 (34.6)
	No	565 (65.4)
People under the guardianship of FSWs	Family	324 (37.5)
	No one	540 (62.5)

FSW: Female sex worker

According to Weibull univariate model for the age of first sex for sale, all variables had the significance level of 0.05 (Table 2).

According to table 3 and using Weibull multiple model, variables of age, education, marital status, duration of sex work in the city or village of residence, alcohol consumption experience, and drug injection experience had a significant relationship at 0.05 level with the age of first sex for sale. They are interpreted as follows:

According to this model, for one unit increase in age, the risk of experiencing first sex for sale is reduced by 21% (HR = 0.79, 95% CI = 0.78-0.81). This risk in individuals with alcohol consumption was 1.23 times higher (HR = 1.23, 95% CI = 1.06-1.42). This risk was 1.51 times higher in people who had drug injections (HR = 1.51, 95%

CI = 1.23-1.85). Also, this risk in individuals with elementary degree, junior high school degree, and high school degree was respectively 26% (HR = 0.74, 95% CI = 0.58-0.95), 28% (HR = 0.72, 95% CI = 0.56-0.92), and 38% (HR = 0.62, 95% CI = 0.48-0.79) and 42% (HR = 0.58, 95% CI = 0.39-0.86) lower than illiterate individuals.

The risk of experiencing first sex for sale in individuals who were reading and writing literate was not significantly different from those who were illiterate. The risk of experiencing first sex for sale in unmarried people was 1.35 times higher than married people (HR = 1.35, 95% CI = 1.11-1.64). For one year increase in sex work experience in the city or village of residence, such risk rose to 4% (HR = 1.04, 95% CI = 1.03-1.05) (Table 3).

Discussion

Results of multiple analysis demonstrated that variables of experience of alcohol consumption and drug injection, age, education, marital status, and duration of sex work in the city or village of residence influenced the age of first sale for sex among Iranian FSWs. The results show that it can be seen that approximately 22% of the women who were surveyed had experienced their first sex for sale before the age of 18. A plethora of studies have also displayed that about 20%-40% of FSWs started selling sex at adolescence.^{3,12-16} The results also showed that younger women had the experience of selling sex at earlier ages. There are various incentives for individuals to sell sex at an early age. Among them, reference can be made to difficult living conditions such as having to earn a living for themselves and their families, providing drugs or accommodation, parental addiction, painful and unexpected deaths of relatives, and physical and sexual abuse at childhood.^{1,17-20} Compared to adults, this group is more prone to harms such as HIV, STIs, violence, trafficking, and sexual exploitation.²¹ Most interventionist strategies underline the elimination of this group from commercial sex. However, the present study seeks to look at factors influencing the age of first sex for sale from another perspective, so that it could help related authorities prevent individuals from selling sex at an early age by indirectly controlling and trying to eliminate these factors.

Table 2. Results of the Weibull univariate model to determine factors influencing the age of first selling sex

Variables	HR	95% CI for HR	P
Age	0.82	0.80-0.83	< 0.0001
Drug abuse experience	1.00	-	-
	Yes	0.84	0.72-0.98
Alcohol consumption experience	1.00	-	-
	Yes	1.56	1.35-1.78
Drug injection experience	1.00	-	-
	Yes	1.26	1.04-1.53
Education	1.00	-	-
	Illiterate	1.00	-
	Reading and writing literacy	1.58	1.16-2.14
	Elementary degree	1.61	1.27-2.03
	Junior high school degree	2.00	1.59-2.50
	High school or high school diploma	2.28	1.81-2.87
	University degree	2.44	1.67-3.55
Marital status	1.00	-	-
	Married	1.00	-
	Single	3.43	2.84-4.13
People living with FSWs	1.00	-	-
	Permanent spouse	1.00	-
	Concubine spouse or permanent sex partner	1.67	1.29-2.14
	Friends	1.90	1.36-2.65
	Family	1.15	0.97-1.37
	Living alone	0.92	0.75-1.13
	Other	1.04	0.75-1.42
Having a way of earning income other than sex work	1.00	-	-
	Yes	1.00	-
	No	1.21	1.05-1.40
People under the guardianship of FSWs	1.00	-	-
	Family	1.00	-
	No one	1.57	1.36-1.81
Duration of sex work in city or village of residence	0.99	0.98-0.99	0.0400

FSW: Female sex worker; HR: Hazard ratio; CI: Confidence interval

Drug and alcohol consumption: It is undeniable that drug abuse is prevalent among FSWs.^{22,23} Nevertheless, no significant relation was observed between drug abuse and the low age of first sex for sale in the present study. This finding is consistent with McClanahan et al.²³

Other studies have endorsed the impact of the type of consumed drug on the age of first sex for sale. As the present study also displays, there is a significant relationship between alcohol consumption and drug injection and the age of first sex for sale.

Table 3. Results of the Weibull multiple model to determine factors influencing the age of first sex for sale

Variables	HR	95% CI for HR	P
Age	0.79	0.78-0.81	< 0.0001
Alcohol consumption experience	1.00	-	-
	Yes	1.23	1.06-1.42
Drug injection experience	1.00	-	-
	Yes	1.51	1.23-1.85
Education	1.00	-	-
	Illiterate	1.00	-
	Reading and writing literacy	0.94	0.68-1.30
	Elementary degree	0.74	0.58-0.95
	Junior high school degree	0.72	0.56-0.92
	High school or high school diploma	0.62	0.48-0.79
	University degree	0.58	0.39-0.86
Marital status	1.00	-	-
	Married	1.00	-
	Single	1.35	1.11-1.64
Duration of sex work in city or village of residence	1.04	1.03-1.05	< 0.0001

HR: Hazard ratio; CI: Confidence interval

As Kuhns et al. have demonstrated, drug abuse, in particular alcohol, is among the leading factors of entering selling sex.²² Weiner concluded that alcohol, cocaine, and crack were among the most prevalent drugs used by FSWs.²⁴ Various studies have reiterated the close relationship between drug abuse, in particular alcohol, and the age of first sex for sale.^{22,25,26} Salazar et al. found out that individuals who entered sex sale at the age of 15 or lower, significantly used more drug than the adults. Also, these individuals reported that they had been forced to consume drug in the first 30 days of their entering sex sale.²⁷ Usually, one of the family members of those who start drug using at an early age is accustomed to drug and alcohol consumption. This fact facilitates their easy access to drug and alcohol at home. Then, they tend towards deviant behaviors such as sex work to meet their drug needs.^{19,25} According to what was said above, there is a reciprocal relationship between drug and alcohol consumption and sex sale. Those individuals who sell sex at an early age usually enter drug and alcohol consumption so as to continue selling sex. On the other hand, those individuals who start drug and alcohol consumption at an early age are forced to sell sex in order to meet their costs of drug abuse. Thus, interventionist strategies to eliminate either of these factors can smooth the path to significantly prevent the other factor.

Education: According to the results of the present study, a significant proportion of FSWs possess a low level of education. The lower the level of education is, the lower the age of first sex for sale is. Most of women who participated in this study had not completed their high school and were deprived of education. Evidence suggests that dropping out is a leading factor in lowering the age of first sex for sale.^{20,25,28-30} Loza et al. counterprove this finding and suggest that FSWs have high-level education. This result may be specific to FSWs in the studied area and may not be generalizable to all regions.³¹ Studies demonstrate that each year in school education reduces the likelihood of selling sex. In fact, school provides a safe place for individuals. The reduction of the risk of sex selling at an early age seems to result from attending school and is less associated with the knowledge gained at school.²⁰ Those who drop out of elementary school or high school may have difficult living conditions and

have addicted parents who are unaware of the dangers of leaving school at an early age and do not attempt for their children's continuing of education.²⁶ A remarkable proportion of individuals lose their positive social support after leaving school and feel that they no longer have friends. This leads them to tending towards deviant friends who are themselves the basis of selling sex.³² Those who have more than high school education are more likely to have better job opportunities than those with a low level of education, a factor which can prevent people from entering sex trade, particularly at early ages.²⁵ Therefore, not excluding and retaining those who do not have academic achievement at school can prevent them from entering sex work. Accessible and free education for all people, especially those women with special conditions such as poverty, can also be recommended as a solution to the related authorities.

Marital status: The present study shows that the risk of experiencing first sex for sale in married people decreases. As poverty and economic problems appear to be the main factors for selling sex, having a spouse can help alleviate women's economic pressures. In contrast, being single and losing one's spouse due to death, imprisonment, divorce, or drug addiction may force a woman to sell herself so as to earn a living for herself and those guarded by her.¹⁹ As demonstrated by Medrano et al., the likelihood of getting involved in selling sex in single women is up to 3 times higher than in married women;³³ a finding which is consistent with the results of the present study. Therefore, providing effective facilities and interventions for the marriage of young women may prevent them from entering sex sale at an early age, as they would receive support and their financial pressures are cut down. In addition, it has positive psychological effects on their lives.

Duration of sex work in city or village of residence: The results of the present study show that increased working time in a city or village increases the risk of experiencing sex at an early age. FSWs often live in areas which are severely deprived and poor in social and economic terms. Living place plays a large part in one's future and career activities. Prostitution is more common in these areas. Since people interact regularly with each other in their living environment, their living place has a profound impact on their values,

beliefs, and knowledge.³⁴ Although people act independently under the same life conditions, living in such conditions will inevitably and gradually influences one's decisions and behaviors. On the other hand, the longer the duration of sex work in the city or village of residence is, the greater the likelihood of having access to sex trade networks and acquainting with related individuals is.

Future studies can explore the impact of important factors such as homelessness, job market in one's living place, socio-economic conditions, the prevalence of sex work in one's living place, suicide experience, race, and childhood experiences such as parental drug abuse and physical and sexual abuse on the age of first sex sale

Limitations: Data collection in 2010 was among the present study's limitations which did not enable researchers to investigate the impact of important variables such as the experience of sexual harassment in childhood, parental drug abuse, race, socio-economic conditions, the prevalence of sex work in one's living place, and suicide experience on the age of first sex for sale. Also, due to the sensitivity of the subject, it was not possible to disseminate the study results at the time of data collection.

As the study was cross-sectional, the causal relations in some variables were not clear. For example, alcohol consumption and drug injection may have been experienced before the age of first sex for sale. The study samples may not well represent this social group; as only related centers were sampled.

Conclusion

A great number of studies have confirmed that the age of first sex for sale is low in a significant number of FSWs. As the present study also shows, 22% of FSWs have experienced their first sex for sale before the age of 18. Since the lower age of the first sex for sale increases the person's vulnerability to HIV and STIs and exposes her to

physical and sexual abuse and violence, it is highly crucial to deal with the issue of the age of first sex for sale and its contributing factors. Alcohol consumption and drug injection at early ages raise the likelihood of deviant behaviors and smooth the way for the individual to enter sex trade at an early age. Among other factors influencing the low age of selling first sex, reference can be made to low educational level and leaving school which deprive the person from job opportunities and positive social support. Being single or losing one's spouse due to various reasons and the subsequent loss of financial support are among the contributing factors as well. The high duration of sex work in one's city or village of residence also increases the likelihood of entering sex trade network and ultimately reduces the age of first sex for sale. According to the above-mentioned factors, informing families and the young people of the dangers and harms of alcohol and drug abuse, particularly drug injection, providing young girls and women with education facilities, facilitating marriage conditions, and combatting sex trade networks are among the strategies recommended by the present researchers to the related authorities, policy makers, and women rights defenders.

Conflict of Interests

The authors have no conflict of interest.

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Authors' Contribution

Study design: All authors. Data collection: HS. Data analysis: YJ, MMR, and MM. Data interpretation: All authors. Drafting manuscript: YJ and MMR. Revising manuscript: All authors. Approving final version of manuscript: All authors.

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تأثیر مصرف مواد مخدر، مشروبات الکلی و متغیرهای دموگرافیکی – اجتماعی بر سن اولین فروش سکس در زنان تن فروش ایران

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مقاله پژوهشی

چکیده

مقدمه: بخش قابل توجهی از زنان تن فروش به عنوان یک جمعیت آسیب پذیر، فروش سکس را در سنین پایین شروع می کنند که ممکن است فرد را به سمت ابتلا به عفونت های مقاربتی (Sexually transmitted infections یا STI) و ویروس نقص ایمنی بدن (Human immunodeficiency viruses یا HIV) سوق دهد. از این رو، پژوهش حاضر با هدف شناسایی عوامل مؤثر بر سن اولین فروش سکس در زنان تن فروش ایران انجام شد.

روش ها: در این مطالعه، ۸۷۲ زن تن فروش از ۲۱ مرکز در ۱۲ استان ایران به صورت نمونه گیری چند مرحله ای انتخاب شدند و به وسیله پرسش نامه استاندارد مورد مصاحبه قرار گرفتند. از تحلیل بقا در داده های سانسور فاصله ای، به منظور تعیین تأثیر شاخص های مؤثر بر سن اولین فروش سکس در زنان تن فروش استفاده گردید. داده های جمع آوری شده توسط مدل پارامتری Weibull مورد تجزیه و تحلیل قرار گرفت و نسبت خطر گزارش گردید. نرم افزار مورد استفاده، R بود و از بکج icenReg نیز استفاده شد.

یافته ها: میانگین سن اولین فروش سکس در زنان مورد بررسی، $7/34 \pm 24/94$ سال بود. حدود ۲۲ درصد شرکت کنندگان قبل از ۱۸ سالگی کار فروش سکس را آغاز کرده بودند. خطر تجربه اولین فروش سکس در افرادی که سابقه مصرف مشروبات الکلی را داشتند، ۲۳ درصد ($HR = 1/23$) Hazard ratio] و در افرادی که تجربه تزریق مواد را داشتند، ۵۱ درصد ($HR = 1/51$) بیشتر از سایرین بود. همچنین، متغیرهای سن، تحصیلات و وضعیت تأهل معنی دار بودند.

نتیجه گیری: برای مقابله با فروش سکس در سنین پایین راهکارهایی پیشنهاد می شود که از آن جمله می توان به فرهنگ سازی و آموزش های لازم در مورد خطرات مصرف مشروبات الکلی و تزریق مواد، کاهش فقر، فراهم نمودن امکانات لازم برای ادامه تحصیل و تسهیل نمودن شرایط ازدواج در زنان و دختران جوان و مبارزه با باندهای تجارت جنسی اشاره نمود.

واژگان کلیدی: تن فروش؛ سن شروع؛ ایران؛ آنالیز بقا

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