



# Study of the Epidemiology and Use of Condoms in Vulnerable Women Referring to Damage Reduction Centers in Shiraz During 2015-2016

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## Abstract

**Background and aims:** Female sex workers (FSWs) play an essential role in the transmission of HIV and are considered critical groups compared to the public groups of society and their customers. Therefore, this study was conducted to investigate the status of sexual intercourse among prostitutes in Shiraz in 2015-2016.

**Methods:** This is a cross-sectional study conducted on 162 prostitutes referred to Shiraz transitional damage reduction centers and the information was gathered through a checklist.

**Results:** The results showed that the mean age at the first vaginal intercourse was  $16.57 \pm 3.65$ . In 62.3% of people, the main reason for prostitution was the need for money to help the family. It was also found that 39.5% of prostitutes had anal sex, and more than 95% of them did not use condoms during sex. There was also a statistically significant relationship ( $P < 0.01$ ) between the age of sexual intercourse and education level.

**Conclusion:** The results of this study demonstrated that prostitutes initiated the first sexual intercourse at a very young age, and increase in the education level postponed the first sexual intercourse. Otherwise stated, the first sexual intercourse can be delayed by increasing the level of education.

**Keywords:** Condom, Epidemiology, Female sex worker

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## Introduction

Acquired immunodeficiency syndrome (AIDS) and other sexually transmitted diseases are related to the behavioral diseases. Therefore, according to several studies, people's understanding of the causes of the high-risk sexual behaviors related to AIDS in prostitutes plays an important role in human immunodeficiency virus (HIV) prevention.<sup>1-4</sup>

One of the most vulnerable groups in the world that is disproportionately at high risk of AIDS is prostitutes.<sup>5</sup> Since the onset of the HIV epidemic, prostitutes have been highly exposed to the virus, especially in Africa and Asia.<sup>6</sup> It is estimated that approximately one-eighth of prostitutes in developing countries are infected with HIV,<sup>7</sup> while approximately 58% of these women have access to HIV/AIDS prevention services.<sup>8</sup> Globally, women and girls involved in the sex industry are at increased risk of contracting HIV,<sup>8</sup> and the reasons for their involvement in the sex industry have key implications for HIV risk and

prevention.<sup>4, 8-11</sup>

In general, prostitutes and their clients are a critical group associated with the spread of HIV infection. Compared to the general population, the risk of HIV infection in female sex workers (FSWs) is considerably higher.<sup>12,13</sup> FSWs play an important role in the spread of sexually transmitted infections (STIs) in communities.<sup>14</sup>

Iran is currently in the third wave of AIDS, in which most cases acquire the disease through sex that currently accounts for 21.1% of cases in the country.<sup>13</sup>

The patterns of transmission of the HIV are different throughout Iran. HIV infection is more dominant in subgroups with high-risk behaviors, including injecting drug users, men who have sex with men, and prostitutes (FSWs).<sup>15</sup>

Due to the increasing number of FSWs, which confirms the need for serious attention to this high-risk group,<sup>16</sup> accurate estimation of the FSW population as a key to HIV prevention is difficult due to social sensitivity, illegality,

and confidentiality.<sup>17</sup> Sex workers are a heterogeneous group in terms of work environment, social and economic status, health status, knowledge, practice, as well as protective measures.<sup>6</sup>

Transitional damage reduction centers (DIC) are under the supervision of the infectious diseases management center. These centers have been established to reduce the social damage in groups at risk such as addicts, the homeless, homeless women, sexual minorities, and the like. The center offers activities such as training, providing various equipment and tools (e.g., contraceptives, clothing, or clean syringes for addicts) and the like to its clients, and these services are generally provided for free. Therefore, this study was conducted with the aim to investigate the epidemiology of prostitutes referring to this center.

## Materials and Methods

### Study Population

This study is a cross-sectional study conducted in Shiraz during 2015-2016. The study was performed on all prostitutes referred to the DIC.

In this study, women who did not volunteer to participate in the study were excluded from the study. The women who met all four following conditions were chosen to be included in the study:

- 1- Being exchanged for receiving money, drugs, or any other goods and services (e.g., food, phone charges, place to live, travel tickets, and the like), one or more sexual clients (vaginal, anal and/or oral) men in the past year;
- 2- Having an age of 18 and above;
- 3- Living or working in Shiraz;
- 4- Having Iranian citizenship.

### Data Collection Method

Data were collected by the experts in the center using a checklist containing two sections. The first section addressed demographic information, and the second section consisted of questions about the respondent sex-related history. These questions included age at first vaginal sex, age at receiving money and goods for the first time to have sex, main reason for starting prostitution, the main way of finding clients, having anal sex and its cause, having group sex, and having a history of abortion.

### Sampling Method

All women referring to the center were included in the study except those who were unwilling to participate in the study.

### Analysis

The collected data were statistically analyzed using SPSS software version 21. Then, data normality was checked using Kolmogorov-Smirnov test. Finally, ANOVA test and LSD post hoc test were used to follow inter-group differences and chi-square.

## Results

According to the findings of this study, the average age at the first vaginal sex and also the average age at which the first time a person received money, food, goods, place, sleep, drugs, and so on in exchange for sexual contact with penetration (vaginal, anal/or oral) were  $16.57 \pm 3.65$  and  $30.78 \pm 13.38$ , respectively.

According to the FSWs' statements, the main reason for prostitution in 101 (62.3%) cases was the need for money to help their families. Further, in 59 (36.4%) of FSWs, the main way of finding customers was on the street/park/public transportation. In addition, the main reason (45.3%) for 64 (39.5%) of FSWs to have anal sex was to stay a virgin.

Among those who had anal sex, only 18 (28.1%) used condoms while 28 (43.8%) of them had experienced it during the past month.

In addition, among those who had anal sex, 17 (60.7%) had never used a condom. In this study, only 13 (8%) of the participants had a history of group sex (simultaneous sex with more than one person), and the rest had not experienced this type of sex. Moreover, among those who had a history of group sex, 9 (69.2%) had the experience during the last year. Further, 72 (44.4%) of the participants of this study had a history of abortion (Table 1).

Results regarding the relationship between age of sexual intercourse and education level indicated that there was a statistically significant difference between different education levels (i.e., illiterate, able to read and write, elementary, middle school, high school, high school diploma, and academic) ( $P < 0.01$ ). That is there was a significant difference between illiterate and middle school education, illiterate and high school, as well as illiterate and academic education. Therefore, the results suggested that promotion of education increased the age of the first sexual intercourse (Table 2). Further, there was a significant relationship ( $P = 0.02$ ) between monthly income and condom use (Table 3).

## Discussion

The purpose of the current study was to generally examine the epidemiology of women referring to DIC and their level of familiarity with and use of condoms. In general, the results of this study depicted that in spite of the fact that 100% of these women are familiar with condoms, the frequency of its use in sexual intercourse was low.

Furthermore, the age at onset of prostitution was found to be 30.78. In the study by Alizadeh et al conducted in Tabriz, the age of onset of prostitution was  $26.8 \pm 7.2$  that was lower than that in our study.<sup>18</sup>

In the present study, the mean age at onset of first vaginal intercourse was  $16.57 \pm 3.652$  years, while in the study by Dandona et al, the mean age of onset of first vaginal intercourse was 15.1. Further analysis of findings in the present study revealed that there is a 14-year gap between the onset of the first vaginal intercourse and the start of prostitution, whereas in the study by Dandona et al, the

**Table 1.** The Frequency of the Studied Variables

Variable	No. (%)
<b>Education level</b>	
Illiterate	18 (11.11)
Able to read and write	4 (2.46)
Elementary school	42 (25.92)
Secondary school	47 (29.01)
High school	12 (7.40)
High school diploma	31 (19.13)
Academic	8 (4.9)
Total	162 (100)
<b>Current marital status</b>	
Single	3 (1.9)
Married	35 (22.2)
Divorced	61 (38.6)
Concubine	35 (22.2)
Widow	24 (15.2)
Not responded	4 (2.4)
Total	162 (100)
<b>Income per month</b>	
Less than 100,000 tomans	12 (7.4)
100,000-500,000 tomans	87 (53.7)
500,000-1,000,000 tomans	45 (27.8)
1,000,000-5,000,000 tomans	15 (9.3)
Over 5,000,000 tomans	2 (1.2)
Do not know/remember	1 (.6)
Not responded	0
Total	162 (100)
<b>Current residence</b>	
Permanent spouse	22 (13.7)
As concubine	21 (13)
Fixed sexual partner	1 (.6)
Girl friends	1 (.6)
The parent or parents	27 (16.8)
Sister/brother	2 (1.2)
Relatives	4 (2.4)
Children	20 (12.4)
Alone at home	7 (4.3)
On the street	2 (1.2)
In the shelter	5 (8)
Other residences	1 (.6)
Not responded	49 (30.2)
Total	162 (100)
<b>The main reason for prostitutes to start prostitution</b>	
Needing money to help the family	101 (62.3)
Lack of knowledge of another profession or special skill to earn money	12 (7.4)
Needing money to pay off debt	9 (5.6)
Coercion by spouse/parents	3 (1.9)
Personal interest (entertainment)	3 (1.9)
The insistence of peers and friends	1 (.6)
Leaving the spouse	1 (.6)
Family rejection/running away from home	2 (1.2)

Variable	No. (%)
My own decision to generate or increase revenue	4 (2.5)
History of rape	1 (.6)
Other reasons	24 (14.8)
Not responded	1 (.6)
Growing up in a family where prostitution existed	0
High income from prostitution	0
Unnecessary expenses	0
Total	162 (100)
<b>The main way prostitutes find customers</b>	
Team house/hangout	39 (24.1)
In shopping malls	3 (1.9)
On the street/park/public transport	59 (36.4)
Via mobile	25 (15.4)
Via internet	0
Hotel and Inn	0
With the help of my aunt/boss/owner, and the like	6 (3.7)
At parties	(0.6)
I have regular customers	7 (4.3)
Other ways	22 (13.6)
Total	162 (100)
<b>Having anal sex</b>	
Yes	64 (39.5)
No	98 (60.4)
<b>The main reason for anal sex</b>	
It feels good/I like it	7 (10.9)
The customer paid more	8 (12.5)
To prevent conception	1 (1.6)
To prevent HIV	0
It is good for tightening the vagina	0
Aunt/boss/owner, etc. forced me	0
The customer insisted but did not pay more	15 (23.4)
I want to remain a virgin	0
Other reasons	29 (45.3)
Do not know/remember	3 (4.6)
Not responded	1 (1.6)
Total	162 (100)
<b>History of group sex (Having sex with more than one person at the same time)</b>	
Yes	13 (8.1)
No	149 (91.9)
<b>History of abortion</b>	
Yes	72 (44.4)
No	90 (55.5)
<b>Familiarity with condoms</b>	
Yes	162 (100)
No	0
<b>Using condom</b>	
Yes	10 (6.17)
No	152 (93.83)
<b>Receiving condoms from DIC centers</b>	
Yes	4 (2.46)
No	158 (97.53)

Note. HIV: Human immunodeficiency virus; DIC: Transitional damage reduction centers.

**Table 2.** Comparison of Age of Sexual Intercourse Based on Education Level

Variables	Mean $\pm$ SD
Illiterate	14.61 $\pm$ 3.33
Able to read and write	2.44 $\pm$ 18
Elementary school	15.55 $\pm$ 3.89
Secondary school	16.79 $\pm$ 3.62
High school	16.92 $\pm$ 2.93
High school diploma	18.06 $\pm$ 3.14
Academic	18 $\pm$ 4.03

Note. SD: Standard deviation.  
*P* = 0.01

**Table 3.** Comparison of Condom Use Based on Education Level and Income

Variable	Using condom		<i>P</i> value
	Yes No. (%)	No No. (%)	
Education level			0.44
Secondary education diploma and lower	4 (3.66)	105 (96.33)	
Higher than secondary education diploma	3 (6)	47 (94)	
Participants' Income			0.02
<1 000 000 tomans	4 (2.8)	137 (97.16)	
>1 000 000 tomans	3 (20)	12 (80)	

age gap was approximately 7 years.<sup>19</sup>

Although most women who engaged in prostitution had a high school or academic education as adults, most of those who engage in prostitution as adolescents dropped out of school before completing high school. This points to the fact that attending school reduces participation in prostitution<sup>20</sup> while not going to school increases the risk associated with this issue.<sup>21</sup> Further studies should attempt to explain the mechanism by which school attendance acts as a protective factor against prostitution.

In the present study, the most important reason for the tendency to prostitution was financial poverty and lack of job skills. A history of rape, coercion by a spouse or parents, and personal interest were also identified as other contributing factors. Likewise, in the study carried out by Badrimanesh et al, poverty was one of the main effective factors for prostitution of financially poor women. Other reasons included family status, living environment, drug addiction, sexual abuse in childhood, low education, and disagreement with the spouse.<sup>22</sup> In a study by Movahed et al regarding investigating the underlying factors related to prostitution on women referring to the DIC Center of Tehran Khorshid House, the most important causes of prostitution in these women were reported to be financial poverty, sexual harassment, and family breakdown.<sup>23</sup> In another study by Zadeshampour who examined the factors affecting prostitution of women in Tabriz central prison, the lack of a suitable job and financial poverty were found to be the most influential factors contributing to the prostitution of women. Further, factors such as parental

addiction, domestic violence, and the spouse's impotence were among the cited factors leading to women's prostitution.<sup>24</sup>

In majority of studies, financial poverty has been cited as the most important cause of prostitution. Prostitution reflected women's limited opportunities to earn good income and economic independence.

Poverty is one of the most important causes of dropout among school girls, which leads to a decrease in girls' awareness of sexual health.

According to findings of this study, most prostitutes found their clients in the streets, parks, and public places. In a study by Alizadeh, prostitutes met their clients in their own house, street, and client's house.<sup>18</sup> Of the prostitutes in the Dandona's study, 75% met their clients at street, 22.5% at home, and 2% in brothels.<sup>25</sup>

In the present study, 39.5% of participants had anal sex; but in the study of Tucker et al, the prevalence of anal sex in prostitutes was 22%.<sup>26</sup> Although Dandona et al reported a prevalence of 0.03% for anal sex,<sup>25</sup> recent studies in India have reported an increasing trend of anal sex.<sup>27-29</sup> Tian et al<sup>30</sup> reported a 39% prevalence of anal sex among heterosexual women who referred to a sexually transmitted disease (STD) clinic in the United States; however, the prevalence was reported to be lower among African women (3.5%-14%).<sup>31-33</sup> There is evidence suggesting that underreporting may be the result of ambiguous terms<sup>34-36</sup> or the reluctance of health workers or interviewers to investigate cultural issues. After changing the terms used for anal sex in their study questionnaire, Ferguson and Morris indicated that FSWs exhibited a 20% increase in prevalence of sexual reporting.<sup>37</sup>

The main reason for having anal sex in prostitutes, according to this study, was the client's demand for this type of intercourse. This finding is in line with the study of Tucker et al<sup>26</sup> who also reported that customer demand for anal sex was high, but some studies cited other causes such as avoiding pregnancy or avoiding contact with menstrual blood.<sup>38,39</sup> Among those who had anal sex, only 28.1% used condoms, while in the study of Tucker et al,<sup>39</sup> 88% reported using condoms in anal sex, which is more frequent than other studies.<sup>29,31</sup>

Sexual orientation, type of sexual intercourse (vaginal, anal, and oral), number of sexual partners and frequency of sex were risk factors for transmission of AIDS and STDs. Therefore, it is necessary to study the sexual behaviors of the community to prevent the transmission of infection. In a national men's survey, 20% of men, aged 20 to 39, reported having anal sex with a woman in the past 10 years.<sup>40</sup> Similarly, in the national health and social life survey, 26% of men aged 18 to 59 reported having anal sex with women.<sup>41</sup> The findings of the current study revealed that 44.4% of participants had a history of miscarriage. In the study by Lau et al, the prevalence of abortion in FSWs was extremely high so that it was even more prevalent than that of women in the general population. It was further found that this group of women did not take



effective measures to prevent unwanted pregnancies, and their ability to protect against unwanted pregnancies was considerably low. This may be attributed to the lack of knowledge or awareness of preventative measures.<sup>42</sup>

In this study, all participants knew condoms; however, lack of sufficient awareness among high-risk groups caused them overlook the important role of condoms in prevention. In contrast, in spite of full knowledge, most of them did not use this preventive device.

In Alizadeh's study, 52% of cases did not use condoms when having sex with their clients. The reasons that some women avoided using condoms were that some of them believed that it destroys the pleasure of natural sexual intercourse and also considered its use as troublesome.<sup>18</sup>

In the study of Rahmati, participants who referred to the behavioral diseases counseling center in Tehran and were diagnosed with AIDS did not use condoms.<sup>43</sup> In another study by Tamang et al on sexual behavior and risk perception among young people in Nepal, sex workers' customers were reluctant to use condoms due to the fear of losing sexual pleasure and embarrassment.<sup>44</sup>

In the same vein, Thomsen et al reported that sex workers and their clients in Kenya were reluctant to use condoms.<sup>45</sup>

In the study by Farrington et al<sup>46</sup> and in a study in Argentina,<sup>47</sup> the reason for not using condoms was the disagreement of sexual partners, especially men, due to their discomfort.

In a study in Africa,<sup>48</sup> it was reported that most participants used condoms irregularly, and one of the main reasons for not using them was the lack of their confidence in the effective protective role of such condoms.

Moreover, in this study, the majority of participants did not receive free condoms from transit centers in the city during the past year, which may be due to the lack of awareness of these women about the role of these centers in providing such services.

Muñoz et al<sup>49</sup> also showed that double access to condoms, and having the ability to buy condoms increase the chance of regular use of condoms twice and 1.7 times, respectively. Increasing access to condoms in high-risk groups is one of the key interventions to prevent STDs such as AIDS.<sup>50</sup>

The results of this study cannot be generalized to all prostitutes because they were enrolled from one damage reduction center. More specifically, there are other prostitutes in the community who do not know these centers, or they continue to act in the society in unknown ways because of the illegality or immorality of these behaviors.

Regarding the above-mentioned considerations, it seems that participants in the presents study were limited or uncomfortable to express other facts that led to their prostitution. Accordingly, it is suggested that further studies with larger sample size be conducted in other DICs.

## Conclusion

The results of this study indicated that the age of first

sexual intercourse was extremely low, and the increase in education level delayed the age of first intercourse. According to the results of the current study and similar studies, financial poverty has been regarded as one of the most important causes of prostitution and as one of the most dominant reasons for women to drop out of school, which resulted in the reduction in women's level of awareness, especially of self-care and sexual health. Given that the age of the first sexual intercourse was in adolescence, during this period and before leaving the school, girls should be informed and educated about the importance of using personal protective equipment and sexual health. Further, by facilitating access, the culture of using personal protective equipment can be promoted to some extent among this sensitive group of the community, and accordingly, the spread of sexually transmitted diseases, especially AIDS, can be prevented.

## Ethical Approval

Individuals were fully informed of the study procedure and objectives, and conscious consent to participate in the study was obtained orally. Individuals' first and last names were not recorded, and they were allowed to leave any questions they wished unanswered. If any woman was not satisfied with participating in the study, there were no restrictions on receiving services and advice for her. With regard to the ethical approval, it should be noted that the protocol of the study was approved by the Shiraz University of Medical Sciences (code: IR.SUMS.REC.131096).

## Conflict of Interest Disclosures

The authors declare that there is no conflict of interests.

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