

Investigating the sexual protective behaviour among HIV-positive women in Tehran, Iran

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Abstract

Introduction: The third wave of human immunodeficiency virus (HIV) is rising due to high-risk sexual behaviours in Iran. In spite of launching programs to combat HIV in Iran, condom use frequency has not yet reached the optimal level, especially in high-risk groups. The aim of this study was to assess the sexual protection behaviours and awareness among HIV-positive women.

Material and methods: This descriptive study was performed on 100 HIV-positive women who referred to the Voluntary and Counselling Centre (VCT) in Tehran and were recruited using a purposive sampling method. Data collection was carried out using HIV/acquired immunodeficiency syndrome (AIDS) awareness and sexual protection behaviour questionnaires.

Results: Condom use was practiced only by 22.2% in all their vaginal and anal sexual intercourse during the three months, and 77.8% of the women never used condoms or failed to use them continuously. Their sexual partners were HIV-positive in 71% of cases. The mean \pm SD of awareness score about HIV/AIDS was 7.60 ± 3.31 , indicating average awareness of the subjects in the study. A total of 49.1% of the participants stated that their sexual partners' reluctance was the most important reason for non-use of condoms, while women were not willing to use condoms in 18.2% of cases.

Conclusions: The results of the present study indicated poor sexual protection behaviours in HIV-positive women. As a result, gender-based harm reduction programs to promote safe sexual behaviour, awareness level, and negotiation power for condom use in HIV-positive women is more important than ever.

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Key words: protective sexual behaviour, HIV, condoms, HIV awareness.

Introduction

The risk of human immunodeficiency virus (HIV) transmission has increased in recent years due to high-risk sexual behaviours, considering the available statistics and the demo-

graphic structure of Iran [1]. According to a World Health Organisation (WHO) report, global HIV infections reached 36.9 million in 2017, of which 18.2 million were women over the age of 15. The number of Iranian HIV-positive individuals is estimated at around 60,000 people, of whom approximately

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15,000 are women [2]. The number of Iranian HIV-positive women grew from about 7% in 2015 to 11% in 2016 and about 17% in 2017 [3]. However, according to the announcement of Iran's comprehensive electronic data management system for HIV, 31% and 69% new recorded cases were women and men, respectively, in the first half of 2018.

In addition to changes in the incidence of males and females, the transmission routes have undergone changes in recent years. The causes of HIV among all the cases recorded since 1986 up to now in the country include injection with shared needles among drug users (67.5%), sexual intercourse (18.7%), mother-to-child transmission (MTCT) (1.6%), and unknown causes (11.5%). However, among the cases detected in the first six months of 2018, the transmission routes included drug injecting (37%), MTCT (2%), unclear causes (21%), and sexual intercourse (40%) [4]. The share of sexual transmission route was about 5-8% in 2006, but it increased to 13% by 2008. This figure reached 21.1% of the total population in 2011, and the injection transmission route grew in the spread of HIV/acquired immunodeficiency syndrome (AIDS) more than six fold. The share of sexual transmission was stated as 47.1% in the first six months of 2017. In addition, the transmission route was unclear in 17.4% of the cases, so it could be conjectured that sexual transmission accounted for the majority of cases [5].

Because women make up a large number of patients identified in the third wave of the HIV epidemic in Iran, during the process of moving the HIV transmission route to the third wave, spouses, sexual partners, and mothers of the second wave play the key role. These women are actively or passively affected by the disease due to high-risk and unprotected sexual behaviours, and their role in the HIV/AIDS epidemic is of increasing importance due to the transmission of the virus during pregnancy or birth to subsequent generations [6].

Many HIV-positive women are deprived of desirable sexual and fertility health due to gender inequalities, which are part of their rights. Gender inequality, access to low economic resources, unbalanced power in relationships, and limited ability to decide about sex limit the ability of many HIV-positive women to meet their sexual and fertility health needs [7]. Understanding how gender affects the risk of HIV infection and that it accounts for higher HIV transmission cases than drug injection is key to designing effective prevention and treatment programs [8]. HIV prevention programs often consider men and women equally responsible for making sexual decisions and using condoms, but it should be noted that they ignore the fact that gender-based power in relationships between women and their sexual partners/spouses affect sexual behaviours because society defines different norms for women and men [9, 10]. For example, some societies have considered the right for men to have multiple sexual partners [11], and men, for the sake of their masculinity, sometimes choose multiple sexual partners extra-martially, which in turn reduces emotional intimacy with their wives, and even the frequency of condom use. However, women are expected play a gender role paral-

lel to the duty of femininity to serve the family, respect their husbands, be obedient, and to remain sexually loyal [12].

Given that there is still no definitive treatment for AIDS, and prevention is the only way to combat this disease, and since this disease is often acquired through avoidable and modifiable behaviours, the most important barrier to AIDS prevention is the lack of awareness of different aspects of the disease, and educating and informing people, especially women, can be considered as an appropriate strategy to prevent new cases [13]. Safe sex practices became important in the late 1980s as a result of the AIDS epidemic and are now considered as one of the sexual education goals and harm reduction strategies to reduce related risks [18]. Safe sexual activity refers to sexual activities, particularly sexual penetration, and it is carried out using latex condoms and monogamy, with the aim of reducing sexually transmitted diseases such as HIV [19]. In this regard, condom use has always been the most effective preventive and cost-effective way to deal with sexually transmitted diseases [14].

Safe sexual behaviour in different groups is related with appropriate education and knowledge about sexually transmitted diseases and HIV/AIDS, strong self-efficacy, access to condoms, access to healthcare services, strong support from health personnel, and discourse skills regarding the use of condoms and promotion of safe sex is an effective method to control the transmission of HIV and other infections [15]. Therefore, the present study was aimed to measure the frequency of sexual-protection behaviours among HIV-positive women and their awareness of HIV/AIDS and its transmission and prevention routes, so that its results can be used to evaluate preventive programs and design interventions to improve decisions made around sexuality and reproduction.

Material and methods

This descriptive-analytical study was performed on 100 HIV-positive women referring to a VCT in Tehran, which is one of the largest referral VCTs in Tehran University of Medical Sciences. Approximately 3000 people are covered by this centre, which mainly focuses on AIDS and sexually transmitted diseases. The medical and psychological services are provided free of charge and on a daily basis in the centre. Education, free and confidential HIV counselling, and testing services to reduce the harm caused by addiction (distribution of syringes and needles), and the provision of condoms are among the services provided at these centres. Convenience sampling was carried out after expressing the goals of the study to the participants and obtaining their informed consent during a 45-day period. Inclusion criteria were as follows: 1) Iranian nationality; 2) individuals aged 19 to 49 years; 3) the ability to read and write; and 4) being sexually active during the preceding three months. Exclusion criteria also included: 1) progression to advanced stages of the disease (AIDS); 2) unwillingness to participate in the study; 3) severe mental diseases; 4) intent to be pregnant; and 5) being absent from training classes during the preceding six months. Of the 138 people referred, 100 met the in-

clusion criteria. Each participant received a specific code so that the researcher could identify those who did not want to reveal their name.

Measurement tools

Data was collected by a 57-item questionnaire. The questionnaire consisted of three parts and was drawn up by a questionnaire designed and underwent psychometric analysis by Lotfi *et al.* The first part contained demographic profiles (22 questions). The next part included the fertility and sexual behaviour profiles of people, and the scoring was done using a five-point Likert scale ranging from *always* to *never*. Individuals were categorised as having safe sexual behaviour if they chose the *always* option regarding condom use during anal and vaginal intercourse. Thus, Score 10 represents safe sexual behaviour. Then a 12-item HIV awareness questionnaire was used, and scores 1 and 0 were assigned to *correct* or *wrong/do not know* answers, respectively. Scores 0-4, 5-8, and 9-12 indicated poor, moderate, and good level of awareness, respectively. The reliability of the questionnaire was confirmed by a test-retest method with a correlation coefficient of 0.88 and Cronbach's alpha of 0.78 [16].

Data analysis

Data description was carried out using mean, number, and percentage in SPSS ver. 16 software. Finally, the level of awareness and safe sexual behaviour (continuous use of condoms in all types of sexual intercourse in the last three months) were examined.

Ethical considerations

This study was done after being approved by the Ethics Committee of the Alborz University of Medical Sciences with code IR.ABZUMS.REC.1397.31.

Results

In total 69% of the participants had permanent marriage for one time. Moreover, they were categorised in the second decile in terms of their income level. A total of 89% of these individuals mentioned that they possessed no other financial resources, such as savings, property, and valuable objects, and 69% of them stated that they had sometimes borrowed money from others to earn a living. Participants stated that they had sex once a week (37%), two/three times a week (48%), and more than four times a week (15%). Other demographic and fertility information can be seen in Table 1. Also, a total of 53.5% of the participants stated that they were currently having sex with their favourite sexual partner; however, only 37.7% of them always used condoms and 20.7% of them never used condoms during their sexual intercourse. Table 2 shows the frequency of using condoms and safe sexual behaviour. A total of 30% of women suffered

from abnormal secretions, wounds, and warts. 95.8% and 80.4% of the individuals never used drugs and alcohol before sex, respectively. Mean and standard deviation of awareness score in participants was 7.60 ± 3.31 . Table 3 shows the participants' level of awareness of the questionnaire items. Examining the inter-variable correlation showed that the average frequency of safe sexual behaviour was 43.27% in those whose spouse was HIV-positive, which is less than those who had healthy husbands (67.07%). The results also showed a significant relationship between the average frequency of safe sexual behaviour with the spouse's level of education ($p = 0.029$); meaning that the average frequency of safe sexual behaviour was higher (65.34%) in individuals whose spouses had an academic education and 41.90% in those with middle school and high school education. In addition, it was observed that the average frequency of safe sexual behaviour in housewives (55.77%) was higher than among employed women (42.40%).

In this study, 62% of people did not have the correct information about oral sex-induced HIV. A total of 36% of respondents chose the correct answer in replying to the phrase: "If the man's sperm is not poured in to the woman's reproductive system during the intercourse, HIV/AIDS infection doesn't occur", and 49% of people thought that if a man has undergone vasectomy, he will no longer be a carrier of HIV through sex. Participants had moderate awareness levels of HIV transmission through anal sex (59.6%), and positive diagnostic test for HIV (57%), and had relatively good awareness level in other cases. In addition, 90% of the participants noticed that the normal appearance of individuals would not be a sign of lack of infection, which indicates a good level of awareness regarding this subject.

Also, there was a significant positive correlation between the awareness level and the duration of the disease ($p = 0.001$) and duration of membership in the club ($p = 0.005$). However, there was no significant relationship between awareness level and safe sexual behaviour ($p = 0.97$). There was no correlation between the sexual behaviour and awareness level with other variables.

Discussion

The aim of this study was to investigate the protection sexual behaviour and people's level of awareness of HIV, its transmission routes, and prevention strategies in HIV-positive women. The results reveal that only 22.2% of HIV-positive people in this study had safe sex behaviours and used condoms in all of their vaginal and anal sexual intercourse; other people never used condoms or only sometimes used them in their sexual intercourse. Consistent condom use reduces the probability of HIV transmission per sex act by as much as 95% and reduces the annual HIV incidence in sero-discordant couples by 90-95% when used consistently [17]. However, risky sexual behaviour among HIV-positive people was reported in many studies, and consistent condom use varies from 16.7% [18] to 43% [19]. In another

Table 1. Demographic characteristics and fertility of the participants

Variables	Mean \pm SD
Age (years)	43.35 \pm 7.03
Age at first sex	19.57 \pm 4.2
Duration of the disease	5.52 \pm 4.36
Duration of membership in a <i>Positive club</i>	3.23 \pm 2.91
Average monthly income (IRR)	1,381,521 \pm 1,532,625.36
	<i>n</i> (%)
Marital status	
Married (permanent marriage)	51 (51)
Married (temporary marriage)	17 (17)
Single	6 (6)
Widow	6 (6)
Divorced	20 (20)
Residential status	
Independent home	31 (31)
Rental house	64 (64)
Centre for dormitory	2 (2)
Without shelter	3 (3)
Number of partners	
1	50 (50)
2-3	35 (35)
4-5	8 (8)
6 or more	7 (7)
Having a contraception method	79 (79)
Type of contraception method	
Withdrawal	27 (32.9)
Condom	46 (56.1)
Intra Uterine Device	4 (4.9)
Tubal ligation	5 (6.1)
Level of education	
Elementary and middle school	25 (25)
High school and diploma	60 (60)
Academic	15 (15)
Spouse's condition (HIV ⁺)	71 (71)
Spouse education level	
Illiterate	8 (8.2)
Elementary and middle school	37 (37.8)
High school and diploma	34 (34.7)
Academic	19 (19.3)
Wife's addiction status	
Injection drug addiction	17 (17.3)
Non-injectable addiction	27 (27)

Table 1. Cont.

	<i>n</i> (%)
Employment status	
Unemployed	59 (59)
Employed	41 (41)
Husband's employment status	
Unemployed	28 (28/6)
Employed	70 (71/4)
Route of HIV contamination	
Unsafe sex	65 (65)
Injecting drug use	4 (4)
Blood injection	3 (3)
Unknown	19 (19)
Other cases	9 (9)
Reasons not to use condom	
No condom	5 (9.1)
Expensive	2 (3.6)
Missing woman's interest in using	10 (18.2)
Opposition by husband/sex partner	27 (49.1)
Use of other preventive methods	5 (9.1)
Inattentiveness of condom use	3 (5.5)
Negative husband/partner test	1 (1.8)
Confidence in husband/partner	2 (3.6)
Use of antiretroviral drugs	94 (94)

study from Iran, only 25% of people living with HIV always used condoms in the preceding year [20].

Even in high-risk groups such as female sex workers (FSWs) not using condom is very common, and almost all FSWs had not used condoms regularly [21].

The most important reason for non-use of condoms in this study was the sexual partner's opposition (49.1%). Other reasons were reported as follows: the woman's unwillingness (18.2%), lack of access to condoms (9.1%), and the use of other preventive methods (9.1%). Although men and women may have similar reasons for non-use of condoms, it should be pointed out that men have more control over the use or non-use of condoms [10, 22], and these are men who play a key role in gender equality, because males play a fundamental role in almost every area of life, ranging from personal decisions about the number of children in the family to decisions about government policy or programs at all levels in most societies [23]. In studies conducted on high-risk women in Iran, results showed that the most important reason for non-use of condoms was reported to be the sexual partner's opposition [20, 24]. Therefore, a change in awareness, attitude, and the behaviour of men and women is necessary to coordinate participation in both genders [8], and there must be approaches to gender inequality so that

Table 2. Sexual behaviour and condom use in sexual relationships

Variables	n (%)
The average amount of condom use per 10 vaginal sexual intercourses	
Never	35 (35)
1-5 times	28 (28)
9-5 times	10 (10)
Always	27 (27)
The use of condom in last vaginal sex	
Yes	42 (42)
No	56 (56)
I don't know	2 (2)
Anal sex	21 (21)
Condom use in last anal sex	
Yes	13 (65)
No	6 (30)
I don't know	1 (5)

Table 2. Cont.

Variables	n (%)
Oral sex	39 (39)
Condom use in last oral sex	
Yes	3 (7.3)
No	34 (82.9)
I don't know	4 (9.8)
Condom use in oral sex within three months	
Always	4 (10.8)
Most of the time	1 (2.7)
Sometimes	3 (8.1)
Seldom	7 (18.9)
Never	22 (59.5)
Type of sexual behaviour	
Safe sex	22 (22.2)
Unsafe sex	77 (77.8)

Table 3. The results of the participants' response

Questions	Answers	Result		
		(%)	n	Mean
If treated, HIV/AIDS infection can be completely removed from the body.	True	65	65	0.65
	False/I don't know	35	35	
HIV/AIDS infection can also be transmitted through oral sex.	True	38	38	0.38
	False/I don't know	62	62	
The risk of HIV/AIDS transmission can be reduced by using condoms in sexual intercourse.	True	87	87	0.87
	False/I don't know	13	13	
HIV/AIDS transmission doesn't occur if the sperm does not enter the female reproductive system during sexual intercourse.	True	36.4	36	0.36
	False/I don't know	63.6	63	
Anal sex is associated with a greater risk of HIV/AIDS transmission.	True	59.6	59	0.59
	False/I don't know	40.4	40	
The use of a shared bathroom and bathtub does not lead to the transmission of HIV/AIDS.	True	68	68	0.68
	False/I don't know	32	32	
Having sex with strangers increases the risk of HIV/AIDS infection.	True	82	82	0.82
	False/I don't know	18	18	
HIV / AIDS diagnostic test can show HIV/AIDS infection immediately after sex.	True	57	57	0.57
	False/I don't know	43	43	
Limiting sex with only one person can reduce the risk of HIV/AIDS infection.	True	71	71	0.71
	False/I don't know	29	29	
A man whose tubes are closed does not transmit HIV/AIDS to his wife.	True	49	49	0.49
	False/I don't know	51	51	
A woman whose tubes are closed is no longer infected with HIV/AIDS.	True	61	61	0.61
	False/I don't know	39	39	
A person with a healthy appearance may be infected with HIV/AIDS.	True	90	90	0.90
	False/I don't know	10	10	

HIV-positive women are empowered, thereby improving sexual and reproductive health and its consequences [7].

The participants had a moderate awareness about HIV prevention. Studies revealed that consistent condom use is associated with participation in an HIV prevention course, knowledge of unsafe sex consequences, and having an HIV-positive sexual partner [18]. However, many high-risk groups do not have adequate awareness of the modes of transmission of HIV, doubt about the role of condoms in preventing HIV, and face reluctance of sexual partners to use condoms due to reduced sexual pleasure [21]. Considering the importance of knowledge about HIV/AIDS in reducing risky sexual behaviour [13], more informational support should be provided to promote protective sexual behaviour among HIV-positive women. Also, Patrao *et al.* showed that only 38.2% of high-risk women used condoms as a prevention method and that higher HIV prevention knowledge leads to higher condom-use negotiation skills [25]. The level of awareness was correlated with the duration of membership of a *positive club*, which can be attributed to weekly training classes at the club; therefore, those who have been among the club's membership for a longer period have benefited from educational materials more frequently.

Average income and financial resources of individuals in this study belonged to the low economic decile groups. It is quite clear that poverty causes men and women to become vulnerable to HIV, especially for those active in the sex industry. Poverty imposes restrictions on the use of condoms and increases the likelihood of an infection. Because women face more financial limitations than men and are therefore more vulnerable in this regard, the likelihood of unprotected sex is higher in these individuals. There are two main reasons for this problem: firstly, the economic and livelihood needs prevent women from having safe sex; and secondly, they may neglect to use condoms due to pressure and fear of violence [26].

A total of 4.80% of people never used alcohol before sex. Investigating this variable is valuable because alcohol consumption has been consistently associated with high-risk sexual behaviours, and if used (especially alcohol poisoning), there would be elevated risk of a negotiation failure to use condoms and may even lead to conflict between couples [22]. Also, 95.8% of the participants never used drugs before sex. However, 17.3% of the sexual partners were injecting drug users and 27% were non-injecting drug users. Drug use can have a negative impact on sexual intercourse because many addicts use drugs as an incentive to succeed in sexual matters or to obtain unreasonable or exceptional sexual pleasures. High-risk sexual behaviours are more common in people who abuse substances, regardless of their gender, and there is a greater interest in having different sexual partners as well as frequent sexual intercourse without the use of preventive measures in these individuals, which in turn increases the risk of transmission of sexually transmitted diseases [22, 23].

Many women attributed the non-use of condoms in anal and oral sex to the painful experience and impossibility

of using condoms, respectively. As was seen in the present study, participants had moderate or little awareness of HIV transmission through anal and oral sex, respectively. The majority of participants of the above study also had awareness of the vaginal transmission routes of HIV, but were unaware of HIV transmission through anal and oral sex [21].

Conclusions

The results of the present study indicate poor protective sexual behaviours in HIV-positive women. Considering that the most common route of HIV transmission in recent years is high-risk sexual behaviours, it is important to consider measures to replace risky behaviours with healthy sexual behaviours for the general public. Behavioural interventions to promote the use of condoms or to reduce risky sexual behaviours include individual counselling, skill training, coping strategies and discourse, peer education, and social and educational support. It is possible to prevent rapid HIV transmission through high-risk sexual behaviour by using these measures and raising public awareness. It is suggested that a study with a higher sample size be carried out to compare sexual protection behaviour in men and women.

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Conflict of interest

The authors declare no conflict of interest with respect to the research, authorship, and/or publication of this article.

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