

HIV⁺ women's reproductive and sexual health in Iran: studying samples referring to behavioral diseases counseling centers

Mitra Ghasemi¹, Mojgan Javadnoori¹, Bahman Cheraghian², Zahra Abbaspoor^{1*}

¹Department of Midwifery, School of Nursing and Midwifery, Reproductive Health Promotion Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran. ²School of Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Correspondence: Zahra Abbaspoor, Department of Midwifery, School of Nursing and Midwifery, Reproductive Health Promotion Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran. Abbaspoor_z762@yahoo.com

ABSTRACT

AIDS is a controversial issue in women's health; it affects reproductive and sexual health. This study aimed to compare the reproductive and sexual health of HIV⁺ women and healthy women who were referred to behavioral disease counseling centers and health centers. This cross-sectional, descriptive-analytical study was performed on 100 HIV⁺ women referred to the Behavioral Diseases Counseling Center and 100 healthy women referred to the health centers of Ahvaz and Abadan cities, Iran. Data collection tools included the researcher-constructed reproductive health questionnaire and the FSFI sexual health questionnaire. Data analysis was performed using SPSS software version 22 and T-test, chi-square, and single-variable and multivariate logistic regression. P was significant at a level of less than 0.05. The results of the study showed that not having high-risk behavior reduces the chance of afflicting HIV by 305 times ($P < 0.001$); sexual performance in HIV⁺ women is 70% lower than healthy women ($P < 0.001$). Also, the chance of having an overweight of 2.500 g in infants of HIV⁺ women was 40 times less than the infants of healthy women ($P = 0.009$) and the use of formula in infants of these mothers was 3.3 more than in infants of healthy mothers ($P = 0.04$). HIV⁺ women have more adverse consequences than healthy ones during fertility ages, pregnancy, and childbirth, and their sexual performance is weaker. We emphasize advising these women to better adhere to medication and improve their quality of life.

Keywords: AIDS, HIV, Reproductive health, Sexual health

Introduction

Acquired Immune Deficiency Syndrome is a pervasive disease in various societies caused by retrovirus immunodeficiency in the lentivirus family. The virus affects all systems of the body and makes the organs of the body vulnerable to opportunistic infections, weight loss, and eventually death [1]. According to the World Health Organization in 2017, 940,000 people died from the immunodeficiency virus worldwide; the number of

people infected with the immunodeficiency virus has been estimated at 77,300,000 since its identification in 1981 [2]. According to the United Nations Office on AIDS in Iran, the number of people living with AIDS has risen alarmingly, and in 2018, 61,000 people are living with AIDS and its prevalence is 0.1%. Of these, 54% are in the age group of 21 to 35 years, indicating that more than 50% of cases occur at an age when the person is sexually active [3]. In 2018, according to UNAIDS, only 51 percent of pregnant women with the virus immunodeficiency received treatment, or prophylaxis to prevent transmission to the child [4]. Women with the immunodeficiency virus are vulnerable to health problems related to fertility [5]; their lack of access to reproductive and sexual health services leads to increased transmission of infection, recurrence of infection, affliction with other infections, unwanted pregnancies, and unsafe miscarriages [6]. According to one study, the rate of miscarriages in women infected with the immunodeficiency virus was 6.5 percent, and in the non-afflicted women, it was 2.9 percent [7]. In women

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infected with the immunodeficiency virus, worries about virus transmission, antiviral therapy, and the side effects of treatment may have detrimental effects on women's sexual function [8]. A small number of T-lymphocyte cells (CD4 T Cells) are associated with poor sexual function, so that people with T-lymphocyte cells less than or equal to 199 have poorer sexual function compared to people with a cell count of 200 or higher [9]. In Iran, drug injection with a frequency of 61.5%, use of common injection tools with a frequency of 43.1%, and unprotected sexual behavior with a frequency of 40% were the most high-risk behaviors before the diagnosis of immunodeficiency virus infection [10]. In a study in 2011, the rate of preterm birth was reported to be 14 percent in women with immunodeficiency virus and 6 percent in healthy women [11]. In a study in Canada (2017), 18.7% of HIV⁺ pregnancies resulted in miscarriage or stillbirth, 94.7% of infants were HIV negative and 66.7% of HIV⁺ mothers started antiviral therapy before pregnancy [12]. Another study (2018) conducted in the United States reported 4% stillbirth, 20% spontaneous abortion, and 33% preterm delivery [13].

Since the reproductive and sexual health of women infected with the immunodeficiency virus has not been studied in Iran so far, we embarked upon it to compare the reproductive and sexual health of women infected with the immunodeficiency virus and healthy women who refer to behavioral disease counseling centers and the health centers of Ahvaz and Abadan.

Materials and Methods

In this cross-sectional descriptive-analytical study, we obtained a license from the ethical committee and received a letter of introduction from the esteemed research deputy of the faculty of Nursing and Midwifery of Ahvaz Jundishapur University of Medical Sciences and the deputy of health. The researcher attended the Behavioral Disease Counseling Center and the health centers of Ahvaz and Abadan and made phone calls to invite and interview participants in person through patients' records. After the patient came to the center, initially written consent was received and he/she was assured that all information would be kept confidential. All HIV⁺ and HIV⁻ women were then interviewed individually and the questionnaire was completed by the researcher. In this study, demographic information (age, level of education, occupation, and income), fertility information (number of pregnancies, history of miscarriage, stillbirth, preterm birth), birth outcomes (type of delivery, infant affliction, infant weight) at last delivery, Contraceptive methods, sexually transmitted infections, other associated infections (in the case group and using the information recorded in the patient's file), and sexual function were collected. In the end, the mentioned variables were analyzed using SPSS statistical software Version 22. The control group was matched with the target group to control the effect of age distortion in terms of age and group.

Method of calculating sample size

$$n = \frac{(z_{1-0.01/2} + z_{1-0.1})^2 [0.00214(1 - 0.00214) + 0.05(1 - 0.05)]}{d^2} \quad (1)$$

To determine the sample size, the comparison formula of two ratios was used in which $\alpha = 0.01$ and $\beta = 0.1$. Based on the results of the pilot study on the population under study (30 people of the control group and 30 people of the case group), we considered $p_1 = 0.00214$ and $p_2 = 0.05$. The volume of the final sample was estimated to be equal to two groups of 88 people (176 people in total). Finally, in considering the attrition risk, the questionnaire was completed in two groups of 100 people (200 people).

Criteria for inclusion in the study were: HIV⁺ women, one year after being infected, and being in childbearing age (10 to 49 years), and exclusion criteria included lack of willingness to participate in the study.

Data collection tools were a demographic profile questionnaire, FSFI sexual function questionnaire, and researcher-constructed reproductive health questionnaire.

Demographic questionnaire: This questionnaire consists of three questions (age - the level of education - social and economic status) made by the researcher. 10 faculty members of Ahvaz Jundishapur, School of Nursing and Midwifery confirmed the content validity of this questionnaire.

FSFI sexual performance questionnaire: The Sexual Performance Questionnaire (FSFI) is a standard general questionnaire. Rosen *et al.* confirmed its reliability and validity in 2000 during research conducted for this purpose. The questionnaire includes 19 questions in six areas: sexual desire, arousal, vaginal moisture, orgasm, pain during intercourse, and sexual satisfaction. Each question has 5 options of response on a Lickert scale (Not at all, low, moderate, high, very high). The scores of each area are from zero to 5, they are obtained from the total score of the questions and multiplying the total number by the factor coefficient of that area. The factor coefficient of the sexual desire area is 0.6, the area of arousal and moisture is 0.3, and the areas of orgasm, pain, and satisfaction are 0.4. In the end, the total score was obtained from a total score of 6 areas. A score of less than 26 indicates the undesirable sexual function and a score of 26 or higher confirms desirable sexual function. The higher the score obtained, the better the performance of the variable [14]. Meanwhile, in Iran, Fakhri *et al.* performed in 2011 the validity and reliability of the Persian version of the FSFI questionnaire in Qazvin. The reliability coefficient of the test, the overall retest for each of FSFI-IV areas was high (domain r ranged from 0.73 to 0.86) and internal stability was acceptable (α from 0.72 to 0.90). Confirmatory factor analysis also confirmed the structure of these areas and supported FSFI-IV factor validity [15].

Reproductive health questionnaire: This questionnaire includes 39 questions for the case group, 23 questions about pregnancy and childbirth, 9 questions about antiviral therapy for mothers and infants, way of transmission, as well as methods of contraception in high-risk behaviors, and 7 questions about sexually transmitted infections. The control group's questionnaire included 32 questions, of which 23 were questions about pregnancy and childbirth, contraceptive methods, and 9 were questions about high-risk behaviors. This questionnaire is taken from the CDC [16] questionnaire. 10 patients and 10 faculty members of Ahvaz Jundishapur School of Nursing and Midwifery reviewed and approved its face and content validity.

Results and Discussion

The results of this research showed that the mean and standard deviation of the age was 33.06 ± 6.22 for HIV+ women and 32.85 ± 6.21 for those of healthy women. The lowest rate of education was among university HIV+ women (5% versus 31% in healthy women); 43% of HIV+ women compared to 25% of healthy ones were illiterate or of primary school education ($P = 0.002$). About half of the people in the two groups were in poor economic condition.

The risk of miscarriage in HIV+ women is 25% and it is 24% in healthy women. Stillbirth is 1.9% in HIV+ women and 3% in healthy women. Preterm labor in HIV+ women is 15.7% and in healthy women, it is 3%; this difference is significant only in the single-variable regression model ($P = 0.01$). 86.3% of HIV+ women gave birth by cesarean section, compared with 58% in healthy women; it has a statistically significant level based on the single-variable logistic regression model ($P < 0.001$), but not one the multivariate model. Infants of HIV-infected mothers are born by 6% under the weight of less than 2,500 g and the infants of healthy women are born by 5% under the weight of less than 2,500 g. It remained significant after eliminating the disturbing factors ($P=0.009$, $CL=0.002-0.4$, $OR = 0.025$). 82.4% of HIV+ infants are breastfed with formula compared to 10% of healthy women infants, which remained also significant by performing a multivariate regression test ($p=0.04$, $CL = 1.13-9.53$, $OR = 3.29$). The history of the death of an infant is 5.9% in HIV+ mothers compared to 1% in healthy mothers (**Table 1**).

Table 1. Frequency and percentage of demographic and fertility factors in the group's understudy

	HIV+ women N=100	Healthy women N=100	P- value
Standard deviation \pm mean			
Age (year)	33/06 \pm 6/22	36/82 \pm 6/21	0,81
Percentage (number)			
illiterate	6(6)	2(2)	
Education	Elementary 37(37)	23(23)	<0,001
	Under diploma 25(25)	15(15)	

	Diploma	27(27)	29(29)	
	University	5(5)	31(31)	
Social-economic status	Weak	46(46)	48(48)	0,49
	Moderate	43(43)	46(46)	
	Good	11(11)	6(6)	
		n=60	n=60	
Abortion history	Yes	15(25)	24(24)	1
	No	45(75)	76(76)	
Stillbirth history	Yes	1(1/9)	3(3)	1
	No	50(98/1)	97(97)	
Preterm birth	Yes	8(15/7)	3(3)	0/007
	No	43(84/3)	97(97)	
Type of birth	Normal vaginal birth	7(13/7)	42(42)	< 0.001
	Cesarean section	44(86/3)	58(58)	
Infant weight	Under 2500	6(11/8)	5(5)	0/18
	Above 2500	45(88/2)	95(95)	
Infant nutrition	Breast milk	7(13/7)	73(73)	< 0.001
	Formula	42(82/4)	10(10)	
	Cow milk	0(0)	1(1)	
	Breast milk and formula	2(3/9)	16(16)	
Infant death	Yes	3(5/9)	1(1)	0/11
	No	48(94/1)	99(99)	

35% of HIV+ women or their sexual spouses/partners had sex with multiple people; 48% of them or their sexual spouses/partners had a history of injecting drug use. 64% had a history of using tattoos or shared tattoos, and use of a common razor blade compared to 1% in healthy women who have a significant level in multiple models of logistic regression ($p < 0.001$, $CL = 27.7-3357$, $OR = 304.9$) (**Table 2**).

Table 2. Frequency and percentage of research samples in terms of high-risk behavior

		HIV+ women (percentage) number N=100	Healthy women (percentage) number N=100	P-value
Numerous sexual partners	Yes	12(12)	0	<0.001
	No	88(88)	100(100)	
Intercourse through the anus	Yes	15(15)	6(6)	0,038
	No	85(85)	94(94)	
Intercourse of Spouse/sexual partner with multiple people	Yes	23(23)	0	<0.001
	No	77(77)	100(100)	
History of injectable addiction	Yes	3(3)	0	0,024
	No	97(97)	100(100)	
History of injectable addiction to spouse / sexual partner	Yes	45(45)	0	<0.001
	No	55(55)	100(100)	
History of shared use of tattoos	Yes	24(%24)	1(1)	<0.001
	No	76(76)	99(99)	
Spouse/partner's shared history of tattooing	Yes	26(26)	0	<0.001
	No	74(74)	100(100)	

Use of common razor blade	Yes	7(7)	0	0.014
	No	93(%93)	100(100)	
Use of shared razor blade of spouse/sexual partner	Yes	7(7)	0	0.014
	No	93(%93)	100(100)	

The average and standard deviation of sexual desire were 2.97±1.21 in HIV+ women, 2.69±1.92 for sexual arousal, 2.09±1.39 for sexual moisture, 2.53±1.65 for orgasm, 3.70±1.59 for sexual satisfaction, and 1.61±1.37 for pain during intercourse. They were in healthy women 3.64±0.89 for sexual desire, 4.34±0.96 for sexual arousal, 3.25 ± 0.31 for sexual moisture, 3.94±0.52 for Orgasm, 5.31 ± 0.96 for sexual satisfaction, and 1.70±0.79 for pain during intercourse. Finally, the mean and standard deviation of the overall score of sexual performance was 15.81 ±7.94 in HIV+ women and 22.20±2.82 in healthy women (Table 3), which remains significant in multiple regression models (P <0.001, CL= 0.43-0.81, OR =0.59) (Table 4).

Table 3. Mean and standard deviation of research samples in the field of sexual performance

Groups	HIV+ women N=100	Healthy women N=100	P-value
Standard deviation ± mean			
Index of variable			
Sexual desire	2.97±1.21	3.64±0.89	<0/001
Sexual arousal	2.69±1.92	0.34±0.96	<0/001
Sexual moisture	2.09±1.39	3.25±0.31	<0/001
Orgasm	22.53±1.65	3.94±0.52	<0/001
Sexual satisfaction	3.70±1.59	5.31±0.96	<0/001
Pain	1.61±1.37	1.70±0.79	0/57
Overall score of sexual performance	15.81±7.94	22.20±2.82	<0/001

Table 4. Ratio of raw and applied odds with the corresponding confidence interval based on the results obtained from single-variable and multivariate logistic regression

Variable	Crude OR (CI, S %)	P-value	Adjust OR (CI, S %)	P-value
Age	1(0.96-1.05)	0/81	-	-
Illiteracy-Elementary	18.60(2.90_119.28)	0/002		
Under diploma	9.97(3.39-29.32)	<0/001		
Diploma	10.33(3.30-32.34)	<0/001		
University	5.77(1.96-17)	<0/001		
unwanted pregnancy	0.77(0.34-1.385)	0/58	-	-
Abortion	1.06(0.50-2.22)	0/89	-	-
Stillbirth	0.59(0.06-5.89)	0.660	-	-
Preterm	0(1.52-23.78)	0.01	-	-

Pregnancy blood pressure	8/42(0/91-77/42)	06.6	-	-
Type of delivery	4.55(1.86-11.09)	<0/001	-	-
Postpartum infection	8.24(0.91-44.47)	0/06	-	-
Postpartum Depression	.50(2.17-50.68)	0/003	-	-
Postpartum hemorrhage	8.42(0.91_77.42)	0/06	-	-
Birth weight	0.39(0.11-1.36)	0/14	0.025(0.002-0.4)	0/009
Infant nutrition	1.42(1.01-2)	0/04	3.29(1.13-9.53)	0/04
dangerous behavior	6.75(3.65-14.47)	<0/001	304.9(27.7-33.57)	<0/001
Sexual desire	0.54(0.40-0.73)	<0/001	-	-
Sexual arousal	0.47(0.36-0.60)	<0/001	-	-
Sexual moisture	0.47(0.36-0.60)	<0/001	-	-
Orgasm	0.22(0.12-0.39)	<0/001	-	-
Sexual satisfaction	0.37(0.27-0.51)	<0/001	-	-
Sexual pain	0.93(0.72-1.19)	0/57	-	-
Total sexual health	0.70(0.71-0.86)	<0/001	0.59(0.43-0.81)	<0/001

In this research, conducted to compare the reproductive and sexual health of HIV+ women and healthy women, the mean and standard deviation of the age was 33.6±06.22 for HIV+ women and 32.85 ± 6.21 for healthy women. In the study of Behboudi Moghaddam *et al.* in 2015, which was performed to determine the reproductive health of HIV+ women referred to the Center for High-Risk Behavior Counseling at Imam Khomeini Hospital in Tehran, the mean and standard deviation of the age was 33.3±8 [17]. In the study of Khani *et al.* in 2013 in Sari in the field of the most common need for sexual reproductive health, the mean and standard deviation of the age was 35.39 + 9.7 for HIV+ women and 31.64 ± 7.7 for healthy women [18]. The results of the present study are in line with the results of the conducted studies.

The majority of HIV+ women (43%) are illiterate or have a primary education, compared to 25% in healthy women, which is significantly based on single-variable regression. They did not remain significant after controlling the disturbing factors in the multivariate regression model. In the study of Behboudi Moghaddam *et al.* (2015), 45.5% of HIV+ women had a high school education or less, and university education was 12.5%, which is close to the results of the present study. In a study done by Khani *et al.* (2013) in Sari, 6% of HIV+ women were illiterate, 29.4% were less than diploma and 29.8% had a university education; it shows a significant difference with the present study. This difference may be due to differences in the socio-economic and cultural levels of the northern and southern regions of the country.

In the present study, the history of abortion in HIV+ and healthy women was 25% and 24%, respectively, which does not show a significant difference based on single-variable regression. The results of the present study also showed that 66.6% of HIV-infected women with a history of miscarriage

received antiviral therapy during pregnancy. In 2018, Elizabeth in the United States examined the consequences of pregnancy in HIV⁺ women who received antiviral therapy and reported a 20% spontaneous abortion and 11% selective termination of pregnancy [13]. The results of the recent study are close to the present study. In a 2014 study conducted by Pilicco *et al.* in Brazil, the prevalence of miscarriage was 6.5% in HIV⁺ women and 2.9% in healthy women [7], which shows significant differences from the results of the present study. It can be due to differences in sample size and study method.

In the present study, the history of stillbirth, despite antiviral therapy was 1.9% and 3% in HIV⁺ and healthy women, respectively, which is not significant based on single variable regression. In Elizabeth's study, 4% constituted stillbirths [13]. In a study conducted by Mahmoudi *et al.* in 2013, entitled "the effect of drug prevention through antiretroviral drugs in pregnant mothers with HIV on the transmission of HIV to infants in Khuzestan province", there was no history of miscarriage and stillbirth [19]. This difference can be due to the results of positive retrovirus treatment and serious follow-up of HIV⁺ patients in the Center for Behavioral Diseases of Khuzestan Province.

In the present study, the history of preterm delivery in HIV⁺ women is 15.7% and in healthy women, it is 3%. Even though 87.5% of them received antiviral treatment during pregnancy, they had a history of preterm delivery. Based on single-variable regression, this difference has a statistically significant level ($P = 0.01$, $CL = 1.52-23.78$, $OR = 6$) and finally, it did not remain significant after controlling the distorting factors in the multiple logistic models. In 2019, Yohannes conducted a study in Ethiopia entitled Pregnancy outcome in HIV-infected women who received antiviral therapy, 17% of births were performed preterm [20], which is consistent with the present study. In a 2018 study conducted by Elizabeth *et al.* in the United States, 33% of deliveries were performed prematurely, almost twice as many as the present study; this is not explained by the statistics. In the present study, 86.3% of deliveries in HIV⁺ women compared to 58% in healthy women were performed by cesarean section. Based on single-variable regression, it is significant ($P < 0.001$, $CL = 1.86-11.09$, $OR = 4.55$). Finally, after removing the distorting agents in a multiple logistic regression model, it did not remain significant. However, in HIV-infected women, a cesarean delivery scheduled at 38 weeks of gestation is recommended to reduce perinatal transmission [21]. In the study of Helena *et al.* in Brazil (2015), 85.1% of deliveries in HIV⁺ women were performed by cesarean section, which is consistent with the results of the present study [22]. In a study conducted by Khani *et al.* in 2013, 66.1% of deliveries were performed by cesarean section. The rate of cesarean section in our study is higher than the above study; it indicates timely identification, effective care, and counseling during the pregnancy and referral for cesarean section in behavioral disease centers.

In the present study, 11.8% of infants of HIV⁺ women compared with 5% of infants in healthy women weighed less than 2,500 grams, of which 83.3% of mothers received antiviral

therapy during pregnancy. Using a single-variable regression model, at the beginning and after eliminating the controlling factors in the multiple regression model, it remained significant ($P = 0.009$, $CL = 0.002-0.4$, $OR = 0.025$). In a study conducted by Helena (2015), 14.7% of infants weighed less than 2,500, which is consistent with the results of the present study. In the study of Yohannes (2019), 19% of infants weighed less than 2,500 grams, which could be due to the lack of proper prenatal care in HIV⁺ pregnant women in the above studies.

The results of the present study showed that 17.6% of infants of HIV⁺ women are breastfed by formula compared to 89% of infants of healthy women; it is significantly based on multiple models of logistic regression ($P = 0.04$, $CL = 1.13-9.53$, $OR = 3.29$). We should note that breastfeeding increases the rate of vertical transmission and breastfeeding is generally not recommended in the United States in HIV⁺ women [21]. Also, in Iran, breastfeeding mothers are not recommended according to the policies of the Ministry of Health [23]. In a study conducted by Clave (2018) in Jamaica, only 5.9% of infants were breastfed which did not match the results of the present study [24]. This difference could be due to different education, rules, and quality of HIV⁺ women's care among the above studies.

In the present study, 5.9% of HIV⁺ women had an infant mortality rate of 33.3% due to diarrhea and 66.7% without a known cause, and healthy women had a 1% infant mortality due to aspiration. In a 2012 study of Kim in Zambia, infant mortality was 3.4 %, reaching 6.3 % after 70 days; he concluded that diarrhea caused infant death, which is consistent with the present study [25].

According to **Table 2**, the frequency and percentage of high-risk behaviors of the research samples were first examined using the chi-square test and then using a logistic regression model; it had a statistically significant level. In the present study, 12% of HIV⁺ women had multiple sexual partners. From this number, 83.3% had used condoms. 15% had anal intercourse, of which 93.3% used condoms, and in healthy women, 6% had anal intercourse, of which 83.3% used condoms. 23% of HIV-positive women spouses or their sexual partners had sex with multiple people. 3% had a history of injecting drug use, 45% had a history of injecting drug abuse by the spouse or sexual partner, and 28% had a history of sharing injecting equipment. The common use of tattoos in HIV⁺ women was 24% versus 1% in healthy women. The history of the spouse or sexual partner's shared use of tattoos in HIV⁺ women was 26%. The use of the common razor blade in HIV⁺ women, as well as the use of the common razor blade of the spouse or sexual partner, was 7% for each.

Finally, 77% of HIV⁺ women or their spouses or sexual partners had high-risk behaviors, and 7% of healthy women or their spouses had high-risk behaviors. ($P < 0.001$, $CL = 27.7-3357$, $OR = 304.9$). In a study conducted by Torkashvand *et al.* (2012) in Kerman and Rafsanjan, drug injection had a frequency of 61.5%, use of common injection tools had a frequency of 43.1%, and unprotected sexual behavior had a frequency of 40%; they were the most high-risk behaviors before being

diagnosed with HIV. The most common cause of the illness was self-contaminated syringes (46.9%) and sexual intercourse (26.9%). After the diagnosis of the disease, drug injection was the riskiest behavior and the use of joint injection tools was significantly reduced. The results of the present study are in line with the above study [10]. In a study conducted by Hajizadeh in Tehran in 2011, 1.3% of women referred to the Behavioral Disease Counseling Center had a history of tattooing, 6.3% had a history of non-injectable addiction, 7.5% had a history of injecting drug use, and 7.5% sexual intercourse with a transient sexual partner, 11.3% sexual intercourse with a regular sexual partner other than the spouse, 1.3% had alcohol consumption, and 15.6% had high-risk sexual behavior in women [26]. The above study is not consistent with the present study and the reason for this difference could be the difference in the quality of care provided to these women and the cultural and geographical differences. In our study, contrary to the above one, we reported the total number of high-risk behaviors in women and their sexual partners.

Based on the findings of this study, all areas of sexual performance except pain during intercourse were significantly different between the two groups, and finally, the overall score of sexual performance was 15.81 ± 7.94 and 22.20 ± 2.82 in HIV⁺ and healthy women, respectively; this difference had a significance level. Using a multiple logistic regression model after eliminating the distorting factors, the sexual performance of HIV⁺ women was weaker than that of the healthy women ($P < 0.001$, $CL = 0.43-0.81$, $OR = 0.59$). In a study done by Wilson *et al.* (2011), conducted in New York, the mean score of sexual performance of HIV⁺ women was 13.8 ± 12.7 and 18 ± 13.2 in healthy women, which is in line with the present study [27]. In a study in 2017 entitled "sexual performance in HIV⁺ patients at an outpatient clinic in the Midwestern United States" by Schacham, more than 75% of people underwent combination antiviral therapy, 70% of whom suppressed the virus. In the above study, the rate of sexual arousal was lower in HIV⁺ patients, and overall sexual performance was significantly lower in HIV-infected groups across all subscales. These findings suggest that less sexual function in people with HIV is associated with negative biomedical and psychosocial factors [28].

Conclusion

According to this study, HIV⁺ has adverse effects in pregnancy and childbirth, and women with HIV are weaker in sexual performance. Therefore, in this research we emphasize consultation of these women for better adherence to medication and improving their quality of life.

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