

# Reproductive and sexual health concerns in HIV-positive youth, aged 15 to 24 years

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## Abstract

**Introduction:** Recognition of reproductive and sexual needs of HIV-positive youth provides health planners and policy-makers with required information to take practical measures in addressing this challenge. Therefore, this study targeted at explaining the reproductive and sexual health concerns of HIV-positive youth.

**Material and methods:** The present descriptive qualitative study was performed using content analysis approach. To collect data, in-depth semi-structured personal interviews were conducted in a calm and private environment. As a result, 19 interviews were done among 17 HIV-positive young people, aged 15 to 24 years (11 girls and 6 boys). Data were analyzed using MAXQDA software, version 12.

**Results:** Followed by analyzing the content of interviews, focusing on the reproductive-sexual health concerns of HIV-positive youth, five categories and 16 sub-categories were obtained. Categories included mental disorders, social exclusion, sexual problems, physical problems, and lack of optimal health services.

**Conclusions:** Patients' psychological, physical, and sexual problems, along with incomplete awareness of their reproductive and sexual issues, can cause irreparable personal and social health consequences. In this manner, the reproductive and sexual needs of young people should be considered, and more practical interventions are required in this field.

HIV AIDS Rev 2023; 22, 2: 168-176

DOI: <https://doi.org/10.5114/hivar.2023.127710>

**Key words:** reproductive health, sexual health, HIV-positive, youth.

## Introduction

The International Conference on Population and Development (1994) has put the youth's sexual and reproductive health on international agenda, mentioning that some of re-

productive health needs of the young have been ignored by health, education, and social programs [1, 2]. According to this conference, sexual health and fertility are defined as complete physical, mental, and social well-being. In other words, all people should be able to have a satisfying and safe sexual

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**Article history:**  
Received: 08.07.2021  
Received in revised form: 04.08.2021  
Accepted: 09.08.2021  
Available online: 05.06.2023

International Journal  
of HIV-Related Problems

HIV & AIDS  
Review

life, freedom to make informed decisions about their fertility, and highest standard of sexual and reproductive health [3, 4].

Sexually transmitted diseases, especially human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), are among the most important issues in the field of reproductive and sexual health of young people. Although the significance of HIV has been globally considered by health organizations [5], globalization, electronic communications, migration, and economic challenges have drastically changed the health landscape [6], and AIDS has played an important role in human history due to its extent and severity [7]. In 2020, the World Health Organization and the United Nations Program on AIDS reported that 38 million people live with HIV worldwide, of whom 690,000 died due to AIDS-related diseases [8, 9], and about 3.9 million patients are within the age range of 15-24 years [10]. According to the latest reports of the United Nations Program on AIDS, 59,000 people are infected with the virus in Iran, of whom 2,300 are between 15 and 24 years of age [11]. Young people with HIV are at risk of mental disorders due to the disease social stigma [12]. Based on the literature, sexual dysfunction is one of the disease-related problems that young people face [13-15]. A study among 2,309 of 15-24-year-old individuals showed that more than half (57%) of the patients reported at least one sexual disorder, with a prevalence of sexual dysfunction of 48% in young women and 23% in young men [16]. This finding was also supported by other studies, indicating that sexual disorders are common (more than 50%) in the community of HIV-positive individuals [17, 18]. Although some common risk factors have been reported for poor reproduction and sexual health of HIV patients, women, children, and youth are among the more vulnerable social groups [19, 20].

Most interventions conducted among the youth infected with this virus were in the field of sexual safety, while reproductive and sexual needs of these patients have been less considered [21]. An identification of reproductive and sexual needs of HIV-positive patients provide health planners and policy-makers with the required information to take practical measures in addressing this challenge. Therefore, the present study was carried out to explain the reproductive and sexual health concerns of HIV-positive youth within the age range of 15 to 24 years.

## Material and methods

The present qualitative descriptive study aimed at explaining the reproductive and sexual health concerns of HIV-positive youth.

### Participants

HIV-positive patients within the age range of 15-24 years, who were referred to the Behavioral Diseases Counseling Centers of Tehran University of Medical Sciences were included in the present study.

### Inclusion criteria

Persian-speaking, HIV-positive patients (regardless of marital status and gender), who were within the age range of 15-24 years [10], and did not participate in reproductive health studies were included in the study.

### Data collection

Followed by obtaining an informed written and oral consents from the patients, in-depth semi-structured interviews were conducted in a quiet place for participants' privacy. Targeted sampling method was performed with maximum sampling diversity in terms of age, education, gender, marital status, and socio-economic status. Data collection continued until data saturation was met. All interviews were conducted by one person (female researcher). A total of 19 interviews were performed with seventeen HIV-positive youth (11 girls/6 boys). Two participants were interviewed twice due to the need for further explanations. The average duration of each interview was 40 minutes. Sample interview questions included: "Have you ever heard of the term 'reproductive and sexual health?'"; "What do you know about reproductive and sexual health?"; "When you think about your reproductive and sexual health, what are your mental concerns?"; "What difference do you see if you divide your life into two parts before and after being informed of your illness?"

### Ethical considerations

The present study was approved by ethics committee of the Tehran University of Medical Sciences, with ethics code of IR. TUMS. FNM. REC. 1398. 176. Prior to interviews, the participants were provided with explanations about the study purpose and process, and their permissions were obtained concerning recording the interviews. They were also ensured about confidentiality of their personal information. Conscious and informed consent forms were obtained from all participants and their parents if they age were lower than 18 years.

### Data analysis

Collected qualitative data were investigated using a conventional content analysis method proposed by Zhang and Wildmouth (2016). These eight steps proposed by these researchers included preparing the content, making a decision about the unit of analysis, classifying the information, coding, expanding the coding and its stability, making conclusions, and reporting [22]. Followed by each interview, the recorded files were transcribed verbatim and texts were reviewed several times by the researchers to resolve any misunderstandings. At this stage, the participants' moods during the interview, such as silence, crying, anger, and sadness were also observed. Next, the initial codes were extracted from the meaning units (the participants' quotes), sub-categories were formed based on similarities among

these codes, and finally, categories were formed based on a relationship among these sub-categories. In this process, first researcher coded a sample of the text, and data encoding consistency was verified by other researchers. After agreement was achieved on coding stability, the same coding process was performed for the whole text. Furthermore, coding stability (primary codes, sub-categories, and categories) was re-examined by two members of the research team and experts in qualitative research. Finally, main categories of the reproductive-sexual health concerns were determined for HIV-positive youth aged 15-24 years. MAXQDA software version 12 was applied to manage data at qualitative stage of the research. The last step involved reporting and interpreting the identified categories.

### Data reliability

Validity of study data was confirmed through targeted sampling method with maximum diversity. Transcribed texts were also checked by the participants to revise any possible misunderstanding. Moreover, interviews, codes, categories, and sub-categories were evaluated several times by the researchers, who were involved in data collection process through long-term interaction with the participants.

To corroborate study reliability, an external observer was asked to review the research process. In addition, almost the same questions were asked from all the participants during interviews to avoid the risk of instability and inconsistency in data collection process.

Compatibility was also guaranteed using external review. With regard to transferability, the participants were provided with clear descriptions about each question. In addition, application of the purposeful sampling method by maximum diversity improved transferability of the study.

## Results

In order to collect the study data, 19 interviews were conducted with seventeen HIV-positive individuals within the age range of 15 to 24 years, whose disease have been diagnosed 2-19 years back. The participants' demographic characteristics are represented in Table 1. Followed by analyzing the content of interviews focusing on the reproductive-sexual health concerns of HIV-positive youth, 5 categories and 16 sub-categories (Table 2) were determined, as described below.

### First category: Mental disorders

HIV/AIDS infection, as a chronic disease with no definitive treatment and heavy social burden, at a critical young age leads to mental disorders. The category of mental disorders included five sub-categories: feelings of low self-esteem, suicidal thoughts or attempts, aggression and irritability, feelings of humiliation and ridicule, and fear of unknown future.

#### *Feelings of low self-esteem*

According to the interviews, our participants were not confident about the fact that every young person within the

**Table 1.** Characteristics of the participants

No.	Sex	Age	Education	Marriage status	Occupational status	Age awareness of infection (year)	Way of infection (self-expression)	Interview time (minutes)
1	Male	17	High school	Single	Unemployed	12	Unknown	40
2	Male	16	High school	Single	Student	10	Fetal period	45
3	Female	17	High school	Single	Student	12	Unknown	50
4	Female	23	Diploma	Divorced	Self-employed	21	From sex	First interview: 40 Second interview: 35
5	Female	24	High school	Married	Housewife	17	From sex	60
6	Female	24	Diploma	Married	Housewife	20	From sex	First interview: 45 Second interview: 35
7	Female	22	High school	Married	Housewife	18	From sex	50
8	Male	23	High school	Single	Self-employed	21	From sex	40
9	Male	19	High school	Single	Unemployed	16	Fetal period	40
10	Male	21	High school	Single	Self-employed	15	From sex	45
11	Female	19	High school	Single	Self-employed	15	From sex	40
12	Female	24	Diploma	Single	Housewife	20	From sex	40
13	Male	16	High school	Single	Unemployed	14	Fetal period	40
14	Female	18	Diploma	Single	Self-employed	15	Unknown	45
15	Female	20	Diploma	Single		16	Unknown	40
16	Female	24	High school	Married	Housewife	19	From sex	50
17	Female	23	High school	Married	Housewife	18	From sex	50

age range of 15-24 years needs to grow and develop their talents. A participant said: "I think I should not impose any conditions on my suitor; he may say to himself how rude this girl is with her disease." (Participant No. 3).

Another participant said: "No one accepts us, we cannot comment." (Participant No. 15).

### *Suicidal thoughts or attempts*

Many of the participants mentioned suicidal thoughts or even attempts caused by psychological pressure imposed on them. A participant said: "I wanted to commit suicide a few times. I want to die and be relieved of this situation." (Participant No. 9).

Another participant expressed her bitter experiences of stress: "Several times, I wanted to get rid of this life, but I could not do it." (Participant No. 10).

### *Aggression and irritability*

Irritable and aggressive people usually have a negative attitude towards all words and behaviors of others, and believe that these words were directed at them; so, they prefer to be alone. However, this isolation can lead to their prematurity and aggression more than before.

A 17-year-old participant mentioned: "I was very sensitive caring about unimportant little things, which led me to argue a lot." (Participant No. 3).

A 19-year-old participant also indicated: "I got into a fight with my mom. I knocked the tablet firmly to the ground. I broke six mobile phones." (Participant No. 9).

### *Feeling of humiliation and ridicule*

Unfortunately, HIV-positive patients, especially at a young age, face undesirable social conditions, including humiliation and mockery of their peers. These behaviors cause psycho-social and social consequences for these patients and their families.

A 16-year-old boy, who left school after the elementary level, said: "The school principal found out about my disease, his son was also at our school, who told the other children and everybody was making fun of me." (Participant No. 13).

Another participant, a 17-year-old girl, reported her bad experience of telling her friend about the disease: "Generally, she was fine with me, but whenever we had a disagreement or during a fight, she made fun of me and I was very upset." (Participant No. 3).

### *Fear of the unknown future*

Most of HIV-positive young people were worried about their health and life status in the uncertain future. A participant with a 23-year-old son explained her worries for his marriage: "I'm worried that he will leave me alone after his marriage. I may be less annoyed if he leaves me now, but I will have worse feelings if he leaves me after his marriage." (Participant No. 8).

A 24-year-old woman with a non-infected child said: "Everyone gets happy by having a child, but I was worried

**Table 2.** Categories and sub-categories of qualitative interviews

Categories/Sub-categories
Mental disorders
Feelings of low self-esteem
Suicidal thoughts or attempts
Aggression and irritability
Feeling of humiliation and ridicule
Fear of the unknown future
Social exclusion
Occupational discrimination
Academic problems
Failure in friendship
Social stigma
Sexual problems
Sexual disgust
Inability to negotiate condom use
High-risk sexual behaviors
Physical problems
Physical problems due to the disease
Physical problems due to the side effects of antiretroviral therapy
Lack of optimal health services
Inappropriate behavior of healthcare providers
Refusal to provide health services

and depressed for two or three months. If my child was infected, I would feel really ashamed." (Participant No. 6).

A 24-year-old young woman indicated her fear of early death by saying: "I am very weak physically and feel worried that this disease, which is a simple problem for others, may become a serious illness for me and I will die soon." (Participant No. 4).

## **Second category: Social exclusion**

Socially, HIV-positive youth have been deprived of a status that every citizen deserves and have been excluded from the society due to brutal social stigmas. In the category of social exclusion, we have reached sub-categories of job discrimination, educational problems, failure in friendship, and social stigma.

### *Occupational discrimination*

According to the literature, HIV-positive individuals experience different discriminations, such as being fired or abused in workplace. A 23-year-old man reported some problems with regard to his job: "I have to provide the manager with a reasonable explanation about my leaves every month. I need to take my medicines from the hospital. Since it is not common for an employee to take regular leaves

every month, I'm afraid I may be fired in this economic situation due to this situation." (Participant No. 8).

Another participant said: "It is really difficult for us to find a job. The employers ask for a health certificate, but when they find out about our disease, they do not accept it; it is very difficult to find a job." (Participant No. 10).

### *Academic problems*

Community's behavior has put a great burden over HIV-positive patients, so that most of them are excluded from social activities and deprived of educational opportunities. A young girl who lived with her grandmother and was away from her divorced parents indicated: "I was bored with everyone because of my disease; I was also bored with the school and I left school very soon." (Participant No. 11).

A 21-year-old man also explained about the reason for not continuing his education: "When I found out about my disease, I had no motivation to continue my education and left school." (Participant No. 10).

### *Failure in friendship*

Lack of trust in others and fear of judgment lead to loneliness of HIV-positive patients, and cause problems in their relationships with other people.

A 16-year-old boy indicated: "I have no friends because of my disease, I am all alone." (Participant No. 13).

A 17-year-old girl also said: "I usually do not have a close friend, because they always want to know all the details of your life; so, I do not stay with a friend for a long time. I am alone." (Participant No. 3).

### *Social stigma*

Stigma is considered as the most important social factor with regard to the disease, which limits the patients' access to health and prevention services.

According to a participant: "When the doctor prescribed me to take HIV test, many people asked my mother: Why does your daughter need to take this test? What has she done? I was very upset." (Participant No. 3).

One of the young girls also mentioned: "I do not want to ever tell my family about my disease. If they find out, they will definitely kick me out of the house; my friend's family fired her clothes when they understood about her disease." (Participant No. 11).

## **Third category: Sexual problems**

HIV association with sexual promiscuity, consequent stigma, and taboo of sexual issues have prevented these patients from pursuing their health concerns in sexual matters, which in turn has led to many problems in this regard. During the interviews, four sub-categories were determined within this category: sexual disgust, inability to negotiate condom use, and high-risk sexual behaviors.

### *Sexual disgust*

Internal feeling of having a contagious agent in the body makes the patients considering themselves as rejected individuals. These patients feel guilty about their behaviors (especially sexual behavior) since they may endanger others. Therefore, they hate dealing with sexual issues.

A young woman said: "I did not hate sexual affairs before, but now I do not like them at all. I just have to have sex because of my husband." (Participant No. 5).

Another participant mentioned: "I get nervous when I hear about sexual issues and these cases. Most people think that you had illegal and unethical relationships, and got the virus. I hate these things." (Participant No. 4).

### *Inability to negotiate condom use*

Although lack of using condom can lead to further spread of the disease and is a potential threat to people's health, inability to negotiate condom use is still one of the problems in HIV-positive patients.

A young woman indicated: "Early in my disease, it was very stressful; we were a couple, and sleeping together was very worrying. I could not convince my husband to use condom." (Participant No. 5).

Another participant indicated: "I did not feel good during sex; on the one hand, I could not persuade my husband to use a condom, on the other hand, I was afraid he would not have sex with me at all." (Participant No. 7).

### *High-risk sexual behaviors*

In many cases, the risk of secondary transmission of HIV infection depends on behaviors of infected people. Risky sexual behaviors play a significant role in increasing the spread of HIV into the society.

A participant said: "I did not usually tell my sexual partner that I am infected with this virus. I thought when they have sex with someone with consent; they should accept consequences of their choice." (Participant No. 10).

Another participant mentioned: "I spent a lot of money to avoid being alone, I even had several girlfriends at the same time. I did not tell them about my disease because I was afraid of loneliness. I even did not use condoms very often." (Participant No. 9).

## **Fourth category: Physical problems**

The immune system, a protective mechanism against pathogens, is attacked and destroyed by HIV. Most participants reported physical problems as a result of the disease, which included two sub-categories: physical problems due to the disease and physical problems due to the side effects of antiretroviral therapy.

### *Physical problems due to the disease*

As an immunodeficiency virus, HIV infects cells and causes their malfunction. As the infection progresses, the immune

system becomes weaker, and more problems emerge. According to a participant: “Due to the disease, the darkness under my eyes has developed into my face (pointing to the cheeks), it also has affected my nutrition and my skin; it is very terrible.” (Participant No. 5).

Another participant, whose husband was initially infected with the disease, expressed her bitter feelings: “My husband had a cold, he was not well at all; his white blood cells were too low. The doctor thought he might have cancer.” (Participant No. 6).

#### *Physical problems due to the side effects of antiretroviral therapy*

Life cycle of HIV is short, and in each life cycle, many mutations may occur in genetic material of the virus. Some of these mutations cause the host to become resistant to the virus. Consequently, treatment is usually performed using a combination of medications. Although combining several medications reduces the number of viruses, it may lead to drug side effects.

A young woman replied: “When we started our treatment, my husband and I were very upset. Even my husband said that he was not taking any medicines; he could not stand such side effects; that is, he really could not.” (Participant No. 17).

With regard to large number of drugs and their side effects, a participant indicated: “At first, I wanted to stop taking pills, it was very difficult, too many drugs, my stomach was upset badly.” (Participant No. 1).

#### **Fifth category: Lack of optimal health services**

Common fear of HIV in the community and observance of standard precautions, especially among healthcare staff, have caused ignorance towards HIV patients not only in the process of disease diagnosis, treatment, and care, but also throughout rendering other services. Failure to receive optimal health services was included in two sub-categories of inappropriate behavior of healthcare providers and refusal to provide health services.

#### *Inappropriate behavior of healthcare providers*

Some healthcare providers may engage in inappropriate behaviors due to their fear of the disease infection that exacerbates HIV patients' feelings of stigma and discrimination.

A participant said: “At the time of delivery, when my hands inadvertently touched the nurses' hands, they reacted quickly and told me ‘Be careful ‘do not touch us, you know your condition! You should not infect us’; I was really annoyed.” (Participant No. 7).

Another participant mentioned: “They did not take good care of me in the hospital, they did not check my serum, their treatment was very bad and humiliating.” (Participant No. 5).

#### *Refusal to provide health services*

Most of the HIV-positive patients experienced health staffs' refusal to provide healthcare services. Such bitter experiences have caused limitation for the patients, so that they did not refer to medical centers or tried to hide their disease from health personnel.

In this regard, a participant mentioned: “I visited a dentist and told him about my disease; the doctor called the secretary and then she came and told that they could not help me. I was very upset.” (Participant No. 16).

A 23-year-old woman also said: “For my delivery, no hospitals accepted me. My doctor said that she could not accept me. She said that I should refer to the hospital affiliated with HIV health center.” (Participant No. 17).

## **Discussion**

The present study aimed at explaining the reproductive and sexual health concerns of HIV-positive youth. At the end of the interviews, it was revealed that these participants not only had physical problems caused by the disease and medicines, but also suffered from great psychological pressure. Musisi et al. showed that more than half of HIV-positive people suffered from mental and behavioral disorders, with 17.1% of patients reporting suicidal ideation [23]. In a study by Petrushkin *et al.*, the prevalence of psychological disorders in HIV-positive patients was 82.6%, and none of participants had referred to psychotherapy [24]. In a cohort study among HIV-positive 13-24-year-old individuals, a high-rate of mental disorders was determined in sub-Saharan Africa, where the average prevalence of depression was higher in HIV-positive people than in the general population [25, 26].

However, a study among HIV-positive gay men with depressive disorders showed no difference in depressive symptoms or sleep disorders compared to non-infected depressed men. However, HIV-positive patients reported more psychological symptoms, such as fear, anger, and guilt [27]. Saadat *et al.* also showed that HIV-positive men and women were engaged in mental disorders, including anxiety, depression, and stress [28].

Psychological trauma is rising at an exponential rate among the HIV population with poor outcomes. In a meta-analysis investigating the prevalence of psychological trauma and post-traumatic stress disorders in HIV-positive women in the United States, the findings indicated that the prevalence of PTSD in this population was five times higher than the rate of PTSD reported in women of the general population [29].

Radzniwan et al. reported that the prevalence rates of depression, anxiety, and stress were 36.9%, 45.1%, and 26.7% in HIV-positive individuals, respectively [30]. These patients face great psychological conflicts, and suicide attempts are highly common among them. Studies found that HIV young patients have common suicidal thoughts, which has often led to taking suicidal actions [31-34].

Petrushkin reported that the prevalence of suicidal ideation was 13% in HIV-positive patients [24]. A cohort study in Switzerland conducted from 1988 to 2008 on 15,275 HIV-positive patients, with an average of 4.7 years, showed that the suicide rate was 158.4 per 100,000 people per year. Furthermore, the suicide rate was higher in elderly male patients, drug abusers, and in patients with advanced clinical stages of the disease [35]. However, Schadé found that although HIV-positive individuals showed significantly more suicidal ideation, suicide attempt was not more prevalent in HIV-infected patients than in non-HIV-infected population [27].

In line with the literature, findings of our study highlighted the need for conducting interventions to improve mental health and prevent suicide among HIV patients.

These patients experience not only severe and painful mental and physical disorders due to the disease process and side effects of medications, but also many social problems. These social issues can affect occupational and educational conditions of these people and consequently, lead to their social isolation. Lack of social support followed by the onset of HIV infection has negative mental effects, including anxiety, depression, sadness, loss of life expectancy, loss of income, and misunderstanding in social relationships [36]. Social stigma and isolation have prevented these individuals from receiving the optimal health services that every citizen deserves. Although several studies were conducted on the effects of stigma on social participation, which is still one of the reasons for the failure of antiretroviral therapy [37, 38]. The onset of depressive symptoms in HIV-positive patients was associated with disease-related stigma, less social support from others, and dysfunctional social problems [39]. Social HIV/AIDS-related issues, such as stigma and discrimination are the major barriers to disease control and require immediate measures. Ignorance of the disease, fear of discrimination, and consequently, refusal to undergo testing and treatment, contribute to higher prevalence of the virus [40].

In order to control HIV, its status should be disclosed publicly in the society. However, disclosure of HIV status is identified as a challenge since it can lead to stigma, rejection, and other negative social interactions, but on the other hand, it can improve health, support, and psychological well-being [41, 42].

Given social stigmas, HIV-positive patients hide their disease even from their sexual partners due to their bitter past experiences and fear of abandonment; however, this in turn can have irreparable consequences for the health of family and society [43].

With regard to the causes of non-disclosure of the disease by HIV-positive patients, stigma, social discrimination, fear of social rejection as well as rejection by parents and family were all mentioned by the patients [44].

HIV stigma affects quality of life, reception of health services, and psychological well-being of HIV individuals [45-48]. Moreover, stigma is considered as the most important limiting factor in health and prevention services of HIV-positive patients, which can prevent efforts to treat the disease [49-51].

Due to unrestrained stigma in sexual relations and incorrect judgments about HIV patients, these people experience sexual problems, often refuse to disclose the disease to their sexual partners, and are unable to negotiate using condoms. All the above-mentioned factors can endanger the health of community. Sexual dysfunction, as a main problem among HIV patients, has been neglected by physicians and healthcare providers for a variety of reasons, e.g., due to taboo nature. The prevalence rate of sexual dysfunction was reported as 58% in HIV-infected people [52] and 73.2% in HIV-positive women [53]. Asadi *et al.* conducted a study on sixty HIV-positive women, and found that the most common sexual dysfunction was within the field of sexual desire and arousal [54].

Considering sexual function in HIV-positive men, erectile dysfunction was considered the most common sexual dysfunction, and HIV infection was reported as the strongest predictor of erectile dysfunction in men. Many factors have been associated with HIV infection that disrupt erection, including fear of transmitting the virus, changes in body image, HIV-related diseases, stigma, and forced condom use [55].

Although these patients receive health services, most measures taken by health centers are focused on educating prevention in high-risk groups, requesting tests, and drug treatments as well as counseling on sexual behavior, which is also focused on transmission risks.

In particular, HIV-positive young people need appropriate sex education and support to cope with their personal identities and disease. The literature has shown lack of conducting interventions over sexual issues among the HIV-positive community, which not only makes the problem to remain strong, but also may contribute to worsening of the situation in some cases [54, 56, 57].

The problems mentioned in the present study, along with the patients' lack of knowledge about disease transmission ways, sexual issues, sexually transmitted diseases, and reproductive issues, can have irreparable consequences in the health of these young people and society. Various studies conducted in the community of HIV-positive people have also mentioned patients' forgotten reproductive and sexual needs [58-60], which vary according to individuals' age and culture of community. In this regard, future interventions and educational courses are required to deal with this problem. Suggestions for further studies include identifying reproductive and sexual health concerns of HIV-positive pregnant women, and interventions to address the expressed needs and concerns of reproductive and sexual health in young individuals and pregnant women.

## Conflict of interest

The authors declare no conflict of interest.

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