

The impact of comprehensive sexuality education on promoting safe sexual behaviors among 15-24 year-old youths with HIV

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Abstract

Introduction: Many people in different societies regard the topic of sexual needs important, but it is not considered in health service packages nor included in patients' evaluation. Therefore, the purpose of this study was to investigate the effect of a comprehensive sexuality education (CSE) program on the promotion of safe sexual behaviors among human immunodeficiency virus (HIV)-positive youths aged 15-24 years.

Material and methods: This study was a clinical trial with both intervention and control groups, with 27 HIV-infected adolescences aged 15 to 24 years enrolled in each group. Data collection tool was a questionnaire consisting of three sections, i.e., demographics characteristics and history and status of the disease as well as standard safe sexual behavior questionnaire (SSBQ) was used. Five training sessions were conducted, which were held in groups of 2-5 people, with each session lasting for about 60-90 minutes. Respondents completed SSBQ before and two months after the intervention.

Results: The results of data analysis indicated that CSE has improved the overall score of safe sexual behavior among the intervention group members ($p = 0.001$). In the sub-fields of protective behavior, such as avoiding high-risk sexual behavior and avoiding sexual partner's secretions and fluids, there was a significant positive effect but not statistically significant effect in the sub-field of inter-personal skills was observed.

Conclusions: By implementing the CSE program among HIV-infected youths, positive effects can be expected in promoting safe sexual behaviors. It is suggested to employ CSE in educational programs of adolescences.

HIV AIDS Rev 2025; 24, 4: 290-296
DOI: <https://doi.org/10.5114/hivar/174637>

Key words: comprehensive sexuality education (CSE), safe sexual behavior (SSB), youth, HIV/AIDS.

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Article history:
Received: 26.09.2023
Revised: 25.10.2023
Accepted: 30.10.2023
Available online: 20.11.2025



Introduction

To perform targeted planning and appropriate allocation of resources and facilities according to the priorities, health status and unique needs of youths should be determined and considered as the necessary initial step in health policy [1]. To this end, the reproductive and sexual health of young people is among the main valuable factors affecting their health status, requiring specific attention [2].

In 1994, the International Conference on Population and Development (ICPD) placed the youth's sexual and reproductive health and rights on the international agenda. This conference emphasized that the reproductive health needs of young people have been largely neglected in health, education, and social programs [3].

In this manner, sexually transmitted diseases, especially human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), are critically important in the reproductive and sexual health of young people, since the association of sexual and reproductive health with these illnesses is undeniable. There are common risk factors, which contribute to both HIV/AIDS and poor reproductive health. At the same time, women, children, and youths are at the center of attention due to their physical and social vulnerability [4, 5].

Today's generation of young people is approaching adulthood in a very different world than previous generations due to various diseases and factors, such as AIDS, globalization, urbanization, electronic communications, migration, and economic challenges, which have changed the landscape drastically [6]. According to the 2021 statistics of the United Nations Program on AIDS/HIV, 37.7 million people were living with HIV worldwide, of which 1.5 million were newly infected in 2020, while 690,000 individuals lost their lives due to AIDS-related diseases in the same year [7, 8]. Moreover, about 3.9 million of the HIV-infected people were within the age range of 15 to 24 years [9].

According to the latest report of the United Nations Program on AIDS/HIV, there are 61,000 people living with HIV in Iran, which is in line with the estimated number of infected people on the World Health Organization (WHO) website. Of this number, 4,400 cases are newly infected patients, whereas 2,600 individuals died because of AIDS-related causes [10, 11].

According to the latest report of Iran's National Center for AIDS Prevention, 3,760 young people in the age range of 16-25 years are HIV-positive [12]. Given the recent advancements in clinical trials and development of medicinal treatments for HIV/AIDS patients, the survival rate of these patients has raised and their quality of life has improved, but they still remain a serious challenge among researchers and health service providers [13, 14].

Young people living with HIV are prone to introversion and mental disorders due to stigma and shame caused by negative social burden of the disease [15]. This humiliating social labeling leads to alteration in patients' self-perception, so that they initiate excluding themselves from the commu-

nity. On the contrary, the disease may also lead to a decrease in self-esteem while increasing the levels of depression and ineffective problem-solving [16].

Stigma in patients with HIV/AIDS has been known as a significant factor in limiting health-seeking, preventive, and treatment measures, which can neutralize the efforts made to treat this disease [17, 18]. Since the topic of sexual needs is considered taboo by many people in different societies, it has been less discussed, not considered in health service packages, nor included in patients' evaluations [19, 20]. Services rendered to meet sexual and reproductive needs of these patients are mostly intended for adults, while the dominant needs of young people are neglected, with only few official programs existing [21]. Based on the literature, sexual disorders are among the demanding problems that the youths are dealing with [22-24].

According to an analysis conducted among 2,309 young people aged 15-24 years, more than half (57%) of the participants reported at least one sexual infection [25]. In other words, these disorders are common (more than 50%) in the community of HIV-positive patients [26, 27]. The conducted studies concluded that this problem will not only remain strong, but become worse if no intervention will be performed regarding sexual needs in the HIV-positive population [28, 29].

Therefore, the purpose of this study was to investigate the effect of a comprehensive sexuality education (CSE) program on the promotion of safe sexual behavior among HIV-positive youths aged 15-24 years.

Material and method

The present clinical trial was carried out to determine the impact of a CSE program on the safe sexual behavior of HIV-positive young individuals allocated into intervention and control groups. A necessary coordination was made with the Ethics Committee of the Faculty of Nursing and Midwifery and Rehabilitation of Tehran University of Medical Sciences (approval number: IR.TUMS.FNM.REC.1398.176). Also, the research protocol was registered in the Clinical Trial Center of Iran (register number: IRCT20120414009463N65). Followed by presenting a letter of introduction to the Behavioral Diseases Counseling Centers at Tehran University of Medical Sciences, accessible sampling was performed continuously in these centers. As a result, all eligible HIV-positive 15-24-year-old people were provided with a comprehensive explanation of the study's purpose, and requested to submit their signed informed consent forms to enter the study. For youths under 18 years of age, written consent was obtained from their parents.

Eligibility criteria included being HIV-positive, between 15-24 years of age, sexually active, having awareness of disease status, and ability to read and write. Exclusion criteria were unwillingness to participate in the study or lack of attending at least one of the training sessions.

Data collection tool was a questionnaire consisting of three sections, i.e., demographics characteristics, and history

and status of the disease as well as a standard safe sexual behavior questionnaire was employed. Respondents completed the safe sexual behavior questionnaire before and two months after the intervention (Figure 1).

Available eligible individuals were enrolled into the study after full explanation of the study purpose, with signed informed written consent obtained from all patients. Subsequently, participants were divided into the intervention and control groups using a random sampling method by tossing a coin. Finally, 59 patients (29 in the control group and 30 in the intervention group) were included in the study. Five participants were excluded due to submitting an incomplete questionnaire and/ or lack of participation in a training session. Data collected from 54 individuals ($n = 27$ in the control group and $n = 27$ in the intervention group) were analyzed.

Training sessions were organized for two separate groups aged 15-19 and 20-24 years. This age classification was adopted from the protocol of Adolescent and Youth Health and Counseling Club administered by the Ministry of Health and Medicine of the Islamic Republic of Iran.

Five training sessions were conducted. During the first session, the researcher and participants introduced themselves and discussed about the intervention goals, general reproductive and sexual health, and charter of citizenship rights with an emphasis on reproductive and sexual rights.

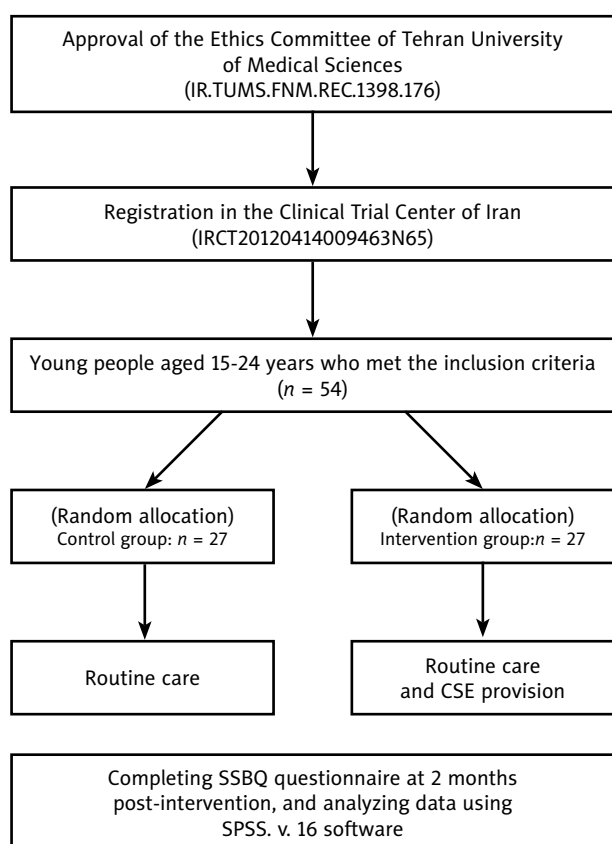


Figure 1. Flowchart of the study selection process

In the next session, the anatomy, hormonal, and physical changes related to puberty age were explained, and the participants were requested to describe their experiences during this period. Later, sexually transmitted diseases and unwanted pregnancy prevention methods were presented. The fourth and fifth sessions were dedicated to sexual cycle, high-risk sexual behaviors, and sexual responsibility. These meetings were held in groups of 2-5 people, and each session lasted for about 60-90 minutes. Prior to and two months after the last intervention session, the safe sexual behavior questionnaire was administered to both groups. In order to comply with the ethical principles, educational files were also provided to the participants of the control group.

Results

In the present study, the participants' mean age was 20.88 ± 1.96 and 2.15 ± 20.40 years in the intervention and control groups, respectively. Most participants presented a high school diploma or lower, and were married. The results of data analysis indicated that CSE has improved the overall score of safe sexual behavior among the intervention group members ($p = 0.001$). In the analysis of domains, it was found that CSE did not have a significant positive effect on inter-personal skills ($p = 0.1$) of young people, but it was successful in other domains, such protective behavior ($p = 0.0001$), avoiding high-risk sexual behavior ($p = 0.0001$), and avoiding sexual partner's secretions and fluids ($p = 0.004$). The individual characteristics of participants and the results of data analysis regarding safe sexual behavior and its components are provided in Tables 1 and 2, respectively.

Discussion

In the current study, we aimed to investigate the effect of a CSE program on the prevention of disease transfer during intercourse, avoiding high-risk sexual behaviors, avoiding contact with body secretions, and inter-personal skills performance.

Appropriate sex education and support are of great importance for HIV-positive youths to cope with their personal identity and disease. Previously conducted studies confirm the necessity of educational interventions in HIV-positive populations regarding their sexual needs to reduce the prevalence of the disease [28, 29]. In this respect, performing protective behaviors during sexual activity is one of the effective measures in HIV/AIDS prevention programs. Our findings showed that the CSE program employed had a significant positive impact on protective behaviors during sexual contacts after the intervention.

In an analysis, more than half (59%) of 18-24 years old participants reported not using a male condom during their last sexual activity, particularly the unemployed and single women were economically vulnerable and probably less able to negotiate safer sex practices, such as condom use [30].

Witwer *et al.* [31] carried out a five-year (2013-2017) study, and found a gradual decrease in the use of condoms among high school students in their last sexual act.

Although no significant relationship was observed between the perceived risk of HIV infection and condom use in adolescents and young adults, the frequency of condom use decreased with the increase of age and among women [32]. Similar findings were also shown in a survey of young adults living in large cities of South Africa among different cultures [33].

Despite the fact that intermittent methods of preventing pregnancy and protecting people are unreliable, young people are still using them. Most people knew in advance that they were going to have sex, but they did not bring condoms. Moreover, some of them were willing to accept the risks associated with unsafe sex because of their discomfort with the apparent use of male condoms [34]. Young people often considered the intermittent method as an alternative to condoms, and as a way to prevent pregnancy and diseases [35]. Especially in serious relationships, not using condoms intentionally was often a symbol of trust between the partners [36]. These dimensions are of critical importance to be considered in HIV prevention programs. In addition to applying protective methods in sexual activity, avoiding risky sexual behaviors and secretions from sexual partners were emphasized.

Based on the present findings, CSE is significantly associated with avoiding high-risk sexual behaviors, such as contact with sexual partners' fluids and secretions. Sexual behavior is a complex private activity, subjected to social, cultural, ethical, and legal factors. Although a single definition of high-risk sexual behavior has not been agreed upon by health authorities, such behaviors generally increase the likelihood of negative outcomes [37, 38].

According to scientific literature, the high-risk sexual behaviors of youths make them susceptible to infection, leading to the spread of sexually transmitted diseases, e.g., HIV [39-42].

Some participants mentioned engaging in risky sexual behaviors without considering their consequences, though they were aware of the risks, such as unintended pregnancy, sexually transmitted diseases (including HIV), or other reproductive health problems. These consequences not only challenge the individual's health but also affect the entire society in terms of resources [43]. This can justify the significance of paying attention to and avoidance of high-risk sexual behaviors among HIV-infected youths due to their impact on disease transmission prevention programs.

Research indicates that school-based sex education is an effective program for generating HIV-related knowledge and reducing high-risk sexual behaviors among students, including delaying sexual initiation, increasing condom use, and reducing the number of sexual partners [44, 45]. Moreover, attending a school and having a positive viewpoint on life delayed sexual activities and reduced risky behaviors.

A decision to marry one another in the near future was another predictive factor for decreased use of condoms in both men and women [46].

Table 1. Comparison of demographic and disease-related variables between intervention and control groups

Variables	Control (n = 27)	Intervention (n = 27)	p-value
Gender, n (%)			
Female	18 (66.7)	18 (66.7)	1.00**
Male	9 (33.3)	9 (33.3)	
Education, n (%)			
Diploma and below	23 (85.2)	23 (85.2)	1.00**
University	4 (14.8)	4 (14.8)	
Marital status, n (%)			
Single	10 (37.0)	9 (33.3)	0.11*
Married	17 (67.0)	14 (51.9)	
Divorced	0	4 (14.8)	
Occupation, n (%)			
Employed	11 (40.7)	11 (40.7)	0.21*
Housewife	11 (40.7)	5 (18.5)	
Student	1 (3.7)	2 (7.4)	
Unemployed	4 (14.8)	9 (33.3)	
Economic status, n (%)			
Weak	8 (29.6)	2 (7.4)	0.09*
Medium	13 (48.1)	15 (55.6)	
Good	6 (22.2)	10 (37.0)	
Mode of HIV infection, n (%)			
Sexual	18 (66.7)	19 (70.4)	0.63*
Vertical transfer	3 (11.1)	2 (7.4)	
Joint injection	1 (3.7)	3 (11.1)	
Unknown	5 (18.5)	3 (11.1)	

* χ^2 test. **Fisher exact test

There is a myth indicating that providing young people with sex education encourages sexual activity among them, and the literature showed that skill-based sex education led to neither earlier initiation of vaginal intercourse nor an increase in the number of sexual partners. In some cases, sex education may delay the age of first intercourse, reduce the frequency of intercourses, decrease the number of sexual partners, and increase condom and contraception usage [47-49]. Personal factors were also mentioned among other effective aspects in accepting standardized health services and developing HIV prevention goals [50].

Our findings showed that the CSE used in the study had no significant effect on the personal skills of the participants. In contrast to our results, a meta-analysis concluded that CSE reduced the HIV-related risk, improved the participants' HIV knowledge, self-efficacy in using condoms, and frequency of condom use. The scholars declared that students who provided with CSE were at higher levels of knowledge and felt more prepared to face important

Table 2. Average scores of safe sexual behavior domains in intervention and control groups

Domains	Intervention (n = 27)	Control (n = 27)	ANCOVA	(Effect size) η ²
Protective behavior				
Before intervention	16.37 (4.74)	16.96 (4.83)	0.0001	0.6
2 months post-intervention	19.33 (4.27)	17.11 (4.94)		
Avoiding high-risk sexual behavior				
Before intervention	19.81 (3.06)	20.33 (2.55)	0.0001	0.5
2 months post-intervention	22.81 (2.76)	20.25 (2.59)		
Avoiding sexual partner's secretions and fluids				
Before intervention	6.85 (2.83)	6.74 (2.22)	0.004	0.1
2 months post-intervention	8.11 (2.87)	7.00 (2.30)		
Inter-personal skills				
Before intervention	18.77 (5.35)	19.70 (2.98)	0.100	
2 months post-intervention	19.81 (5.52)	19.85 (2.94)		
SSBQ total score				
Before intervention	61.81 (11.12)	63.74 (7.21)	0.001	0.1
2 months post-intervention	68.77 (10.47)	64.22 (6.61)		

decisions about their health [45]. Su *et al.* [51] also reported that CSE had a positive effect on children's inter-personal attitudes and facilitated their social development.

This discrepancy in the results can be justified by the participants' reception of school-based CSE in some contexts.

To generalize these findings, longer interventions are required to clarify the positive effects of CSE on the individual skills of HIV-positive youths. Overall, our findings highlight that CSE can lead to the promotion of safe sexual behavior among young people. In line with our findings, Chi *et al.* [52] reported that CSE played a significant role in promoting sexual health knowledge and attitudes of college students, including reproductive health, contraception, condom use, HIV/AIDS, and sexual minorities. However, the program did not change the participants' attitudes about premarital sex or monogamy.

In examining the impact of community-based sex education on sexual health knowledge, safe sex practices, and sexual attitudes, single youths aged 15-24 years were studied in Shanghai. The researchers observed that CSE promoted the participants' sex-related knowledge, use of contraceptive methods and condoms, and positive attitudes of men

towards monogamy, and reduced the rate of unwanted pregnancies [53-55].

Another study in Sun Ming City on the southeast coast of China, demonstrated that peer sex education increased the students' level of HIV knowledge and acceptance of people living with HIV/AIDS [56].

In another investigation, CSE program conducted among adolescents in Uganda confirmed that students in the intervention group were significantly better able to identify misconceptions about contraception, were more convinced to postpone sex until older ages, and developed a more positive attitudes towards using condoms [30].

A systematic review of studies on school-based sexual health interventions to prevent unwanted pregnancy and sexually transmitted diseases (e.g., HIV/AIDS) has corroborated that the attitudes and knowledge about sexually transmitted diseases can be improved if the program will be planned carefully and carried out based on the background culture [57, 58].

Conclusions

The present study attempted to provide insight into the effect of the CSE on the safe sexual behaviors of young

people with HIV/AIDS. The findings show a significant positive increase in the overall level of safe sexual behaviors among these young people. Therefore, implementing a CSE program by providing services to HIV-infected patients can play a significant role in creating positive changes in their safe sexual behaviors.

Disclosures

1. Institutional review board statement: Ethical approval was obtained from the Ethics Committee of the Faculty of Nursing and Midwifery and Rehabilitation of Tehran University of Medical Sciences (approval number: IR.TUMS.FNM.REC.1398.176), and the research protocol was registered in the Clinical Trial Center of Iran (registration number: IRCT20120414009463N65).
2. Assistance with the article: We would like to acknowledge all the young people living with HIV who participated in this research.
3. Financial support and sponsorship: None.
4. Conflicts of interest: None.

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