

A survey on knowledge, attitude, and practice among dormitory students towards HIV/AIDS: a research from the center of Iran

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Abstract

Introduction: Due to the increasing incidence of human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) in the world, it is necessary to examine the level of knowledge among different parts of population, especially among students, in order to establish remedial preventive interventions. Therefore, the aim of this study was to determine the knowledge, attitude, and practice of dormitory students of Shahid Sadoughi University of Medical Sciences in Yazd towards HIV/AIDS.

Material and methods: This descriptive, cross-sectional study was performed among 658 dormitory students of Shahid Sadoughi University of Medical Sciences in 2019, who were recruited through multistage sampling. A valid and reliable questionnaire was used to collect students' data. SPSS version 22 was employed to analyze the data.

Results: In total, 59.9% of students had high knowledge level. There was a significant association between students' knowledge and gender, field of study, and grade point average of the last half year. Positive/neutral attitude was observed among 77.7% of the students. Age and sex had a significant association with attitude. A total of 32 students (4.9%) had experienced extra-marital sex, and 9.4% of them were condom ever users during sexual contacts.

Conclusions: The results revealed relatively high knowledge and neutral to positive attitude about HIV/AIDS among dormitory students. However, preventive measures among participants with high-risk behaviors were not properly employed.

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Key words: HIV/AIDS, knowledge, attitude, practice, dormitory students.

Introduction

Currently, acquired immune deficiency syndrome (AIDS) is one of the most important health problems in many countries. Since HIV/AIDS was identified in the early 1980s,

many efforts have been made worldwide to control the disease, and despite good progress in its prevention and treatment, HIV/AIDS is still one of the most important diseases that threaten lives of many people [1, 2]. Around the world,

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young people are the most at-risk group, and educating and raising their knowledge on HIV/AIDS prevention methods is the only available way to reduce the risk of infection among this group of population. According to the literature, levels of knowledge among young people about HIV/AIDS, which are related to several factors, including gender, age, marital status, education, religion, wealth index, media use and place of residence [3, 4]. Young Iranians are at serious risk due to unprotected sex [5], high prevalence of addiction, lack of sex education, increasing marital age, overseas traveling, and proximity to countries that are considered high-risk areas. In addition, sex education on HIV/AIDS has little place in Iranian schools and universities. It demonstrates that one of the most fundamental interventions to deal with this disease is to raise public knowledge about the nature of the disease and ways of its transmission and prevention. Considering the prevalence of some disorders, such as depression among students, which predispose them to high-risk behaviors, i.e., addiction, their education should be a priority in educational programs. Therefore, regular monitoring of knowledge and attitudes of students in relation to HIV/AIDS seems necessary [6, 7].

In addition to being at risk, medical and paramedical students are also important target group for raising knowledge and enhancing attitude and behavior because they will provide health services to the patients in the future [8]. In some parts of the world, patients living with HIV/AIDS believed the health service providers as the most important reason for stigma and barrier for health services access [9].

Meanwhile, it is demonstrated that medical and paramedical students will be encouraged to provide much better support to their patients dealing with HIV/AIDS if they reach a high and profound level of knowledge [10]. Thus, the aim of this study was to investigate the knowledge, attitude, and practice among dormitory students of Shahid Sadoughi University of Medical Sciences in relation to HIV/AIDS in 2019.

Material and methods

The present study was a descriptive cross-sectional study. Study population included all dormitory students of Shahid Sadoughi University of Medical Sciences in Yazd, living in two two-story dormitories for boys and 6 dormitories for girls in 2019.

The sample size was calculated 657 according to the percentage of positive attitude towards the patient with AIDS (20.7%) based on Shokoohi *et al.* study [11] and the error of $0.15 \times P$ and using the following formula. The final sample size was considered 722 according to the 10% attrition rate.

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 pq}{d^2}$$

Of the required sample size (722 people), half was allocated to the boys and half to the girls. The needed sample size from every boys/girls dormitory was proportional to the size of a group at the time of sampling. In order to get a sample, a random number chain was generated for each dormitory from 1 to number of rooms using online software. Then,

questionnaires were distributed from the first room number in the random number chain, and were given to all members of that room. This process continued until the required number of sample allocated to the respective dormitory was achieved. The questionnaires were distributed among boys and girls by a person from the same gender. In addition, all of the questions were answered by the participants themselves and nobody asked the questions from participants. Also, all of the questionnaires were completed and gathered anonymously.

Data collection tool in this study was a self-administered valid questionnaire developed by Shokouhi *et al.*, which has been tested in a large sample of Iranian 15-29 year-old population [11]. The questionnaire included 14 knowledge statements on HIV transmission routes, 10 knowledge statements about HIV diagnosis, prevention, and treatment, 12 attitude statements towards HIV/AIDS as well as 9 questions about high-risk sexual behaviors, substance use, and information sources about HIV/AIDS. In the last part of the questionnaire, participants were asked about demographic information. Knowledge questions were answered as "Yes", "No", or "I do not know". Each correct answer had one score, and HIV/AIDS total knowledge score was the sum of correct answers ranging from zero to 24 for all statements. Finally, low (≤ 12), medium (range, 18-13), and high (range, 19-24) levels were considered to assess participants' level of knowledge on HIV/AIDS. Attitude questions were answered with "I agree", "I disagree", or "I have no opinion". The attitude score was determined by adding all positive answers, ranging from zero to 12. Three levels of negative (zero to 6 positive responses), neutral (7-9 positive responses), and positive (10-12 positive responses) were considered for attitude. Performance questions were also asked in this questionnaire, but without scoring.

Data analysis was performed using SPSS software version 22. Descriptive information was presented as frequency for qualitative and mean \pm standard deviation for quantitative variable. Moreover, any possible association between qualitative variables was assessed using χ^2 test. A value of less than 0.05 was considered statistically significant.

The current study was approved by the ethics committee of School of Medicine affiliated to Shahid Sadoughi University of Medical Sciences, according to the approval ethical code: IR.SSU.MEDICINE.REC.1398.205.

Results

Out of 722 students who were given the questionnaire, 658 accepted to participate in the study and responded to all of the questions (response rate, 91%). Among them, 303 (46%) were males and 355 (54%) were females. The mean age of students was 21.72 ± 3.2 years. Detailed demographic information of the students is presented in Table 1.

Knowledge

Based on the students' answers, 47 (7.1%) had a low knowledge score, 217 (33%) attained a moderate knowledge level, and 394 (59.9%) achieved a high knowledge score. Detailed answers

Table 1. Demographic characteristics of students living in dormitories affiliated to Yazd University of Medical Sciences, 2019

Variable name/Variable level	Frequency (%)
Age (years)	
17-20	262 (39.8)
21-24	323 (49.1)
≥ 25	73 (11.1)
Gender	
Male	303 (46.0)
Female	355 (54.0)
Marital status	
Single	589 (89.5)
Married	69 (10.5)
Field of study	
Health	138 (21.0)
Nursing	82 (12.5)
Medicine	191 (29.0)
Pharmacy and dentistry	118 (17.9)
Other (operating room, radiology, laboratory science, emergency medicine, midwifery and anesthesiology)	129 (19.6)
Mother's job	
Housekeeper	441 (67.0)
Employed	217 (33.0)
Mother's level of education	
Under diploma	131 (19.9)
Diploma	251 (38.1)
Bachelor	229 (34.8)
Master and above	47 (7.1)
Father's job	
Freelance	229 (45.4)
Employee	196 (29.8)
Teacher	121 (18.4)
Healthcare worker	42 (6.4)
Father's level of education	
Under diploma	88 (13.4)
Diploma	203 (30.9)
Bachelor	247 (37.5)
Master and above	120 (18.2)
Smoking	
Yes	47 (7.1%)
No	611 (92.9)
Last term grade point average	
14.0-16.0	266 (40.4)
16.01-18.0	341 (51.8)
18.01-20.0	51 (7.8)

of the students regarding knowledge on the ways of HIV/AIDS transmission are provided in Table 2. Students' answers regarding knowledge about prevention, diagnosis, and treatment on HIV/AIDS are shown in Table 3.

There was a significant association between students' knowledge on HIV/AIDS and gender, so that women had a higher level of knowledge than men ($p < 0.001$). In addition, a significant association was observed between students' knowledge score and their field of study; students in other major group (operating room, radiology, laboratory sciences, emergency medicine, midwifery, and anesthesiology) and nursing and medicine had a higher level of knowledge ($p = 0.017$). A significant association was observed between students' knowledge scores and their grade point average (GPA) in the last half year, i.e., students who achieved a higher GPA had a higher level of knowledge ($p = 0.013$).

Attitude

Based on the answers to attitude questions, 147 (22.3%) had a negative attitude, 296 (45%) had a neutral attitude, and 215 (32.7%) had a positive attitude. Students' responses to attitudes towards HIV/AIDS are summarized in Table 4. Younger ($p = 0.028$), female ($p = 0.004$), and nursing student ($p < 0.001$) reported a better attitude towards patients living with HIV/AIDS.

Practice

In this study, 32 students (4.9%) stated that they had sex with someone through a temporary marriage or any other relationship outside of a formal marriage (extra-marital sex). In this group, the mean age of first sexual contact was 18.25 years. Three individuals (9.4%) had ever used condoms during sexual contact, 8 people (25%) used condoms almost every time, 12 people (37.5%) used them occasionally, and 9 people (28.1%) never used condoms. Moreover, only 12 people (37.5%) admitted condom use in their last sexual contact. The main reasons for not using condom regularly included inaccessibility ($n = 18$, 56.3%), unwillingness ($n = 13$, 40.6%), and high cost ($n = 11$, 34.4%). About one fourth (8 participants) reported alcohol or stimulant use before sexual contact, and only one of the students declared injecting drugs or stimulants. A total of 127 participants (19.3%) had ever tested for HIV. Major HIV/AIDS information sources were the Internet (440, 66.9%), mass media (436, 66.3%), and school and university (409, 62.2%).

Discussion

The results of the study revealed that more than half of the dormitory students had a high level of knowledge on HIV/AIDS. In the contrary, in a national study conducted in 2013 with the same questionnaire among Iranian youth, the level of knowledge was very low [11]. This may be due that the mentioned study population was derived from the normal population, while the research participants were stu-

Table 2. Students' responses to knowledge questions on HIV/AIDS transmission routes

No.	Is HIV/AIDS transmitted through the following routes?	Yes, n (%)	No, n (%)	I do not know, n (%)
1	Through water and food containers used by person suffering from HIV/AIDS	18 (2.7)	637 (96.8)	3 (0.5)
2	From mother with HIV/AIDS to fetus during pregnancy	497 (75.5)	133 (20.2)	28 (4.3)
3	From mother with AIDS to baby while breastfeeding	490 (74.5)	133 (20.2)	35 (5.3)
4	Using personal items, such as clothing, towels, or bedding used by person with AIDS	83 (12.6)	551 (83.7)	24 (3.6)
5	Using hairdressing tools, such as razors and scissors used by person with AIDS	586 (89.1)	56 (8.5)	16 (2.4)
6	Piercing of ears, nose, lips, etc. with uninfected equipment and infected with HIV virus	610 (92.7)	35 (5.3)	13 (2.0)
7	Through dental instruments that have also been used for AIDS-positive people	555 (84.3)	71 (10.8)	32 (4.9)
8	Use of sanitary services (toilet, bathroom, etc.) shared with a person with AIDS	92 (14.0)	542 (82.4)	24 (3.6)
9	Use of disinfected tattooing and cupping equipment used by people with AIDS	558 (84.8)	77 (11.7)	23 (3.5)
10	Through bites of insects that have already bitten person with AIDS	190 (28.9)	403 (61.2)	65 (9.9)
11	Kissing and hugging an AIDS-positive person	94 (14.3)	538 (81.8)	26 (4.0)
12	Using injection instruments, such as syringes and needles that a person with AIDS has also used	553 (84.0)	85 (12.9)	20 (3.0)
13	Through contact with saliva, nasal discharge, cough, or sneezing of AIDS-positive person	120 (18.2)	488 (74.2)	50 (7.6)
14	Unprotected sex (without a condom) with a person with AIDS	548 (83.3)	90 (13.7)	20 (3.0)

Table 3. Students' responses to knowledge questions on HIV/AIDS prevention, diagnosis, and treatment

No.	Determine whether the following statements are true or false with "Yes", "No", or "I do not know"	Yes, n (%)	No, n (%)	I do not know, n (%)
1	People with AIDS can be identified by their appearance	80 (12.2)	548 (83.3)	30 (4.6)
2	Medication in patients living with AIDS greatly reduces the risk of transmission to others	234 (35.6)	293 (44.5)	131 (19.9)
3	Early diagnosis and treatment of patients living with AIDS can prolong their lives	540 (82.1)	75 (11.4)	43 (6.5)
4	A blood test is the only way to definitively diagnose AIDS	440 (66.9)	128 (19.5)	90 (13.7)
5	There is a definitive cure for AIDS	89 (13.5)	499 (75.8)	70 (10.6)
6	People can prevent AIDS by using condoms correctly in their sexual relationships	502 (76.3)	90 (13.7)	66 (10.0)
7	If a person with AIDS has a good diet and lifestyle and receives anti-viral medications properly, he or she can lead a normal life	458 (69.6)	120 (18.2)	80 (12.2)
8	There is a vaccine to prevent AIDS	109 (16.6)	482 (73.3)	67 (10.2)
9	Having sex with more than one person increases the risk of contracting AIDS	520 (79.0)	92 (14.0)	46 (7.0)
10	Having sexually transmitted diseases and genital sores increase the risk of person-to-person HIV transmission many times	516 (78.4)	72 (10.9)	70 (10.6)

dents of medical sciences who were expected to receive information about HIV/AIDS through university courses. Also, the results of a systematic review on students' knowledge and attitudes towards AIDS in Iran showed that the optimal level of knowledge of medical students was only 37% [12].

In studies conducted in other countries, the level of knowledge on HIV/AIDS among students was at a desirable level. In a study conducted by Abolfotouh *et al.* in Saudi

Arabia, the level of knowledge in nursing students was 72.93% [13]. Also, in an Ethiopian research, 63.8% of health-care students presented a desired level of knowledge on HIV/AIDS [14]. Based on the findings of the present study, it seems that the knowledge of dormitory students in Yazd medical university is higher than the level of knowledge among medical and non-medical students in the country, which is acceptable when compared with other countries.

Table 4. Students' responses to attitude questions towards patients living with HIV/AIDS

No.	What is your opinion on each of the following statements?	Agree, n (%)	Disagree, n (%)	No opinion, n (%)
1	I am willing to work or being a classmate with a person with HIV/AIDS	376 (57.1)	178 (27.1)	104 (15.8)
2	Affected by HIV/AIDS is the culmination of patient's past sins and misdeeds	69 (10.5)	541 (82.2)	48 (7.3)
3	The best way to prevent HIV/AIDS is to quarantine HIV/AIDS-positive people	106 (16.1)	519 (78.9)	33 (5.0)
4	Family members infected with HIV/AIDS should not be avoided	538 (81.8)	92 (14.0)	28 (4.3)
5	People with HIV/AIDS need to be supported and treated	545 (82.8)	75 (11.4)	38 (5.8)
6	People with HIV/AIDS would like others to get HIV/AIDS as well	80 (12.2)	429 (65.2)	149 (22.6)
7	Hugging or kissing a patient living with HIV/AIDS is disgusting	77 (11.7)	470 (71.4)	111 (16.9)
8	I prefer to cut ties with a friend who has HIV/AIDS	96 (14.6)	450 (68.4)	112 (17.0)
9	A patient living with HIV/AIDS causes shame and embarrassment to his/her family	139 (21.1)	422 (64.1)	97 (14.7)
10	I accept to eat at a table with someone with HIV/AIDS	487 (74.0)	104 (15.8)	67 (10.2)
11	HIV/AIDS is not just a problem for injecting drug users and sexually active people (such as homosexuals and prostitutes)	476 (72.3)	127 (19.3)	55 (8.4)
12	If I get AIDS, it is all over for me	251 (38.1)	206 (31.3)	201 (30.5)

However, the level of knowledge about HIV/AIDS as one of the most important health issues is expected to be higher among medical science students. Therefore, it is necessary to design and implement appropriate educational interventions to increase students' awareness on this important health issue.

Despite the acceptable level of knowledge, nearly 29% of students believed that the disease is transmitted through an insect bite. This type of misconception had been repeated in other similar studies among university students [15, 16]. Half of the participants disagreed that a treatment could greatly reduce the likelihood of transmission to others. These results confirm that continuing education on HIV/AIDS among medical university students is necessary.

In this study, three-quarters of participants admitted that the correct use of condom in sexual intercourse can prevent HIV/AIDS. Although it was expected that awareness on this issue was present in almost all of medical science students, it was observed that a quarter of the subjects did not know about this important issue. However, similar studies conducted among students in other countries found that, although students at those universities were not medical college students, a very high percentage of them was aware of the ability of condom in preventing HIV/AIDS [15, 17, 18]. Such findings could be due to the fact that in Iran, educating of young people on sexual issues, sexually transmitted diseases, and right ways to prevent their occurrence is not done properly.

According to the participants' statements, about 5% of the students experienced extra-marital sex through temporary or any other relationship outside of formal marriage. In a study conducted in 2008 among students of 12 faculties of the Mashhad University, 15.1% of participants reported at least one extra-marital sex [19]. Furthermore, another study conducted in 2005-2006 among female students at the

Tehran University found that 23% of students had experienced at least one type of sexual intercourse [20]. Although the low-rate of extra-marital sex can be due to the low tendency of respondents, it seems that the main reason for this event is underreporting.

About two-thirds of participants with extra-marital sex experience in this study had never or irregularly used condoms. The low-rate of condom use was shown in other similar studies. For instance, only one-third of participants of a national population-based study in Iran who had extra-marital sex stated using condoms in their last sexual intercourse. In addition, condom use was directly related to having a job, so that people with job and regular income used condoms more than others [21]. In the present study, the lack of access to and high cost of condom were the most important reasons for not using condoms regularly. According to the literature, free distribution of condoms may have a significant impact on its use as well as reducing the risk of HIV/AIDS and other STD infections among MSM [22]. An experience in New York demonstrated that free distribution of condoms and using web-based condom ordering system significantly influenced condoms' using among the public [23]. Therefore, in order to increase regular condom use among the population is to distribute it free of charge or at a minimum price, and to access it through online ordering freely and easily.

Another finding of this study was higher level of knowledge and more positive attitude towards HIV/AIDS among women than men. This finding was also observed in other studies that examined knowledge and attitudes towards the disease [11]. This finding seems to be due to the curiosity and more attention given to health issues by women as well as their higher level of sensitivity and emotions.

Unlike similar studies conducted in Iran and other countries, with a similar to Iran cultural atmosphere [24, 25], the majority of participants in the present study had a neu-

tral or positive attitude towards HIV/AIDS and, as expected, a high level of knowledge about HIV/AIDS reflected acceptable attitude among the participants. This difference in attitude can be attributed to different levels of knowledge. In addition, it can be due to the fact that people studying in health-related fields adopt a more realistic approach to infectious diseases, and look at them as a disease and not a crime that can be prevented and treated by taking effective approaches.

The most important sources of information on HIV/AIDS in this study were the Internet and mass media, and then schools and universities. Mass media, such as television, are the most important source of information about HIV/AIDS in different populations [1, 26-28]. Also, the Internet and relevant virtual networks have become the most common sources of information and the most widely used tools for entertainment in Iran. According to the World Bank in 2020, more than 84% of Iranian population used the Internet [29]. Therefore, it seems that using virtual networks can be a promising way to increase the knowledge of people in the community about diseases, and to use it in prevention and controlling.

One of the limitations of this study was the target population. It was much better to do the study among normal population but since the main researcher was a medical student with little time to perform the study and also the nature of the study subject was taboo in Iran especially in Yazd, we decided to do the research among an accessible and cooperative population. Another limitation was the practice questions on sexual behaviors. Despite all of the efforts we did to maximize participants' trust, it seems that some of the participants refused to give a real answer to mentioned questions.

Conclusions

Our study showed that despite high level of knowledge on HIV/AIDS among students, this knowledge did not have much effect on their attitudes and performance, and a relatively neutral to positive attitude towards HIV/AIDS among students was observed. The age of onset of the first sexual intercourse among students was also low, which is also a matter of concern. Also, the low level of condom use and HIV testing among our participants is worrying and calls for gender-sensitive interventions, to increase condom use and its availability and acceptance of HIV testing among students. It seems that education about HIV and its ways of transmission as well as the use of condom as the most effective means of preventing HIV transmission in Iran have some limitations and taboos to overcome. Schools and universities as well as the Internet and mass media are important in educating students, and should be able to play a more prominent and active role in educating young people about sexual health and high-risk HIV-related behaviors.

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Conflict of interest

The authors declare no conflict of interest.

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