

## HIV/AIDS Knowledge and Attitude among High School Students in Shiraz, Iran in 2015

Abbas Dehghani (MSc)<sup>1</sup>, Parvin Dehghani (MSc)<sup>2</sup>, Behzad Dehghani (MSc)<sup>3\*</sup>

<sup>1</sup> MSc, Department of Bacteriology and Virology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>2</sup> MSc, Institute of Mathematical Sciences, Faculty of Sciences, University of Malaya, Kuala Lumpur, Malaysia

<sup>3</sup> MSc, Department of Bacteriology and Virology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original article</p>	<p><b>Background &amp; aim:</b> Acquired immune deficiency syndrome (AIDS) is an infectious disease caused by human immunodeficiency virus (HIV). The awareness of HIV preventive measures and its transmission routes have an important role in controlling the HIV infection in the society. Regarding this, the present study aimed to investigate the awareness and attitudes of the high school students regarding HIV/AIDS infection in Shiraz, Iran, in 2015.</p> <p><b>Methods:</b> This cross-sectional study was conducted on 102 students, selected from six high schools. The students and schools were selected using the random sampling technique. The data were collected using a standard researcher-made questionnaire. The data analysis was performed using the Chi-square test through SPSS version 18.</p> <p><b>Results:</b> As the results of the present study indicated, 55% of the participants were male, and the majority of them were about 17-18 years old. The participants' general knowledge about HIV was found to be at moderate level. However, they had insufficient awareness of the associated transmission routes and major causes of this disease. The students majoring in biological sciences were more aware of this issue than other students. In addition, the majority of the students had highly positive attitudes towards the AIDS patients and confirmed their right to live and use all facilities. However, a large proportion of the students denied to share a location or personal items with these patients.</p> <p><b>Conclusion:</b> According to the findings of this study, almost all students had high level of general information about HIV. Nonetheless, given the students' low awareness and knowledge levels about the HIV transmission routes, the administration of the related educational programs is an urgent need to correct the students' misconceptions about the HIV patients and improve their knowledge in this regard.</p>
<p><i>Article History:</i> Received: 13- Apr -2016 Accepted: 01- Mar -2017</p>	
<p><i>Key words:</i> Awareness High school students HIV Iran</p>	

► Please cite this paper as:

Dehghani A, Dehghani P, Dehghani B. HIV/AIDS Knowledge and Attitude among High School Students in Shiraz, Iran in 2015. Journal of Midwifery and Reproductive Health. 2017; 5 (2): 897-903. DOI: 10.22038/jmrh.2017.8451

### Introduction

AIDS causes significant difficulties for the health systems in many countries (1). The first AIDS case was reported in the US in 1987. Currently, this infectious disease is the fourth cause of mortality in the world (2, 3). In 2009, the number of AIDS-stricken individuals was estimated to surpass 33.4 million, one half of which was made up of the youth within the age range of 15-24 years (4). This disease is one of the major obstacles in the path of development in every society, which affects the active and young population of any society to a great extent (5).

In the recent years, the prevalence of AIDS patients in Iran has been at an alarming rate (6). This disease has led to a high mortality rate among the young and active members of the societies (7, 8). According to the Ministry of Health and Medical Educations, in Iran, the number of AIDS patients was reported to be 73,000 cases in 2015 (9). Regarding the expensive costs of HIV care and treatment, the control and prevention of this disease are the most important measures in all countries (10).

According to the recent reports, the major

\* Corresponding author: Behzad Dehghani, Department of Bacteriology and Virology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran. Email: Dehghanibehzad@gmail.com

transmission routes of HIV include intravenous drug use, sexual contact, blood transfusion, and mother to child transmission. However, sexual intercourse, needle sharing, and mother to child transmission have been identified as the main routes of AIDS transmission in Iran (9). Students have the most significant role in the prevention of this disease; therefore, estimating the knowledge and attitude of this high-risk group and improving their knowledge in this regard are highly important in planning easy, cost-benefit, and acceptable strategies (11-13).

At this age, the individuals are more prone to show high-risk behaviors including first sexual experience and drug addiction, compared to other age groups. In addition, there is a chance to establish protective health behavior patterns in the young people, which might continue until adulthood and change the whole-of-society approach. Although many countries permanently suffer from this disease, it is preventable. Prevention is considered as a safe and cost-effective strategy against AIDS (14).

The improvement of the students' awareness about HIV is the easiest and most acceptable strategy to prevent this disease and has a vital role in improving the knowledge of this high-risk group (15-17, 18). As revealed in the literature review, there is no comprehensive study investigating the knowledge and attitudes of high school students about HIV in Shiraz. With this background in mind, this study aimed to determine the knowledge and attitudes toward the HIV infection and evaluate the consequences of the associated public education programs among the high school students in Shiraz, Iran.

## Materials and Methods

This cross-sectional study was conducted on 102 students who were randomly selected from six high schools in Shiraz, Iran within 2014-2015. These students were majoring in different fields of education including biological sciences and humanities. The data were collected using a standardized researcher-made questionnaire entailing a series of questions regarding the HIV-infected patients and AIDS. The inclusion criteria were: 1) Iranian nationality, 2) being Muslim, 3) majoring at high school, and 4) not inflicted with AIDS. On the other hand, those participants

having parents or relatives suffering from AIDS were excluded from the study.

The sample size was calculated using the Cochran's formula, and the estimated power was around 0.86, which was acceptable. To ascertain the validity of the knowledge subscale, the questionnaire was reviewed by two physician specialists in the field of sexually transmitted diseases and AIDS. In addition, a guidance counselor studied this instrument to confirm the appropriateness and language of this questionnaire for the high school students.

In order to evaluate the reliability of this questionnaire, it was administered to 15 high school students on two occasions with a retest interval of a week, which showed moderate to high reproducibility. The construct and concurrent reliabilities were estimated using the Cronbach's Alpha coefficient. Additionally, the Pearson's product moment correlation was used to analyze the confirmatory and explanatory factors.

## Measurements

All the participants were requested to enter some of their personal details, including the age and field of education. The questionnaire contained 26 questions regarding the general information about HIV, transmission routes, personal opinions, preventive measures, and public behavior towards the HIV-infected patients. Some questions were responded with yes/no answers, and the rest were multi-optional questions. The questions in which more than one option could be chosen would be very helpful for the final conclusion. The questionnaire was completely flexible, i.e., the respondents were able to answer any question even though they did not have any information in this regard.

## Statistical analysis

The data analysis was performed using the Chi-square test and cross tabulation through the SPSS version 18. The p-value less than 0.05 was considered statistically significant. All data were collected anonymously in accordance with the legal requirements regarding the data protection and medical confidentiality. The researcher obtained the approval of the Human Research Ethics Committee of the University. In addition, prior to the study, the written informed consent

forms were read and signed by each participant in the study.

## Results

The confirmatory factor analysis supported the four-factor model, and the four dimensions of the questionnaire were found to be satisfactory. More than 50% of the participants were 15 (33.3%) and 16 (27.5%) years old. Furthermore, almost 22% of them were 17-18 years old. As the results indicated, 37 subjects (36.3%) were new students without any special field. In addition, 33 (32.4%) and 32 students (31.4%) were studying in the fields of humanities and biological sciences, respectively.

### AIDS/HIV awareness

According to the Table 1, the majority of the students (76.5%) believed that AIDS is a viral disease in which the body organs are invaded by the HIV virus. Furthermore, 46% of the participants supposed that HIV is mostly observed in the underdeveloped or developing countries, which was one of the unexpected results. In addition, 52% of the participants recognized that the immune system is affected by the HIV virus; however, 38.2% of them did not comment on this question. Half of the participants were familiar with the current methods of detecting HIV virus in blood, such as stool test, complete blood count, as well as radiologic and biochemical evaluations.

Regarding the students' opinions about the major reasons of AIDS in Iran, out of the 98 students who answered this question, 41.2%

believed that most of the addicts are affected by HIV virus via using the same syringe. Additionally, 29.4% and 20.6% of them considered sex and blood transfusion as the other causes of AIDS in Iran, respectively. Regarding the various methods of HIV virus transmission, 87% of the students found the HIV-contaminated dental and surgical instruments as the most common route of HIV transmission. The results revealed that the other popular methods were donated blood and body organs of the AIDS patients (85%), marriage (80%), and using the AIDS patient's razor (76%).

A large percentage of the respondents also believed that an infected mother can transfer the virus to her baby through womb (75%) and breast (62%). It was noticeable that 67% of the students were scared of using these patients' personal items (i.e., clothes, comb, towel, etc.) while only 18% of them considered touching the AIDS patients as a way of HIV transmission. Sharing the swimming pool or bathrooms with the AIDS patients (32%) and their tear (excreta) (24%) were considered as other causes of HIV transmission.

The attitudes of the participants towards the AIDS patients are summarized in Table 2. About 55% of the students definitely believed that the AIDS patients should be supported through various ways, and they must be free to use any facility (e.g., studying, working, etc.) like other citizens and people. Regarding the prevention of AIDS, 27.5% of the participants believed that the religious obedience can reduce the rate of AIDS incidence in a society, whereas 17.6% of them did not confirm this opinion.

**Table 1.** The respondents' knowledge on HIV/AIDS

General knowledge	Correct answer (%)	No idea (%)
Is AIDS caused by a virus?	76.5	16.7
Is AIDS a contagious disease?	85.3	2
Is AIDS a hereditary disease?	80.4	3.9
Is AIDS a curable disease?	69.6	2
Is AIDS mostly observed in the developing or underdeveloped countries?	46.1	13.7
Is AIDS a serious disease or as simple as catching a cold?	91.2	1
Does a person infected with HIV have a less resistant body against other diseases?	83.3	2.9
Is there any vaccine against HIV infection?	61.8	5.9
Can a patient have negative results?	52.9	3.9
Does a person transmit the HIV virus without showing the AIDS symptoms?	72.5	2.9
Will morality prevent the spread of AIDS?	71.6	3.9
Can controlling the blood of donators be effective to prevent the spread of HIV?	61.8	4.9
Can the sterilization of dental instruments by dentists prevent AIDS infection?	65.7	0
Will early diagnosis of HIV virus in people help the prevention of AIDS infection?	66.7	1
Which part of the body is affected by HIV virus?	52	38.2
Which method is used to detect HIV virus in blood?	50	6.9

**Table 2.** The respondents' attitudes towards HIV/AIDS patients

	Totally agree (%)	Agree (%)	No idea (%)	Disagree (%)	Completely disagree (%)	No answer (%)
Students infected with HIV virus should be educated in a separate school.	38.2	12.7	22.5	13.7	12.7	0.0
If our children have an HIV-infected classmate, we should change the school of our children.	21.6	23.5	24.5	14.7	14.7	1
HIV-infected patients should be supported.	54.9	25.5	13.7	3.9	2	0.0
HIV-infected patients must benefit from social rights such as studying, working, ...	55.9	19.6	17.6	3.9	2.9	0.0
We must allow the AIDS patient to use public bathrooms or swimming pools.	8.8	15.7	27.5	17.6	30.4	0.0
One of the main reasons of AIDS infection is disobeying religious and moral principles.	27.5	21.6	26.5	17.6	6.9	0.0
People should be aware of AIDS disease since it is a health and public issue.	63.7	14.7	13.7	3.9	2.9	1.0

### Comparison between the fields of education

We were interested to compare the AIDS-related knowledge of the students with different backgrounds. As mentioned before, the participants of this study were studying in two fields of humanities and biological sciences, or they had no especial field. According to the results presented in Table 3, the students majoring in biological sciences had more AIDS-related information, compared to the rest of the students. Regarding the items questioning the hereditary nature of AIDS, about 85% of the biology students gave the right answer; however, less than 80% of other students selected the right response (P=0.02).

The students of humanities were as knowledgeable as the biology students about some major aspects of AIDS. Accordingly, 93.9% and 90.3% of the humanities and biology students were aware of the

contagiousness of HIV virus, respectively (P=0.11). In addition, the humanities students (60.6%) had significantly more information about the methods of HIV detection than the biology students (41.4%) (P=0.01).

As the results indicated, the humanities and biology students had higher knowledge in several questions, compared with the third group (i.e., the group with no field). Accordingly they were aware of the fact that this disease is transmitted through using the same syringe, marriage, receiving the donated blood, and from mother to baby (P=0.01).

As the results indicated, the humanities and biology students had higher knowledge in several questions, compared with the third group (i.e., the group with no field). Accordingly, they were aware of the fact that this disease is transmitted through using the same syringe, marriage, receiving the donated blood, and from mother to baby (P=0.01).

**Table 3.** Comparison of the awareness of the students with different fields

	Biological sciences Science (%)	Humanities (%)	Others (%)	P-value*
Is AIDS caused by a virus?	84.4	72.7	75	0.12
Is AIDS an infectious disease?	90.3	93.9	77.8	0.11
Is AIDS a hereditary disease?	100	71.9	79.4	0.02
Is AIDS a serious/simple disease?	93.5	87.9	94.6	0.1
Is there any vaccine against HIV infection?	80	63.6	54.5	0.08
Which part of the body is affected by HIV virus?	75	63.6	22.2	0.01
Which method is used to detect HIV virus?	41.4	60.6	57.6	0.01
Is HIV transmitted by receiving the donated blood?	96.9	97	59.5	0.02
Is HIV transmitted through the HIV-infected mother's womb to baby?	100	93.9	32.4	0.01
Is HIV transmitted through HIV-infected mother's breast to baby?	81.3	75.8	29.7	0.01
Is HIV transmitted through marriage?	100	87.9	51.4	0.01
Is HIV transmitted through using the same syringe?	100	97	62.2	0.01

\*All p-values are calculated by Chi-square test.

## Discussion

Our findings demonstrated a high level of consciousness about the majority of the aspects related to AIDS, which can be resulted from the education programs that have been conducted in the last decades. Previous studies carried out in Iran mainly focused on the knowledge and awareness of the high-risk groups about HIV/AIDS [15-16]. However, in the present study, we added the beliefs and attitudes of the students concerning this disease.

A study conducted on the high school girls in Ghana revealed that the students had limited knowledge about some issues including the spiritual causes and treatment of HIV/AIDS, contact with the infected persons, and detection of HIV infection (15). Our participants were more knowledgeable about the causes and treatments of this disease, compared to those of the mentioned study. However, the participants of the mentioned study and those of our study showed the same attitude toward the infected patients.

In addition, the secondary school students in China were shown to have a low and inconsistent level of AIDS knowledge and awareness (19). The majority of the respondents could identify the HIV transmission routes. Nevertheless, a large proportion held misconceptions regarding the symptoms, activities that did not transmit the virus, treatment, and preventive measures. However, the students participating in our study had very high level of awareness in comparison with the Chinese students.

In a study, which was conducted on the Nigerian students, 96% of the subjects knew about HIV/AIDS. Whereas 52.5% of the participants believed that HIV/AIDS could be cured, 96% of them assumed that HIV can kill. Additionally, 15% and 18% of the students reported that they would drive the AIDS patients away and boycott them, respectively. Likewise, the respondents in our study had more knowledge and better attitude in this regard than the Nigerian students (20).

In a study published in 2003, Kangas et al. investigated the sexual behavior among the students at a high school in Denmark from 1982-2001 (21). They described a significant increase in the awareness of the sexual behavior within this period. Merakou et al. carry out a

study in Greece in order to evaluate the knowledge, attitudes, and behavior of the students toward HIV/AIDS prevention (22). The results of their study were similar to our findings in many aspects, namely, they considered AIDS to be a big threat to society and reported similar attitude to AIDS patients.

In a review conducted by Samkange-Zeeb, all the studies unanimously reported high awareness and knowledge of sexually transmitted disease among the European students (23). Similar to our study, around 90% of the European students considered AIDS as a sexually transmitted disease. In addition, the majority of the students in both studies knew that HIV is caused by a virus. Our results showed higher awareness in this regard, compared with the mentioned studies conducted in the developing countries. However, the finding of the present study showed significant similarity in many aspects with those obtained in the European countries.

As the results of the Chi-square test demonstrated, some general information about AIDS was affected by the field of education. However, this variable had no effect on the students' knowledge about the contagiousness of this disease since most of the participants answered this question rightly regardless of their field. On the other hand, the students' responses regarding the treatment of AIDS were statistically affected by the field of education. Several other details about AIDS, which were statistically affected by the field of education were the transmission of HIV virus via mother's breast and womb to baby, and the body organ affected with HIV virus.

The comparison between the boys and girls demonstrated that the boys had higher general knowledge and were more aware of the major causes of AIDS and its transmission routes, compared to the girls. Furthermore, the boys had higher negative attitudes toward the HIV patients than the girls. However, these differences were not significant. Tavoosi et al. conducted a study on the high school students in Tehran in 2004 (24). They concluded that the level of knowledge were moderately high in this regard. In line with our results, they found some misconceptions about the routes of AIDS

transmission (e.g., using public pool and toilet). In addition, a substantial intolerant attitude towards the HIV patients was observed in both studies.

Emamhadi et al. carried out a study on the high school students of two districts of Tehran (25). Their findings showed that the students' AIDS-related knowledge was at a moderate level, and they had a negative attitude towards these patients, which was roughly similar to our findings. In addition, they found a direct relationship between the level of knowledge and positive attitudes. Furthermore, in both studies, the boys had more negative attitudes to the HIV patients.

One of the limitations of the present study was the inclusion of only six high schools, which was due to the short duration of the study (three months). Therefore, the sample size was too small to find a broad perspective on the level of awareness among the high school students. In spite of these limitations, we succeeded in determining the level of knowledge about the transmission and treatment of HIV/AIDS and the difference between the student groups as well as between the boys and girls in this regard.

## Conclusion

As the findings of the present study indicated, the high school students enrolled in this study had almost high general information about AIDS. Based on our results, the students of biological sciences were more knowledgeable about the details of this disease. During the evaluation of the student's attitudes towards the AIDS patients, a large proportion of the students strongly agreed with the support of the HIV-infected people and their social rights. However, just a few percentage of the students were ready to share a location or personal items with these patients.

## Acknowledgements

Authors would like to acknowledge all the study participants. This study was financially supported by a grant from Shiraz University of Medical Sciences, Shiraz, Iran.

## Conflicts of interest

All the authors declare no conflicts of interest.

## References

1. Biesma RG, Brugha R, Harmer A, Walsh A, Spicer N, Walt G. The effects of global health initiatives on country health systems: a review of the evidence from HIV/AIDS control. *Health Policy and Planning*. 2009; 24(4):239-252.
2. Gayle HD, Hill GL. Global impact of human immunodeficiency virus and AIDS. *Clinical Microbiology Reviews*. 2001; 14(2):327-335.
3. Hariri S, McKenna MT. Epidemiology of human immunodeficiency virus in the United States. *Clinical Microbiology Reviews*. 2007; 20(3):478-488.
4. World Health Organization. UNAIDS, AIDS epidemic update: December 2009. Geneva: World Health Organization; 2009.
5. Kim N, Stanton B, Li X, Dickersin K, Galbraith J. Effectiveness of the 40 adolescent AIDS-risk reduction interventions: a quantitative review. *Journal of Adolescent Health*. 1997; 20(3):204-215.
6. Tarahomi M, Yaghmaie F, Asadi S, Asgari S, Fatemi F, Zeraati H, et al. Preventing mother-to-child transmission of HIV/AIDS: do Iranian pregnant mothers know about it? *Journal of Reproduction & Infertility*. 2010; 11(1):53-57.
7. Al Serouri A, Anaam M, Al Iryani B, Al Deram A, Ramarosan S. AIDS awareness and attitudes among Yemeni young people living in high-risk areas. *Eastern Mediterranean Health Journal*. 2010; 16(3):242-250.
8. UNICEF. Joint United Nations Programme on HIV/AIDS, World Health Organization. Young people and HIV/AIDS: Opportunity in crisis. London: The Stationery Office; 2002.
9. World Health Organisation. Technical guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users. Geneva: World Health Organisation; 2015.
10. Jha P, Chaloupka FJ, Moore J, Gajalakshmi V, Gupta PC, Peck R, et al. Disease control priorities in developing countries. *Disease control priorities in developing countries*. Toronto: Economic Evaluation for Health; 2006.
11. Lal P, Nath A, Badhan S, Ingle GK. A study of awareness about HIV/AIDS among senior secondary school children of Delhi. *Indian Journal of Community Medicine*. 2008; 33(3):190.
12. National Research Council. Preventing and mitigating AIDS in Sub-Saharan Africa: Research and data priorities for the social and behavioral sciences. Washington, D.C: National Academies Press; 1996.
13. Madiba S, Segobola M, Mokgatle M. Assessing the acceptability and willingness to use HIV self-testing among student nurses in a private nursing College, Gauteng Province, South Africa. *World Journal of AIDS*. 2015; 5(03):208.
14. Bertozzi S, Padian NS, Wegbreit J, DeMaria LM, Feldman B, Gayle H, et al. HIV/AIDS prevention

- and treatment. *Disease Control Priorities in Developing Countries*. 2006; 2:331-370.
15. Appiah-Agyekum NN, Suapim RH. Knowledge and awareness of HIV/AIDS among high school girls in Ghana. *HIV/AIDS (Auckland, NZ)*. 2013; 5:137.
  16. Adefuye AS, Abiona TC, Balogun JA, Lukobo-Durrell M. HIV sexual risk behaviors and perception of risk among college students: implications for planning interventions. *BMC Public Health*. 2009; 9(1):281.
  17. Gupta P, Anjum F, Bhardwaj P, Srivastav J, Zaidi ZH. Knowledge about HIV/AIDS among secondary school students. *North American Journal of Medical Sciences*. 2013; 5(2):119.
  18. Marseille E, Morin SF, Collins C, Summers T, Coates TJ, Kahn JG. Cost-effectiveness of HIV prevention in developing countries. *HIV InSite Knowledge Base*. 2002; 800:1-2.
  19. Zhao Q, Li X, Stanton B, Mao R, Wang J, Zhong L, et al. HIV/AIDS awareness and knowledge among secondary school students in China. *World Health & Population*. 2009; 11(4):38-48.
  20. Ruma MM. Knowledge and awareness of HIV/AIDS among some senior secondary school students in Katsina, Nigeria. *Bayero Journal of Pure and Applied Sciences*. 2009; 2(2):121-126.
  21. Kangas I, Andersen B, McGarrigle CA, Østergaard L. A comparison of sexual behaviour and attitudes of healthy adolescents in a Danish high school in 1982, 1996, and 2001. *Population Health Metrics*. 2004; 2(1):5.
  22. Merakou K, Costopoulos C, Marcopoulou J, Kourea-Kremastinou J. Knowledge, attitudes and behaviour after 15 years of HIV/AIDS prevention in schools. *The European Journal of Public Health*. 2002; 12(2):90-93.
  23. Samkange-Zeeb FN, Spallek L, Zeeb H. Awareness and knowledge of sexually transmitted diseases (STDs) among school-going adolescents in Europe: a systematic review of published literature. *BMC Public Health*. 2011; 11(1):727.
  24. Tavosoli A, Zaferani A, Enzevaei A, Tajik P, Ahmadinezhad Z. Knowledge and attitude towards HIV/AIDS among Iranian students. *BMC Public Health*. 2004; 4(1):17.
  25. Emam HM, Hadian M, Jalilvand M. Attitude and awareness about aids in high school students of Tehran. *Journal of Medical Council*. 2007; 24(4):350-357.