

## HIV Knowledge and Awareness Status of the Medical Students in Romania: An Awareness Study

Florida Parcaoglu<sup>1</sup> and Habip Gedik<sup>2\*</sup>

<sup>1</sup>School of Medicine, Grigore T. Popa University of Medicine and Pharmacy Strada Universității 16, Iași, Romania

<sup>2</sup>Department of Infectious Diseases and Clinical Microbiology, Ministry of Health Bakırköy Sadi Konuk Training and Research Hospital, İstanbul, Türkiye

### Abstract

**Objective:** We aimed to evaluate the status of knowledge and attitudes of medical students about HIV/AIDS.

**Material and methods:** In this descriptive, cross-sectional survey study, the status of knowledge and attitudes of medical students of Grigore T. Popa University of Medicine and Pharmacy about HIV/AIDS in June 2017 were evaluated.

**Results:** A total of 85 medical students answered all of our 19 survey questions. The mean age was  $21.80 \pm 1.37$  years (Range: 19-24 years). In the second question, six out of the 15 choices were correct and the mean of correct answers was  $4.41 \pm 1.49$ . There was a significant relationship between the grade of the students and the level of knowledge in the responses to the seventh question ( $p: 0.024$ ).

**Conclusion:** It is obvious that there are needed more health- informative organizations targeting the young population especially at schools and universities about sexually transmitted diseases, especially HIV/AIDS – transmission routes, misconceptions about HIV, preventive measures, and the life expectancy after HIV acquirement. Those programs may raise the HIV awareness and be useful to change the behaviour against HIV patients eliminating stigma.

**Keywords:** HIV; AIDS; Awareness; Students; Medical faculty; Attitude; Romania

### Introduction

Human immunodeficiency virus (HIV) has been causing one of the devastating pandemics and has a great impact on society due to its history of evolution. Acquired immunodeficiency syndrome (AIDS) was publicly reported in 1981 by the Centres for Disease Control (CDC) in the USA. Doctors reported the unexpected clusters of extremely rare diseases, such as *Pneumocystis carinii* pneumonia and Kaposi's sarcoma. Those conditions manifested in a defined risk group, such as young homosexual men. After a short time, the disease had been recognized in other groups, including hemophiliacs, blood transfusion recipients, and intravenous drug users. By 1982, cases were being seen among the partners and infants of those infected with HIV [1,2]. HIV is transmitted by contact with an infected persons' certain body fluids, such as blood, semen, pre-seminal fluid, rectal fluids, vaginal fluids, breast milk and by sharing needles/syringes (primarily for drug injection), and rarely through the transfusions of infected blood [3].

The World Health Organization (WHO) and the Joint United Nations Program on HIV and AIDS (UNAIDS) reported that 36.7 million people were living with HIV globally; 2.1 million people became newly infected, and 1.1 million people died of HIV related causes at the end of 201 [4]. The first HIV case was reported in Romania in 1985. Of 18,797 HIV/AIDS cases registered between 1985 and 2013, 55% were male [5]. The rates of new cases with HIV increased 17.9%; 47.3% between 2009 and 2010; and 20.3% between 2011 and 2012 [6,7]. According to the report of Romanian Ministry of Health, National Institute for Infectious Diseases "Prof. Dr. Matei Bals" Compartment for Monitoring and Evaluation of HIV/AIDS Data 2012, the number of HIV cases was 416 in the age group 1-19 years, while it was 4813 in the age group 20-24 years [7]. The age group 20-24 years is generally the college students at high risk for the sexually transmitted diseases due to the risky attitudes in their sexually active lives.

The studies, which were conducted in different countries regarding

awareness of HIV/AIDS among college students, have reported that students had insufficient knowledge about HIV prevention, the protection against HIV, and transmission routes of HIV [8-11]. Throughout the world, young people are the highest risk group. Their awareness and knowledge on the transmission routes and prevention of HIV/AIDS is very important. It was reported that the HIV awareness programs had a significant impact on the community [12]. Medical students are also trained about all HIV during their education, so their knowledge about HIV should be at the top level to inform their circles and the community. For that reason, we aimed to evaluate the level of knowledge and attitudes of medical students about HIV and AIDS.

### Material and Methods

The purpose of this descriptive, cross-sectional survey was to evaluate the knowledge and perceptions of the medical students of Grigore T. Popa University of Medicine and Pharmacy, Iasi, Romania about HIV and AIDS. The samples were not selected for the survey study, and the survey was applied to students that agreed to participate in June 2017 at Grigore T. Popa University of Medicine. The characteristics of the students included gender, age, and grade in the faculty. The duration of training is six years in the medical faculty, so students were categorized into six grades. There was no question about the identity of the participant.

**\*Corresponding author:** Gedik H, Department of Infectious Diseases and Clinical Microbiology, Ministry of Health Bakırköy Sadi Konuk Training and Research Hospital, İstanbul, Turkey, Tel: +90 212 414 53 09; E-mail: [habipgedik@yahoo.com](mailto:habipgedik@yahoo.com)

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The questionnaire was written in English. The structured questionnaire included 19 questions. Students were asked to choose single answer, multiple answers, or yes/no in the questionnaire. The questions were about HIV definition, early sign and symptoms, modes of transmission, attitudes, and perceptions towards HIV positive patients, prevention measures, detection of disease, and counselling choices.

## Statistics

Data are analysed using SPSS 23.0 (Chicago, IL, USA). Continuous variables were described as mean  $\pm$  standard deviation and range. Percentile values were described with decimals. Dichotomous variables were compared by Fisher's exact test for two by two comparisons or Pearson  $\chi^2$  for greater than two responses. P-value  $<$  0.05 was considered as significant. The  $P_1$  indicates the statistical comparison of the responses between men and women. The  $P_2$  indicates the statistical comparison of the responses by the grades of the students.

## Results

A total of 85 medical students, who comprised of 46 females and 39 males, answered all of our 19 survey questions. The mean age was 21.80  $\pm$  1.37 years (Range: 19-24 years). The numbers of students with the grades of medical faculty were four (4.7%) in 1<sup>st</sup> grade, 12 (14.1%) in 2<sup>nd</sup> grade, 23 (27.1%) in 3<sup>rd</sup> grade, 10 (11.8%) in 4<sup>th</sup> grade, 30 (35.3%) in 5<sup>th</sup> grade, 6 (7.1%) in 6<sup>th</sup> grade.

The questions and responses of the students have been revealed in Table 1. On the second question, six out of the 15 choices were correct and the mean of correct answers was 4.41  $\pm$  1.49 (Range: 1-6). There was a significant relationship between the grade of the students and the

level of knowledge in the responses to the seventh question (p: 0.024). Since the fourth and fifth graders had more knowledge about HIV than those in other grades. There was found a significant relationship between choosing the correct answer and the grades of the students in the eighth question about the protection of the contraceptive pill against HIV (p: 0.0005). The high rates of wrong answers (26%) of fifth graders caused that significant relationship. There was found a significant relationship between the correct response and the grade of the students in the 17<sup>th</sup> question about HIV prevention (p: 0.001). The numbers of wrong answers were higher in the first and second graders, and the fact that nearly half of the students in third grade responded false caused a significant difference.

## Discussion

College students are one of the groups at higher risk of HIV infection, and some of them due to the lack of proper knowledge regarding the disease due to lack of knowledge and training at educational institutes [13]. HIV awareness should be kept at a higher level, as they may instruct people about HIV during their social contact. In this study, the majority of students demonstrated a sufficient knowledge about HIV transmission routes, risky behaviours, and HIV prevention. However, there are still some misconceptions needed to be corrected among students [13].

Our study findings indicated that medical doctors and medical centers are commonly preferred to receive information about HIV/AIDS, followed by the Internet. Preparing brochures and the training programs about HIV and other sexually transmitted diseases are performed at hospitals and community health centers may be useful to instruct students and people. Since people commonly hesitate to ask

Questions		n	%	P1	P2
1. HIV stands for Human Immunodeficiency Virus	Correct	82	96.50%		
	FALSE	3	3.50%		
2. HIV can be transmitted by	Coughing and sneezing	3	3.50%		
	Sharing glass with someone	3	3.50%		
	Sexual Intercourse	81	95.30%		
	Sharing toilet seats with an infected person	5	5.90%		
	Mosquito bite	12	14.10%		
	Blood	82	96.50%		
	Semen	56	65.90%		
	Vaginal fluids & rectal fluids	68	80%		
	Saliva, urine, sweat	11	12.90%		
	breast milk	41	48.20%		
	Hugging and kissing with an infected person	4	4.70%		
	Sharing razor blades	47	55.30%		
	Sharing towels	2	2.40%		
	Mouth to mouth resuscitation	8	9.40%		
	3. Choose the wrong answer regarding AIDS	AIDS and HIV refer to same thing, a virus.	25	29.40%	
AIDS stands for Acquired Immunodeficiency Syndrome					
AIDS is a stage of HIV infection		60	70.60%		
HIV leads to AIDS					
If HIV infection is left untreated, immune system fails to fight and this stage is called AIDS					
4. HIV attacks and destroy the immune system	Correct	85	100%		
	False	-	-		
5. I have a friend or relative infected with HIV	Yes	3	3.50%		
	No	82	96.50%		

6. If I know a person is infected with HIV	I would never meet with that person again	2	2.40%		
	I would still keep my friendship or relationship with that person	78	91.80%		
	I would never eat the meal that person cooks	6	7.10%		
	I would never touch that person	3	3.50%		
	I would never use the items of that person	22	25.90%		
	I would never kiss that person	15	17.60%		
	I would never shake hands with that person	1	1.20%		
	I would tell that person's disease to everyone	4	4.70%		
	I would never share the same apartment	13	15.30%		
7. I have information about HIV		-	-		0.024
	not at all				
	little	12	14.10%		
	enough	59	69.40%		
	too much	14	16.50%		
8. Is birth control pill effective for HIV prevention?	Correct	65	76.50%		0.0005
	FALSE	20	23.50%		
9. If you have a sexual course with a person whom you do not know before or history of diseases, would you use condom?	Depends on person	11	12.90%		
	Depends on my feelings	2	2.40%		
	No	2	2.40%		
	I always use condom	70	82.40%		
	Condom is too tiring	-	-		
10. Do you know the early signs or symptoms of HIV infection?	Correct	82	96.50%		
	FALSE	3	3.50%		
11. If your mother, or father, or wife, or husband, or child acquired HIV after a blood transfusion, how would you behave him/her after you knew that situation?	I would not be in the same room	1	1.20%		
	I would never meet again	1	1.20%		
	I would meet but avoid close relationship	9	10.60%		
	I would keep my relation like in the past	77	90.60%		
12. Do you know how HIV diagnosed is?	Blood test	83	97.60%		
	Chest X-RAY	-	-		
	MRI/CT	1	1.20%		
	Visual Acuity Test	1	1.20%		
	Testing of hormone levels in blood				
13. If I have a question about HIV,	I would ask to my friend	1	1.20%		
	I would ask to Goggle	31	36.50%		
	I would ask to a doctor	53	64.20%		
14. If I have a HIV suspicious event or a situation,	I would not mind, it cannot be transmitted to me	1	1.20%		
	I would commit suicide	2	2.40%		
	I would go to hospital	76	89.40%		
	I would search in Google	6	7.10%		
15. Choose the wrong answer regarding the stages of HIV infection	3 stages; Acute, Chronic and AIDS				
	Acute infection is the earliest stage, develops within 2-4 weeks				
	Chronic infection is the second asymptomatic stage				
	AIDS is the last stage of the HIV infection				
	Opportunistic infections occur in chronic stage				
	Correct	29	34.10%		
	FALSE	56	65.90%		
16. Choose the correct answer regarding HIV	If a pregnant woman is infected with HIV, her baby will be infected with HIV too				
	Showering after sexual intercourse prevents HIV transmission				
	HIV can be transmitted by blood transfusion				
	Every person who is infected with HIV has AIDS				
	Female condoms are not effective in prevention of HIV transmission				
	Correct	71	83.50%		
	FALSE	14	16.50%		

				0.001	
17. Choose the correct answer regarding HIV	There is a vaccine for HIV prevention				
	Antibiotics are first line treatment for HIV infection				
	HIV is not transmitted by anal intercourse and oral intercourse				
	Condoms are absolute protection against HIV				
	HIV can be transmitted by getting a tattoo				
	Correct	52	61.20%		
	FALSE	33	38.80%		
18. Which one of those is not preventive measure for HIV transmission?	Consistent and correct use of latex condom during sexual intercourse				
	Avoiding multiple sexual partners				
	Healthy diet and exercise				
	Avoiding contact with people living with AIDS				
	Avoiding use of others personal hygiene belongings				
	Correct	55	64.70%		
	FALSE	30	35.30%		
19. If you were informed to have HIV infection, what would you do?	I would commit suicide	1	1.20%		
	I would never meet with any person	1	1.20%		
	I would never mind, I would keep my life living	2	2.40%		
	I would receive HIV counseling from a HIV-specialist, and try to start antiretroviral treatment as soon as possible	3	3.60%		
	I would transfer the virus other people not to inform them during sexual course	78	91.8		
Note: P <sub>1</sub> indicates the value obtained as a result of the statistical comparison of the responses between men and women. P <sub>2</sub> indicates the value obtained as a result of the statistical comparison of the responses by the grades of students in the faculty.					

**Table 1:** Survey questions and response rates.

questions and to receive information about HIV. The Internet, which was the second preferred information source in our study, may be an important tool to inform the people and to increase their awareness about HIV/AIDS. The projects, including a direct counselling by an interview on the Internet or a communication with HIV related associations or non-governmental organizations as well as the websites to provide correct information about HIV/AIDS [14]. Since people frequently use the Internet to obtain information. Although all the students have revealed that they have information about HIV/AIDS, 30% of them did not know the difference between HIV and AIDS and several students did not know the all transmission routes of HIV exactly. The misconceptions about the transmission of HIV, such as hugging and kissing, sharing glasses with an infected person, mosquito bites, and sharing toilet seat, cause stigma against HIV positive people. Our findings were consistent with the findings of the other published studies in China, Turkey, India, and the USA [15-19]. Therefore, it is essential to introduce and provide the accurate information about the transmission routes of HIV to decrease the misconceptions, prejudice, and stigmatization [20].

Almost all of the students revealed that their attitudes towards people living with HIV/ AIDS were positive. However, approximately 20% of the students responded that they would not share an apartment, not use items of an infected person, and not kiss in related to the misconception of transmission routes, in. It should be emphasized in the seminaries about HIV/AIDS that HIV is not transmitted during a social relationship with HIV-positive people. There could be a social problem when HIV positive people are stigmatized in the society [21]. HIV related associations, foundations, and non-governmental organizations should organize informative meetings for the community to prevent the stigma.

There was a sufficient knowledge among the students about using condom as a way of prevention of sexually transmitted diseases, but

some of the students revealed that they use condom depend on their feelings or partners. The rates of condom use are not at the desired level yet. The cognitive and emotional variables as well as the cultural aspects of perceptions were reported to be factors hampering the condom use [22,23]. Condom use should be encouraged by the advertisements and projects [24]. Only 76% of the students knew the ineffectiveness of birth control pills against HIV protection. That shows the gap in the knowledge about protection against HIV.

Even though most of the students responded that they would receive HIV counselling from an HIV specialist and try to start antiretroviral treatment as soon as possible, some students might either commit suicide or get isolated from the community, if they were diagnosed with HIV. HIV- related stigma, discrimination, prejudice, negative attitudes, and abuse were reported to be in 35% of countries and over 50% of people as the main reasons related to suicide and isolation from community [25]. Stigma, which causes poor treatment, detergency in educational and work settings, erosion of HIV-positive patients' rights, and psychological damage, is still a big problem through the world for HIV-positive patients. At this point, it should be pointed out that HIV is a chronic disease and it is possible to live a healthy and quality life for many years with antiretroviral therapy.

We found a significant difference between the knowledge level of the pre-clinical graders (grade 1 and 2) and the medical graders (grade from 3 to 6). It was reported that informative activities should be started in the early years of study to increase the knowledge [26,27]. Superficiality and insufficiency of information about HIV/AIDS in the curriculum of pre-clinical years in the medical schools can be related to our findings [28].

The limitation of this study was the insufficient number of students from each grade, as the distribution of students by grades was not

similar. The study could have propounded more accurate results about the knowledge status of medical students, if the study was conducted with the sufficient number of students from each grade. The curriculum. The curriculum of the medical faculty and the presence of informative organizations about HIV were not evaluated to assess the effectiveness of them among the students in our study as well.

As a result, it is obvious that there are needed more health-informative organizations targeting the young population especially at schools and universities about sexually transmitted diseases, especially HIV/AIDS – transmission routes, misconceptions about HIV, prevention measures, and the life expectancy after HIV acquirement. Those programs may raise the HIV awareness and be useful to change the behaviour change against HIV patients eliminating stigma. The dissemination and integration of HIV modules in the pre-medical faculties are needed to raise the information level about HIV and the social responsibility projects should be encouraged to raise the awareness of targeted social groups.

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