

## Students' Awareness, Knowledge, and Behavior Regarding HIV/AIDS

### HIV/AIDS ile ilgili Öğrenci Farkındalığı, Bilgi ve Davranışı

Tengiz Verulava<sup>1,3</sup>, Iago Kachkachishvili<sup>2</sup>, Salome Abulashvili<sup>2</sup>, Mari Chkhaidze<sup>2</sup>, Mariam Khuroshvili<sup>2</sup>, Liza Kiknadze<sup>2</sup>, Revaz Jorbenadze<sup>3</sup>

<sup>1</sup> Health Policy and Insurance Institute, School of Business, Ilia State University.

<sup>2</sup> Faculty of Social and Political Sciences, Iv. Javakhishvili Tbilisi State University, Tbilisi, Georgia

<sup>3</sup> G. Chapidze Emergency Cardiology Center, Tbilisi, Georgia

#### ABSTRACT

**Objective:** HIV/AIDS continues to be a major global public health issue. Georgia is a low-level HIV country with an HIV prevalence of less than 1% in all groups, including drug users. However, the HIV epidemic in Georgia is spreading from the traditional high-risk population to some in the general population. The experience in African countries has already indicated that the HIV epidemic grows rapidly, when heterosexual transmission becomes the main mode of HIV transmission. Younger adults continue to be a large risk factor for HIV/AIDS. Thus, concern is growing regarding sexual knowledge, attitude, and behavior among students, who are vulnerable to HIV infection due to deficient sex education. The aim of this study is to assess students' knowledge, attitudes, and behavioral perceptions regarding HIV/AIDS.

**Methods:** An analytic cross-sectional study was conducted. Participants were 200 students from Ivane Javakhishvili Tbilisi State University. The survey instrument was an online self-administered anonymous questionnaire conducted using Google survey software.

**Results:** The study shows that students have good knowledge regarding the spread of HIV/AIDS and the risk of infection, but they often do not address preventive measures, diagnostic tests.

**Discussion:** The society is less interested in HIV testing. Sex education is not sufficient in Georgia, particularly in schools. Hence, students can't receive adequate information on HIV/AIDS. At the same time, the low level of awareness among students increases the risk factor, stigma, discrimination, and stereotypes. Research indicate the need to develop additional educational programs with specific interventions to raise awareness about STD preventive measures and promote healthy sexual behaviors in order to prevent new HIV infections among younger adults. It is necessary to increase public awareness on HIV/AIDS prevention and diagnostic measures. The most preferred method of disseminating this information is either from the internet, television, or university educational courses.

**Key Words:** HIV/AIDS, prevention.

Received:02.21.2018

Accepted:04.01.2018

#### ÖZET

**Amaç:** HIV/AIDS önemli bir küresel halk sağlığı sorunu olmaya devam etmektedir. Gürcistan uyuşturucu kullanıcıları da dahil olmak üzere tüm gruplarda HIV prevalansı % 1'den az olan düşük seviyeli bir HIV ülkesidir. Ancak, Gürcistan'daki HIV epidemisi, geleneksel yüksek riskli popülasyondan genel popülasyonda bazılarına yayılıyor. Afrika ülkelerindeki deneyim, heteroseksüel bulaşmanın HIV bulaşının ana yolu haline gelmesiyle HIV salgınının hızla büyüdüğünü göstermiştir. Genç yetişkinler HIV/AIDS için büyük bir risk faktörü olmaya devam etmektedir. Bu nedenle, eksik cinsel eğitim nedeniyle HIV enfeksiyonuna karşı savunmasız olan öğrenciler arasında cinsel bilgi, tutum ve davranış konusunda endişe artmaktadır. Bu çalışmanın amacı, öğrencilerin HIV/AIDS ile ilgili bilgi, tutum ve davranışsal algılarını değerlendirmektir.

**Yöntem:** Analitik kesitsel bir çalışma yapıldı. Katılımcılar Ivane Javakhishvili Tiflis Devlet Üniversitesi'nden 200 öğrenci idi. Anket aracı, Google anket yazılımı kullanılarak yürütülen çevrimiçi bir kendi kendine uygulanan anonim anketi.

**Bulgular:** Çalışma, öğrencilerin HIV/AIDS'in yayılması ve enfeksiyon riski hakkında iyi bilgiye sahip olduklarını, ancak genellikle önleyici tedbirleri, tanılama testlerini ele almadıklarını göstermektedir.

**Sonuç:** Toplum HIV testi ile daha az ilgilenmektedir. Gürcistan'da, özellikle okullarda cinsel eğitim yeterli değildir. Bu nedenle, öğrenciler HIV/AIDS hakkında yeterli bilgi edinemedikleridir. Aynı zamanda, öğrenciler arasındaki düşük farkındalık düzeyi risk faktörünü, damgalamayı, ayrımcılığı ve stereotipleri artırmaktadır. Araştırma, genç yetişkinler arasında yeni HIV enfeksiyonlarının önlenmesi için STD önleyici tedbirler hakkında farkındalık oluşturmak ve sağlıklı cinsel davranışları teşvik etmek için spesifik müdahaleler içeren ek eğitim programları geliştirme ihtiyacını göstermektedir. HIV/AIDS önleme ve tanılama önlemleri konusunda halkın bilincini arttırmak gereklidir. Bu bilgiyi yaymanın en çok tercih edilen yöntemi, internet, televizyon veya üniversite eğitim kurslarıdır.

**Anahtar Sözcükler:** HIV/AIDS, prevention.

Geliş Tarihi: 21.02.2018

Kabul Tarihi:01.04.2018

**Address for Correspondence / Yazışma Adresi:** Tengiz Verulava, MD PhD, Faculty of Social and Political Sciences, Iv. Javakhishvili Tbilisi State University; University of Georgia, School of Health Sciences and Public Health, Tbilisi, Georgia E-mail: tengiz.verulava@gmail.com

©Telif Hakkı 2018 Gazi Üniversitesi Tıp Fakültesi - Makale metnine <http://medicaljournal.gazi.edu.tr/> web adresinden ulaşılabilir.

©Copyright 2018 by Gazi University Medical Faculty - Available on-line at web site <http://medicaljournal.gazi.edu.tr/>

doi:<http://dx.doi.org/10.12996/gmj.2018.59>

**INTRODUCTION**

The human immunodeficiency virus (HIV) is a lentivirus (a subgroup of retrovirus) that causes HIV infection and over time acquired immunodeficiency syndrome (AIDS) (1). AIDS is a condition in humans in which progressive failure of the immune system allows life-threatening opportunistic infections and cancers to thrive. In most cases, HIV is a sexually transmitted infection and occurs by contact with or transfer of blood, pre-ejaculate, semen, and vaginal fluids. Non-sexual transmission can occur from an infected mother to her infant through breast milk. (2) Most patients develop symptoms two to four weeks after exposure to the virus. Initial symptoms include rash, anorexia, diarrhea, and other flu-like symptoms.

HIV was first reported in the USA in 1981, with five previously healthy homosexual men in Los Angeles, and in 26 previously healthy homosexual men in New York who were also involved in drug use. In 1982 the US Disease Control and Prevention Center officially registered AIDS as a new disease. In 1983, HIV was isolated and in 1984 it was determined to be the etiologic agent of AIDS.

HIV continues to be a major global public health issue, having claimed more than 35 million lives so far. In 2016, 1.0 million people died from HIV-related causes globally (3). There were approximately 36.7 million people living with HIV at the end of 2016 with 1.8 million people becoming newly infected in 2016 globally (3). The WHO African Region is the most affected region, with 25.6 million people living with HIV in 2016. It is estimated that currently only 70% of people with HIV know their status. To reach the target of 90%, an additional 7.5 million people need to access HIV testing services. In mid-2017, 20.9 million people living with HIV were receiving antiretroviral therapy (ART) globally. Between 2000 and 2016, new HIV infections fell by 39%, and HIV-related deaths fell by one third with 13.1 million lives saved due to ART in the same period. This achievement was the result of great efforts by national HIV programmes supported by civil society and a range of development partners (3).

Georgia is a small Eastern European nation (population 3.7 million) located between Russia and Turkey. The first case of HIV in Georgia was diagnosed in 1989. Through December 2017, a total of 6711 cases of HIV infection were reported.

In Georgia, 717 cases of HIV infection have been identified for the first time in life (incidence rate - 19.3) (2014 - 564 - incidence - 15.1). 94 cases of HIV/AIDS deaths were reported in 2015 (84 - 2014). According to the statistics, HIV infection was transmitted to Georgia in the following ways: Heterosexual contact (50.2%), Injecting drugs (20%), Homo / bi-sexual contact (19.8%), Vertical way (1.8%), Unidentified (0.8%), Blood transfusions (0.5%) (4). Younger adults continue to be a large risk factor for HIV/AIDS.

Based on the UNAIDS classification, Georgia is a „low-level HIV country“ with an HIV prevalence of less than 1% in all groups, including drug users. However, the HIV epidemic in Georgia is spreading from the traditional high-risk population to some in the general population (4). Until 2011, injection drug use remained the leading way of HIV transmission in Georgia, and from 2011, the share of transmission through heterosexual contacts has moved to the first place (4,5). The experience in African countries has already indicated that the HIV epidemic grows rapidly, when heterosexual transmission becomes the main mode of HIV transmission (6). Also, there is a high prevalence of hepatitis B and C, suggesting a significant risk for the spread of HIV (7). The late detection of HIV infection cases is high in the country (30.0% of new cases revealed at the AIDS stage), which is a serious problem (4,8,9).

Younger adults continue to be a large risk factor for HIV/AIDS. According to researches, nearly 44% of infected youths aged 18 to 24 did not know they had HIV (10). It is worth noting that 81% of diagnosis among youth occurred in the ages of 20-24, which falls in the range of students (6, 10). According to the studies, only 22% of high school students had been tested for HIV, and only 41% of sexually active high school students had used a condom during their last sexual contact (11). Literature suggests that while there is a general knowledge base within college students, there is a lack of general use of preventive measures regarding HIV (12). Researches show that well below 50% of sexually active college students use condoms and have been tested for HIV (13).

Thus, concern is growing regarding sexual knowledge, attitude, and behavior among students, who are vulnerable to HIV infection due to deficient sex education (14,15,16,17). Although previous studies have yielded useful information on sexual behavior in students, research in this field is still limited. Information regarding how previous knowledge affects attitude and perception of HIV has not been studied adequately. The objective of this study is to assess students' knowledge, attitudes, and behavioral perceptions regarding HIV/AIDS at Tbilisi State University (TSU) in Georgia.

**MATERIALS and METHODS**

An analytic cross-sectional study was conducted. Participants were 200 students from Ivane Javakhishvili Tbilisi State University in Tbilisi, which is the capital city of Georgia. The criteria for involvement in the survey were as follows: Any age person could participate in the study, who at the time of the survey was at the Bachelor's level of teaching and voluntarily expressed the desire to participate in the study. Students were informed of the purpose of the study prior to administration of the questionnaire.

The survey instrument was an online self-administered anonymous questionnaire conducted using Google survey software, which automatically populates and saves digital responses to a secure database protecting participant confidentiality throughout the surveying process. The survey was conducted in November-December of 2017. During the mentioned period, the study invitation was sent out two times a month.

The questionnaire for this study was developed based on a review of literature and specificities of students at Tbilisi State University (TSU). The self-administered questionnaire was divided into four broad sections as follows: (1) sociodemographic; (2) awareness and sources of useful information for HIV/AIDS; (3) sexual behaviors; and (4) knowledge related to safe-sex.

Demographic items in the questionnaire included age and sex, Marital status, current accommodation status and year of study (I,II,III,IV course).

The characteristics of sexual awareness included knowledge on HIV/AIDS, which consists questions regarding the transmission and prevention of HIV/AIDS. These part of questionnaire also consisted distribution of information sources for HIV/STDs (Internet, television, magazines and newspapers, school sex education, friends, literature, doctor).

For the sexual behavioral items, questions included condom use at last sexual intercourse (yes or no), active sexual life in the last 1 year (almost always, sometimes, never), condom use with regular sex partners (almost always, sometimes, never), condom use with casual sex partners (almost always, sometimes, never).

The characteristics of the knowledge related to safe-sex included recognition of all types of STD (yes or no), recognition of all transmission modes of HIV/AIDS (correct or incorrect), recognition of methods for the prevention of HIV/AIDS (correct or incorrect), recognition of the use of condoms (correct or incorrect) and receiving safe-sex education before university (correct or incorrect).

**Data Collection and Analysis**

After the questionnaire had been built, the information of 200 students were collected by a convenient sampling method. Then data were processed by SPSS software. Statistical tools used included descriptive statistics, independent samples T-Test, chi-squared test. The analysis is performed at the sig. of 5%.

The main limit of the study is the small sample size of respondents. The survey was conducted only in Tbilisi State University, so this is not representative of any larger groups.

**Ethics**

The study was approved by the Ethics Committee of the Ilia State University. The protocol was in accord with the declaration of Helsinki. An informed consent was taken from each participant. Those participants who did not agree to participate in the study were also excluded from the study.

**RESULTS**

Out of the 500 individuals who were offered the survey, 200 completed it. Of the students who completed the survey, 84.5% (N = 169) of them were female and 15% (n = 31) male. Each of them was a student at TSU. The age of respondents varies from 18 to 26 years. The mean age of the respondents was 20 ± 1.5.

**Table 1.** Age and Gender of Respondents

age/sex	female	male	total
18-20	29.5% (N=59)	7% (N=14)	36.5% (N=73)
21-23	32% (N=64)	5% (N=10)	37% (N=74)
24-26	23% (N=46)	3.5% (N=7)	26.5% (N=53)
total	84.5% (N=169)	15.5% (N=31)	100% (N=200)

The majority of students were from III course (34%; n=68) with 29% (n=58) being students from IV course. Thirty-four percent (n=68) of the participants indicated that they were living in a separate, in rented apartments, with 66% (n=132) living with families, 16% (n=32) living in private housing with friends and 18% (n=36) were living alone in private housing. The majority of the students were single (84%; n=168).

**Table 2.** Sociodemographic characteristics of university students

Variables	% of students (n=200)
Current status of the accommodation	
lives with families	66% (n=132)
lives in private housing	16% (n=32)
living alone in private housing	18% (n=36)
Marital status	
Married	16% (n=32)
Unmarried (single, or divorced)	84% (n=168)
Grade	
I course	13% (n=26)
II course	24% (n=48)
III course	34% (n=68)
IV course	29% (n=58)

**Table 3.** Awareness on HIV / AIDS

	yes	no	Do not know (%)
HIV / AIDS is transmitted by the transfusion of contaminated blood or blood components	88% (N=176)	8% (N=16)	4% (N=8)
HIV / AIDS is transmitted by the unprotected sexual contact	97% (N=194)	1% (N=2)	2% (N=4)
HIV / AIDS is transmitted by using an infected household items	10% (n=20)	82% (n=164)	8% (n=16)
HIV / AIDS is transmitted by sneezing	0% (n=0)	98% (n=196)	2% (n=4)
HIV / AIDS is transmitted through non sterile needles for injection	91% (n=182)	9% (n=18)	0% (n=0)
HIV / AIDS is transmitted through the air conditioning	3% (n=6)	90% (n=180)	7% (n=14)
HIV / AIDS is transferred by the mosquito bites	4% (n=8)	90% (n=180)	6% (n=12)
It is possible to protect yourself from HIV by using a condom during sexual intercourse	86% (n=174)	4% (n=6)	10% (n=20)

**Table 4.** Distribution of information sources for HIV/STDs for students in Georgia

Source of information	percentages
Television	20% (N=40)
Internet	35% (N=70)
Magazines and Newspapers	18% (N=36)
School education	14% (N=28)
Doctor	2% (N=4)
Friends	5% (N=10)
Books	6% (N=12)

Even though, 86% of the students listed condoms as a preventive method for HIV contraction, only 36% reported using this method. While 58% of the participants revealed that they were sexually active, only 12% of the participants have been tested for HIV in the past one years. Among the respondents who answered that condom use was applicable to them, 48% said they use condoms regularly.

Most of the respondents were aware of HIV/AIDS. An overwhelming majority of students knew that: HIV is transmitted sexually (97%) and through non-sterile needles for injection (91%), receiving a blood transfusion with infected blood can give a person HIV (88%); use of a condom during intercourse is likely to prevent transmission of HIV (86%). Misconceptions about transmission of HIV were reported by 17%. Some students showed lack of knowledge on important aspects of HIV/AIDS; these respondents believed that they can get HIV by infected household things (10%), by air-3%, by mosquito bites 4%.

The results indicated that students learned about HIV/AIDS from a variety of sources. The majority of students reported that Internet (35%) was the most common sources of useful information for HIV/AIDS, followed by the traditional media such as television (20%) and magazines and newspapers (18%), school sex education (14%), friends (5%), books (6%) and doctor (2%). Only 14% (n=28) of the students reported that they received information about HIV/AIDS in their classes at school, and even fewer (5%, n=10) gained information from their family members. 2% (n=4) reported that they received some information from health professionals. The details are shown in Table 4.

95% of the students said that they would see a doctor if they believed that they might have HIV, however most sexually active respondents did not think they had any risk.

It is important to focus on behavioral aspects. Respondents claim that condom use is the main reason for distrust with partner. Particularly, female representatives focus attention on the use of condoms with a partner, a man will suspect that the woman already had sexual experience with others. It is important that we consider the aspect of research as both women and men practically do not apply to examination after sexually intercourse, whether or not they are HIV infections.

**Table 5.** Sexual behaviors of Georgian students

Variables	% of students (n=200)
Condom use at last sexual intercourse	
Yes	36% (n=72)
No	64 (n=128)
Active sexual life in the last 1 year	
Yes	58% (n=116)
No	42% (n=84)
Condom use with regular sex partners	
Almost always	10% (n=20)
Sometimes	16% (n=32)
Never	6% (n=12)
Condom use with casual sex partners	
Almost always	35% (n=70)
Sometimes	46% (n=92)
Never	21% (n=42)

The number of the students that recognized all of the transmission modes (drug use by intravenous injection, mother to child transmission, and unprotected sex) of HIV/AIDS was lower (36%). Also, the number of students that correctly recognized the AIDS prevention methods was 58%. Importantly, the proportion of students that correctly recognized the significance of condom use was low (21%). The details concerning safe-sex knowledge about STD/HIV are shown in Table 6.

**Table 6.** Knowledge of Georgian students concerning safe-sex practices in this study.

Variables	% of students (n=200)
Recognition of all types of STDs	
Correct	10% (n=20)
Incorrect	90 (n=180)
Recognition of all transmission modes of AIDS	36% (n=72)
Correct	64% (n=128)
Incorrect	
Recognition of prevention methods of AIDS	
Correct	58% (n=116)
Incorrect	42% (n=84)
Recognition of the significance of condom use	21% (n=42)
Correct	79% (n=158)
Incorrect	

## DISCUSSION

The study shows that students has good knowledge regarding ways of HIV transmissions, but use of preventive measures is incredibly low. The question is why is there the gap between the knowledge and the protection measures. There should be more studies looking at this in the future.

The insufficient sex education provided in Georgia, particularly in schools, might contribute to the higher proportion of unprotected sexual behavior in students. Research indicate the need to develop additional educational programs with specific interventions to raise awareness about STD preventive measures and promote healthy sexual behaviors in order to prevent new HIV infections among young university students. The most preferred method of transmitting knowledge concerning HIV/AIDS in our survey was either from informal channels, such as the internet and television. Our results were compatible with other research findings (18). However, some of the information about safe-sex in the Georgian traditional media and on the Internet is incorrect or inappropriate. Thus, we suggest that the government should focus on improving the policy of sex education in universities and schools.

## CONCLUSION

Although students have enough information about the spread of HIV / AIDS and the risk of infection, they often do not address preventive measures, diagnostic tests. The society is less interested in HIV testing. Sex education is not sufficient in Georgia, particularly in schools. Hence, students can't receive adequate information on HIV / AIDS. This threatens the health of future generation. At the same time, the low level of awareness among students increases the risk factor, stigma, discrimination, and stereotypes.

It is necessary to increase public awareness on HIV / AIDS prevention and diagnostic measures. The most preferred method of disseminating this information is either from the internet, television, or university educational courses.

## Conflict of interest

No conflict of interest was declared by the authors.

## REFERENCES

1. Douek DC, Roederer M, Koup RA. Emerging Concepts in the Immunopathogenesis of AIDS. *Annual Review of Medicine*. 2009; 60: 471–84.
2. Mead MN. Contaminants in human milk: weighing the risks against the benefits of breastfeeding. *Environmental Health Perspectives*. 2008; 116: 426–34.
3. WHO. Global health sector strategy on HIV. 2016; 2016-21.
4. National Health Report of population of Georgia 2014-2015. Ministry of Labour Health and Social Affairs of Georgia. 2016.
5. Scorgie F, Chersich MF, Ntaganira I, Gerbase A, Lule F, Lo YR. Socio-demographic characteristics and behavioral risk factors of female sex workers in sub-Saharan Africa: a systematic review. *AIDS and Behavior*. 2012; 16:920–33.
6. Tkeshelashvili-Kessler A, del Rio C, Nelson K, Tsertsvadze T. The emerging HIV/AIDS epidemic in Georgia. *International Journal of STD & AIDS*. 2005;16:61-7.
7. CDC. Diagnoses of HIV infection in the United States and dependent areas, 2015. *HIV Surveillance Report*. 2016:27. Accessed January 27, 2018.
8. Youth Risk Behavior Surveillance System. Adolescent and School Health. Cdc.gov. Available from: <https://www.cdc.gov/healthyYouth/data/yrbs/index.htm>
9. The Perception of HIV Among College Students: HIV Equal. Hivequal.org. Available from: <http://www.hivequal.org/homepage/the-perception-of-hiv-among-college-students>
10. Caldeira K, Singer B, O'Grady K, Vincent K, Arria A. HIV Testing in Recent College Students: Prevalence and Correlates. *AIDS Education and Prevention*. 2012;24:363-76.
11. Higgins LT, Sun C. Gender, social background and sexual attitudes among Chinese students. *Culture, Health and Sexuality*. 2007;9:31–42.
12. Goodwin, R.B., Kachkachishvili, I., Nizharadze, G., Cramer, D. Psychological predictors of high-risk sexual behaviour and drug use among adolescents in Georgia. *Current HIV Research* 2010; 8:207-11
13. Tan X, Pan J, Zhou D, Wang C, Xie C. HIV/AIDS knowledge, attitudes and behaviors assessment of Chinese students: A Questionnaire Study. *International Journal of Environmental Research and Public Health*. 2007;4:248–53.