

# Health beliefs and barriers related to hiv prevention and screening among students of the university of vlora: a cross-sectional study

Rezarta Lalo (✉ [rezarta\\_lalo@yahoo.com](mailto:rezarta_lalo@yahoo.com))

University "Ismail Qemali" of Vlora, Albania <https://orcid.org/0000-0002-0658-759X>

Gjergji Theodhosi

Universiteti i Mjekesise Tirane

Alberta Breshanaj

Universiteti Ismail Qemali Vlore

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## Research article

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## Abstract

Previous researchers have found that young university students can have a high level of knowledge about HIV/AIDS (Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome), but they are still not utilizing the existing HIV prevention methods. There is therefore a need to determine which factors and barriers influence the use of existing HIV screening and prevention methods among students of the University of Vlora in Albania. This descriptive cross-sectional study included as a target population 710 students, randomly selected. A structured, self-administered questionnaire was used for data collection. A regression analysis was used to assess the relationship between variables. The results showed that 69% of the students felt offended if their partner requested to use a condom. 78% of the students with sexual experience didn't use Voluntary Counseling and Testing services. The fear of stigmatization was one of the barriers to VCT uptake ( $p < 0.0001$ ,  $OR = 1.779$ ). These data will be useful in designing and improving HIV/AIDS prevention programs in Albania.

Key words: Barriers, Health beliefs, HIV/AIDS, Screening, Sexual Health, Student.

## Background

There are many minor and major factors that help the HIV/AIDS (Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome) epidemic in national, regional, continental and global level. Even though the epidemics follow various courses in different countries, there are some common features as for the transmission and distribution method, which help us estimate the fast spreading of the virus globally<sup>1</sup>. The factors that raise the vulnerability to HIV include some cultural practices, the inappropriate control for the health and resources, especially on health care, education and wellbeing, religious beliefs, poor governing, migration, conflicts, urbanizing, and stigma of the marginalized groups<sup>2</sup>. A positive answer to the spread of HIV/AIDS starts with prevention. The investment in its prevention is absolutely necessary as it reduces the prevalence of HIV/AIDS through the early promotion of the health care, testing for HIV, education and advice for safe sex, condom use promotion, early diagnosing and retroviral therapy<sup>3</sup>. The scaling up of HIV-related prevention programmes and wider availability of antiretroviral therapy (ART) have resulted in significant improvements in the global epidemiology of HIV infection.

New HIV infections have fallen globally by 16% since 2010 and AIDS-related deaths by 48% since the peak in 2005<sup>4</sup>. However, specific regions in the world continue to maintain an increasing trend. In 2016, a total of 160 453 new HIV diagnoses were reported from 50 out of 53 countries in the World Health Organization (WHO) European Region, corresponding to a rate of 18.2 per 100 000 population, continuing the increasing trend<sup>5</sup>. The European Centre for Disease Prevention and Control (ECDC) listed Albania third in the region in terms of affected individuals. According to ECDC, 94 Albanians people had been affected by the HIV virus during 2017<sup>5</sup>. Again, the overwhelming majority of cases are at a developing stage of the disease and the total number of people diagnosed with HIV/AIDS has reached a total of 1400<sup>5,6</sup>.

Our country, Albania has followed the same line with the objectives of World Health Organization (WHO) and other scientific international institutions on HIV/AIDS prevention<sup>7</sup>. A lot of awareness campaigns are conducted in order to increase the youth awareness, so that they may be oriented toward a healthier life style, adopt positive behavior and increase the request for reproductive sexual services<sup>8</sup>.

Various studies have reported that university students, who are mostly young people, rarely use existing HIV/AIDS preventive methods. Although studies have shown that young university students have a high level of knowledge about HIV/AIDS and HIV ways of transmission, they are still not utilizing the existing HIV prevention methods and still engage in risky sexual practices favorable to HIV<sup>9</sup>. Literature indicates that factors affecting condom use are a range of situational, interpersonal and structural factors such as knowledge about AIDS, behavioral intention, perceived susceptibility, perceived barriers, self-efficacy, and demographic factors<sup>10</sup>. In order to understand the behavior of young people who do not use condoms, it is essential to determine the beliefs that predispose condom use and non-use<sup>11,12</sup>.

In Albania some studies report that the prevalence of not using condoms during the first sexual act is high in this age group<sup>13</sup> and the main reason is the pregnancy avoidance. Only a small percentage of the young people use the condom to avoid sexually transmitted diseases (STD) and HIV/AIDS<sup>8</sup>.

Another element which should be taken into consideration during the studies is the health services utilisation from the youth. Voluntary counseling and testing (VCT) is an effective approach for facilitating behavioral change around both preventing HIV as well as getting early access to care and support. It is also instrumental in bringing about behavioral change, reducing unprotected sex and helping reduce the incidence of HIV<sup>14</sup>.

The data show that the use of health services from the youth is very low. So, even though there are voluntary counseling centers in 36 districts of Albania, the actual number of counseling is low<sup>15</sup>. Albania is a traditional and patriarchal society in which stigma and discrimination play a significant role in preventing members of key affected populations accessing HIV testing for earlier diagnosis and treatment of HIV infection<sup>16</sup>. Some studies show that fear of being stigmatized in the community and even at health facilities, reduces testing even in contexts where treatment is available<sup>16,17</sup>. The aim of the present study is therefore to evaluate health beliefs and barriers related to preventive and screening methods with an emphasis on the association between fear of stigma and willingness to have an HIV test among students of the University of Vlora. To this end, this article addresses the following question: Will students' beliefs influence health services uptake?

## Methods

### Study area, study design and study period

This was a cross-sectional study conducted among university students, age  $\geq 18$  years, in the district of Vlora, Albania from April 2018 to June 2018. The study followed the consolidated criteria for observational research (STROBE).

## Sample size and sampling technique

Since there is no similar study in target group in our study area, the sample size was determined by a single proportion Cochran formula using

$$N = \frac{(Z\alpha/2)^2 * P(1-P)}{d^2}$$

where  $Z=1.96$ ,  $p=50\%$ ,  $d=0.05$ , accordingly the sample size will be 384. Since the total population in the university of Vlora was (8,151), adjustment was made by the following formula  $n_f = n_i / [1 + (n_i/N)]$ ; where  $n_f$  is the sample size calculated by adjustment,  $n_i$  is the initial sample size calculated by single proportion formula (384),  $N$  is the total number of students in the university (8,151). Based on this formula the sample size was 367. So, choosing the sample size of 710 students for this study is representative, because it is greater than 367, which is the minimum of the required simple size by calculations. Multistage sampling technique was used to select study subjects. Firstly, students in the University were stratified by their field of study as health science and non health science. Secondly, two departments from health science and four departments from non health science were selected using simple random sampling based on proportion. Thirdly, students in each field of study were further stratified by their year of study assuming that their field of study and duration of stay in the campus affect their VCT utilization. Finally, students were selected from each batch proportionally by simple random sampling technique using computer generated random numbers.

## Data collection

The study instrument was a self-administered questionnaire of type Knowledge, Attitude, Practice and Belief survey (KAPB) which comprised four parts. Part I related to students' socio-demographic background, Part II on students' perceptions regarding health beliefs and barriers of screening methods, Part III on knowledge about the preventive methods, Part IV on students' sexual practices and VCT uptake. The perception of the Barriers and Health Beliefs was assessed using a ten items questionnaire and the evaluation was 1 score for the correct answer. Students could choose from 3 options for each question: "correct", "incorrect" and "don't know". The "don't know" answers were treated as incorrect answers in the analysis. An index of Barriers and Health Beliefs was created that ranged from 0 to 10, with higher scores indicating better perceptions. The perception classification was done in these levels: 8–10 points "very good" perception, 5–7 points "good" perception and 0–4 points "not very good" perception. Knowledge on preventive methods was assessed by single question as "Using the condom during the sexual act may reduce the risk of HIV infection". Sexual practices was assessed using a two item questionnaire which includes the age of first sexual intercourse and number of sexual partners. VCT utilization was assessed by single question as "Did you used VCT service?" which respond in "Yes" or "No". The questionnaire is originally prepared in English language and then translated to Albanian and again retranslated to English by language experts for consistency.

## Data analysis:

An expert in statistic was used for data coding and analyses to enhance the research validity. For statistical analysis of the data was used statistical program SAS (Statistical Analysis System) version 9.1. For categorical variables were reported absolute numbers and percentages respective. To assess the associations between categorical variables was used Chi-square statistical test.  $P\text{-value} \leq 0.05$  was taken as cut of value to be significant. A bivariate logistic regression analysis is used to reflect the relationship between variables. Odds ratio and 95% confidence interval was also constructed along with the corresponding  $p$  value.

## Results

### Socio-demographic characteristics

The mean age of the participants was  $20.75 \pm 2.2$  years. According to gender, 56.33% of the participants were females and 43.64% males, related to residence, 66.2% of the students live in the city and 33.8% in the village. Related to civil status 83% are single, 7% are married, 9% live with another partner, 1% divorced.

The perception of the barriers and health beliefs related to HIV/AIDS is shown in Table 1

Table 1

The distribution of the students of University of Vlora according to their correct answers

The perception of the barriers and health beliefs related to HIV/AIDS	Correct answer No. %	Incorrect answer No. %
1. I believe that a person should be worried about HIV/AIDS only if he/she starts to get sick.	476 67.04	234 32.96
2. I believe that a person infected with HIV can be identified from his / her thin look.	379 53.38	331 46.62
3. I believe that taking a test for HIV one week after having sex will tell a person if she or he has HIV.	486 68.45	224 31.55
4. I believe that HIV is a punishment for immoral behavior.	629 88.60	81 11.40
5. I believe that clients who get HIV through illegal behavior (e.g., sex work), should not be treated at hospitals and clinics.	442 62.25	268 37.75
6. I believe that religious people cannot get infected with HIV	558 78.69	152 21.41
7. The chances of getting HIV would not stop me to have sexual intercourse	440 61.97	270 38.03
8. During the sexual act, I would be offended if the partner suggested the use of condom to prevent HIV.	218 30.70	492 69.30
9. If I were to have sexual intercourse, I would feel ashamed to ask my partner to get tested for HIV/AIDS.	520 73.34	188 26.66
10. I would not go to a local clinic to be tested for HIV because then everyone would know my status.	524 73.91	186 26.19

A total of 710 students completed the section on students' perceptions of the Barriers and Health Beliefs related to HIV/AIDS of the questionnaire. We found that 69% of the students would be offended if their partner suggested the use of condom to prevent HIV, 47% believe that a person infected with HIV can be identified from his/ her thin look, 38% believe that chances of getting HIV would not stop them to have sexual intercourse and only 26% of participants would feel ashamed to ask their partners to get tested for HIV/AIDS.

The relationship between the perception of beliefs & barriers and socio demographic variables is shown in Table 2. The results showed that there was a significant statistical association between "students' beliefs & barriers" and variables "civil status" (Chi square  $p = 0.0294 < 0.05$ ) and "academic year" ( $p = 0.0019$ ). We found out that 100% of divorced students followed by cohabitant students (87%) had better perceptions of beliefs and barriers. To evaluate this association, we also used the bivariate logistic regression. The results found that divorced students are approximately 2 times more likely than cohabitants to have better perceptions (OR = 0.459; 95% CI 0.054–3.921); OR (95% CI) Single / Divorced = 0.210 (0.026–1.684) indicates that divorced are nearly 5 times more likely than single students to have better perceptions; OR (95% CI) Married/Divorced = 0.281 (0.033–2.398) shows that divorced students are 3 times more likely than married ones to have better perceptions. So, the single students and the married ones resulted to have more incorrect perceptions of beliefs and barriers related to HIV/AIDS.

Table 2

The evaluation of the correlation between the perception of barriers and socio demographic variables

Variables	The perception of barriers		
	OR	95% CI	p value
Civil status			
Divorced (ref)			
Coexistent	0.459	[0.054–3.921]	$p = 0.0294$
Single	0.210	[0.026–1.684]	
Married	0.281	[0.033–2.398]	
Academic year	OR	95% CI	
III (ref)			$p = 0.0019$
I	0.454	[0.318–0.647]	
II	0.820	[0.575–1.169]	

Table 3  
The evaluation of the relationship between VCT uptake and explanatory factors.

Voluntary testing for HIV Did you use VCT service?	Perception I would not go to a local clinic to be tested for HIV because everyone would know my status	p value
	OR	95% CI
No (ref)		p < 0.0001
Yes	1.779	[1.135–2.786]
Residence	Did you used VCT service	p = 0.0038
	OR	95% CI
Urban (ref)		
Rural	0.488	[0.296–0.804]
Gender	Did you used VCT service	p = 0.0645
	No	Yes
Female	140 (29.05)	50 (10.37)
Male	236(48.96)	56 (11.62)
The age of first sexual intercourse	Did you used VCT service	p = 0.8530
	No	Yes
Less than 14 years old	19 (3.9)	4 (0.82)
15–18 years	196 (40.25)	54 (11.09)
19 and older	166 (34.09)	48 (9.86)
Number of sexual partners	Did you used VCT service	p = 0.3846
	No	Yes
1 partner	183 (42.96)	56 (13.15)
2 partner	59 (13.85)	13 (3.05)
3 partner or >	91 (21.35)	24 (5.64)

Furthermore, 81% of the students of the second year followed by those of the third year (78%) and the first year (69%) resulted to have better perception of beliefs and barriers. According to bivariate logistic regression OR (95% CI) first year/third year = 0.454 (0.318–0.647) showed that students of third year are about 2 times more likely than students of first year to have better perception of barriers; OR (95% CI) second year/third year = 0.820 (0.575–1.169) showed that students of third year are about 18 times more likely than students of first year to have better perception of barriers related to HIV/AIDS.

Our study, also analyzed the association between VCT uptake and explanatory factors. This association is shown in Table 3. According to the association between students' sexual practices and VCT uptake, the majority of the students with sexual experience (78%) didn't used VCT services. 22% declare that are tested for HIV, from which 10.37% females and 11.62% males. So, there is a difference of 1.25% in favour of males.

According to residence, 17.01% are from urban areas and 4.98% from rural areas. The odds of VCT uptake among students from the urban areas were 2 (95% CI, 0.488 [0.296–0.804]) times higher than among those from rural areas.

The results also showed that there was no significant statistical association between the students with different ages of first sexual intercourse ( $p = 0.8530 > 0.05$ ), the students with different number of sexual partners ( $p = 0.3846 > 0.05$ ) and VCT services. So, for each number of declared sexual partners, over 70% of the students did not get tested for HIV.

According to the association between the perception of barrier "I would not go to a local clinic to be tested for HIV because then everyone would know my status" and the variable "VCT uptake" there was a significant statistical association ( $p < 0.0001$ ). From 147 students, who answered incorrect the item of barrier's perception, 104 (70.74%) of them are not tested for HIV. Referring to the bivariate regression analysis the students who didn't perceive the fair of stigma that everyone would know their HIV status were 1,8 (95% CI, 1.779 [1.135–2.786]) times more to likely utilize VCT service as compared to their counterparts.

While regarding the association between students' knowledge about the preventive methods and their perception of barriers, shown in Table 4, the results found that 153 students answered incorrect the statement "the use of condom reduces the risk of HIV infection", in 48% of the cases they would feel offended from their partner's suggestion to use a condom. The logistic regression analyse between above variables showed that the students with correct knowledge on preventive methods to HIV infection were 2 (95% CI, OR = 0.469 [0.260–0.569]) times more likely to have better perceptions of beliefs and barriers compared to those with insufficient knowledge.

Table 4  
The relationship between student's knowledge on preventive methods and the perception of barriers

Knowledge on preventive methods: Using the condom during the sexual act may reduce the risk of HIV infection	Perception of barrier: During the sexual act I would be offended if the partner suggests using the condom to prevent HIV infection	p value
Correct answer (ref)	OR	95% CI
Wrong answer	0.469	[0.260–0.569]

## Discussion

In the present study, the perception of barriers and health beliefs shows a satisfactory result and comparable to other studies<sup>17,18</sup>. Only 24% of the students have incorrect perceptions. It is very interesting the fact that the higher percentage of the incorrect answers of the participants was found to be related to the feeling of being offended of one partner when the other suggested the use of condom during the sexual act. This feeling is considered in literature as a component of the barriers perception based on Health Beliefs Model related to HIV/AIDS and is considered to be one of the factors that affect the condom use<sup>11,19,20</sup>. In order to better analyze this factor in our study, we assessed the association between the knowledge of the condom use as a preventive method and the barriers that may interfere on its use. There is a significant statistical association between two above variables ( $p < 0.0001$ ) that is consistent with other studies<sup>12,21</sup> which found that the perception of barriers was statistically related to the reduction of the condom use among university students.

As for the health beliefs related to the fact of HIV infection, our study found that the youth has the tendency to have sexual relations, without being afraid of this infection, pretending that they should be worried for this infection when there are clinical signs or when they are sick, which shows their incorrect perception that involves them in risky behaviors. Interestingly, a significant proportion of the students believe the misconception regarding HIV diagnosis, including having an HIV test within one week of risk behaviour will tell if a person has HIV. These findings are reflected in similar other studies<sup>22</sup> that also show limited knowledge on this issue, which raises the need to have informing and preventing ongoing activities. About a third of the students believed that those who contracted HIV through illegal behaviour should not be treated in hospital and clinics. This may indicate that negative beliefs can contribute to continued stigma towards key at-risk populations and may be a barrier to HIV prevention efforts.

In relation to demographic factors, the incorrect perception found to have the single students followed by married ones. These results are consistent with those of Sarcar, which found that the socio-cultural aspects and the beliefs to the sexual act serve as barriers or influence on the condom use in marriage relations or the married students in India, while in other countries as Brazil, Africa, Mexico etc. the fear of condom use shows the absence of faith within the couple, and acts as a barrier of not using the condom from these couples<sup>21</sup>. The above findings may explain the fact that married students of our study have the most incorrect perception to the barriers.

Counseling and testing for HIV/AIDS is another valued literature method which plays an important role in screening and keeping this infection under control. Our study analyzed this role and found a low prevalence of voluntary testing for HIV among the students with sexual experience compared to other similar studies<sup>23,24</sup>. In relation to demographic factors we notice that there is a slight change in males who have the tendency to use VCT services (1.25%) more than female. A similar study<sup>25</sup> found that the female participants had a small but significantly higher incidence of VCT uptake than the male participants did. Potential reasons are that HIV generally has longer lasting and more severe effects on females than on males and because females are more conscious and aware of their sexual health status. However, HIV is equally serious and equally deadly for males and females. Other studies also found the same results<sup>26-28</sup>. The implication of this result to my study is that there is a significant need for VCT uptake by both genders. But our study shows a statistically significant correlation between VCT practice and the residence of the participants with sexual experience. So, the students who live in the city have a higher probability to use VCT services than the ones who live in the rural areas. Referring the data from Universal Periodic Review of Albania 2018, the people who live in rural areas and the ones with lower income do not refer to the primary health care, because going to health care institutions of a higher level needs more money and time<sup>33</sup>. This fact can explain the higher percentage of the students that live in urban areas to use VCT services.

The association between VCT practices and sexual behavior shows that there is no statistical association, which means that the number of sexual partners and the age of first sexual intercourse do not have an impact on the fact that the students use VCT services or not. These results are in contrary to another study which resulted that participants engaging in higher-risk sexual behaviors were more likely to be tested for HIV<sup>29</sup>. The results show that regardless the students' exposure to risky behavior, there is a low number of voluntary testing for HIV even within the risky groups, similar to other studies previously carried out in Albania<sup>30,33</sup>.

Regarding the fact that the barriers may have a negative impact on VCT practice, our study found that the fear of stigmatization may be one of them, which is similar to other studies<sup>9,17,26,31</sup>. As a whole, our results demonstrate that the students' beliefs may be barriers to universal access to use VCT services.

## Limitations

There were several limitations to the study. In studies where information is gathered by self reporting, it is known that the answers are subject to an over or under reporting. This is even more evident, especially when it comes to sensitive issues such as sexual behavior of subjects in the study<sup>32</sup>. Given that the survey data derive precisely from self-report guess it could be subject to this limitation. One other limitation was compilation of the questionnaire with closed questions, and so it has not been possible to obtain more in-depth information of the respondents. The findings cannot be generalized to all college students

in Albania because the sample was conveniently collected from one university in one city. Despite all of these limitations, we believe this study might be a reasonable source of information for researchers and policymakers.

## Conclusions

The results of this study showed that the perceptions of barriers are good predictors of the preventive behaviours toward HIV infection. Nevertheless, this study discovered that “the feeling of offence” toward the partner when they suggest using a condom during sexual intercourse and “the feeling of shame” to ask the partner to get tested for HIV, were the main barriers related to the preventive measures of the risk infection for HIV, answering the research question of the study. Also, the prevalence of VCT services resulted low and the fear of stigmatization was considered one of the possible barriers to non-use of them by students. The present study provides evidence to suggest that creating awareness about prevention and screening methods for HIV among students community could contribute to increased uptake of the VCT services, the condom use and to reduce the identified stigmatizing barriers. Identifying the barriers related to preventive and screening methods for HIV would help the health practitioners to implement better professional education, promote healthy sexual behaviors and increase access to quality services. This paper highlights the need to integrate stigma reduction with HIV prevention activities and the importance of investigating the impacts of the healthcare utilization among young people especially those with high-risk behaviors, which will constitute formidable challenges to the international community.

## Abbreviations

HIV - Human Immunodeficiency Virus

AIDS - Acquired Immunodeficiency Syndrome

VCT - Voluntary Counseling and Testing

ART - Antiretroviral Therapy

WHO - World Health Organization

ECDC - European Centre for Disease Prevention and Control

STD - Sexually Transmitted Diseases

KAPB - Knowledge, Attitude, Practice and Belief survey

SAS - Statistical Analysis System.

CI - Confidence of Interval

OR - Odds Ratio

## Declarations

### *Ethics approval and consent to participate*

All aspects of this study have been performed in accordance with the Declaration of Helsinki for ethical standards. Respecting the ethics considerations, we informed the students for the goals of the study, the confidentiality and privacy making sure to explain that the questionnaire was anonymous and the data collected would not be identifiable. The explaining was done orally and written clearly on the first page of the questionnaire. The students have given oral consent to participate in the study and they had the rights to withdraw at any time. The study was approved by the Research Ethics Committee of the University "Ismail Qemali" of Vlora, Prot. No. 93/2, on 04/04/2018 before the study commences. The application for ethical permission has outlined the details of the study. The ethics board approved the use of verbal consent of students to participate in this study.

### *Availability of data and materials*

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

### *Competing interests*

The authors declare that there is no conflict of interest.

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### *Authors' contributions*

R.L. designed the study and was a major contributor to the writing of the manuscript

R.L. performed the data collection

A.B. performed statistical analysis of the data

R.L. and A.B. contributed to the interpretation of the results

Gj.Th. revised the manuscript for important intellectual content.

All authors have read and approved the final manuscript

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