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Original Article

Sexually Transmitted Infection knowledge and risky behaviours among Albanian university students: findings from a cross-sectional study

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Abstract

Introduction: Sexually Transmitted Infections (STIs) pose a public health concern globally, especially among young adults. Despite efforts to address STIs transmission through sexual health education, risky behaviors persist among young adults. This study aims to assess knowledge and behaviors on STIs among university students, offering added evidence and insights for more targeted preventive interventions in the future.
Methodology: Conducted between April - May 2023, our study surveyed 671 students using a structured questionnaire based on established guidelines. Data analysis utilized SPSS vs 25. Ethical considerations were adhered to, and limitations of self-reported data were acknowledged.
Results: The findings revealed a disparity in students' knowledge and the presence of risky sexual behaviors related to STIs. We found that 72.2% of students reported they currently had sexual relations and 30.3% had multiple sexual partners. More than half did not use a condom (29.3%) or did not use a condom consistently (30.9%). Only 19.7% had been tested for STIs and almost all female students, 93.4%, had never had an HPV test.
Conclusions: Our findings suggest that Albanian university students show limited knowledge of STIs and currently engage in risky sexual behaviors. There is a pressing need to coordinate a program of sexual health education, implement more preventive measures, and apply regular STI screening (for those at risk). Also, healthcare experts should spearhead educational initiatives to ensure the accuracy and reliability of information, addressing misconceptions among students. This study also highlights the importance of interventions to mitigate STIs transmission risks among young adults.

Key words: Sexual risky behaviors; sexually transmitted infection; young people; university students.

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Introduction

Sexually transmitted infections (STIs) have a significant public health impact, leading to serious health consequences and stigma. Globally, more than 1 million cases of STIs are estimated to occur every day, and most of them are asymptomatic, which makes their control and treatment challenging, especially for young people [1,2]. In 2020, the annual incidence of four of the most common and curable STIs among adults aged 15-49 was 374 million [3]. In 2021, it was observed that chlamydia trachomatis was the most prevalent among young adults 15-24 in both EU/EEA and non-EU/EEA countries [4]. Although published statistics on all types of STIs are not widely available in Albania, a study including Albanian and Italian undergraduate students found that the percentage of Albanian students who currently use condoms was lower than Italian counterparts [5]. Other studies conducted among Albanian university students revealed ambiguity and misconceptions about HPV infection [6], certain sexual behaviors, and HIV/AIDS [7]. A systematic review conducted in several non-EU/EEA countries of the WHO European Region also revealed the limited availability of STI data [8]. Despite this, STIs continue to be prevalent in Albania and pose a high risk, especially among young people aged 15-24 years [9]. Albania has a relatively low prevalence of HIV infection, with the largest number of cases in young people. The sexual route is the main mode of transmission in almost 95% of cases [10]. Sexual health education was introduced into the Albanian education system in 1995 [11] and since 2015, it has been made mandatory for pupils and young students aged 10-18, included in school curricula [12]. Comprehensive sexual education can assist young people to make informed decisions about sexuality and prevent STIs [13]. The evidence suggests that young people are more susceptible to STIs, and their high risk is mainly due to risky sexual behaviors [14-17]. According to some studies, risky behaviors are linked to insufficient

knowledge about STI prevention and limited access to preventive health services [1,18-21]. Therefore, it is important to enhance students' knowledge of STIs to better prevent and control their spread [2,4]. In addition, to make further progress in the fight against STIs, it is important to implement Information Education Communication programs that may help improve people's ability to detect and treat STIs at an early stage [1,22]. To identify and understand gaps in knowledge and their impact on practice, the KAP survey tool was used, which provides valuable information for effective control of any disease [23]. This study aims to evaluate the knowledge and sexual behaviors related to STIs among Albanian university students, to provide baseline information for the development of evidence-based STIs prevention interventions.

Methodology

This study was conducted between April and May 2023 among Albanian university students. The data collection instrument was a structured questionnaire prepared in accordance with guidelines for conducting a KAP study, including the WHO guidelines and the European Health Interview Survey [23,24], as well as relevant questionnaires from other published KAP studies on STIs [16-18,25,26]. The questionnaire was pre-tested, and a final version was then prepared and sent to all students. A total of 671 students correctly completed the online questionnaire. Participation was voluntary, and no exclusion criteria were applied. The statistical package program IBM SPSS Statistics version 25.0 was utilized to evaluate the data. Categorical variables were presented as frequency and percentage. The correlation between continuous variables was evaluated using the Spearman rho correlation coefficient. The Pearson Chi-Square test was utilized to assess the connection between categorical variables. The study was approved by the ethics committee and conducted in accordance with the World Medical Association Declaration of Helsinki [27].

Table 1. Sociodemographic characteristics of study participants (n = 671).

Variables	N	%
Gender		
Female	444	68.9
Male	200	31.1
Age		
18-20 Years	277	43.0
21-25 Years	243	37.7
Over 25 Years	124	19.3
Faculty		
Applied and Economic Sciences	174	27.0
Medical Sciences	336	52.2
Social Sciences	134	20.8
In which year are you studying?		
I	213	33.2
II	189	29.4
III	153	23.8
IV	14	2.2
Master	73	11.4
Marital status		
In a casual relationship	206	32.0
Married	87	13.5
Single	351	54.5

Limitation of the study

Self-reported information may result in over or under-reporting, especially on sensitive topics such as sexual behavior [28]. Furthermore, questionnaires that contain leading questions may introduce information bias or interpretation obstacles [29].

Results

Table 1 presents the data on 671 participants, categorized by gender, age, field and year of study, and marital status. Most participants were female (68.9%), and 43.0% of them were between 18-20 years of age. Additionally, more than half of the students (52.2%) were enrolled in the faculty of medical sciences, and 33.2% were in their first year of study. Regarding marital status, approximately one-third of the participants (32.0%) reported being in a casual relationship, with a similar proportion for both genders.

Table 2. Knowledge about STIs among study participants.

Variables	N	%
Which diseases is sexually transmitted?		
HIV/AIDS	452	70.2
HPV	29	4.5
I do not know	86	13.4
Viral hepatitis	59	9.2
All above	18	2.8
How can a person be protected from STIs?		
Avoiding sex with unknown persons	115	17.9
Condom use	398	61.8
Do not exchange personal tools	12	1.9
Do not have many sexual partners	33	5.1
I do not know	18	2.8
Not to have sex	68	10.6
Are you at risk of contracting a STI?		
I do not know	109	16.9
No	428	66.5
Yes	107	16.6
How would you know if you were infected?		
From blood tests	188	29.2
From the signs	215	33.4
I do not know	57	8.9
Tested for STIs	184	28.6
What was the main source of information?		
I have no information	30	4.7
Family	14	2.2
Friends	102	15.8
Health personnel	54	8.4
School	146	22.7
Television	34	5.3
Website/Internet	120	18.6
All sources	144	22.4

13.5% of the participants were married, while 54.5% of them were single.

Knowledge about STIs among study participants

According to the study, 70.2% of students were aware that HIV can be transmitted sexually, with no significant difference between genders (p = 0.163) (Table 2). However, only a small percentage of students (9.2%) knew that viral hepatitis is sexually transmitted, and 4.5% knew that HPV is also sexually transmitted. Additionally, 13.4% of participants were not aware of how to protect themselves from STIs, and 2.8% knew that all the listed STIs (i.e., hepatitis, HIV/AIDS, HPV) were sexually transmitted. Most participants (61.8%) identified condom use as an effective preventive measure against STIs. The second most reported method for preventing STIs was avoiding sexual contact with unknown partners (17.9%). Sexual abstinence was reported by 10.6% of participants, with no significant differences between genders. A small percentage of participants (5.1%) indicated that limiting the number of sexual partners is also an STI preventive measure. The main sources of information for these issues were reported to be schools (22.7%), friends (15.8%), health personnel (8.4%) and websites (1.6%).

Table 3. Behaviors about STIs among study participants.

Variables	N	%
Have you ever had sex?		
No	179	27.8
Yes	465	72.2
At what age did you have sex for the first time?		
I have not had sexual intercourse	179	27.8
12 Years	8	1.2
14 Years	30	4.7
16 Years	92	14.3
18 Years	189	29.3
20 Years	98	15.2
Over 20 Years	48	7.5
How many sexual partners have you had?		
I have not had sexual intercourse	179	27.8
One	270	41.9
Some	195	30.3
Do you use a condom during sex?		
I have not had sexual intercourse	179	27.8
No	189	29.3
Not always	199	30.9
Yes	77	12.0
Why don't you use a condom during sex?		
Decreases sexual pleasure	89	13.8
Healthy partner	19	3.0
I don't know how to use it	11	1.7
I don't trust that they protect	14	2.2
I have not had sexual intercourse	179	27.8
I have only one partner	137	21.3
Price	16	2.5
Use	77	12.0
Use occasionally	102	15.8
Where would you go to get a condom		
Family planning center	5	0.8
I do not know	212	32.9
Pharmacy	358	55.6
Supermarket	69	10.7
Have you ever had a routine STIs test		
No	517	80.3
Yes	127	19.7
Have you ever been tested for HIV?		
Jo	550	85.4
Po	94	14.6
Have you ever had an HPV test		
No	414	93.2
Yes	30	6.8

Behaviors of STIs among study participants

According to the survey, 72.2% of the students reported having sexual intercourse, and 5.9% had their first sexual experience before the age of 14. A higher proportion of males (93.0%) than females (62.8%) reported being in a sexual relationship, and 66.0% of males reported having multiple sexual partners compared to females (14.2%). Only 12% of students reported using a condom during sexual intercourse, 29.0% not using a condom or not using one all the time while having intercourse (30.9%). Students reported not using condoms due to having only one sexual partner (21.3%), decreased sexual pleasure (13.8%), cost (2.5%), lack of belief in its protective abilities (2.2%), and lack of knowledge on how to use it (1.7%) (Table 3).

More than half of the students (57.1%) did not use a condom during their last sexual encounter. Most participants (55.6%) preferred obtaining condoms from a pharmacy, while 10.7% preferred those sold in a supermarket. A small proportion (0.8%) reported obtaining condoms from a public family planning center, and a significant proportion (32.9%) were unsure of where to obtain them.

A minority of participants (19.7%) reported having been tested for STIs, and even fewer (14.6%) had been specifically tested for HIV. According to the survey, most female students (93.4%) have not undergone an HPV test. It was also found that a small percentage (1.4%) reported initiating sexual activity before the age of 14. Among those surveyed, a significant proportion (62.8%) were sexually active, and a minority (14.2%) reported having multiple sexual partners (Table 3).

Discussion

The study found that students were in relationships (32.0% in casual relationships and 13.5% being married), with no significant gender differences in terms of their current sexual relationships. These results are in line with various comparable studies conducted among Italian and Serbian university students [17,30] but they also differ in terms of their key findings from other studies [31].

Both male and female students were found to have limited knowledge regarding STIs. Even in cases where their answers showed a greater level of knowledge, that did not necessarily translate into healthier sexual practices. Our study findings are consistent with previous research suggesting that (i) students may have inadequate knowledge about STIs [31,32]; and (ii) other studies report that while students may possess greater knowledge, they may encounter difficulties in applying it to healthy practices [33].

While students had a good understanding of HIV transmission, their knowledge of other STIs was rather weak, both in terms of modes of transmission, prevention methods, as well as risky behaviors. Our study's findings differed from previous studies conducted among students in Malaysia, Italy, and Serbia [18,25,33], which reported higher levels of knowledge regarding STIs/HIV/AIDS. Most participants (61.8%) identified condoms as the main protective method against STIs, but their knowledge of other protective methods was limited.

A significant number of participants did not perceive themselves to be at risk of contracting an STI, despite engaging in high-risk sexual behaviors such as casual intercourse, having multiple sexual partners, and engaging in sexual intercourse without using a condom. These risky behaviors have been observed in other studies as well [34,35]. Additionally, only students perceived themselves as being at a higher risk of contracting an STI. Only 28.6% of participants (40.0% male and 30.4% female) knew that a person should be tested to confirm their infection status, similar to some other studies [18,36-40].

In terms of the source of information in relation to STIs, obtaining it from the school was the most common source (22.7%), which was consistent with another similar national study [41], an indication that this finding could be attributed to the inclusion of sexual education in the Albanian school curricula [11,12]. Additionally, similar studies conducted in other countries including Serbia (31,42), China [43], and Turkey [44] have reported comparable results. According to our survey, a small number of students (2.2%) reported receiving information about STIs from their families. These findings suggest that discussing sexuality issues within families is still considered a taboo in Albania.

Our study found that 72.2% of participants reported already being sexually active, with a significantly higher proportion of boys (93.0%) than girls (62.8%). In accordance with Albanian law, about a third of the participants (29.3%) had their first sexual experience at the legal age of 18. [45]. Our research also revealed that 5.9% of students had their first sexual intercourse at the age of 14, which is lower than the age reported by a previous study in Albania [46]. This suggests a tendency of young people to engage in sexual relations at an earlier age; a finding that is also supported elsewhere [47].

Additionally, the evidence suggests that individuals who engaged in sexual activity before the age of 18 were more likely to participate in risky sexual behavior and have multiple partners.

A significant proportion of students (30.3%) reported having multiple sexual partners. More males (66.0%) than females (14.2%) reported having multiple sexual partners, which is consistent with previous studies [22,47]. Consistent with previous studies, our study found a lower prevalence of condom use among male students. Specifically, over half of the students reported either to have never used a condom (29.3%) or used it occasionally (30.9%). In addition, only 12% of students reported the use of a condom all the time when having intercourse. A previous study conducted in Albania (46) reported a much higher prevalence of condom use (51.0%) compared to our findings, while another more recent study reported a lower prevalence of condom use [7]. Our survey found that the main reason for not using a condom was having only one sexual partner (21.3%), and that was reported more often by boys (26.9%) than girls (6.2%). Other reasons for not using condoms were: decreased sexual pleasure (13.8%), a healthy partner (3.0%), they don't know how to use a condom (1.7%), not having a condom during sexual intercourse (10.2%), and price (2.5%).

Furthermore, a significant proportion of students were unaware of where they could obtain condoms and most of them preferred to purchase them from pharmacies and supermarkets. Family planning services have been available in Albania since 1992 and since 1996, condoms have been available free of charge across health centers throughout the country [48]. These findings highlight the importance of informative programs for young people. This has also been emphasized by previous national studies conducted in different periods [5-7].

Finally, the study has found that a considerable proportion of students (80.3%) have not undergone preventive testing for STIs, while an even higher proportion (85.4%) have not been tested for HIV. An overwhelming majority of female students (93.2%) have not undergone a Pap test. These findings are concerning given that many STIs are known to be asymptomatic, and this study found that a considerable

number of students reported having multiple sexual partners, coupled with a low prevalence of condom use. Correct and regular condom use, timely screening, and early diagnosis of STIs are known to offer the best chance for prevention and protection against STIs [1]. International and national guidelines suggest that routine screening for sexually active adolescents and young adults may also be beneficial in diagnosing and treating STIs early.

Conclusions

Our study found that the level of knowledge about STIs and their prevention among Albanian students is generally low, except for HIV infection. Prevalent risky sexual behaviors, such as inconsistent condom use and having multiple sexual partners, are of significant concern, particularly among male students. We believe that STI prevention practices are an area of concern that requires additional attention nationally. The study findings suggest that there is room for improvement in sexual health prevention programs provided in our schools and that it may be beneficial to implement educational programs that raise awareness of STIs, their risks, and various preventive measures among university students and even at an earlier stage of the educational curricula. It is suggested that sexual health education should be provided by health experts, as opposed to students receiving information from potentially unreliable sources such as the Internet or social media.

Based on the results of our study, it is necessary that sexual health education also include and emphasize the importance of regular STI screening as a preventive and protective measure. It is worth noting that the data collected in our study were self-reported and may not accurately reflect STI concerns at a national level. Nevertheless, we believe that this information can be used as a baseline and can still be valuable in supporting STI preventive interventions and highlighting the need to design new protocols, policies, and programs at various levels in Albania as well as other countries that face similar issues.

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Authors' contributions

L Merkuri: designed the study and wrote the manuscript. E Qorri: coordinated the observational study and contributed to the data collection aspect. Xh Rizaj: also contributed to data collection and revised the initial manuscript. B Emir: conducted the statistical analysis. L Shapo: provided epidemiological support and offered suggestions while critically revising the final version of the manuscript. All authors reviewed and approved the final version of the manuscript.

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Conflict of interests

No conflict of interests is declared.

References

1. World Health Organization (2023) WHO fact sheet 2023: sexual transmitted infection. Available: https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis). Accessed: 7 December 2023.
2. World Health Organization (2023) WHO health topics: sexually transmitted infections (STIs). Available: https://www.who.int/health-topics/sexually-transmitted-infections. Accessed: 7 December 2023.
3. World Health Organization (2023) The global health observatory. Global and regional STI estimates. Available: https://www.who.int/data/gho/data/themes/topics/global-and-regional-sti-estimates. Accessed: 11 December 2023.
4. Mitjà O, Padovese V, Folch C, Rossoni I, Marks M, Rodríguez I Arias MA, Telenti A, Ciuffi A, Blondeel K, Mårdh O, Casabona J (2023) Epidemiology and determinants of reemerging bacterial sexually transmitted infections (STIs) and emerging STIs in Europe. Lancet Reg Health Eur 34: 100742. doi: 10.1016/j.lanepe.2023.100742.
5. Ciccarese G, Drago F, Herzum A, Rebora A, Cogorno L, Zangrillo F, Parodi A (2020) Knowledge of sexually transmitted infections and risky behaviors among undergraduate students in Tirana, Albania: comparison with Italian students. J Prev Med Hyg 61: E3–E5. doi: 10.15167/2421-4248/jpmh2020.61.1.1413.
6. Kamberi F, Muhaj E (2019) Knowledge and health beliefs of nursing students toward human papilloma virus and vaccine Use. Asian Pac J Cancer 4: 27-32. doi: 10.31557/apjcc.2019.4.2.27-32.
7. Lalo R, Theodhosi G, Kamberi F, Stramarko Y (2015) The perceptions of Vlora university students about sexual behavior and the risk of HIV infection. Eur Sci J 11.

8. Barbaric J, Kuchukhidze G, Seguy N, Vovc E, Babovic MJT, Wi TE, Low-Beer D, Bozicevic I (2022) Surveillance and epidemiology of syphilis, gonorrhoea and chlamydia in the non-European Union countries of the World Health Organization European Region, 2015 to 2020. Euro Surveill 27: 2100197. doi: 10.2807/1560-7917.ES.2022.27.8.2100197.
9. Institute of Statistics (INSTAT) (2018) Women and men in Albania: 2018, Tirana, Albania. Available: http://instat.gov.al/media/4349/burra-dhe-gra-ne-shqiperi-2018.pdf. Accessed: 12 December 2023.
10. Albania Institute of Public Health (2021) Epidemiological situation of HIV/AIDS, November 2019. Bulletin no. 4, 2021. Available: http://www.ishp.gov.al/wp-content/uploads/2021/12/buletini-4-2021-full.pdf. Accessed: 14 December 2023. [Article in Albanian].
11. UNFPA, Albania (2019) Comprehensive sex education. Available: https://albania.unfpa.org/sites/default/files/pub-pdf/cfare_ka_ndryshuar-edukata_seksuale_gjitheperfshirese.pdf. Accessed: 19 December 2023. [Article in Albanian].
12. World Health Organization, Regional Office for Europe (2018) Sexuality education in Europe and Central Asia: state of the art and recent developments. An overview of 25 countries (2018). Available*:* https://who-sandbox.squiz.cloud/en/health-topics/Life-stages/sexual-and-reproductive-health/publications/2018/sexuality-education-in-europe-and-central-asia-state-of-the-art-and-recent-developments.-an-overview-of-25-countries-2018. Accessed: 26 December 2023.
13. UNESCO (2018) International technical guidance on sexuality education. An evidence-informed approach. Available*:* https://cdn.who.int/media/docs/default-source/reproductive-health/sexual-health/international-technical-guidance-on-sexuality-education.pdf?sfvrsn=10113efc_29&download=true. Accessed: 11 January 2024.
14. Morales A, Tomczyk S, Orgilés M, Espada JP (2021) Who are at higher sexual risk? Latent class analysis of behavioral intentions among Spanish adolescents. Int J Environ Res Public Health 18: 1855.
15. Reis LF, Surkan PJ, Atkins K, Garcia-Cerde R, Sanchez ZM (2024) Risk factors for early sexual intercourse in adolescence: a systematic review of cohort studies. Child Psychiatry Hum Dev 55: 1677–1690. doi: 10.1007/s10578-023-01519-8
16. Sleiman V, Obeid S, Sacre H, Salameh P, Hallit S, Hallit R (2023) Knowledge, attitudes, and practices of Lebanese university students related to sexually transmitted diseases: a cross-sectional study. Croat Med J 64:213–221. doi: 10.3325/cmj.2023.64.213.
17. Cegolon L, Bortolotto M, Bellizzi S, Cegolon A, Bubbico L, Pichierri G, Mastrangelo G, Xodo C (2022) A survey on knowledge, prevention, and occurrence of sexually transmitted infections among freshmen from four Italian universities. Int J Environ Res Public Health 19: 897. doi: 10.3390/ijerph19020897.
18. Folasayo AT, Oluwasegun AJ, Samsudin S, Saudi SN, Osman M, Hamat RA (2017) Assessing the knowledge level, attitudes, risky behaviors and preventive practices on sexually transmitted diseases among university students as future healthcare providers in the central zone of Malaysia: a cross-sectional study. Int J Environ Res Public Health 14: 159. doi: 10.3390/ijerph14020159.
19. Rodrigues DL (2023) Focusing on safety or pleasure determines condom use intentions differently depending on condom availability and STI risk. Int J Sex Health 35: 341-351.
20. Vives N, Garcia de Olalla P, González V, Barrabeig I, Clotet L, Danés M, Borrell N, Casabona J (2020) Recent trends in sexually transmitted infections among adolescents, Catalonia, Spain, 2012–2017. Int J STD AIDS 31: 1047-1054.
21. Ballester-Arnal R, Giménez-García C, Ruiz-Palomino E, Castro-Calvo J, Gil-Llario MD (2022) A trend analysis of condom use in Spanish young people over the two past decades, 1999–2020. AIDS Behav 26: 2299-2313.
22. World Health Organization (2022) Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022-2030. Geneva: World Health Organization. Available: https://www.who.int/publications/i/item/9789240053779. Accessed: 23 January 2024.
23. World Health Organization (2008) Advocacy, communication and social mobilization for TB control: a guide to developing knowledge, attitude and practice surveys. Geneva: World Health Organization. Available: https://www.who.int/publications/i/item/9789241596176. Accessed: 23 January 2024.
24. European Commission, Eurostat (2020) European Health Interview Survey (EHIS wave 3) – Methodological manual – 2020 edition (re-edition). Publications Office. Available: https://data.europa.eu/doi/10.2785/135920. Accessed: 25 January 2024.
25. Visalli G, Cosenza B, Mazzù F, Bertuccio MP, Spataro P, Pellicanò GF, DI Pietro A, Picerno I, Facciolà A (2019) Knowledge of sexually transmitted infections and risky behaviours: a survey among high school and university students. J Prev Med Hyg 60: E84–E92. doi: 10.15167/2421-4248/jpmh2019.60.2.1079.
26. Drago F, Ciccarese G, Zangrillo F, Gasparini G, Cogorno L, Riva S, Javor S, Cozzani E, Broccolo F, Esposito S, Parodi A (2016) A survey of current knowledge on sexually transmitted diseases and sexual behaviour in Italian adolescents. Int J Environ Res Public Health 13: 422. doi: 10.3390/ijerph13040422.
27. World Medical Association (2013) World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA 310: 2191–2194. doi: 10.1001/jama.2013.281053.
28. Althubaiti A (2016) Information bias in health research: definition, pitfalls, and adjustment methods. J Multidiscip Healthc 9: 211–217. doi: 10.2147/JMDH.S104807.
29. Brener ND, Billy JO, Grady WR (2003) Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: evidence from scientific literature. J Adolesc Health 33: 436–457. doi: 10.1016/s1054-139x(03)00052-1.
30. Subotic S, Vukomanovic V, Djukic S, Radevic S, Radovanovic S, Radulovic D, Boricic K, Andjelkovic J, Tosic Pajic J, Simic Vukomanovic I (2022) Differences regarding knowledge of sexually transmitted infections, sexual habits, and behavior between university students of medical and nonmedical professions in Serbia. Front Public Health 9: 692461. doi: 10.3389/fpubh.2021.692461.
31. Yi S, Te V, Pengpid S, Peltzer K (2018) Social and behavioural factors associated with risky sexual behaviours among university students in nine ASEAN countries: a multi-country

cross-sectional study. SAHARA J 15: 71–79. doi: 10.1080/17290376.2018.1503967.
32. Kuete M, Huang Q, Rashid A, Ma XL, Yuan H, Escalera Antezana JP, Yeltay R, Rao M, He Q, Xiong C, Zhang H (2016) Differences in knowledge, attitude, and behavior towards HIV/AIDS and sexually transmitted infections between sexually active foreign and Chinese medical students. Biomed Res Int 2016: 4524862. doi: 10.1155/2016/4524862.
33. Subbarao NT, Akhilesh A (2017) Knowledge and attitude about sexually transmitted infections other than HIV among college students. Indian J Sex Transm Dis AIDS 38: 10–14. doi: 10.4103/0253-7184.196888.
33. Soleymani S, Abdul Rahman H, Lekhraj R, Mohd Zulkefli NA, Matinnia N (2015) A cross-sectional study to explore postgraduate students' understanding of and beliefs about sexual and reproductive health in a public university, Malaysia. Reprod Health 12: 77. doi: 10.1186/s12978-015-0070-3.
34. Choudhary HA, Ali RA, Altaf S (2015) Knowledge, behaviour and attitudes regarding HIV/AIDS among undergraduate students in an Irish university. Int J Surg Med 1: 58-66. doi: 10.5455/ijsm.20150814034728.
35. Santangelo OE, Provenzano S, Firenze A (2018) Knowledge of sexually transmitted infections and sex-at-risk among Italian students of health professions. Data from a one-month survey. Ann Ist Super Sanita 54: 40–48. doi: 10.4415/ANN_18_01_09.
36. Oharume IM (2020) Knowledge, sexual behaviours and risk perception of sexually transmitted infections among students of the polytechnic, Ibadan, Oyo state. Afr Health Sci 20: 39–44. doi: 10.4314/ahs.v20i1.7.
37. Sham F, Yaakub S, Fawati FN, Fatinni SJ, Azamuddin AA (2020) Knowledge, attitudes, risk behaviours and preventive practices on sexually transmitted diseases among students in a public university in Malaysia. Malays J Public Health Med 20: 100–108.
38. Mokgatle MM, Madiba S, Cele L (2021) A comparative analysis of risky sexual behaviors, self-reported sexually transmitted infections, knowledge of symptoms and partner notification practices among male and female university students in Pretoria, South Africa. Int J Environ Res Public Health 18: 5660. doi: 10.3390/ijerph18115660.
39. Abdul R, Gerritsen AAM, Mwangome M, Geubbels E (2018) Prevalence of self-reported symptoms of sexually transmitted infections, knowledge and sexual behaviour among youth in semi-rural Tanzania in the period of adolescent friendly health services strategy implementation. BMC Infect Dis 18: 229. doi: 10.1186/s12879-018-3138-1.
40. Amu EO, Adegun PT (2015) Awareness and knowledge of sexually transmitted infections among secondary school adolescents in Ado Ekiti, South Western Nigeria. J Sex Transm Dis 2015: 260126. doi: 10.1155/2015/260126.
41. Ciccarese G, Drago F, Herzum A, Rebora A, Cogorno L, Zangrillo F, Parodi A (2020) Knowledge of sexually transmitted infections and risky behaviors among undergraduate students in Tirana, Albania: comparison with Italian students. J Prev Med Hyg 61: E3–E5. doi: 10.15167/2421-4248/jpmh2020.61.1.1413.
42. Subotic S, Vukomanovic V, Djukic S, Radevic S, Radovanovic S, Radulovic D, Boricic K, Andjelkovic J, Tosic Pajic J, Simic Vukomanovic I (2022) Differences regarding knowledge of sexually transmitted infections, sexual habits, and behavior between university students of medical and nonmedical professions in Serbia. Front Public Health 9: 692461. doi: 10.3389/fpubh.2021.692461.
43. Li C, Cheng Z, Wu T, Liang X, Gaoshan J, Li L, Hong P, Tang K (2017) The relationships of school-based sexuality education, sexual knowledge and sexual behaviors: a study of 18,000 Chinese college students. Reprod Health 14: 103. doi: 10.1186/s12978-017-0368-4.
44. Ekşi Z, Kömürcü N (2014) Knowledge level of university students about sexually transmitted diseases. Procedia Soc Behav Sci 122: 465–72. doi: 10.1016/j.sbspro.2014.01.1374.
45. Center for Official Publications, Albania (1995) Penal code of the republic of Albania. Approved by Law No. 7895, dated 27.1.1995. Available at: https://www.drejtesia.gov.al/wp-content/uploads/2017/11/Kodi_Penal-1.pdf. Accessed 31 January 2024. [Article in Albanian]
46. Burazeri G, Roshi E, Tavanxhi N, Orhani Z, Malo A (2003) Sexual practices of undergraduate students in Tirana, Albania. Croat Med J 44: 80–85.
47. Du X, Zhang L, Luo H, (2021) Factors associated with risk sexual behaviours of HIV/STDs infection among university students in Henan, China: a cross-sectional study. Reprod Health 18: 172. doi: 10.1186/s12978-021-01219-3.
48. Albanian Ministry of Health and Social Protection (1995) Law No. 8045, 07.12.1995 on termination of pregnancy. Available: https://shendetesia.gov.al/wp-content/uploads/2018/06/8-1.pdf. Accessed: 31 January 2024. [Article in Albanian]