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KNOWLEDGE, ATTITUDES AND PRACTICES ON SEXUALLY TRANSMITTED INFECTIONS AMONG UNIVERSITY STUDENTS IN ALBANIA

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Ключові слова: *статеві інфекції, студенти університетів, знання про інфекції, що передаються статевим шляхом, контрацепція, використання презервативів, Албанія, сексуальна освіта*

Abstract. Knowledge, attitudes and practices on sexually transmitted infections among university students in Albania. Bimi Indrit, Bara Silvana, Stroni Gentian, Ramosaçaj Ergys, Bimi Daniela. *Sexually transmitted infections (STIs) continue to pose a significant global health burden, particularly among young adults aged 18-24 years, including university students. These infections can lead to serious reproductive and sexual health complications, yet knowledge gaps, inconsistent protective behaviors, and limited access to health education and services persist in this demographic. University students are at increased risk due to a combination of behavioral, cultural, and systemic factors. This study aimed to evaluate STI-related knowledge, attitudes and practices among health-science students enrolled at the University of Medicine, Tirana (FTMS/FMD) and University "Aleksandër Moisiu" of Durrës, Albania. A descriptive cross-sectional survey was carried out in May 2025 among 475 students enrolled in Bachelor and Master-level programs at two universities: The University of Medicine in Tirana and University "Aleksandër Moisiu" of Durrës. Participants completed a psychometrically validated self-administered questionnaire. The tool measured multiple dimensions including knowledge about STIs transmission and prevention, attitudes toward condom use and counseling, and self-reported sexual practices. Descriptive statistics and chi-square tests were used to analyze the data, while thematic analysis was applied to open-ended responses. Findings revealed that while awareness was high – 83.4% of students recognized that STIs may cause female infertility and 74.1% identified male infertility risk – only 26.3% reported using any form of contraception and condom use was reported by only a small minority of students. A large proportion of both female (58.9%) and male (60.6%) students did not use any birth control method. The data also indicated a strong gender disparity in responsibility and knowledge related to reproductive risks. A notable 6.6% of female respondents reported a history of abortion, highlighting possible consequences of inconsistent contraceptive use and limited access to sexual health counseling. In conclusion, although general awareness regarding STIs is present, significant gaps in protective practices remain. There is a critical need for targeted, gender-sensitive, and skills-based sexual health education programs that address the knowledge-behavior disconnect and promote youth-friendly services. These efforts must be embedded within university systems to foster a supportive environment for behavioral change and improved reproductive health outcomes.*

Реферат. Знання, ставлення та практики щодо інфекцій, що передаються статевим шляхом, серед студентів університетів Албанії. Бімі Індріт, Бара Сільвана, Строні Ґентіан, Рамосачай Ерґіс, Бімі Даніела. *Статеві інфекції продовжують становити значне глобальне навантаження на систему охорони здоров'я, особливо серед молодих людей віком 18-24 років, включно зі студентами університетів. Ці інфекції можуть призводити до серйозних ускладнень репродуктивного та сексуального здоров'я, однак серед цієї демографічної*

групи все ще зберігаються прогалини в знаннях, непослідовна поведінка щодо захисту та обмежений доступ до освіти й медичних послуг. Студенти університетів перебувають у зоні підвищеного ризику через поєднання поведінкових, культурних та системних факторів. Це дослідження було спрямоване на оцінювання рівня знань, ставлення та практик, пов'язаних зі статевими інфекціями, серед студентів університетів Албанії. У травні 2025 року було проведено описове поперечне опитування серед 475 студентів бакалаврату та магістратури двох університетів: Університету медицини в Тирані та університету «Александр Мойсіу» в Дурресі. Учасники заповнили психометрично перевірену анкету для самостійного заповнення. Інструмент оцінював декілька вимірів, зокрема знання щодо шляхів передавання та профілактики інфекцій, ставлення до використання презервативів і консультування, а також самооцінені сексуальні практики. Для аналізу даних використовувалися описова статистика та χ^2-тест, а для відкритих запитань – тематичний аналіз. Результати показали, що хоча рівень обізнаності був високим – 83,4% студентів визнали, що статеві інфекції можуть спричиняти безпліддя в жінок, а 74,1% ідентифікували ризик безпліддя в чоловіків – лише 26,3% повідомили про використання будь-якого виду контрацепції, і про використання презервативів повідомляла лише невелика частина студентів. Значна частка як жінок (58,9%), так і чоловіків (60,6%) не застосовувала жодних засобів контрацепції. Дані також свідчать про суттєву гендерну нерівність у відповідальності та знаннях, пов'язаних з репродуктивними ризиками. Привертає увагу, що 6,6% жінок-респонденток повідомили про історію абортів, що підкреслює можливі наслідки непослідовного використання контрацепції та обмеженого доступу до консультування з питань сексуального здоров'я. У підсумку, хоча загальна обізнаність щодо статевих інфекцій є достатньою, все ще залишаються значні прогалини в захисній поведінці. Існує нагальна потреба у впровадженні цільових, гендерно чутливих та навичкоорієнтованих освітніх програм із сексуального здоров'я, які усувають розрив між знаннями й поведінкою та сприяють розвитку орієнтованих на молодь медичних послуг. Ці заходи мають бути інтегровані в університетські системи, щоб створити підтримувальне середовище для зміни поведінки та покращення результатів у сфері репродуктивного здоров'я.

Sexually transmitted infections (STIs) remain a major global public health issue, disproportionately affecting individuals aged 15-24 years. Globally, more than 1 million STIs are acquired every day, with many infections asymptomatic and therefore left untreated [1]. This asymptomatic nature makes surveillance and prevention particularly challenging, especially in younger populations who may not perceive themselves to be at risk. STIs are associated with a wide array of negative health outcomes, including infertility, pelvic inflammatory disease, cervical cancer, ectopic pregnancies, adverse pregnancy outcomes, and an increased risk of HIV acquisition [2, 3]. The WHO estimates that more than 374 million new infections occur annually with one of the four most common STIs: chlamydia, gonorrhea, syphilis, and trichomoniasis [1]. Such infections can have both immediate and long-term consequences for reproductive and sexual health, often compounding socio-economic and gender-based disparities. University students, who fall squarely within this vulnerable age group, are particularly at risk due to several compounding behavioral and structural factors. The university years often mark a period of sexual debut or increased sexual activity, exploration of intimate relationships, and, in some cases, experimentation with high-risk behaviors. Inconsistent condom use, limited knowledge about STIs, multiple or concurrent sexual partnerships, and delays in seeking medical care contribute to elevated vulnerability in this group [2, 4]. Moreover, university students may be transitioning into independent living for the first time and may lack access to comprehensive healthcare or may be unaware of available services.

In many low- and middle-income countries, including Albania, university curricula largely lack formal sexual health education tailored to the needs and realities of young adults [5]. Health promotion in these settings often focuses narrowly on reproductive health or HIV, leaving out broader STI prevention topics, risk assessment skills, and condom negotiation techniques. Consequently, students frequently rely on informal, fragmented, or misleading sources of information – such as peers, unmoderated internet content, and social media – which may contribute to misinformation, fear, and stigma. Cultural taboos surrounding premarital sex, especially for women, and the framing of sexual health as a moral issue rather than a public health concern further inhibit open dialogue [3, 4].

Stigma and shame remain powerful forces in discouraging students from seeking timely, confidential advice or testing. Many fear judgments from healthcare professionals, breach of confidentiality, or recognition by family members in small communities. These fears are particularly pronounced in tightly-knit Albanian social structures, where social reputation can strongly influence behavior. Structural limitations, such as the lack of youth-friendly or campus-based sexual health services, exacerbate these barriers. In many cases, students may prefer to delay care, self-diagnose via the internet, or seek informal advice from peers – actions that may worsen outcomes or delay treatment [6, 7].

Despite moderate to high levels of general awareness about STIs – such as knowledge of modes of transmission or complications – numerous international and regional studies consistently report a "knowledge-behavior gap" [8].

Previous Albanian studies among undergraduate students have already shown that STI knowledge and attitudes are strongly influenced by gender, parental education and rural–urban origin, and that risk behaviours such as inconsistent condom use remain common despite adequate awareness levels [9]. Burazeri and colleagues documented large gender gaps in STI knowledge and condom use among Tirana university students in the early 2000s, while subsequent work highlighted persistent information gaps and suboptimal use of formal sexual health services [10, 11]. More recently, Merkuri and co-authors reported that Albanian university students continue to show limited STI knowledge and engage in risky sexual behaviours at national level, underscoring the need for coordinated sexual-health education and screening programmes [12]. However, these studies either focused on general undergraduate populations, single institutions or broader sexual-health indicators, with less emphasis on health-science students and the gendered patterns of infertility awareness and contraceptive practices. Unlike previous Albanian surveys that examined general undergraduate populations or broad sexual-health indicators, this study focuses specifically on health-science students and provides a more detailed assessment of gendered infertility awareness (female and male), method-specific contraceptive behavior, and institutional variation in condom use using a psychometrically validated knowledge, attitudes and practices (KAP) instrument.

Therefore, this study aimed to assess the level of knowledge, attitudes and practices regarding sexually transmitted infections among nursing and dentistry students enrolled at two major Albanian universities, with a specific focus on gender- and institution-related differences in infertility awareness, contraceptive use and condom practices. By focusing on health-science students, using a psychometrically validated KAP instrument and including detailed contraceptive-behaviour profiles, this study provides updated and more granular evidence to inform targeted sexual-health education and youth-friendly services within Albanian universities.

MATERIALS AND METHODS OF RESEARCH

The study utilized a descriptive cross-sectional approach grounded in a public health framework. The primary focus was on quantitative assessment, but qualitative insights were drawn from students' open responses regarding sources of advice. This mixed-method descriptive orientation enabled both breadth and contextual interpretation. The rationale for this approach stemmed from the need for both prevalence estimates and behavioral insights.

The research team comprised public health and clinical education experts with extensive experience in survey design, health behavior research, and STI prevention. While this contributed to rigorous instrument design and contextual interpretation, it may also have influenced the focus areas within the questionnaire and prioritization of clinical over sociocultural determinants.

The study was conducted across two universities in Albania: the Faculty of Technical Medical Sciences (FTMS) and the Faculty of Medicine and Dentistry (FMD) of the University of Medicine, Tirana, and University "Aleksandër Moisiu" of Durrës (UAMD). These institutions were selected for their diverse student populations, urban-rural representation, and academic relevance to health sciences.

A convenience sampling strategy was adopted. Students from all academic years and cycles were invited. Inclusion criteria focused on enrollment in health sciences or other sciences programs. No formal sampling saturation criterion was used due to the quantitative orientation. However, heterogeneity across institutions and academic years was maintained to capture variance in KAP.

Data were collected over three weeks in May 2025 using a structured self-administered paper questionnaire. The instrument underwent rigorous psychometric validation prior to implementation, ensuring both reliability and validity for use within the Albanian university context. Validation included content validity, internal consistency, and test–retest reliability. A panel of five public health and medical education experts evaluated all items for clarity, relevance, and cultural appropriateness. The questionnaire structure and domains were informed by established KAP survey methodology in public health [13]. The pilot study was conducted on 50 students from the same target population to determine the instrument's psychometric strength.

Cronbach's alpha coefficients were calculated for all major domains of the questionnaire: STI knowledge (α=0.87), attitudes toward prevention (α=0.82), and sexual practices (α=0.79), confirming strong internal reliability across constructs. Test–retest reliability performed after a two-week interval yielded an intraclass correlation coefficient (ICC) of 0.84 ($p<0.001$), demonstrating temporal stability. Interpretation of internal-consistency and reliability indices followed standard guidance on Cronbach's alpha and intraclass correlation coefficients [14, 15]. Item-total correlations exceeded

0.40 for all items, and no significant modifications were required post-validation.

The final instrument contained both closed-ended and open-ended questions covering several dimensions: (1) sociodemographic characteristics (age, gender, residence, academic year, marital status, and university), (2) knowledge of STI transmission routes, complications, and prevention, (3) attitudes toward condom use, sexual responsibility, and counseling-seeking behavior, (4) self-reported practices regarding contraception, condom use, and STI testing, and (5) preferred and trusted sources of sexual health information. Open-ended questions were intentionally designed to capture contextual details such as perceived barriers to condom use, social stigma, and trust in healthcare professionals.

The hybrid structure of the questionnaire allowed both quantitative analysis of frequency distributions and qualitative categorization of emerging themes from students' narratives. This methodological combination ensured a nuanced and comprehensive assessment of STI-related knowledge, attitudes, and practices among Albanian university students.

This research adhered to international ethical guidelines for studies involving human subjects. The study protocol was reviewed and approved by the Faculty of Dentistry, Medical University of Tirana, Albania (protocol No. 221/1, date 19.05.2025); faculty of Technical Medical Sciences, Medical University of Tirana, Albania (protocol No. 422/1, date 26.05.2025); University "Aleksandër Moisiu", Durrës, Albania (protocol No. 1197, date 28.04.2025). Participants were informed of the study objectives, assured of confidentiality, and provided informed consent prior to data collection. All data were anonymized prior to analysis, and no identifying information was recorded. The study conforms to the principles outlined in the 2013 revision of the Declaration of Helsinki.

Data were analysed using R, version 4.4.1 (R Core Team, R Foundation for Statistical Computing, Vienna, Austria) [16]. R is a free, open-source environment for statistical computing and graphics and therefore does not require an institutional licence number. All quantitative data were checked for completeness, and all records were anonymised prior to analysis. Descriptive statistics (frequencies, percentages, means and standard deviations) were used to summarise sociodemographic variables and key outcomes related to STI knowledge, attitudes and practices. Inferential analyses relied on chi-square (χ^2) tests to examine associations between categorical variables (e.g. gender, year of study, university affiliation) and STI-related behaviours such as condom use, contraception and information sources. All statistical tests were two-tailed, and a p-value <0.05 was considered statistically significant.

Open-ended responses were analysed using inductive thematic analysis following the six-phase framework proposed by Braun and Clarke [17]. Two researchers independently coded the data, with discrepancies resolved through discussion until consensus was reached.

Trustworthiness of the findings was ensured through a multi-step methodological approach that included prior psychometric validation of the instrument, expert content review, and pilot testing. Data entry followed strict quality assurance protocols, and qualitative coding was triangulated across researchers to ensure consistency and minimize interpretive bias.

RESULTS AND DISCUSSION

A total of 475 students participated in this study, with a mean age of 21.1±5.9 years. The majority were enrolled in Bachelor and Master nursing programs and other fields across two universities in Albania.

Table 1 provides an overview of the sociodemographic characteristics of the participants, including age, gender, university, study program and year, marital status, and place of residence.

In this cohort, awareness that STIs can lead to infertility was high but uneven by gender. Overall, 83.4% of students were aware that STIs could cause infertility in women. Knowledge was highest among third-year students (96.7%) and second-year students (81.6%), but notably declined in fifth-year students (72.7%). Similarly, 74.1% recognized the link between STIs and male infertility.

Table 2 shows the distribution of birth control methods used by female and male respondents, highlighting notable gender differences in contraceptive behavior. Only 16.2% of all respondents reported a condom-based method (condom or partner's condom use), while 26.3% reported using any contraceptive method.

In cross-tabulations by institution, awareness that STIs can cause infertility in women was high at all three study sites and did not differ significantly (FTMS 81.7%, UAMD 86.6%, FMD 77.8%; p=0.311). Recognition that STIs can cause infertility in men was 69.1% at FTMS, 82.7% at UAMD and 83.3% at FMD, with a statistically significant difference between institutions (p=0.003). Self-reported condom use by institution was 37.8% at FTMS, 50.3% at UAMD and 77.8% at FMD (p<0.001).

Table 1

Sociodemographic characteristics of participants

Variable	Frequency	%
Gender		
Female	**409**	**86.1**
Male	**66**	**13.9**
Age M (SD)	**21.1±5.9**	
Age group		
18-24	**438**	**92.2**
25-34	**24**	**5.1**
35+	**13**	**2.7**
Civil status		
Single	**410**	**86.3**
Married	**59**	**12.4**
Divorced	**4**	**0.8**
Widower	**2**	**0.4**
Residence		
Urban	**399**	**84**
Rural	**76**	**16**
University		
FTMS	**278**	**58.5**
UAMD	**179**	**37.7**
FMD	**18**	**3.8**
Academic year		
Year 1	**307**	**64.6**
Year 2	**84**	**17.7**
Year 4	**37**	**7.8**
Year 3	**35**	**7.4**
Year 5	**12**	**2.5**

When specifying birth control methods, condoms were reported by 20.5% of FTMS students, 27.4% of UAMD students and 50.0% of FMD students.

Reporting of no birth control method was 50.0% at FTMS, 51.4% at UAMD and 38.9% at FMD. Natural methods were reported by 14.1% of FTMS students, 28.5% of UAMD students and 16.7% of FMD students.

Use of hormonal methods was low in all institutions (oral contraceptives 5.6-8.6%), and IUDs and injectables were reported only sporadically. Differences in the use of any birth control

method across institutions were not statistically significant (p=0.835).

This cross-sectional KAP survey among nursing and dentistry students in two Albanian universities confirms that high awareness of STI-related complications co-exists with low and gender-skewed uptake of effective contraceptive methods and condoms. Knowledge that STIs can cause infertility was high, particularly for female infertility, but more than half of students reported using no contraception and only about one quarter used any method at all. Condom use varied significantly across institutions and was predominantly reported by male students, while a non-trivial proportion of female students reported a history of abortion. Taken together, these results indicate a persistent knowledge–behaviour gap and a gendered distribution of responsibility for protection. Our findings are broadly consistent with earlier Albanian studies by Burazeri and colleagues and by Merkuri et al., which also reported high awareness co-existing with inconsistent condom use and gendered patterns of responsibility for protection among university students [9-12]. However, by focusing specifically on nursing and dentistry students and explicitly assessing awareness of both female and male infertility, the present study adds a more granular, health-science-oriented perspective that was not covered in those earlier surveys.

Table 2

Reported methods of contraception by Gender

Method of contraception	Female n (%)	Male n (%)
No method	241 (58.9)	40 (60.6)
Condom	0	11 (16.7)
IUD	1 (0.2)	0
Injection	1 (0.2)	0
Natural methods	32 (7.8)	4 (6.1)
Oral contraceptives	5 (1.2)	1 (1.5)
Partner uses condom	66 (16.1)	0
Unspecified method	2 (0.5)	0
Spermicide	1 (0.2)	1 (1.5)

The data reveal distinct patterns in contraceptive method use between female and male respondents. Despite high knowledge levels, actual contraceptive use remained limited: only 26.3% of students reported using any form of contraception. A substantial proportion of both females (58.9%) and males (60.6%) reported not using any form of birth control. Among males, condom use was the most commonly reported method (16.7%), while no female respondent reported personal condom use, which is expected given that condoms are typically male-controlled methods. However, 16.1% of females indicated that their partner uses a condom, highlighting reliance on male partners for contraceptive protection [6]. Natural methods were used by 7.8% of females and 6.1% of males, while oral contraceptive use was reported by a small percentage of both genders (1.2% of females and 1.5% of males). Very few participants reported use of long-acting methods such as IUDs (0.2% of females) or injections (0.2% of females). The use of spermicides was reported by 0.2% of females and 1.5% of males. A small fraction of females (0.5%) reported using unspecified methods. Others did not respond to this question.

Looking at patterns by academic year, the highest contraceptive usage was reported in second-year students (38.2%), while third-year students – despite showing the highest knowledge – had the lowest usage rate (20.0%). First-year students fell in the middle, with 34.1% reporting use. No significant association was found between knowledge about STI-related infertility in females and contraceptive use across years of study (p=0.278), indicating that awareness alone does not predict safer sexual behavior – a pattern consistent with global literature on the knowledge–behaviour gap [8]. A history of

abortion was reported by 6.6% of female respondents. For a largely student population, this figure is consistent with patterns of inconsistent or suboptimal contraceptive use and suggests barriers in access, affordability, or confidential counseling for effective methods and emergency contraception. Given likely social desirability bias and stigma around pregnancy termination, the true prevalence may be underestimated. Together, these findings reinforce that knowledge does not reliably translate into protective behavior and that gaps are particularly salient on the male side of risk recognition.

Multiple international studies have documented a gap between awareness of STI-related risks and consistent preventive behavior among university students. The finding that knowledge of STI-related infertility is relatively high, yet consistent condom or contraceptive use remains limited, aligns with global patterns. For instance, a recent review by Lederer et al. [18] reported that, across multiple college settings, high awareness of STI risks frequently coexisted with inconsistent condom use, including during the most recent sexual intercourse. This disconnect – often termed the "knowledge-behaviour gap" – has also been emphasized in recent reviews and multi-site studies [8, 18, 19], indicating that cognitive awareness alone is insufficient to change behavior in the absence of skills-based education and enabling environments. These findings underscore a relatively low uptake of effective contraceptive methods among both genders, with a predominant reliance on no method or less reliable approaches [3]. Moreover, the gendered distribution of responsibility, with women often reporting methods dependent on their male partners, suggests the need for more targeted sexual health education and access to a broader range of contraceptive options [7].

This asymmetry points to a gendered knowledge gap that mirrors common public narratives emphasizing female reproductive risk [1, 2]. While such differentiation is not commonly dissected in regional literature, broader surveys confirm that public discourse and sexual health curricula often emphasize female reproductive risks [2, 3], potentially leading to lower perceived vulnerability among men. This under-recognition has been linked to lower testing rates and weaker condom negotiation dynamics in multiple studies [20]. Practically, under-recognition of male infertility risk may blunt prevention urgency among men, delay testing and treatment after exposure, and sustain transmission through untreated infections [4].

Across universities, patterns in knowledge and protective behaviours were heterogeneous. Awareness that STIs can cause female infertility was high and similar in all three institutions, whereas recognition of male infertility risk was clearly lower in FTMS than in UAMD and FMD. A comparable gradient was seen for condom use, with FTMS students reporting the lowest levels of protection and FMD students the highest. Despite these differences, reliance on no method or on natural methods remained substantial in all sites, and modern hormonal methods were rarely used. This points to a more vulnerable profile at FTMS, where a male-focused knowledge deficit co-exists with reduced condom use and greater dependence on unreliable methods, even within a health-science student population [21]. Taken together, these findings point to a consistent pattern: students at FTMS demonstrated relatively lower awareness of male infertility risk and reduced condom use, despite showing comparable knowledge of female-related consequences of STIs. UAMD students performed better across both domains, while the favorable results at FMD should be interpreted with caution due to the limited sample size. These results reinforce that knowledge alone is not a sufficient driver of behavior change [1, 8]. From a programmatic standpoint, FTMS emerges as the most actionable target for intervention. Strategies should go beyond general STI awareness to focus on: (i) closing the male-infertility knowledge gap; (II) equipping students with condom negotiation and usage skills; and (III) reducing reliance on natural or no methods by pairing education with direct access (e.g., on-campus condom distribution). Variation across universities in Albania – particularly in recognition of male infertility and condom use – underscores the influence of local institutional culture and curriculum structure. Similar inter-institutional differences were reported by Subotic et al. (2022), who found that STI knowledge and protective behaviors varied significantly between medical and non-medical students across Balkan institutions [22]. This supports the view that even within national contexts, localized intervention design is warranted.

Future stratified analyses by year of study, gender, and age are warranted to disentangle compositional effects from structural knowledge gaps, but current findings already support the need for a university-specific, behavior-focused intervention at FTMS.

CONCLUSION

1. This study reveals important discrepancies between knowledge and actual preventive practices related to sexually transmitted infections among nursing and dentistry students enrolled in two Albanian universities. Although general awareness of infectious-related complications – particularly female infertility – is high, a significant behavioral gap persists, especially in condom use and contraceptive reliability.

2. In comparative analyses, students from the Faculty of Technical Medical Sciences demonstrated lower awareness of male infertility risk and lower condom use compared with students from University "Aleksandër Moisiu" and the Faculty of Medicine and Dentistry.

3. These findings emphasize the urgent need for tailored, university-specific interventions that include skills-based education on condom negotiation and communication.

4. Interventions should also focus on the normalization of male responsibility in sexually transmitted infections prevention and the expansion of youth-friendly counseling and contraceptive services.

5. To our knowledge, this is the first multi-centre KAP study in Albania focusing specifically on health-science students and explicitly examining gendered patterns of infertility awareness, contraceptive use and condom responsibility.

6. Embedding such interventions into university health systems and academic curricula will be essential to closing the knowledge-behavior gap and ensuring long-term sexual health equity among young adults in Albania.

7. These findings highlight the need for institution-specific, skills-based sexual health interventions that move beyond knowledge provision and explicitly address male responsibility, condom negotiation, and access to youth-friendly contraceptive services within Albanian universities offering health-science programmes.

Contributors:

Bimi Indrit – conceptualization, methodology, project administration, supervision, validation, writing – original draft;

Bara Silvana – resources, data curation;

Stroni Gentian – software, formal analysis;

Ramosaçaj Ergys – investigation;

Bimi Daniela – Writing – review & editing.

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REFERENCES

1. World Health Organization. Global health sector strategies on HIV, viral hepatitis and sexually transmitted infections, 2022-2030 [Internet]. Geneva: WHO; 2023 [cited 2025 Nov 7]. Available from: https://www.who.int/publications/i/item/9789240053779

2. Liu R, Xu K, Zhang X, Cheng F, Gao L, Xu J. HIV-Related Knowledge and Sexual Behaviors among Teenagers: Implications for Public Health Interventions. Children (Basel). 2023;10(7):1198. doi: https://doi.org/10.3390/children10071198

3. World Health Organization. Consolidated guidelines on HIV, viral hepatitis and STI prevention, diagnosis, treatment and care for key populations [Internet]. Geneva: WHO; 2022 [cited 2025 Nov 7]. Available from: https://www.who.int/publications/i/item/9789240052390

4. Nwachinemere OL, Nyegenye S, Mwesigwa A, Bulus NG, Gmanyami JM, Mukisa KA, Isiko I. Trends in HIV-related knowledge, behaviors and determinants of HIV testing among adolescent women aged 15-24 in Nigeria. Trop Med Health. 2025 Jun 11;53(1):79. PMID: 40500790; PMCID: PMC12153080. doi: https://doi.org/10.1186/s41182-025-00737-1.

5. Sleiman V, Obeid S, Sacre H, Salameh P, Hallit S, Hallit R. Knowledge, attitudes, and practices of Lebanese university students related to sexually transmitted diseases: a cross-sectional study. Croat Med J. 2023;64(4):213-21. doi: https://doi.org/10.1186/s41182-025-00737-1. 10.3325/cmj.2023.64.213.

6. Capraș R-D, Telecan T, Crețeanu R, Crivii C-B, Badea A-F, Cordoș A-A, et al. Knowledge, attitudes, and behaviors regarding sexually transmitted infections among Romanian medical students: a cross-sectional study. Healthcare (Basel). 2025;13(10):1120. doi: https://doi.org/10.1186/s41182-025-00737-1

7. Gabrani J, Gjergji V, Merkuri L, Rugia I, Kushta R, Cela K. Bridging the gaps in sexual health: gender, age, and educational disparities among Albanian university students. Mater Sociomed. 2025;37(2):92-7. doi: https://doi.org/10.5455/msm.2025.37.92-97.

8. Gabrani J, Merkuri L, Cela K, Rugia I. Utilization of sexual and reproductive health services among Albanian university students. Eur J Public Health. 2025;35(Suppl 4):ckaf161.1029. doi: https://doi.org/10.1093/eurpub/ckaf161.1029.

9. Burazeri G, Roshi E, Tavanxhi N, Rrumbullaku L, Dasho E. Knowledge and attitude of undergraduate students towards sexually transmitted infections in Tirana, Albania. Croat Med J. 2003;44(1):86-91. PMID: 12590435

10. Burazeri G, Roshi E, Tavanxhi N. Does knowledge about sexually transmitted infections increase the likelihood of consistent condom use? Prev Med. 2004;39(6):1077-9. doi: https://doi.org/10.1016/j.ypmed.2004.04.016

11. Rrumbullaku L, Burazeri G, Roshi E. Information about sexually transmitted diseases among undergraduate students in Tirana, Albania. Med Arh. 2010;64(3):183-6. PMID: 20645516.

12. Merkuri L, Qorri E, Rizaj X, Emir B, Shapo L. Sexually transmitted infection knowledge and risky behaviours among Albanian university students: findings from a cross-sectional study. J Infect Dev Ctries. 2025;19(4):553-9. doi: https://doi.org/10.3855/jidc.20852

13. Zarei F, Dehghani A, Ratansiri A, Ghaffari M, Raina SK, Halimi A, et al. ChecKAP: a checklist for

reporting a knowledge, attitude, and practice (KAP) study. Asian Pac J Cancer Prev. 2024;25(7):2573-7.
doi: https://doi.org/10.31557/APJCP.2024.25.7.2573.

14. Tavakol M, Dennick R. Making sense of Cronbach's alpha. Int J Med Educ. 2011;2:53-5. doi: https://doi.org/10.5116/ijme.4dfb.8dfd.

15. Koo TK, Li MY. A guideline of selecting and reporting intraclass correlation coefficients for reliability research. J Chiropr Med. 2016;15(2):155-63.
doi: https://doi.org/10.1016/j.jcm.2016.02.012

16. R Core Team. R: A language and environment for statistical computing. Vienna: R Foundation for Statistical Computing; 2024. Available from: https://www.r-project.org/

17. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3(2):77-101. doi: https://doi.org/10.1191/1478088706qp063oa

18. Lederer AM, King MH, Sovak MA, Kim S. College students and sexually transmitted infection risk: a review of the recent literature. Health Educ J. 2021;80(1):6-17. doi: https://doi.org/10.1177/0017896920959091

19. Subbarao NT, Akhilesh A. Knowledge and attitude about sexually transmitted infections other than HIV among college students. Indian J Sex Transm Dis AIDS. 2017;38(1):10-14.
doi: https://doi.org/10.4103/0253-7184.196888

20. Al-Gburi A, Salim S, Hussein R. Knowledge, attitudes, and practices regarding STIs among undergraduate students in Baghdad. Front Public Health. 2023;11:1017300.
doi: https://doi.org/10.3389/fpubh.2023.1017300

21. Al-Shemeili S, Al-Maskari F, Al-Shukr M, Al Dhaheri M. Awareness and attitudes regarding sexually transmitted infections among university students in the UAE. Front Public Health. 2023;11:1284288.
doi: https://doi.org/10.3389/fpubh.2023.1284288

22. Subotic S, Vukomanovic V, Djukic S, Radevic S, Radovanovic S, Radulovic D, Boricic K, Andjelkovic J, Tosic Pajic J, Simic Vukomanovic I. Differences regarding knowledge of sexually transmitted infections, sexual habits, and behavior between university students of medical and non-medical professions in Serbia. Front Public Health. 2022 Jan 13;9:692461. PMID: 35111707; PMCID: PMC8802719.
doi: https://doi.org/10.3389/fpubh.2021.692461

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