

## Original Article

**Assessment of the Albanian University female students' knowledge, attitudes, and practices on cervical cancer**Lumturi Merkuri<sup>1</sup>, Fatjona Kamberi<sup>2</sup>, Erda Qorri<sup>1</sup>, Leidon Shapo<sup>3</sup><sup>1</sup> Albanian University, Faculty of Medical Sciences, Tirana, Albania<sup>2</sup> Scientific Research Centre for Public Health, Faculty of Health, University of Vlora "Ismail Qemali", Albania<sup>3</sup> Interim Public Health Lead (Adults), Slough Borough Council, United Kingdom**Abstract**

**Introduction:** Cervical cancer is highly preventable and if diagnosed and treated early, highly curable. Yet it remains the fourth most common cancer in women worldwide. In Albania, cervical cancer is the second most frequent cancer among women 15 - 44 years. A national cervical cancer screening program has been established, which offers HPV tests as part of routine examinations in primary health care centres.

**Aim:** To assess knowledge, attitude, and practices (KAP) as well as associated factors regarding cervical cancer, among Albanian University female students, and provide useful information for the development of evidence-based preventive strategies for the future.

**Methodology:** A cross-sectional KAP study was conducted among Albanian University female students during March to May 2022. A total of 503 female students participated in the study (response rate of 82%). A Google questionnaire based on WHO guidance and similar KAP surveys was used to collect the study data. Descriptive analysis was used to analyze the knowledge, attitude, and practices of Albanian female students regarding cervical cancer.

**Results:** Overall, most students in the study (71.2%) had little knowledge about cervical cancer. Only a fifth of them (20.7%) knew about HPV as a risk factor for the disease with a smaller proportion (18.9%) recognized HPV vaccine as a preventive method. In terms of risky behaviors: 45.9% of respondents showed a positive attitude towards condom use; with 17.7% of students reporting several sexual partners. Only 6.8% of respondents had ever done an HPV test and a total of 7.5% were HPV vaccinated.

**Conclusions:** The study showed that respondents had a low level of knowledge and unfavorable attitudes about cervical cancer including risk factors, screening, and preventive procedures. The findings could serve as baseline information for further research in this area and highlight the need for more effective information-education-communication strategies to stimulate and support a shift towards positive behaviors of this target group.

**Key words:** Cervical cancer; knowledge; attitude; practice; female students; HPV; HPV vaccine.

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**Introduction**

Although unlike other cancers, cervical cancer is preventable and treatable, it continues to be one of the most common cancers and remains a global public health problem. Cervical cancer is estimated to be the fourth most common cancer among women globally, with approximately 604,000 new cases and 342,000 deaths in 2020. The annual number of new cervical cancer cases and deaths from it is projected to increase by 2030, and more than 85% of those affected are young women [1,2].

Cervical cancer ranks as the 5th most frequent cancer among women in Albania and the 2nd most frequent cancer among women aged 15 and 44 years old. The latest cervical cancer country profile estimates indicate that every year 133 women are diagnosed with cervical cancer and 74 die from the disease [3]. The

national cervical cancer screening program started in 2019, first covering women aged 40-50 years old, offering the HPV test as part of routine examinations in all primary health care centres. Vaccination against HPV is not yet included in the national vaccination program [3-5].

Long-lasting infections with high-risk Human Papilloma Virus (HPV) can cause cancer in many parts of the body where HPV infects cells, including the cervix. Cervical cancer is the most common HPV-associated cancer. When the body's immune system can't get rid of an HPV infection with oncogenic HPV types, it can linger over time and turn normal cells into abnormal cells and then cancer. About 10% of women with HPV infection on their cervix will develop long-lasting HPV infections that put them at risk for cervical cancer [2,3]. It is also well known that HPV is

transmitted through sexual contact. The increasing involvement of young people in risky behaviors, such as early-onset of sexual activities, and multiple sexual partners, has led to serious health outcomes, including an increase in the global prevalence of cervical cancer in the last two decades [6]. Cancer prevention and control strategies emphasize that communication strategies should focus on primary cancer prevention [1].

Recommended actions include multidisciplinary interventions such as information and awareness, especially among young women, which helps them understand that cervical cancer is preventable and treatable, ensures high rates of HPV vaccine coverage, increases the use of HPV testing services, and overcomes barriers that prevent the use of services. Primary prevention including more effective information, education, and prevention of HPV infection by vaccination and early detection by screening has shown a positive impact on the reduction of the burden of cervical cancer [7]. A few factors influence HPV vaccine coverage and the use of HPV testing services, particularly women's knowledge, attitudes, and practices. Scientific data have proven that knowledge and awareness about cervical cancer influence attitudes and lead to improved preventive practices [8].

**Table 1.** Sociodemographic characteristics of study participants, n = 503.

Variables	n (%)
<b>Age (years)</b>	
18-20	207 (41.15)
21-25	202 (40.16)
26-30	54 (10.74)
>30	40 (7.95)
<b>Faculty</b>	
Faculty of Social Sciences	78 (15.51)
Faculty of Applied and Economic Sciences	53 (10.54)
<b>Faculty of Medical Sciences</b>	
- Pharmacy	23 (4.57)
- Physiotherapy	29 (5.77)
- Nursing	273 (54.27)
- Dentistry	47 (9.34)
<b>Year of study</b>	
1 <sup>st</sup>	132 (26.24)
2 <sup>nd</sup>	167 (33.20)
3 <sup>rd</sup>	120 (23.86)
4 <sup>th</sup>	8 (1.59)
5 <sup>th</sup>	16 (3.18)
Master	0 (11.93)
<b>Marital status</b>	
Single	231 (45.92)
Married	75 (14.91)
Partners	98 (19.48)
In a casual relationship	92 (18.49)
Divorced	6 (1.19)

To identify any knowledge gaps, and better understand how the existing knowledge is affecting their attitudes and daily practice, the KAP survey method was used for this study. This is a tool used in the health sciences to assess the knowledge, attitudes, and behaviors of a population regarding a particular issue providing useful information and is essential for the effective control and management of any disease [9]. Therefore, our study aimed to assess knowledge, attitude and practices, and associated factors among Albanian female university students, regarding cervical cancer, to provide useful information for the development of appropriate (evidence-based) strategies to prevent cervical cancer in the future.

## Methodology

This online survey was conducted between March - May 2022, targeting Albanian female university students enrolled as full-time in the current academic year. Data was collected using a Google questionnaire form, sent to female students via email. The questionnaire was prepared using a method of combining the WHO guidelines on conducting a KAP survey study [9] and similar questionnaires from several published KAP studies related to cervical cancer [10-13]. The survey questionnaire was divided into four sections: (i) sociodemographic characteristics; (ii) knowledge; (iii) attitudes, and (iv) practices. The questionnaire was first pretested in a subsample of 50 students (about 10% of the final sample) and modified accordingly, before the final version was prepared and ready for distribution.

### Data analysis

We invite 607 students using a Google questionnaire that was distributed online. A total of 503 students completed the online questionnaire with a final response rate of 82.8%.

The data collected from Google form, were entered, and cleaned in Excel, and then analyzed using SPSS software. Descriptive analysis was used to analyze the knowledge, attitude, and practices of Albanian female students regarding cervical cancer.

### Ethical consideration

Before the application, the survey received the approval of the ethics committee. Based on the World Medical Association Declaration of Helsinki, all the participants were informed about ethical considerations including the study's voluntary basis, anonymity, and any issues related to data confidentiality [14].

*Limitations*

Online surveys have several advantages – they are easy, convenient, and inexpensive means of data collection. However, as with any similar online surveys, our survey could have suffered from two methodological limitations: One, is that the self-reported way the information was collected could contribute to response bias [15]; and issues related to unresponsiveness - due to lack of understanding and/or interpretation barriers among female students. Despite the above limitations, we believe that our KAP survey findings could be generalized to female students at a national level, and the same methodology can be further improved to contribute to designing larger studies that will target a wider female reproductive age in the future.

**Results**

*Sociodemographic characteristics*

A total of 503 Albanian female university students responded to the online survey (response rate of 82.8%); with 74% of them studying at the faculty of medicine, 15.5% studying at the faculty of social sciences, and 10.5% studying at the faculty of applied and economic sciences. The difference in the number of participants enrolled between these faculties was related to the larger number of female students, registered in the selected faculties. Most of them (41.2%) were younger than 20 years old; 33.2% were in their second year of study; and 18.49% were in a causal relationship (Table 1).

**Table 2.** Female students' knowledge about issues related to cervical cancer and the relationship with the program of study.

Knowledge Domains	Alternatives	Number (%)	p-value
<b>1. Do you think to have information about cervical cancer?</b>	No	89 (17.69)	0.29
	Yes	56 (11.13)	
<b>2. If so, where did you get this information?</b>	A little	<b>358 (71.17)</b>	0.001
	Family	26 (5.17)	
	Social media	<b>110 (21.87)</b>	
	Social media; health personnel	24 (4.77)	
	Television	37 (7.36)	
	Television, social media	20 (3.98)	
	Friends	17 (3.38)	
	Health staff	71 (14.12)	
	All sources	109 (21.67)	
<b>3. What are the risk factors for cervical cancer?</b>	I have no information	89 (17.69)	0.09
	Smoking	1 (1.59)	
	Sexual intercourse at an early age	18 (3.58)	
	I do not know	<b>123 (24.45)</b>	
	Having different sexual partners	86 (17.10)	
	Early sexual relations; HPV virus	112 (22.27)	
	Having different sexual partners; HPV virus	52 (10.34)	
<b>4. How can cervical cancer be prevented?</b>	HPV virus	104 (20.68)	0.13
	I do not know	<b>157 (31.21)</b>	
	Getting the HPV vaccine	95 (18.89)	
	Getting the HPV vaccine; using a condom during sexual intercourse	5 (0.99)	
	Smoking cessation	3 (0.60)	
	It is not preventable	3 (0.60)	
	Using a condom during sexual intercourse	7 (1.39)	
	Risk factor avoidance and the HPV vaccine	107 (21.27)	
	Avoiding sexual relations at an early age	20 (3.98)	
	Avoiding sexual intercourse at an early age; getting the HPV vaccine	10 (1.99)	
	Avoiding multiple sexual partners	58 (11.53)	
<b>5. What are the methods of diagnosing cervical cancer?</b>	Getting the HPV vaccine	38 (7.55)	0.02
	I do not know	<b>105 (20.87)</b>	
	Biopsy	57 (11.33)	
	Biopsy; HPV test	5 (0.99)	
	Biopsy; Pap test	40 (7.95)	
	Biopsy; Pap test; HPV test	44 (8.75)	
	HPV test	27 (5.37)	
<b>6. Do you have information about the Pap test?</b>	Pap test	<b>171 (34.00)</b>	0.38
	Pap test; HPV test	54 (10.74)	
	No	147 (29.22)	
	A little	<b>220 (43.74)</b>	
<b>7. Do you know where the Pap test is carried out in Albania?</b>	Yes	136 (27.04)	0.38
	I do not know	114 (22.66)	
	The neighborhood ambulance	16 (3.18)	
	Private clinic	120 (23.86)	
	Tirana University Hospital Center/QSUT	97 (19.28)	
	Tirana University Hospital Center/QSUT; private clinic	<b>156 (31.01)</b>	

**Table 3.** Female students' attitudes and practices about issues related to cervical cancer and the relationship with the program of study.

Variables	Alternatives	Female participants N (%)	p value
<b>1. Would you be embarrassed to go for a Pap test?</b>	No	368 (73.16)	0.43
	Yes	48 (9.54)	
<b>2. Do you think Pap tests are painful?</b>	I have no opinion	87 (17.30)	0.89
	Yes	91 (18.09)	
	No	235 (46.72)	
<b>3. Think that the fear of the test result is an inhibiting factor</b>	I do not know	177 (35.19)	0.06
	Yes	243 (48.31)	
	No	187 (37.18)	
<b>4. Is it such a factor for you personally?</b>	I don't know	73 (14.51)	0.47
	Yes	81 (16.10)	
	No	311 (61.83)	
<b>5. Have you heard about the HPV vaccine?</b>	I don't know	111 (22.07)	<b>0.008</b>
	Yes	270 (53.68)	
	No	233 (46.32)	
<b>6. Does the HPV vaccine protect against cervical cancer?</b>	Yes	221 (43.94)	<b>0.002</b>
	No	21 (4.17)	
	I don't know	261 (51.89)	
<b>7. Do you think condoms prevent HPV infection?</b>	Yes	231 (45.92)	0.61
	No	43 (8.55)	
	I don't know	229 (45.53)	
<b>8. Have you had the HPV vaccine?</b>	Yes	38 (7.55)	<b>0.001</b>
	No	465 (92.45)	
	I don't know	229 (45.53)	
<b>9. Have you had an HPV test/Pap test?</b>	Yes	34 (6.76)	0.06
	No	469 (93.24)	
	I don't know	229 (45.53)	
<b>10. At what age should cervical cancer screening start?</b>	> 25	249 (49.50)	<b>0.006</b>
	> 35	80 (15.90)	
	< 25	119 (23.66)	
	I do not know	55 (10.93)	
<b>11. How often do eligible females need to be invited for a cervical screening for an early diagnosis?</b>	1 time a year	400 (79.52)	<b>0.001</b>
	Every 3 years	39 (7.55)	
	Every 5 years	13 (2.58)	
	I do not know	51 (10.14)	
<b>12. How many sexual partners have you had?</b>	Several	89 (17.69)	<b>0.001</b>
	One	280 (55.67)	
<b>13. Do you use a condom?</b>	I have not had sexual intercourse	134 (26.64)	<b>0.001</b>
	No	137 (27.29)	
	Sometimes	144 (28.69)	
	I have not had sexual intercourse	134 (26.69)	
<b>14. Did you use a condom the last time you had sex?</b>	Yes	87 (17.33)	<b>0.001</b>
	No	257 (51.09)	
	I have not had sexual intercourse	134 (26.64)	
	Yes	112 (22.27)	
<b>15. What is the reason you don't use a condom when having sex?</b>	I am ashamed to buy them	10 (1.99)	<b>0.001</b>
	I have only one partner	183 (36.38)	
	I don't trust that they will protect me	29 (5.77)	
	I have not had sexual intercourse	134 (26.64)	
	I didn't have it with me	6 (1.19)	
	Use always	87 (17.30)	
	Decreases satisfaction	54 (10.74)	
<b>16. Where would you go to buy/get a condom?</b>	Pharmacy	391 (77.73)	<b>0.001</b>
	Pharmacy; Supermarket	19 (3.78)	
	I do not know	76 (15.11)	
	Family planning center	6 (1.19)	
	Supermarket	11 (2.19)	
<b>17. Why haven't you had an HPV/Pap test yet?</b>	I have done	34 (6.76)	<b>0.01</b>
	I do not know	256 (50.89)	
	I am not interested	109 (21.67)	
	I do not have time	25 (4.97)	
	I've never heard of them	79 (15.71)	
<b>18. Where would you go to get an HPV test/Pap test?</b>	The neighborhood ambulance	12 (2.39)	<b>0.05</b>
	Abroad	3 (0.60)	
	Private clinic	243 (48.31)	
	I do not know	107 (21.27)	
	Tirana University Hospital Center/QSUT	83 (16.5)	
	Tirana University Hospital Center/QSUT; private clinic	55 (10.93)	
<b>19. At what age did you have sexual intercourse for the first time?</b>	Mean 14 ± 8.6 Std Dev (years)		

### *Knowledge of respondents on cervical cancer*

With regards to the overall knowledge of cervical cancer (Table 2), only 11.3% of students had some information about cervical cancer with most of them (71.2%) reporting having little information about this condition. Of those who knew about cervical cancer, the most frequent source of information was social media (21.9%), followed by the information provided by health professionals (14.1%).

### *Respondent's knowledge about risk factors*

Only 20.7% of students knew that HPV was a risk factor for cervical cancer, while 22.3% listed all mentioned risk factors for cervical cancer. About a quarter of the students in the study (24.4%) did not know any of the risk factors. Less than a fifth (18.9%) of female students were aware of the HPV vaccine as a method of cervical cancer prevention.

Over half of the respondents, (296 or 53.4%), were aware of and identified the above as risk factors for cervical cancer, while about a quarter of them, (123 or 24.5%), did not know about any of these risk factors. 31.2% of female students did not know any of the preventive methods for cervical cancer.

### *Screening*

Over a third of the participants (34.0%) had information about the Pap test as a screening procedure; 10.7% reported both the Pap test and the HPV test, while 20.9% of participants had no information about any of the screening testing methods. A considerable number of them (114 or 22.7%) did not know any of the institutions offering cervical cancer testing. Private clinics were recognized by 23.9% of participants as places where cervical cancer tests are performed in Albania, while Tirana University Hospital Center (QSUT) was mentioned by 19.3% of them.

Among the knowledge domains, only two of them were found statistically significant with the current program of their studies. As expected, nursing students had significantly more information than others ( $p = 0.001$ ) regarding the knowledge about the risk factors for cervical cancer. Also, the information about the Pap test was found to be statistically significant for the field of study of the student participants, ( $p = 0.02$ ). Nursing students, students of social sciences, as well as dentistry students, were more informed about the Pap test examination.

### *Attitudes and practices of respondents on cervical cancer*

Table 3 shows students' attitudes and practices about issues related to cervical cancer and their relationship with their program of study. Almost half of the participants, (49.5%), reported that testing for cervical cancer should start over the age of 25, and 23.7% under 25 years old. With regards to the frequency of routine checkups for cervical cancer, most students (79.5%) reported once a year, and 10.1% responded as they 'do not know'. About a third of the participants (29.2%), had no information about the Pap test. More than half of the respondents, (53.7%), had heard about the HPV vaccine.

To note is the level of statistical significance ( $p \leq 0.05$ ) for many variables discussed in Table 3. Nursing and dental students expressed favorable attitudes toward the HPV vaccine including the number of times a female should be screened to prevent cervical cancer. Having one sexual partner was linked to not using a condom and was more of a common practice among nursing students and those from social, and economic sciences.

Also, the study found a strong correlation between the use of a condom and the field of study ( $p = 0.001$ ). Students of nursing, dentistry, and social sciences reported that they did not know where to buy a condom. In the field of study, the reason for not having had a pap or HPV test was found to be statistically significant ( $p = 0.01$ ). Students of nursing, social, and economic sciences reported no interest in doing a Pap or HPV test. Nursing students stated that they were more likely to get a Pap test abroad or at a private clinic ( $p = 0.05$ ). The mean age of the first sexual intercourse was reported to be 14 years old.

### **Discussion**

A KAP online survey was conducted on cervical cancer among female students at Albanian University between March and May 2022 ( $n = 503$ ). The response rate (82.8%) was high and is likely driven by high levels of motivation to complete the survey and students' interest in the topic under study.

The findings highlight a general lack of knowledge about cervical cancer and preventative methods and that's surprising knowing that most of the students participating in the study (74%) were from the faculty of medical sciences. Our study found that most of the students (71.2%) had very little information about cervical cancer with 17.7% reporting not knowing anything about the condition, which is a cause for concern. Despite these findings, poor knowledge of

cervical cancer has also been reported from other similar studies conducted in other countries [16-18]. Comparably, our findings are consistent with other Albanian studies focused on other groups of female students, reporting insufficient knowledge about cervical cancer, disease risk factors, and screening methods [20-24].

About a third (29.3%) of students who had some knowledge about cervical cancer, got this information from different sources, with over one in five (21.9%), reporting that social media was their primary source of information. These findings are comparable with results from other studies [25,26] as well as another national study [27].

When asked about the risk factors for cervical cancer, about a quarter (24.5%), of female students responded that they weren't aware of such risks. One in five (20.7%) knew that HPV infection is a risk factor for cervical cancer, while it is scientifically known that more than 95% of cervical cancer is caused by sexually transmitted HPV [2]. These findings are of some concern at a national level, and when compared to higher awareness reported from other studies conducted in Italy, Turkey and Spain [10,28,29]. More than a fifth of students (22.3%), selected two risk factors for cervical cancer in their responses including - infection by the HPV virus and sexual relations at an early age, while 17.7% of them listed 'having several sexual partners' as a risk factor.

Following the overall lack of knowledge about cervical cancer, most of the students had insufficient knowledge regarding preventive measures for the disease. Thus, a third of them (31.2%) were not aware of any of such measures, with only 1.4% knowing about the use of condoms in preventing HPV infection, avoiding multiple sexual partners (11.5%), and avoiding sexual relations at an early age (4.0%). With regards to the HPV vaccine, less than a fifth (18.9%) of female students knew that HPV vaccine is an effective intervention method to prevent the disease – again a cause for concern.

The study also found a lack of information on some other important issues, such as testing methods, the places where the tests are performed, as well as the frequency of performing such tests. Consequently, one in five respondents (20.9%) had no information about any of the cervical cancer testing methods. A third of them (34.0%), knew about the PAP test, and only 5.4% knew that the HPV test was a screening method. Another consideration from this study is that although the HPV test is offered free of charge in every health center in Albania [30], approximately one-fourth of

participants (21.3%) weren't aware of where to go to have an HPV test, with 48.3% of them saying they would go to a private clinic, and only a very small proportion of them (2.4%) knew about this.

A bit less than one-fifth of students, (18.1%), believed that the HPV test is a painful procedure; with 48.3% of them responding that the fear of knowing the test result prevents them from taking it, and 9.5% indicating they would be ashamed to take an HPV test raising some form of stigma linked to the procedure. Less than half of the participants (43.9%), responded that the HPV vaccine protects against cervical cancer, with half of them (51.9%) responding to have no opinion about this. Only 45.9% of female students showed a positive attitude towards condom use as a protective method against HPV infection with 45.7% having no idea about this method.

Regarding the practices, our study showed that female students were involved in risky behaviors that would increase their risk of being infected with HPV. So, most of the participants (73.4%), reported they had sexual intercourse at quite an early age (Mean  $14 \pm 8.6$  Std Dev), and 17.7% of them had several sexual partners at the time of the survey. Early sexual debut (commonly defined as having had first sexual intercourse at or before age 14) if unprotected can contribute to unintended adolescent pregnancy and increases young people's risk of infection with HIV and other STIs [30]. In addition, there is robust evidence to suggest that early onset of sexual activity, multiple sexual partners, or partners with multiple sexual partners are all risk factors for HPV infection [31].

But regardless of such risky behaviors, only 17.3% of participants reported they had used a condom when having sexual intercourse, 27.3% reported they do not use a condom, 28.7% use it occasionally and over half of them (52.0%) did not use it the last time they had sex. The most common reasons for not using condoms were having one sexual partner (36.4%), the method reducing sexual pleasure (10.7%), and they don't think condoms would provide protection (5.8%). Most of them (77.4%), preferred to get the condom from the pharmacy.

Finally, only 6.8% of them had done an HPV or PAP screening test, and almost half of them (48.3%), preferred to do the screening test using a private clinic. Although based on WHO recommendations, HPV vaccines are effective if administered before the start of sexual activity and exposure to HPV infection [1], our study found that only 7.6% of female students were vaccinated. The findings from our study are aligned with several other studies that have also reported low

levels of HPV vaccination among students, although in a slightly lower percentage than our study [11,32].

## Conclusions

The findings showed that female students participating in our study had a low level of knowledge about risk factors, screening procedures, and ways of preventing cervical cancer; consequently, they also showed inappropriate attitudes and wrong practices related to cervical cancer.

There is a national cervical cancer program with a focus to improve awareness and screening in particular [33]. However, the study specifically showed that most respondents did not know the existence of the HPV test program in Albania as well as HPV vaccination. The findings also suggest various knowledge gaps that are directly linked with unhealthy attitudes and practices among female students. Consequently, the findings suggest the urgent need for a more targeted approach in this group that should be aligned with other interventional strategies aiming to increase and improve the knowledge level of female students, dispel any negative beliefs and misconceptions, and stimulate positive practices regarding cervical cancer prevention.

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