

Evaluation and Comparison of Medicine Students' Knowledge about HPV

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Abstract

The Human Papillomavirus (HPV) is responsible for almost 99% of cervical cancers. Cervical cancer is a public health problem, being the fourth most common type of tumor among women worldwide and the third most common cancer among women in Brazil. It is known that cervical cancer is one of the most easily preventable forms of cancer, as there is a highly effective vaccine against HPV, however, morbidity and mortality rates related to human papillomavirus are still frightening, especially in less developed countries. Low vaccination adherence rates, especially the second dose, are probably a reflection of the lack of knowledge about this virus, its clinical repercussions, and the vaccine. A clinical trial was carried out in a higher education institution in Alagoas (Brazil), with students of the medical course to whom a validated questionnaire was applied on HPV in the virtual environment (*google forms*). Data collection was carried out throughout the month of May of the year 2023. It was shown that the knowledge of medical students about the human papillomavirus was less than what would be desired for future doctors. The alert for the acute need to assess health illiteracy is clear, especially regarding cancer that can be prevented by a highly effective vaccine.

Keywords

Health Education, HPV, Health Literacy, Cervical Cancer

1. Introduction

Human papillomavirus (HPV) is a non-enveloped double-stranded DNA virus that can cause multiple epithelial lesions and cancer, with a tropism for skin and mucous membranes [1].

Infection with this virus is the most prevalent sexually transmitted infection worldwide and has more than 200 subtypes, with HPV subtypes 16 and 18 being high-risk and associated with pre-malignant and invasive lesions in the anogenital and oropharyngeal region [2].

Cervical cancer is the fourth most prevalent cancer in women, with an estimated 604,000 new cases in 2020. More than 95% of cases of cervical cancer are related to human papillomavirus [3]. Underdeveloped or developing countries have higher rates of incidence and mortality for cervical cancer compared to developed countries; probably because they have lower rates of prevention [3] (Figure 1).

Immunization against the human papillomavirus offers a primary prevention strategy, but the rates of adherence to vaccination are not clear, moreover, most of the population is unaware of this virus, its clinical repercussions, and the vaccine. Since then, it has become a public health problem that mainly haunts underdeveloped countries [4].

Health education presupposes health literacy, encouraging the adoption of healthy living standards, for the individual and collective good, even leading to the judicious and careful use of the health services available to them [5].

Cinar *et al.* made a study aimed to determine the knowledge and attitude of



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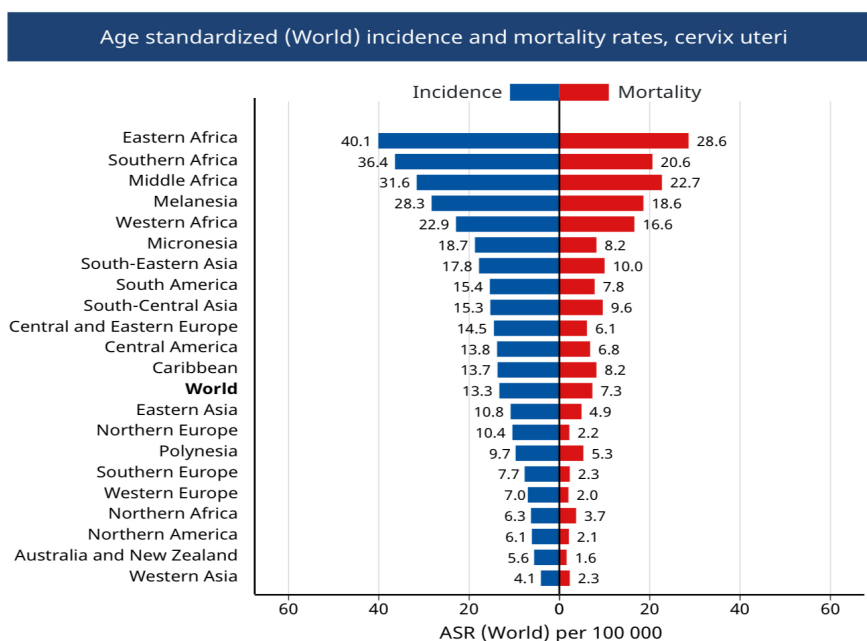


Figure 1. Cervical cancer incidence and mortality rates (WHO, 2022).

university students toward HPV infection and vaccine prevention in Turkey. Of the total of 1563 university students, only 16.8% of the students said they had heard about HPV. As the age of students increased, the chance of hearing about HPV also increased. Of the total number of students, 1.5% took the vaccine against HPV [6].

Health literacy does not depend solely on individual abilities, but also on the ability of organizations to make health-related information and services accessible and understandable in an equitable way; it is the duty of the health communicator, in the public and private spheres, to do so in an efficient way: clear, attractive and egalitarian [7].

In this sense, this work aims to assess the prior knowledge of medical students about HPV so that there is an assessment and discussion of this important knowledge. Even if in a simple way, alert to the poignant need to assess illiteracy in health in underdeveloped or developing countries, especially concerning cancer that is preventable by a highly effective vaccine.

2. Methods


This is a comparative experimental clinical case study among first year (first semester) and second year (second semester) medical students at the Tiradentes University Center (UNIT/AL). Students who had already taken another course in the health area were excluded. It was decided to offer a questionnaire on HPV (adapted from the one already validated by the University of Southern Santa Catarina, Brazil), in a virtual environment (*google forms*), to have the opportunity to reach as many students as possible who are available to participate, facilitating and streamlining the work, as well as the collection of results and discussion [8]. This questionnaire consists of 20 questions, all of them are found in the results section; below are some of them in the images captured from the google forms cell phone (**Figure 2**).

The students over 18 years of age were regularly enrolled in the first and second year of the medical course at the Centro Universitário Tiradentes (UNIT). Being excluded from the research, students have already attended other courses in health. For data evaluation, the interquartile range (IQR) was used. The data was analyzed using the software for statistical analysis IBM SPSS Statistics 22.0. The normality of the tests was checked previously by the Kruskal-Wallis's test, in the same software.

Currently, 146 students are enrolled in the first year and 80 students in the second year (second quarter) of the medical course at UNIT/AL. We offer the form to everyone. It was expected, according to the sample calculation (<http://estatistica.bauru.usp.br/calculoamostral>) to a finite population of 226 (5% alpha and 20% beta) of which at least 42 ($N = 42$) students responded satisfactorily to the form.

3. Results

The questionnaire on HPV was answered by 55 students (20 from the first year



Seção 1 de 2

Knowledge about HPV

Dear participant,

Thank you for your interest in collaborating in the research entitled, whose objective is to identify your KNOWLEDGE ABOUT HPV. Your opinion is of enormous value.

It can be completed from your own cell phone.
It is assured that your identity will be preserved.
We thank you for your cooperation!

Mark yes or no according to your knowledge about HPV *

	yes	no
People who have been vaccinated against HPV cannot develop cervical cancer	<input type="radio"/>	<input type="radio"/>
HPV is very rare	<input type="radio"/>	<input type="radio"/>
HPV vaccines protect against all sexually transmitted diseases	<input type="radio"/>	<input type="radio"/>
The HPV test can tell you how long ago you had an HPV infection	<input type="radio"/>	<input type="radio"/>
HPV usually does not need treatment.	<input type="radio"/>	<input type="radio"/>

Figure 2. Photos from *google forms*.

and 35 from the second year of the medical course). Regarding gender, 85% of participants at the beginning of the course and 80% of participants at the end of the second year were female (**Table 1**). This predominance of the female gender is also repeated in most medical schools in world.

The total percentage of correct answers showing the knowledge of medical students about the human papillomavirus in the first year of the course was (78.5%), comparatively lower than the knowledge presented in the second year

of the course (88.71%) (Table 2).

The total percentage of correct answers showing the knowledge of female medical students (81%) was higher in participants at the beginning of the course and comparatively lower than the knowledge presented in the second year of the course in relation to males (90%). In the overall result, the female gender had a slightly higher percentage of correct answers than the male gender: 85.91% × 81.36% (Table 3).

Figure 3 compared the quantity and percentage of correct answers per question per semester. The same question 'Generally, HPV does not need treatment' was only 5% correct in the first year and 34.29% in the second year of medical school. The question "Most sexually active people will contract HPV at some point in their lives" had 40% correct answers in the first year and 80% correct answers in the second. In most of the other questions, there was no great discrepancy in the answers and the percentage of correct answers was higher among second-year students.

4. Discussion

Based on some research on illiteracy in health, such as that carried out by Bacha, Santos, and Carvalho to assess the prior knowledge of medical students about

Table 1. Percentage of participants according to gender.

Year studied in college	Number of students		Percentage of female	Percentage of male
	Female	Male		
Beginning of first year	17	3	85%	15%
End of second year	28	7	80%	20%
Total (n)	45	10	81.8%	18.2%

Table 2. Consolidating the research results.

Year studied in college	Number of students	Percentage of correct answers	Total average
Beginning of first year	20	78.5%	15.7
End of second year	35	87.7%	17.74
Total (n)	55	85%	17

Table 3. Consolidating the research results according to genres.

Year studied in college	Number of students		Percentage of correct answers by female	Percentage of correct answers by male
	Female	Male		
Beginning of first year	17	3	78.5%	15.7
End of second year	28	7	87.7%	17.74
Total (n)	45	10	85%	17

Questions	First year correct percentage	Fourth semester correct percentage
Check yes or no according to your knowledge about HPV [People vaccinated against HPV cannot develop cervical cancer]	75.00%	85.71%
Check yes or no according to your knowledge about HPV [HPV is very rare]	95.00%	100.00%
Check yes or no according to your knowledge about HPV [HPV vaccines protect against all sexually transmitted diseases]	100.00%	100.00%
Check yes or no according to your knowledge about HPV [HPV testing will be able to tell you how long ago you had an HPV infection]	55.00%	85.71%
Check yes or no according to your knowledge about HPV [HPV usually does not need treatment]	5.00%	34.29%
Check yes or no according to your knowledge about HPV [One of the HPV vaccines protects against genital warts]	75.00%	65.71%
Check yes or no according to your knowledge about HPV [HPV always has signs and symptoms]	85.00%	94.29%
Check yes or no according to your knowledge about HPV [There are many types of HPV]	85.00%	100.00%
Check yes or no according to your knowledge about HPV [HPV can be transmitted during sexual intercourse]	95.00%	100.00%
Check yes or no according to your knowledge about HPV [Men do not get HPV]	95.00%	100.00%
Check yes or no according to your knowledge about HPV [Most sexually active people will get HPV at some point in their lives]	40.00%	80.00%
Check yes or no according to your knowledge about HPV [Girls who are vaccinated against HPV do not need to have a Pap test when they are older]	95.00%	100.00%
Check yes or no according to your knowledge about HPV [HPV can cause genital warts]	95.00%	100.00%
Check yes or no according to your knowledge about HPV [A person can have HPV for many years without knowing it]	100.00%	97.14%
Check yes or no according to your knowledge about HPV [HPV vaccines are more effective if given to people who have never had sexual intercourse]	70.00%	80.00%
Check yes or no according to your knowledge about HPV [HPV can be transmitted by direct contact with the skin of the genital parts]	75.00%	94.29%
Check yes or no according to your knowledge about HPV [HPV vaccines protect against most cervical cancers]	70.00%	65.71%
Check yes or no according to your knowledge about HPV [HPV can cause AIDS]	90.00%	97.14%
Check yes or no according to your knowledge about HPV [HPV can cause cervical cancer]	95.00%	100.00%
Check yes or no according to your knowledge about HPV [HPV can be cured with antibiotics]	75.00%	94.29%

Figure 3. Questionnaire and the percentage of correct answers per year in college.

HPV, with a percentage of correct answers of only 45.6%, this study aimed to evaluate the knowledge about HPV among first and second year medical students at a university in Alagoas (Brazil), comparing the knowledge of undergraduate medical students before (first year) and after taking the course that involves knowledge on this topic (second semester of the second year) [9].

In this study, the knowledge of medical students about the human papillomavirus in the first year of the course, only with prior knowledge was adequate (78.5%). However, it was comparatively lower than the knowledge presented in the second semester of the second year of the course (88.71) when they had already attended disciplines that addressed this theme.

In previous research, such as Panobianco, the level of knowledge of health students about HPV and its main consequences was low. In this study involving 58 students of the nursing course, all female and aged up to 19 years, it was found that 39.7% of the students were not aware of the abbreviation HPV and 54.3% were unaware of the damage that the virus could cause to health [10].

However, some knowledge gaps about HPV were identified in this study, the therapeutic approach to HPV is one of them, and only 23.64% of the students recognize that it is a disease that needs treatment. It is important to point out that the treatment of human papillomavirus is crucial to avoid high-grade lesions that have a great potential for progression to cervical cancer [1].

In this study, it was also clear that there are many doubts among the students regarding vaccination against the human papillomavirus. 67.27% of the first and second-year students are not aware of the preventive importance that the vaccine offers, protecting against most cervical cancers.

Silva also demonstrated the low level of knowledge about HPV based on a study involving medical students, in which half of the group was in the first year and the second group was in the sixth year. It was seen that the association with cervical cancer was pointed out by 64% of the first group and 88% of the second group, while esophageal cancer was mentioned by 2% and 18% of groups 1 and 2 respectively [11].

Based on the data analyzed in this study, there is still an enormous fragility regarding the treatment of the disease and the transmission of HPV among students in the first year of the course in comparison with the others. Only 5% of the students were correct about the treatment of the disease and only 40% about the possible ways of transmitting the virus.

On the other hand, it was possible to analyze a higher level of knowledge of the students in the second year of the medical course, considering that they had contact with the theme in two of the subjects of the fourth period. These students have a very adequate understanding of HPV and its vaccine, since more than five questions related to the subject had 100% of correct answers, denoting that the learning was effective.

A limitation of the study was the small percentage of students who collaborated by answering the questionnaire. While it is quite interesting that know-

ledge about the vaccine is high, Drumond proved through a cross-sectional study involving 358 medical students at a federal public university, that despite academics having access to Pathophysiology, diagnostic and therapeutic approaches to the HPV virus, 182 of the students were not vaccinated (50.83%) [12].

5. Conclusion

The medical school student groups in this study demonstrated a satisfactory level of knowledge. First-year students scored comparatively lower than the knowledge presented in the second year of the course, concluding that the learning acquired by second-year students was effective, but did most of these students receive both doses of vaccines? Endorsing the need to prevent high-incidence cancer, which has a highly effective vaccine and is still capable of being diagnosed and treated early, is the duty of everyone involved in health education and it is urgent, as the WHO warns us.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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