

Knowledge of human papillomavirus vaccines among university students in Angola

Conhecimento das vacinas contra o papilomavírus humano entre estudantes universitários em Angola

João Wilson Rocha^{1,2} , Ana Morais Vasconcelos¹, Honolfo Elves Simões², Elizandra Soqui², Nilton Helibrando Rosa²

ABSTRACT

Introduction: Cervical cancer is the first most common cancer among women in Angola and accounts for 37.6% of cancers among women in Angola. The human papillomavirus (HPV) is a causative agent of the disease. Recent advances in technology have led to the introduction of vaccines to prevent HPV infection. This study aims to assess the awareness of university students about HPV infection as a causal factor for cervical cancer and their knowledge about HPV vaccination. Assessing knowledge about vaccination among university students helps us to understand the level of awareness about it. **Material and Methods:** A questionnaire-based study was carried out on 106 university students, from May 10th to July 26th, 2021. The questionnaire consisted of 10 multiple-choice questions and the results were analyzed using percentages. **Results:** Knowledge about HPV as a causative agent of cervical cancer was found in 84.2% of students. Awareness of the availability of the HPV vaccine was observed in 55.3%. Complete vaccination status was verified in 0% male students and 13% female students. No male students and 13 female students received incomplete vaccination. 33 men and 73 women were willing to be vaccinated with the HPV vaccine. **Conclusion:** The present study concludes that there is not a good knowledge of university students about cervical cancer and its prevention. There is also little knowledge about the HPV vaccine, meaning the availability of the vaccine, the right age group for vaccination, and the recommended vaccination for men need to be improved. Vaccination status is poor among men and women because it is not on the national vaccination calendar. The desire to get vaccinated in male students was lower compared to female students. Thus, there seems to be a need to motivate male students for vaccination. Therefore, more awareness should be created about the HPV vaccine among students. The government through the Ministry of Health must incorporate the HPV vaccine in the vaccination calendar.

Keywords: Knowledge; Papillomavirus infections; Angola, Faculty; Students; Uterine cervical neoplasms.

1. Clínica Girassol, Luanda - Angola.

2. Instituto Angolano de Controle do Câncer, Luanda - Angola.

Financial support: none to declare.

Conflicts of interest: The authors declare no conflict of interest relevant to this manuscript.

Correspondence author: João Wilson da Rocha.

E-mail: jwpr@sapo.ao

Received on: Sep 2, 2021 | **Accepted on:** Mar 28, 2022 | **Published on:** Jun 22, 2022

DOI: <https://doi.org/10.5935/2526-8732.20220299>



This is an open-access article distributed under the terms of the Creative Commons Attribution License.

RESUMO

Introdução: O cancro do colo do útero é o primeiro cancro mais comum entre as mulheres na Angola e representa 37,6% dos cancros entre as mulheres na Angola. O papilomavírus humano (HPV) é um agente causador da doença. Os recentes avanços na tecnologia levaram à introdução de vacinas para prevenir a infecção pelo HPV. Este estudo tem como objetivo avaliar o conhecimento de estudantes universitários sobre a infecção pelo HPV como fator causal para o câncer do colo do útero e seu conhecimento sobre a vacinação contra o HPV. Avaliar o conhecimento sobre vacinação entre estudantes universitários nos ajuda a compreender o nível de conscientização sobre a mesma. **Material e Métodos:** Foi realizado um estudo baseado em questionário com 106 estudantes universitários, de 10 de maio a 26 de julho de 2021. O questionário era composto por 10 questões de múltipla escolha e os resultados foram analisados por meio de porcentagens. **Resultados:** O conhecimento sobre o HPV como agente causador do câncer do colo do útero foi encontrado em 84,2% das estudantes. O conhecimento da disponibilidade da vacina contra o HPV foi observado em 55,3%. O estado vacinal completo foi verificado em 0% de estudantes do sexo masculino e 13% de estudantes do sexo feminino. Nenhum estudante do sexo masculino e 13 do sexo feminino receberam vacinação incompleta. 33 homens e 73 mulheres estavam dispostos a serem vacinados com a vacina contra o HPV. **Conclusão:** O presente estudo conclui que não há um bom conhecimento dos universitários sobre o câncer do colo do útero e sua prevenção. Também há pouco conhecimento sobre a vacina contra o HPV, o que significa que a disponibilidade da vacina, a faixa etária certa para a vacinação e a vacinação recomendada para homens precisa ser aprimorada. A situação vacinal é ruim entre homens e mulheres, porque não está no calendário nacional de vacinação. O desejo de se vacinar nos alunos do sexo masculino foi menor em relação aos do sexo feminino. Assim, parece haver necessidade de motivar os estudantes do sexo masculino para a vacinação. Portanto, mais conscientização deve ser criada sobre a vacina contra o HPV entre os alunos. O governo através do Ministério da Saúde deve incorporar a vacina contra o HPV no calendário de vacinação.

Palavras-chave: Conhecimento; Infecções por papilomavírus; Angola, Faculdade; Estudantes; Neoplasias do colo do útero.

INTRODUCTION

Cervical cancer is the first most common cancer among women in Angola, and the human papillomavirus (HPV) is an important causative agent of the disease.^[1] We now have vaccines available to prevent HPV infection. Angola does not have an HPV vaccination policy or screening methods. There is a need to study the awareness of HPV vaccination and take steps to improve the use of vaccination.

Cervical cancer accounts for 37% of cancers among women in Angola. A total of 2,949 new cases of cervical cancer were diagnosed in 2018.^[2] It is considered the first leading cause of female cancer-related deaths in Angola.^[2]

Human papillomavirus (HPV) infection is now a well-established cause of cervical cancer and there is growing evidence that HPV is a relevant factor in other anogenital cancers (anus, vulva, vagina, and penis) as well as head and neck cancers. HPV types 16 and 18 are responsible for about 70% of all cervical cancer cases worldwide.

HPV vaccines that prevent HPV 16 and 18 infections are now available and have the potential to reduce the incidence of cervical cancer and other anogenital cancers.^[3]

In a study conducted among Iranian women in 2013-16, the prevalence of HPV infection was 29.3%.^[6] In the same study, among HPV-positive individuals, the high and low-risk HPV subtypes were found 67.2% and 52.0%, respectively.^[6] A study was conducted in the rural Philippines, in 2020, among the community that inferred that only 13.9% had undergone cervical cancer screening.^[7] In a study conducted among Thai women, in 2020, 46% of participants had insufficient knowledge about HPV infection and vaccination.^[8]

Recent advances in technology have led to the introduction of the HPV vaccine to prevent HPV infection, which will directly help reduce the incidence of cervical, anogenital and genital warts.

Vaccination is also recommended for boys as it is also implicated in penile, rectal, and oral cancer. Men also play a role in the transmission of HPV infection to women.^[9]

As the HPV vaccine is a recent introduction and is targeted at the 9 to 26 age group, awareness of this vaccine in the general population appears to be lower. 9-14 years is the ideal age to administer this vaccine, as it provides maximum immunogenicity of the vaccine at that age.^[10]

In a study conducted in Mangalore with medical students, 78.35% of students were aware of cervical cancer prevention; 82.47% knew that cervical cancer is caused by a virus; 74.22% were aware of the availability of the vaccine.^[11] In a study carried out in Manipal with medical students, only 28.4% of male students knew that there is a need for vaccination in men.^[12] The HPV vaccine is a more recent addition to the universal immunization schedule. Therefore, your awareness is lower compared to other vaccines.

Assessing knowledge about vaccination among university students helps us to understand the level of awareness about it among future physicians. Knowledge about the symptoms of cervical cancer can help with the early detection and treatment of cervical cancer. After discovering the vaccination status, it will guide us to conduct proper awareness programs and motivate students to get vaccinated.

This study was carried out with the following objectives:

1. Assess knowledge of the HPV virus as a causal factor for cervical cancer.
2. Assess knowledge about the availability of HPV vaccination.
3. Assess attitude towards vaccination.
4. Assess the vaccination status of university students surveyed.

MATERIAL AND METHODS

A cross-sectional study was conducted on students from different universities and faculties of medicine, nursing, law, administration, psychology, engineering, and science in Angola. The inclusion criteria were students willing to participate in the study, attending the 2nd to the 4th degree of graduation, and aged between 18-26 years. Exclusion criteria were those who were unwilling to participate in the study.

A sample of 106 students was chosen (2nd to 4th students) (Table 1).

The questionnaire was prepared using the google forms platform, consisted of 10 questions, of which 4 questions assessed knowledge, 4 questions assessed attitude, and 2 questions assessed practice concerning HPV infection and HPV vaccination. Were of the multiple-choice type, the participants were asked to choose an answer. The questions about attitude and practice were yes or no questions.

Table 1. Number of participants.

Medicine	Nursing	Law	Administration	Psychology	Engineering	Science
18	33	11	8	7	13	16

Knowledge was assessed through questions about risk factors, causal agents, cervical cancer screening methods. In the question about risk factors, 4 correct risk factors were given and the inference was made about each risk factor chosen in percentage. Likewise, the question: cancers most common among women in Angola; was rated 2 out of 4 correct answers in the options.

Questions about knowledge of vaccine availability, if the vaccine is given in health facilities; were used to assess knowledge about the HPV vaccine with a yes or no type of answer. The question about the right age group for vaccination had 1 in 4 correct answers in the options.

Attitude was assessed based on willingness to be vaccinated and to recommend the vaccine to a female relative with a yes or no type of response. Percentages based on correct answers were calculated and compared for each question separately for male and female students.

Knowledge about cervical cancer

In a question about the most common cancers among women in Angola, 30 (29%) participants chose breast cancer, 46 (45%) participants chose cervical cancer and 30 (21%) both chose breast cancer and the cervical (Table 2).

Table 2. Question about the most common cancers among women in Angola.

Breast cancer	30 (29%)
Cervical cancer	46 (45%)
Breast and cervical cancer	30 (21%)

*Knowledge about cervical cancer; **knowledge about the HPV vaccine

More female students compared to male students were aware of this.

Knowledge about the HPV virus as a causative agent of cervical cancer was found in 12 (12%) men and 94 (88%) women (Table 3).

Table 3. Knowledge about the HPV virus as a causative agent of cervical cancer.

Men	12 (12%)
Women	94 (88%)

Among male students, 8 (24%) of the students correctly identified risk factors for cervical cancer such as early marriage, early childbirth, multiple sexual partners, and infections, respectively.

Among female students, 39 (53%) of the students were able to correctly identify early marriage, early childbirth, multiple sexual partners, and infections, respectively, as risk factors for cervical cancer.

A question was asked about the method of screening for cervical cancer, where 3 (9%) of men and 66 (91%) of women chose Pap smear as the correct screening method. When asked whether cervical cancer can be treated if detected early, 30 (92%) men and 7 (96%) women responded positively.

Knowledge about the HPV vaccine

59 (82%) women compared to 14 (44%) men were aware of the availability in private hospitals of the HPV vaccine for cervical cancer in 2 private hospitals. When asked about the right age group for vaccination, 53 (72%) women compared to 7 (2%) men gave the correct answer and this association was statistically significant. Only 7 (2%) men knew that the HPV vaccine could be administered to boys, while 72 (99%) women knew this fact. 33 (100%) male students and 73 (100%) female students agreed that women who have already been vaccinated need cervical cancer screening.

Among the participants, sources of knowledge and information about the HPV vaccine were found as teachings from faculties of medicine, nursing, friends, newspapers, books, the internet, and television, respectively.

Practice concerning HPV vaccination

0 (0%) of male students was fully vaccinated, while 9 (13%) of female students were fully vaccinated. In addition, it was found that 0 (0%) male students and 1 (0.73%) female students took the partial course of vaccination.

Attitude towards HPV vaccination

Among participants, 73 (100%) female students compared to 32 (99%) male students were willing to be vaccinated. Among participants, 32 (99%) men and 73 (100%) women were ready to recommend the vaccine to a female relative.

DISCUSSION AND CONCLUSION

Our study aimed to assess the knowledge and acceptability of the HPV vaccine among university students. According to our study, 4 (12%) men and 72 (99%) women knew that the HPV virus causes cervical cancer. To compare, in a study by Al-Darwish et al. (2014)^[9] in Saudi Arabia, among medical students, 45% of men and 53.2% of women were able to identify HPV infection as the cause of cervical cancer. This shows that there is a big difference in knowledge about the causal agent between the two studies with more students knowing in the present study.

In the current study, 59 (82%) women and 14 (44%) men knew that the HPV vaccine is available at 2 private hospitals in Luanda. A study conducted by Pandey et al. (2012)^[7], in Manipal, among medical students showed that 65.7% of men and 83.1% of women were aware of the availability of the HPV vaccine.

A higher percentage of male students were aware in the current study when compared. In a study conducted by Borlu et al. (2016)^[10], in Turkey, among undergraduate university students, 160 (62.5%) medical students were aware of the availability of the HPV vaccine compared to 116 (66.5%) medical students in our study.

The current study shows that 32 (99%) men and 73 (100%) women were willing to be vaccinated. In addition, 32 (92%) men and 73 (100%) women were willing to recommend the vaccine to a female relative. This indicates that there is a lack of awareness among men regarding the recommended vaccination for men. This is also reflected in the fact that only 99% of men were willing to vaccinate for themselves, compared to 99% of men willing to advise a female relative to vaccinate. In a study conducted by Fu et al. (2014)^[12] among medical students in Chong-Qing, China, 57.2% of men and 78.5% of women were willing to receive or advise HPV vaccination.

In the present study, none male students had received the partial course of vaccination, with 0 of the men had received the full vaccination. 9 (13%) women received full vaccination with 1 (0.73%) having received a partial course of vaccination. In a study conducted by Berenson et al. (2017)^[13] in the US, among 231 medical students, 81 (66.4%) female students and 16 (14.7%) male students reported having started the vaccine. Among all participants in our study, only 14 (9.3%) of the participants had received full vaccination compared to 75 (35.2%) students with complete vaccination status, according to a study by Afonso et al. (2017)^[14] in the US among 213 medical students. In the same study, partially vaccinated students were 19 (8.9%), compared to 2 (1.33%) in this study.

Regarding risk factors for cervical cancer, 8 (24%) male students and 39 (53%) female students were able to correctly identify early marriage, early childbirth, multiple sexual partners, and infections such as risk factors for cervical cancer.

The Pap smear as a screening method for cervical cancer was known by 90.1% of participants in a study by Maharajan et al. (2015)^[15] in Malaysia among 305 medical students. In our study, 51 (69%) of the participants demonstrated this knowledge. This knowledge seems comparable in both studies.

When asked about the need for screening for cervical cancer after vaccination, 106 (100%) of the students responded positively in the present study. In a study conducted by Yam et al. (2017)^[11], in Hong Kong, among 420 medical and non-medical students, 88 (86.3%) medical students below the 3rd year and 141 (99.3%) medical students from the 3rd year onwards have this knowledge. These data appear to be similar to our study. More studies can be carried out to advocate with the Ministry of Health for the implementation of the vaccine in the national vaccination calendar.

The present study concludes that there is not a good knowledge of university students about the HPV vaccine, meaning the availability of the vaccine, the right age group for vaccination, and the recommended vaccination for men need to be improved. Vaccination status is poor among men and women because it is not on the national vaccination calendar. Angola does not have a vaccination policy against HPV or screening methods, we believe that this is the reason for the results found. The government through the Ministry of Health must incorporate the HPV vaccine in the vaccination calendar.

REFERENCES

1. Bruni L, Albero G, Serrano B, Mena M, Gómez D, Muñoz J, et al. Human papillomavirus and related diseases in India. *Català: HPV Information Centre*; 2019.
2. Rocha JW. Culture and its influence on an increase in cervical cancer cases in Angola. *Braz J Oncol*. 2021.
3. Martel C, Ferlay J, Franceschi S, Vignat J, Bray F, Forman D, et al. Global burden of cancers attributable to infections in 2008: a review and synthetic analysis. *Lancet Oncol*. 2012 Jun;13(6):607-15.
4. Palefsky JM. Human papillomavirus-related disease in men: a problem not just for women. *J Adolesc Health*. 2010 Apr;46(4 Suppl 1):S12-S9.
5. Dillner J, Arbyn M, Unger E, Dillner L. Monitoring human papillomavirus vaccination. *Clin Exp Immunol*. 2010 Jan;163(1):17-25.
6. Radhika M, Sadiqunissa S, Mehfooza A. Awareness and knowledge of human papilloma virus (HPV) vaccine in cervical cancer prevention among medical students. *Int J Reprod Contracept Obstetr Gynecol*. 2018;7(12):5026-30.
7. Deeksha P, Vidhi V, Saurav B, Binu VS, Jyothi S. Awareness and attitude towards human papillomavirus (HPV) vaccine among medical students at a top medical school in India. *PLoS One*. 2012;7(7):e40619.
8. UCL Health Behaviour Research. Cervical cancer awareness measurement toolkit version 2.1 [Internet]. London: UCL/Oxford University; 2011; [access in 2019 Jan 24]. Available from: https://www.cancerresearchuk.org/sites/default/files/health_professional_cervical_cancer_awareness_measure_toolkit_version_2.1_09.02.11.pdf
9. Al-Darwish AA, Al-Naim AF, Al-Mulhim KS, Al-Otaibi NK, Morsi MS, Aleem AM. Knowledge of early warning signs and symptoms of cervical cancer, risk factors and vaccination among students at a medical school in Al-Ahsa, Kingdom of Saudi Arabia. *Asian Pac J Cancer Prev*. 2014;15(6):2529-32.
10. Borlu A, Gunay O, Balci E, Sagiroglu M. Knowledge and attitudes of medical and non-medical Turkish university students about cervical cancer and HPV vaccination. *Asian Pac J Cancer Prev*. 2016;17(1):299-303.
11. Yam PWM, Lam PL, Chan TK, Chau KW, Hsu ML, Lim YM, et al. A cross-sectional study of knowledge, attitudes and practices related to human papillomavirus vaccination for the prevention of cervical cancer among medical and non-medical students in Hong Kong. *Asian Pac J Cancer Prev*. 2017;18(6):1689-95.
12. Fu CJ, Pan XF, Zhao ZM, Saheb-Kashaf M, Chen F, Wen Y, et al. Knowledge, perceptions and acceptability of HPV vaccination among medical students in Chongqing, China. *Asian Pac J Cancer Prev*. 2014;15(15):6187-93.
13. Berenson AB, Hirth JM, Fuchs EL. US medical students' willingness to offer HPV vaccine by vaccination status. *Vaccine*. 2017 Mar;35(9):1212-5.
14. Afonso NM, Kavanagh MJ, Swanberg SM, Schulte JM, Wunderlich T, Victoria CL. Will they lead by example? Evaluation of vaccination rates and attitudes towards the human papilloma virus in millennial medical students. *BMC Public Health*. 2017;17(1):35.
15. Maharajan MK, Rajiah K, Fang-Num KS, Yong NJ. Knowledge of human papillomavirus infection, cervical cancer and willingness to pay for cervical cancer vaccination among ethnically diverse medical students in Malaysia. *Asian Pac J Cancer Prev*. 2015;16(14):5733-9.