

Assessment of the Knowledge of Human Papillomavirus Infection Complications, Cervical Cancer and Vaccine among Students of Medical Sciences College at Taif University: A Cross-Sectional Survey

Dr. Mazen Almehmadi

Collage of Applied Medical Sciences, Taif University, Taif city, Saudi Arabia.

ABSTRACT

Background: Cervical cancer incidence globally has been correlated to Human papillomavirus (HPV) infection. Knowledge of HPV is essential between medical sciences students.

Objectives: To evaluate the knowledge of HPV, cervical cancer and vaccine among medical sciences students at Taif university.

Methods: The cross-sectional study of a convenient sample encompassed 110 students in medical sciences college at Taif University, Taif, Saudi Arabia was conducted in June 2018. A self-administrated questionnaire was distributed to all students. Answers are evaluated using Pearson's Chi-square test. A p -value=0.05 was considered significant.

Results: More than 85% of the study group from both males and females have a previous knowledge regarding HPV. All students from different departments revealed significant knowledge about HPV. Students are also aware of cervical cancer, HPV-vaccine availability, route of HPV transmission, Pap smear. 93.63% of the study group recommend including HPV in premarital tests.

Conclusion: There is a significant level of knowledge regarding HPV, cervical cancer, Pap smear, and HPV-vaccine. Extra-curriculum activities have assisted in educating the students about HPV.

Keywords: HPV Human Papilloma Virus, Pap Smear Papanicolaou Smear Test.


*Correspondence to:

Dr. Mazen Almehmadi,
Collage of Applied Medical Sciences,
Taif University, Taif city, Saudi Arabia.

Article History:

Received: 24-05-2019, **Revised:** 17-06-2019, **Accepted:** 18-07-2019

Access this article online

Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2019.5.4.013	

INTRODUCTION

Cervical cancer incidence globally has been correlated to HPV infection.¹⁻³ According to Human Papillomavirus and related diseases report the women at risk of cervical cancer are about 2700 per million annually, and the new cases of cervical cancer annually is about half a million. Moreover, the annual death due to cervical cancer between women is about 300000 globally.⁴ Risk factors of HPV transmission is mainly skin-to-skin contact such as performing sexual activity with multiple partners at a young age or with infected person without any means of protection, likewise, transmission increases annually especially between sexually active personals⁵, smoking and autoimmune diseases can induce the transmission of HPV.^{6,7} In Saudi Arabia, cervical cancer was ranked 10th in 2015 between Saudi women nationally and 8th in Makkah region.⁸ HPV subtypes that can lead to cervical cancer are HPV- 16, 18, 31, 33, 35, 45, 52 and 58⁹ and HPV 16 and 18 are considered as the high risk subtypes.⁵

One of the important challenge for public health sector is to recruit graduates in their facilities with high levels of skills and knowledge. Medical sciences college of Taif university has four

major departments and they are laboratory, nursing, radiology and physiotherapy. Number of graduates annually is between 150 to 250 students. Graduates must develop enough knowledge about several types of diseases and infection. And they must be ready to develop and perform accurate communication and management with different type of patients including those with HPV or at risk of developing HPV-related-cancer. Thorough knowledge of HPV is essential, and it is an important contributing factor for providing adequate health services for patients and their families. Medical sciences students also must be aware of HPV risks, vaccines, transmission and preventive measures. Our recent study has shown lack of knowledge of Saudi population regarding HPV, cervical cancer and HPV vaccines¹⁰. In the past two years we have provided posters around the college to introduce HPV to the students, and we have made two students-graduation projects to help in educating the student regarding HPV.

This study has aimed to assess knowledge of the students regarding HPV transmission, complications and vaccination between medical sciences students in Taif university.

MATERIALS AND METHODS

Study Design: This cross-sectional web-based study conducted in June 2018 and aimed to include approximately 110 participants from college of medical sciences to investigate HPV knowledge between the medical sciences students. A web-based questionnaire was used for easiness of data collection and processing, as our previous studies have shown.^{10,11}

Data Collection: Data collection was performed by distributing of the survey link via WhatsApp mobile phone application. Questions included in the survey were designed according to the Health Information National Trends Survey (HINTS) commendations.

Questionnaire Interview: A structured questionnaire was used for the study. The questionnaire was designed based on several

earlier studies in different populations. Questions were categorized to investigate knowledge about HPV infection, cervical cancer, and HPV vaccines. For knowledge questions, respondents could choose only one of the 2 options, "Yes" or "No".

Data Analysis: The data were checked for completeness. Data analysis was performed using GNU PSPP 0.10.1-g1082b8 (PSPP Inc., Chicago, IL, USA). The differences in the answer distribution were analyzed using Pearson's Chi-square test. A p -value=0.05 was considered significant.

Ethical Approval: The study received ethical approval from the Research Ethics Committee at Taif University, Taif, Kingdom of Saudi Arabia.

Table 1: Demographic characteristics of the study group.

Characteristics		Male (n=55)	Female (n=55)	Total (n=110)	Percentage
Age	≤ 20 years	27	31	58	52.73%
	> 20 years	28	24	52	47.27%
Marital status	Single	45	47	92	83.64%
	Married	10	8	18	16.36%
City	Taif	49	6	55	50%
	Other	44	11	55	50%
Department	Laboratory	28	14	42	38.18%
	Nursing	12	12	24	21.82%
	Radiology	8	15	23	20.91%
	Physiotherapy	7	14	21	19.09%

Table 2: Knowledge score of HPV, results are significant when p -value=0.05.

Characteristics		Previous knowledge		Chi-square	P value
		Answers			
		Yes	No		
Gender	Males	49 (89.09%)	6 (10.91%)	61.13	0.0001
	Females	47 (85.45%)	8 (14.55%)		
Age	≤ 20 years	53 (91.38%)	5 (8.62%)	0.33	0.567
	> 20 years	43 (82.69%)	9 (17.31%)		
Marital status	Single	79 (85.87%)	13 (14.12%)	49.78	0.0001
	Married	17 (94.44%)	1 (5.56%)		
City	Taif	79 (84.95%)	14 (15.05%)	52.52	0.0001
	Other	17 (100%)	0		
Department	Laboratory	42 (100%)	0	61.13	0.0001
	Nursing	17 (70.83%)	7 (29.17%)		
	Radiology	18 (78.26%)	5 (21.74%)		
	Physiotherapy	19 (90.48%)	2 (9.52%)		

Table 3: HPV complications and vaccine general knowledge.

Questions	Answers		Chi-square	P value
	Yes (%)	No (%)		
Does HPV cause cervical cancer?	104 (94.5%)	6 (5.5%)	87.31	0.0001
Do HPV vaccines available?	102 (92.72%)	8 (7.37%)	80.33	0.0001
Is HPV sexually transmitted?	97 (88.18%)	13 (11.82%)	64.15	0.0001
Do you know Pap smear?	95 (86.35%)	15 (13.65%)	69.15	0.0001
Do you recommend adding HPV test to premarital tests?	103 (93.63%)	7 (6.36%)	83.78	0.0001
Is HPV infection common in Saudi Arabia?	44 (40%)	66 (60%)	4.4	0.036

RESULTS

Demographic Characteristics

Participants demographic characteristics of our study group is illustrated in table 1. The total number of participants was 110 students. Most of the students are singles. The highest percentage of them were from laboratory department and the lowest are from physiotherapy department.

Knowledge Score of HPV

To study the knowledge of HPV between medical sciences students, we have asked them if they have a previous knowledge of HPV and their answers are shown in table 2. Our study revealed most of the students are aware and have a previous knowledge about HPV. However, when we compared the knowledge of HPV against the age group it revealed insignificant result.

HPV Complications and Vaccine General Knowledge

Students were asked six questions regarding their general knowledge of HPV. Most of the students are aware that HPV lead to cervical cancer (*P value* 0.0001). Moreover, about 92% of the students knew that HPV vaccines are available (*P value* 0.0001). Moreover, 88.18% of the students knew that HPV is sexually transmitted infection (*P value* 0.0001). Also, higher numbers of students 86% are aware of Pap smear (*P value* 0.0001). Additionally, 93.63% of the students recommend adding HPV tests to the premarital tests (*P value* 0.0001). When they were asked if HPV infection is common in Saudi Arabia 40% has answered yes and 60% have answered no (*P value* 0.036).

DISCUSSION

HPV transmission requires skin-to-skin contact especially via sexual intercourse even without penetration with infected individual, there are many subtypes of HPV and some of them does not lead to severe health complications that lead to mortality such as cervical and anal cancer. High-risk group HPV-16 and -18 can lead to cancer and these are common in Saudi Arabia.¹² HPV is cleared in immune-competent patients by the immune system, however, persistence infection can increase the risk of developing cancer.¹³ Globally, according to the World Organization WHO cervical cancer is frequent with women with about 570 thousands cases every year, moreover, vaccination programs are available to help protecting younger women from HPV infection. Moreover, in developed countries national screening programs are available, and women are checked regularly for any signs of cervical cancer. However, developing countries are unable to provide such programs.¹⁴ Those programs start protecting girls from the age of 9 years to 14 years.^{14,15} Our latest study has revealed lack of awareness of Saudi population regarding HPV, cervical cancer and HPV-vaccination¹⁰. In the past two years we have made several activities around the college to educate students regarding HPV including posters and research projects. Most of participants on our study were ≤ 20 years, single, from Taif and from laboratory department. When we have studied the knowledge of HPV between the students, both males and females are aware of HPV and that is consistent with other study on similar study group¹⁶ and contrast many previous studies which found lack of knowledge regarding HPV.^{10,17,18} Moreover, when we compared participants answers according to other categories, all the categories are significantly aware of HPV and they are marital status, residents from Taif and other cities and all the

departments. Following that, students were asked six questions to evaluate their overall knowledge of cervical cancer, vaccination, transmission and pap smear and all of the answers revealed significant knowledge regarding these subjects which is similar to another study performed in similar study group¹⁶ and contrast to several other studies.^{10,19}

We have focused on this study population due to its vital role in the future in health services providing. They are obligated to work with all types of patients with variable backgrounds and they must provide accurate information regarding HPV, cervical cancer complications, treatments, diagnosis and prevention methods. It is clear that providing extra-curriculum activities like posters, leaflets and seminars have assisted in increasing the knowledge and awareness of HPV between the students.

CONCLUSION

There is a significant level of knowledge regarding HPV, cervical cancer, Pap smear, and HPV-vaccine. Knowledge of our study group regarding several diseases and infection is essential. Extra-curriculum activities have assisted in educating the students about HPV.

LIMITATIONS

The study sample size is 110 students which is acceptable however increasing the number of participants is considered as a future direction. About 6 participant's results were rejected due to unfinished survey. For future direction, students will be asked about the source of their knowledge of HPV.

REFERENCES

1. Darwich L, Cañadas M-P, Videla S, et al. Prevalence, clearance, and incidence of human papillomavirus type-specific infection at the anal and penile site of HIV-infected men. *Sex Transm Dis*. 2013;40(8):611-618. Accessed June 10, 2019. doi:10.1097/01.OLQ.0000430798.61475.08. <https://www.ncbi.nlm.nih.gov/pubmed/23859907>.
2. Khan TM, Buksh MA, Rehman IU, Saleem A. Knowledge, attitudes, and perception towards human papillomavirus among university students in Pakistan. *Papillomavirus Res*. 2016;2:122-127. doi:10.1016/j.pvr.2016.06.001. Accessed June 10, 2019. www.sciencedirect.com/science/article/pii/S2405852116300258.
3. Brianti P, De Flammoneis E, Mercuri SR. Review of HPV-related diseases and cancers. *New Microbiol*. 2017;40(2):80-85. http://www.newmicrobiologica.org/PUB/allegati_pdf/2017/2/80.pdf. Accessed June 11, 2019.
4. Bruni L, Albero G, Serrano B, et al. Human Papilloma Virus and Related Diseases in the World- Summary Report.; 2019. www.hpvcentre.net. Accessed June 16, 2019.
5. Psyrris A, DiMaio D. Human papillomavirus in cervical and head-and-neck cancer. *Nat Clin Pract Oncol*. 2008;5(1):24-31. doi:10.1038/ncponc0984. Accessed June 16, 2019. <https://www.ncbi.nlm.nih.gov/pubmed/18097454>.
6. Vivek S, Avinash D, Rakesh W, Mrunal S. A PROJECT ON HUMAN PAPILOMAVIRUS-A REVIEW. Vol 1.; 2018. www.ijaps.net. Accessed January 29, 2019.
7. Dunne EF, Nielson CM, Stone KM, Markowitz LE, Giuliano AR. Prevalence of HPV infection among men: A systematic review of the literature. *J Infect Dis*. 2006;194(8):1044-1057. doi:10.1086/507432. Accessed January 12, 2019.

<https://www.ncbi.nlm.nih.gov/pubmed/16991079>.

8. Cancer Incidence Report Saudi Arabia 2015; 2015. <https://nhic.gov.sa/eServices/Documents/2014.pdf>. Accessed June 11, 2019.

9. Mañon R, Schimp V, Gopalan P, Pattani K, Tseng J. The Impact of HPV as an Etiological Factor in Gynecological and Oropharyngeal Cancer. *Am J Lifestyle Med*. 2016;10(4):253-261. doi:10.1177/1559827615569707. Accessed June 11, 2019. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6125059>.

10. Almeahadi M, Salih M, Al-hazmi A. Awareness of human papillomavirus infection complications, cervical cancer, and vaccine among the Saudi population. A cross-sectional survey. *Saudi Med J*. 2019;40(6):555-559. doi:10.15537/smj.2019.6.24208. Accessed June 12, 2019. <https://www.ncbi.nlm.nih.gov/pubmed/31219489>.

11. Almeahadi M, Al-Hazmi A, Shafie A, et al. Assessment of Knowledge, Attitude and Smoking-Addiction between Students of Medical Sciences Regarding Electron-Cigarettes. *Orig Res Artic*. 2019;81(3). doi:10.21276/ijmrp.2019.5.3.018. Accessed June 12, 2019.

12. Alsbeih G. HPV Infection in Cervical and Other Cancers in Saudi Arabia: Implication for Prevention and Vaccination. *Front Oncol*. 2014;4(March):65. doi:10.3389/fonc.2014.00065. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3978341/pdf/fonc-04-00065.pdf>. Accessed June 12, 2019.

13. Nunes RAL, Morale MG, Silva GÁF, Villa LL, Termini L. Innate immunity and HPV: friends or foes. *Clinics (Sao Paulo)*. 2018;73 (suppl 1):e549s. Accessed June 12, 2019. doi:10.6061/clinics/2018/e549s. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6157093>.

14. Human papillomavirus (HPV) and cervical cancer. [https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-\(hpv\)-and-cervical-cancer](https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer). Accessed January 29, 2019.

15. Makwe CC, Anorlu RI, Odeyemi KA. Human papillomavirus (HPV) infection and vaccines: Knowledge, attitude and perception among female students at the University of Lagos, Lagos, Nigeria. *J Epidemiol Glob Health*. 2012. doi:10.1016/j.jegh.2012.11.001. <https://www.ncbi.nlm.nih.gov/pubmed/23856501>. Accessed March 20, 2019.

16. Rajiah K, Maharajan MK, Chin NS, Num KSF. Awareness and acceptance of human papillomavirus vaccination among health sciences students in Malaysia. *VirusDisease*. 2015;26(4):297-303. doi:10.1007/s13337-015-0287-3. Accessed June 11, 2019. <https://www.ncbi.nlm.nih.gov/pubmed/26645041>.

17. Touch S, Oh JK. Knowledge, attitudes, and practices toward cervical cancer prevention among women in Kampong Speu Province, Cambodia. *BMC Cancer*. 2018. doi:10.1186/s12885-018-4198-8. <https://www.ncbi.nlm.nih.gov/pubmed/29544466>. Accessed June 11, 2019.

18. C.C. R, R.P. E, J. J, et al. Knowledge about human papillomavirus and the HPV vaccine - A survey of the general population. *Infect Agent Cancer*. 2009. doi:10.1186/1750-9378-4-S1-S10. Accessed June 1, 2019. <https://www.ncbi.nlm.nih.gov/pubmed/19208201>.

19. Al-Shaikh GK, Almussaed EM, Fayed AA, et al. Knowledge of Saudi female university students regarding cervical cancer and acceptance of the human papilloma virus vaccine. *Saudi Med J*. 2014. doi:10.15537/smj.2015.2.11250. Accessed June 1, 2019. <https://www.ncbi.nlm.nih.gov/pubmed/25316467>.

Source of Support: Nil.

Conflict of Interest: None Declared.

Copyright: © the author(s) and publisher. IJMRP is an official publication of Ibn Sina Academy of Medieval Medicine & Sciences, registered in 2001 under Indian Trusts Act, 1882. This is an open access article distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Cite this article as: Dr. Mazen Almeahadi. Assessment of the Knowledge of Human Papillomavirus Infection Complications, Cervical Cancer and Vaccine among Students of Medical Sciences College at Taif University: A Cross-Sectional Survey. *Int J Med Res Prof*. 2019 July; 5(4):52-55. DOI:10.21276/ijmrp.2019.5.4.013