

# Awareness of family physicians about human papillomavirus and prevention methods

Ahmet Deveci<sup>1</sup>, Suleyman Ersoy<sup>1</sup>, Emin Pala<sup>1</sup>

<sup>1</sup> Department of Family Medicine, University of Health Sciences Turkey Hamidiye Medical Faculty, İstanbul, TURKEY

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## ABSTRACT

**Aim:** In this study we aimed to determine the knowledge level of family physicians about Human Papilloma Virus (HPV) infection and HPV vaccines.

**Methods:** A total of 208 resident physicians working in the Department of Family Medicine were included in the study. Each participant was asked to fill out an HPV awareness questionnaire, which consisted of 22 questions. In cases where family physicians did not recommend HPV vaccines, the reasons were noted.

**Results:** The median age was 29 years. A total of 207 of the participants (67.4%) stated that they advised HPV vaccines. Among the family medicine resident physicians, “don’t know” as a response to questions about general information regarding HPV was between 0.3-5.8 percent. The most common reasons not to recommend the vaccine were lack of knowledge (17.4%), the vaccine not being in the schedule of the Health Ministry (16.1%) and the high cost (15.8%).

**Conclusions:** The findings obtained in our study show that the level of knowledge of resident physicians on HPV infections, cervical cancer and HPV vaccines and their support rate for HPV vaccines were inadequate. For better protection from HPV, family physicians should be better informed about the disease.

**Keywords:** HPV, cervical cancer, HPV vaccine, family physicians

**Corresponding Author:** Emin PALA [eminpala72@gmail.com](mailto:eminpala72@gmail.com)

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## Introduction

Human papillomavirus (HPV) is a sexually transmitted virus with a high potential for carcinogenesis. HPV infection is the most common entity among sexually transmitted diseases. Moreover, it can spread easily by dermal contact from person to person. Globally, among sexually active adults the probability of being infected by this virus during a person's lifetime is reported as nearly 50% (1). HPV infection is most commonly seen at 16-20 years of age. In Turkey, its prevalence is reported to be between 2-20% (2,3). Spontaneous recovery is the rule, but sometimes complete recovery does not occur and it remains in its location within the body. This may lead to precancerous lesions and if left untreated it may transform to cervical cancer in 20-30 years (3-5). Cervical cancer is the 9<sup>th</sup> most common cancer seen in females (1).

HPV infection occurs in individuals most commonly within the first two years of the suspected sexual contact. After contact, there is a risk of development of genital warts and malignancy. HPV has been isolated from nearly all (99.7%) of the cervical samples of women diagnosed with cervical cancer (1,2,4). There are more than 20 subtypes of HPV. HPV 16 and 18 subtypes are reported as the culprit in cervical cancer cases. Using condoms during sexual contact may attenuate the rate of transmission by way of sexual contact but it cannot totally eliminate the risk of transmission (1,5-7).

Diagnosis, prevention and treatment of HPV infections accompany a decrease in cervical cancer incidence. Thus, detection of viral DNA is one of the important tests. Moreover, histopathologic tests carried out for cervical cancer screening are used for early diagnosis (3,4,8,9).

Sexually active males and females are at risk for HPV infection. Protection against sexually-transmitted diseases (using condoms, etc.), cessation of cigarette smoking, effective screening, treatment of premalignant lesions, and vaccines developed against HPV in recent years are important for prevention of genital warts and cervical cancer caused by HPV. Vaccines should be applied before active sexual life starts at a young age (between 9-26 years old), but if sexual activity has not yet started, the upper limit of 26 years may increase to 40 years of age (10). Asymptomatic precursory lesions may be detected by screening programs and if they are effectively treated cervical cancer may be prevented to a great extent (6).

In this study, we aimed to determine the knowledge levels of family physicians about HPV infection and HPV vaccines.

## Methods

### *Scope of the study and data collection*

The study was designed as a prospective cross-sectional study. Family medicine resident physicians working in the education and training hospitals affiliated with the University of Health Sciences in Istanbul (Bagcilar Education and Training Hospital, Fatih Sultan Mehmet Education and Training Hospital, Haydarpasa Education and Training Hospital, Kartal Education and Training Hospital), and as another group, resident physicians working in primary care units in Istanbul, a total of 310 family physicians, were included in the study. Questionnaires were delivered to the physicians during September 2020.

### *Ethics*

An approval document was obtained from the local ethics committee on 19 December 2019 with decision no:241. Our study was in accordance with the Helsinki Declaration and principles of Good Clinical Practice.

Before applying the questionnaire, written informed consent was obtained from each of the subjects.

### *Applying the Questionnaire*

The HPV awareness questionnaire consisting of 25 questions aimed to evaluate the awareness level of HPV and prevention methods was prepared by the authors and given to each participant in the study. The questions were usually answered with "true", "false" or "don't know" and were aimed to determine the level of knowledge on the subject. Answers were evaluated based on each question separately and there was no scoring.

### **Statistical Analysis**

Statistical analysis was performed using SPSS 25.0 software (IBM SPSS, Chicago, IL, USA). Descriptive data are presented as number and percentage.

### **Results**

The questionnaire was given to 208 (67.1%) FMRP-Hs and 102 (32.9%) FMRP-Ps, a total of 310 resident physicians. 167 (53.9%) of the resident physicians were male and 143 (46.1%) were female. Median age of the participants was 29 years. Mean age was 29.8±3.5 years (range: 25-44 years median: 29 years). 207(67.4%) of the participants stated that they advised HPV vaccines. A quadrivalent vaccine is the most recommended vaccine (70.1%). Also, 37.5% of the family medicine resident physicians stated that there is one type of HPV and 35.6% said there are three types of HPV (Table 1).

**Table 1.** Some characteristics of the resident physicians

	N	%
Type of residency		
FMRP-H	208	67.1
FMRP-P	102	32.9
Do you advise HPV vaccine to your patients?		
Advise HPV vaccine	207	67.4
Don't advise HPV vaccine	100	32.6
Which vaccine do you recommend		
Bivalent vaccine	26	11.3
Quadrivalent vaccines	162	70.1
Nine-valent vaccines	43	18.6
How many HPV types are there?		
1	110	35.6
2	16	5.2
3	116	37.5
4	67	21.7

*Family medicine resident physicians working in the education and training hospitals(FMRP-H),Family medicine resident physicians working in primary care units (FMRP-P),Human papillomavirus (HPV).*

Among the family medicine resident physicians, “don’t know” as a response to questions about general information regarding HPV was between 0.3-5.8 percent. The highest response given as “true” were the questions whether HPV causes cervical cancer (96.8%), whether HPV causes genital warts (95.8%), whether HPV genital warts are transmissible (92.3%),

and whether the most common subtypes causing warts are type 6 and 11.

The least consensus on the responses was for questions on whether HPV infection can be prevented by using condoms and whether HPV infection can spontaneously recover (Table 2).

**Table 2.** Questions about HPV and distribution of the answers of the resident physicians

	True		False		Don't know	
	n	%	n	%	n	%
It is a viral disease transmitted only sexually	73	23.5	234	75.5	3	1.0
Recovers spontaneously	104	33.5	188	60.6	18	5.8
It may cause genital warts	297	95.8	12	3.9	1	0.3
Most common types causing warts are 6 and 11	285	91.9	19	6.1	6	1.9
It may cause cervical cancer	300	96.8	9	2.9	1	0.3
It may be transmitted by strong friction and/or WC without sexual contact	264	85.2	40	12.9	6	1.9
Genital warts occurring due to HPV are usually transmissible	286	92.3	19	6.1	5	1.6
It may be transmitted by oral sex	257	82.9	35	11.3	18	5.8
Prevention is possible by using birth control methods such as oral contraceptives and monthly injections	64	20.6	241	77.7	5	1.6
Prevention is possible by using barrier methods such as condoms	177	57.1	126	40.6	7	2.3
Recommended HPV vaccine target population is 9-26 years of age	253	81.6	46	14.8	11	3.5
HPV vaccine is included in vaccination schedule of Health Ministry	44	14.2	253	81.6	13	4.2
Sexual contact at an early age increases the risk of HPV transmission	237	76.5	62	20.0	11	3.5
HPV vaccine protects from cervical cancer	275	88.7	34	11.0	1	0.3
PAP smear is redundant in women who had a HPV vaccine	57	18.4	246	79.4	7	2.3
Treatment is possible by early diagnosis	278	89.7	26	8.4	6	1.9
HPV clinical signs may be seen in pregnant women and newborns	277	89.4	17	5.5	16	5.2
Genital hygiene is important in disease prevention	243	78.1	46	14.8	21	6.8

*Human papillomavirus (HPV).*

Among the resident physicians who did not advise the HPV vaccine to their patients, the most common rationale behind this was inadequate knowledge and experience (17.4%), non-inclusion of the vaccine in

the vaccination schedule of the health ministry (16.1%) and the high cost of the vaccine (15.8%) (Table3).

**Table 3.** The rationale of resident physicians who do not recommend vaccination

	n	%
It is not included in the vaccination schedule of the Health Ministry	50	16.1
Lack of adequate knowledge and experience	54	17.4
High cost	49	15.8
Probable side effects	5	1.6
Having thought that drug companies promote its recommendation for profit-making	5	1.6
Having thought that it's not widely accepted among colleagues	2	0.6
Having thought that it may increase sexually risky behaviors	5	1.6
It is not widely accepted within the society	21	6.8
Probability of social stigmatization	9	2.9

## Discussion

In our study, we have measured the actual knowledge and awareness level of family medicine resident physicians on HPV infection, but we have observed that in some aspects the level of knowledge was less than it should be for a physician. Incorrect information about HPV is prevalent and thus efforts to prevent HPV results in inefficient outcomes (13-17). In studies carried out on patients, Kops et al. (18), Adıgüzel et al. (19), Saylam Kurtipek et al. (20) and Oz et al. (54) have reported that respectively 26%, 40%, 50% and 14% of the participants have stated that they obtained the information about HPV and HPV vaccines from health professionals. Cocchio et al. (11) have determined that the most convincing information (1.7 times more)

was obtained from health professionals by patients who planned to get a vaccine against HPV infection. These data show how significant is the effect of the knowledge level of health professionals on society. Alongside all other clinical sciences, family medicine also occupies a significant place in public health by facilitating maintenance of a healthy life for individuals and providing them proper guidance for diagnosis, treatment and clinical orientation. The knowledge level of all clinicians working in family medicine is noteworthy regarding clinical guidance for their patients (11, 12, 18-21). For participation in our study, we selected physicians who had not completed their residency training with the idea that, if the data so indicate, informing and educating about HPV may become a part of the curricula of residency training.

Lack of knowledge of HPV, cervical cancer and HPV vaccines within the general population is common (22-25). In population-based studies, the answer to the question of whether HPV may cause cervical cancer is reported as 70%, 53%, 52%, 80%, 41%, 55% and 57% respectively by Adjei Boakye et al. (22), Grigore et al. (23) et al. (11), Kaya-Şenol et al. (24), Dursun et al. (25), Lin et al. (26) and Saylam-Kurtipek et al. (20). Görkem et al. (27), Schmidt-Grimminger et al. (13) and Sherman et al. (28) have found the rate of positive answers to the same question by health professionals as 89.1%, 70% and 99%, respectively. The rate of positive answers among doctors to the question of whether HPV may cause cervical cancer is reported as 79%, 97% and 100%, respectively, by Almughais et al. (14), Anfinan et al. (15) and Naki et al. (16). In our study the rate was 96.8% for resident physicians. These data indicate that knowledge on the association between HPV and cervical cancer is not too low among the general population, and knowledge of health professionals and doctors is adequate, but the information given to the general population by health professionals seems somewhat insufficient.

Correct knowledge of transmission routes of HPV among auxiliary health personnel is reported as 56.2% by Görkem et al. (27) and 89% by Sherman et al. (28). Cocchio et al. (11) have reported that 12% of participants have stated that HPV may be transmitted by dermal contact. Khamisy-Farah et al. (29) have reported the correct knowledge rate of doctors about body areas that may be infected by HPV as 58%. In our study, the correct knowledge rate of transmission routes of HPV was between 75-85%. Cocchio et al. (11) have found that 75% of

young people think that prevention from HPV infection is possible by using condoms. Khamisy-Farah et al. (28) have stated that the rate of correct knowledge of prevention from cervical cancer as 87% among specialist or resident physicians in various clinical areas. In our study, 57% of the physicians thought that prevention from HPV infection is possible by using condoms. These data reveal that the knowledge level of the general population and health professionals on transmission routes and prevention of HPV infection is inadequate.

In a population-based study carried out by Adjei Boakye et al. (22), those who thought that HPV infection recovers spontaneously was reported as 46%. Naki et al. (16) have reported that 76% of the doctors thought that HPV infection recovers spontaneously. In our study this rate was 33.5% among resident physicians. The question whether HPV infection recovers spontaneously was one of the questions with the lowest consensus among the answers. These observations show that there is misunderstanding about spontaneous recovery of HPV infection, even among doctors. Moreover, the opinion that HPV infection may recover spontaneously may lower the sensitivity of doctors to the diseases caused by HPV and their support for HPV vaccination.

In our study we found that 88.7% of the resident physicians had knowledge about the preventive role of HPV vaccination in cervical cancer. This rate was reported as 81% for all health professionals by Sherman et al. (28) and as 98% for doctors by Almughais et al. (14). Görkem et al. (27) have reported that 81% of auxiliary health personnel knew the ideal age range for HPV vaccination (9-26 years of age). Almughais et al. have reported this rate as 96%

among doctors. And in our study the rate was 81.6% among participants.

Support for HPV vaccination in the general population was reported as 70-80% by Korfage et al. (31), 51% by Grigore et al. (23), 63% by Lin et al. (26), 62% by Singh et al. (30), 43% by Adigüzel et al. (19), 70% by Dursun et al. (32) and 45% by Oz et al. (21). Sherman et al. (28) reported the vaccination support rate as 97% among health professionals. In studies where the participants were doctors, the rate of HPV vaccination supporters was reported as 17% by Almughais et al. (24), 40% by Anfinan et al. (25), 80% by Khamisy-Farah et al. (29) and 50-85% by Naki et al. (26). In our study it was observed that 67.4% of resident physicians advised vaccination to their patients. Opposition of doctors to HPV vaccination or their non-recommendation of the vaccine routinely stems from different reasons. These include (i) incorrect or incomplete information about HPV or the HPV vaccine, (ii) non-inclusion of the HPV vaccine in the routine vaccination schedule of the health ministry, (iii) high cost of the vaccine, (iv) absence of widespread acceptance for the vaccine, (v) the opinion that vaccination may increase the prevalence of risky sexual behavior, and (vi) lack of confidence in the efficacy of the vaccine (13-17). Abi Jaoude et al. (17) have shown that opposition to HPV vaccination is significantly lower among doctors with a high level of knowledge. Naki et al. (16) have found that the most common reason for opposition to the HPV vaccine was lack of knowledge. In our study, the rate of positive response to questions of whether HPV infection can be prevented by using condoms and whether the recommended HPV vaccine target population is those who are 9-26 years old was significantly higher among

those who did not advise the HPV vaccine to their patients compared to those who advised the HPV vaccine. Moreover, in our study the most common rationale for not recommending the HPV vaccine was lack of adequate knowledge and experience about the HPV vaccine. These data reveal that inadequate knowledge and inexperience about the HPV vaccine on the side of doctors results in a lower rate of vaccine recommendation. Abi Jaoude et al. (17) have reported that 38% of doctors explained the reason for not recommending the HPV vaccine as non-inclusion of the vaccine in the routine national vaccination schedule. In our study, besides non-inclusion of the vaccine in the health ministry vaccination schedule, the high cost of the HPV vaccine was also declared as a reason for not recommending it. Moreover, the rate of those who did not know that the HPV vaccine is not included in the health ministry vaccination schedule was higher among resident physicians who did not advise the vaccine compared to those who advised the vaccine. These data show that non-inclusion of the HPV vaccine in the routine national vaccine schedule decreases the rate of vaccine recommendation. One of the findings in our study showed that 11% of resident physicians thought that the vaccine is not effective in prevention of cervical cancer and this indicates a presence of lower confidence in the vaccine.

There are differences in information level and opinions of doctors regarding infections associated with HPV and HPV vaccination issues (13-17). For instance, in our study, a higher percentage of male resident physicians thought that HPV infection may be transmitted only by sexual contact and HPV infection may recover spontaneously compared to their female



counterparts, and a lower percentage of them think sexual contact at an early age increases the risk of HPV transmission compared to female resident physicians. Anfinan et al. (15) have reported that specialist physicians are significantly more informed and knowledgeable than resident physicians.

### Conflict of interest

The authors declare that there is no conflict of interest.

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