

Social Approach to Human Papilloma Virus and Vaccine: Reflection of Knowledge, Attitudes and Costs

✉ Melih Bestel, ✉ Elif Uçar

Department of Obstetrics and Gynecology, İstanbul Esenyurt University, Private Esencan Hospital, İstanbul, Türkiye

ABSTRACT

Objective: The aim of this study was to evaluate the level of knowledge of the public about human papilloma virus (HPV) and the HPV vaccine, and to determine their attitudes towards HPV vaccination and the obstacles they encounter.

Materials and Methods: In this descriptive study, a structured questionnaire including questions about HPV infection, vaccine types, vaccination age ranges, and vaccine efficacy was applied to the participants. In addition, the effect of factors such as their attitudes towards vaccination, information sources, and the cost of vaccination were also evaluated.

Results: The results showed that there is a serious lack of knowledge about HPV and the HPV vaccine in the community. Most of the participants were not sufficiently familiar with the vaccine, did not know what HPV infection was, and had doubts about the protection of the vaccine. Lack of information, cost, lack of confidence, and inadequacies in the health system were the main reasons for not getting vaccinated.

Conclusion: Our study revealed that public awareness of HPV vaccination is low, and the cost of the vaccine is an important barrier. In order to implement an effective HPV vaccination programme, health policies should be established to raise public awareness, the cost of the vaccine should be reduced, and educational activities should be increased through health professionals.

Keywords: Human papilloma virus, HPV vaccine, opposition to vaccine, social awareness, student

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INTRODUCTION

Human papillomavirus (HPV) can cause condylomas in various parts of the body and is a public health problem closely related to head and neck cancers and cervical cancer. More than 500,000 newly diagnosed cases of cervical cancer are detected each year.^[1] It has been reported that cervical cancer caused more than 34,000 deaths after 2020.^[2] The majority of these deaths were observed in undeveloped or developing countries.^[3,4] In recent years, there has been a significant downward trend in the mortality and morbidity of cervical cancer with the widespread use of cervical cancer screening and vaccination programmes in developed countries.^[5] However, in undeveloped or developing countries, it is observed that there is an increasing trend in the morbidity and mortality of cervical cancer due to deficiencies in screening programmes and defects in the health system.^[6] Studies have

shown that HPV species in the high-risk group are the etiological agents of cervical cancer with persistent infection.^[7] In their study, Ngo-Metzger et al.^[7] found that high-risk strains were present in 99.7% of patients with cervical cancer.

HPV is quite common in sexually active men and women. It can often resolve spontaneously without requiring any treatment or giving any symptoms. However, some types cause permanent infections that may lead to cervical cancer.^[8] There are more than 200 defined types of HPV.^[9] HPV 16 and HPV 18 types are the most common types in terms of cervical cancer risk. These HPV species play an important role in the aetiology of cervical intraepithelial neoplasia and then invasive cervical cancer by integrating into the genomic DNA of the individual. It may cause cancer through oncogenic activations and disruptions in the tumour suppressor mechanism.^[10,11]



Address for Correspondence: Elif Uçar, Department of Obstetrics and Gynecology, İstanbul Esenyurt University, Private Esencan Hospital, İstanbul, Türkiye
E-mail: elifyy@hotmail.com **ORCID ID:** 0000-0001-5302-4688

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Cervical cancer is recognised as one of the most preventable and treatable cancer types worldwide. In the prevention of this disease, the HPV vaccine stands out as the primary protection method and regular screening tests as the secondary protection method. If the HPV vaccine is included in national immunisation programmes, vaccination of adolescent girls and boys before they start sexual life will be one of the most effective ways to prevent the spread of HPV infection.^[11]

In this study, it was aimed to measure the level of awareness of the public about HPV in a developing country and to evaluate their perspectives on the vaccination programme.

MATERIALS and METHODS

In 2024, 560 people consisting of women and their male partners who came to the obstetrics and gynaecology department of a private hospital for examination for any reason were included in the study. The study was prospectively designed, and the participants were randomly and voluntarily selected. The patients were first informed about the study, and the questionnaire was applied before their examination. The results were recorded. Pregnant patients were not included in the study. This study was approved by the Ethics Committee of Istanbul Esenyurt University (07.09.2023 date and 2023/08-04, Number: E-12483425-299-35342). The study was conducted in accordance with the Declaration of Helsinki.

Statistical Analysis

Descriptive statistics were used in the study. Statistical analyses were performed using SPSS (IBM SPSS Statistics 27; IBM Corporation, Armonk, NY, USA) package programme. Frequency tables and descriptive statistics were used to interpret the findings.

RESULTS

Of the 560 people included in this study, 475 (84.9%) were in the 18–30 age group, 466 (83.2%) were female, 364 (65.0%) had an associate degree, and 551 (98.4%) lived in the city. 234 (41.7%) had a monthly income of <10,000 TL, 373 (66.6%) had health insurance, and 482 (86.1%) did not receive HPV vaccination (Table 1). The results of the answers given to the questions in the questionnaire are shown in Tables 2 and 3.

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Level of Knowledge

Most of the patients (64.5%) who came for examination knew that cervical cancer is the most common gynaecological cancer. However, only 25.1% knew that smoking was a risk factor for this type of cancer. Only 53.4% of the patients knew that HPV can be prevented by barrier methods such as condoms.

Table 1. Demographic data					
Variable (n=560)			Variable (n=560)		
	n	%		n	%
Age			License	90	16.1
Under 18	10	1.8	Master's Degree	14	2.5
18–30	475	84.8	Region of Residence		
31–40	58	10.4	City	551	98.4
41–50	11	2.0	Rular	9	1.6
50 years and over	6	1.0	Monthly income level		
Gender			Less than 10.000 TL	234	41.7
Female	466	83.2	10.000–20.000 TL	202	36.1
Male	94	16.8	More than 60.000 TL	124	22.2
Education			Health Insurance		
Illiterate	3	0.5	Yes	373	66.6
Primary School	11	2.0	No	187	33.4
Secondary Education	15	2.6	HPV vaccine		
High School	63	11.3	Yes	78	13.9
Associate Degree	364	65.0	No	482	86.1

HPV: Human papillomavirus

Table 2. HPV awareness level

Variable	Yes		No		I don't know	
	n	%	n	%	n	%
1. Cervical cancer is the most common gynaecological cancer in the population.	361	64.5	61	10.9	138	24.6
2. The prevalence of cervical cancer in Türkiye is lower than the world average.	162	29.0	157	28.0	241	43.0
3. The majority of cervical cancer cases are seen in developed regions	214	38.2	143	25.5	203	36.3
4. A history of sexually transmitted diseases is a risk factor for cervical cancer.	417	74.5	46	8.2	97	17.3
5. Smoking is not a risk factor for cervical cancer.	141	25.1	268	47.9	151	27.0
6. Oral contraceptive use (birth control pill) is a risk factor for cervical cancer.	197	35.2	141	25.2	222	39.6
7. Having many births is protective for cervical cancer.	147	26.3	216	38.5	197	35.2
8. HPV can be protected by barrier methods such as condoms.	299	53.4	105	18.8	156	27.8
9. HPV can be prevented by birth control methods such as birth control pills and monthly injections.	180	32.1	187	33.4	193	34.5
10. HPV has been detected in most of the cervical cancer cases.	225	40.2	68	12.1	267	47.7
11. HPV is a sexually transmitted infectious agent.	372	66.4	86	15.4	102	18.2
12. HPV can cause genital and extragenital (mouth, throat) warts.	352	62.8	62	11.1	146	26.1
13. There is no screening programme for cervical cancer in our country.	142	25.4	171	30.5	247	44.1
14. Pap-smear test and detection of high-risk HPV types are used in screening.	253	45.1	90	16.1	217	38.8
15. Screening reduces the incidence and mortality of cervical cancer.	213	38	111	19.9	236	42.1
16. HPV is not a serious enough infection to require vaccination.	121	21.6	323	57.7	116	20.7
17. HPV vaccine is protective against some types of cancer in both men and women.	300	53.6	92	16.4	168	30
18. The virus type-specific protection of HPV vaccine in HPV infection is close to 100%.	177	31.6	117	20.9	266	47.5
19. The protection of HPV vaccine against cervical cancer is around 70%.	235	42	76	13.6	249	44.4
20. The ideal age group recommended for HPV vaccination is 11–12 years.	185	33	113	20.2	262	46.8
21. HPV vaccine is included in the routine vaccination programme of the Ministry of Health.	196	35	152	27.1	212	37.9
22. HPV vaccines in Türkiye are of three types: 2, 4, 9-valent and these vaccines are administered in 3 doses.	224	40	39	7	297	53
23. There is no need for screening with pap smear in people who have received HPV vaccine.	111	19.8	184	32.9	265	47.3
24. There is less need for people who have been vaccinated against HPV to use or have a condom used during sexual intercourse.	142	25.4	195	34.8	223	39.8
25. The price of a dose of HPV vaccine is around 1.000 TL	180	32.1	91	16.3	289	51.6

HPV: Human papillomavirus

Table 3. Willingness to be vaccinated

Variable	Yes		No		Ambivalent	
	n	%	n	%	n	%
I'll get the HPV vaccine	331	59.1	54	9.6	175	31.3
If I had a daughter. I would have her vaccinated against HPV	331	59.1	42	7.5	187	33.4
If I had a son. I would have him vaccinated against HPV	308	55	55	9.8	197	35.2
I buy the HPV vaccine for a fee and get it done	230	41.1	96	17.1	234	41.8
I will get the HPV vaccine if it is covered by social security	339	60.5	51	9.1	170	30.4

Table 4. Motivators

Motivators	n	%
Where did you learn about the vaccine?		
Social media	122	21.8
Television	30	5.3
Doctors	76	13.6
Friend	55	9.8
I didn't know about the vaccine	277	49.5
Which lesions does the vaccine protect against?		
Condyloma (wart)	185	33
Cancer	102	18.2
None of them	47	8.4
All of them	226	40.4

67.9% did not know that OCS and monthly injections were not protective. 69.5% of the patients did not know that there is a screening programme for cervical cancer in our country, and 54.9% did not know that smear and high-risk HPV types are investigated in screening. 53.6% knew that vaccination protects both men and women. 60% of the patients did not know that there are 3 types of vaccines in our country (Table 2).

Willingness

In addition, the perspective of the patients on vaccination was evaluated. 59.1% of the patients stated that they would have the vaccine, 59.1% said that they would have the vaccine for their daughters, and 55% said that they would have the vaccine for their sons. While 41.1% of the patients stated that they would have the vaccine even if it was paid, this rate increased to 60.5% if the vaccine was included in the scope of insurance payment by the state (Table 3).

Motivating Factors

21.8% of the patients stated that they learned about the vaccine from social media, and 13.6% from doctors or health workers. 33% of the patients stated that the vaccine was protective against condyloma, 18.2% stated that it was protective against cancer, and 40.4% stated that it was protective against both (Table 4).

DISCUSSION

In this study, we aimed to evaluate the level of knowledge of the public about HPV and to reveal their attitudes towards HPV vaccination. Our results show that there is a serious lack of knowledge among the public and that opposition to vaccination is widespread. Opposition to vaccination is not only due to lack of knowledge but also due to financial concerns

and inadequacies of healthcare providers. With the introduction of the 9-valent HPV vaccine in our country, it has been observed that clinicians have started to recommend this vaccine more frequently. In this study, it was aimed to determine the public's perspective and negative motivations towards HPV vaccination, to reveal the correctable factors, and to contribute to health policies on cervical cancer prevention.

The American Academy of Paediatrics recommends that HPV vaccination should be initiated between the ages of 9–12 years.^[12] In 2007, Australia was the first country to implement the HPV vaccination programme for girls, and in 2013 for boys, with full funding.^[13] Although this practice has been successful, it is reported that efforts to increase the impact of the programme are still ongoing. In Türkiye, even the 4-variant HPV vaccine is not yet fully financed by the public, and vaccination is carried out through individual initiatives and the efforts of healthcare professionals. Again, in a study conducted by Akcaoglu et al.^[14] in Türkiye, it was found that vaccination rates were quite low even in adults, let alone in the paediatric age group. In our study, we found that the rate of those who received the HPV vaccination was only 13.9%. However, even if the HPV vaccine is covered by the social security institution, the rate of those who want to have HPV vaccination remains at only 60.5%. However, the rate of those who said that they would definitely not get the HPV vaccine even if the health system covered it was found to be 9.1%. Approximately 59% of the participants said that they would have their children vaccinated regardless of their gender. These data show that almost 4 out of every 10 people do not have confidence in the HPV vaccine.

In a study conducted in the USA, it was aimed to increase the level of knowledge of medical and dental students about HPV.^[15] In the same country, a survey conducted among women of reproductive age revealed that both the level of knowledge about HPV was low, and vaccination rates were insufficient.^[16] Similarly, studies conducted in Algeria, Romania, and Morocco revealed that the level of knowledge of university students, high school students, parents, and healthcare workers about HPV and the HPV vaccine was inadequate; it was emphasized that national vaccination programmes should target the young population and should be supported by educational policies.^[17–19] In order to increase the effectiveness of HPV vaccination at the community level, it is of great importance for healthcare professionals to increase information activities and raise awareness of families.^[20] In our study, we questioned where they learned the information about vaccination. 49.4% of the participants stated that they did not know about vaccination, 21.8% stated that they learned

from social media, and 13.6% stated that they learned from doctors. Therefore, we think that in addition to using modern communication tools such as social media to increase vaccine education and awareness, healthcare professionals, especially starting from primary healthcare institutions, should inform the public in detail for vaccine awareness.

HPV vaccine provides effective protection against cervical cancer and its precursor lesions. In our study, the rate of those who knew the role of HPV in cervical cancer was found to be 40.2%. However, 66.4% of the participants knew that HPV is sexually transmitted, but only 33% of the participants thought that vaccination should start at the age of 11–12. According to the studies, vaccination should be carried out before the first contact with HPV to ensure immunity. Studies have revealed that infected women benefit less from vaccination and therefore the importance of prophylactic vaccination should be emphasized.^[21] In addition, a positive correlation was found between education level and vaccine uptake. This shows that public health campaigns should especially target individuals with low education levels.^[22] In our study, although 94.9% of the participants had an education level of high school and above, the vaccination rate was found to be 13.9%. When we evaluate these data together, it suggests that the cost of the vaccine and the difficulties in accessing the vaccine cause the vaccination rate to remain low even though the level of education is high.

The effectiveness of prophylactic HPV vaccines has been clearly demonstrated in studies conducted worldwide. In countries such as Australia, Europe, and North America, reductions of up to 90% in infections against HPV 6, 11, 16, and 18 types and genital wart cases have been reported after vaccination.^[23–26]

Two- and four-valent HPV vaccines specifically target high-risk types such as HPV-16 and HPV-18. Systematic reviews have reported that these vaccines significantly reduce the incidence of cervical precancerous lesions and cancer.^[27] More than 270 million doses have been administered worldwide and a strong safety profile has been found.^[28] In our study, only 31.6% of the participants stated that they were informed about the protection of the HPV vaccine. However, only 42% were aware of its protection against cervical cancer.

In our study, it was determined that lack of information, lack of confidence in vaccination, and especially cost concerns were the basis of the participants' negative attitudes towards vaccination.

Our study was conducted only in a private tertiary care hospital. In addition, the fact that we could not compare the opinions between age groups and genders are the limitations of our study.

More detailed studies at all health levels and in all segments of society, as well as studies comparing the opinions of individuals who comply with the national vaccination calendar and those who do not comply with the national vaccination calendar, may reveal the social approach to HPV vaccination more clearly.

CONCLUSION

Despite the proven efficacy of the HPV vaccine, access and cost remain significant barriers. Especially in low-income countries, sustainable health policies should be developed to reduce costs and make the vaccine widespread. In order to increase vaccination rates, it is essential to increase the level of knowledge of the public, use communication tools such as social media more frequently, increase confidence in the vaccine, inform individuals in detail at all health levels, and ensure financial accessibility. Otherwise, the social and financial burden of HPV-related diseases will continue, and public health will remain under threat in terms of preventable cancer types. In order to fully utilise the preventive potential of the HPV vaccine, decisive steps should be taken at the global and national level to reduce prices, educate the public, and ensure public financing.

Disclosures

Ethics Committee Approval: The study was approved by the Istanbul Esenyurt University Ethics Committee (No: 2023/08-04, Date: 07/09/2023).

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