

## Research Article

# Knowledge, Attitude and Practices Regarding HPV Vaccination among Defined Population

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**Abstract**

**Background:** Human Papillomavirus (HPV) 16 and 18 have been proven responsible for the major causes of cervical cancer and the safety and immunogenicity of HPV vaccines. Knowledge and practice of HPV vaccination are very important among medical and paramedical students because they may recommend vaccination to others in the future. The present study was therefore undertaken to assess the knowledge, attitude and practices regarding cervical cancer screening and HPV vaccination among defined population of Gods clinic of Azad University of Medical Sciences.

**Materials and Methods:** This study was cross-sectional that used self-administered questionnaire survey. A total of 282 people covered by Qods Clinic Islamic Azad University, Tehran.

**Results:** Mean age of respondents was  $37.28 \pm 13.25$  years of age. A more percentage of them were female (66.0%) and married (65.9%). Table 1 show demographic information of study populations. 61.9% of the participants had heard of HPV. Mean score of General knowledge about HPV is  $4.71 \pm 3.28$ , knowledge about Risk Factors for Developing Cervical Cancer is  $4.03 \pm 2.98$ , knowledge about HPV transmission ways, predisposing factors is  $5.99 \pm 4.00$ , and Attitude about patients with HPV infection is  $1.62 \pm 1.68$ .

**Conclusion:** Moderate level of knowledge about HPV among medical university students makes it necessary to set effective national public health efforts on HPV education and prevention considering the excess of young population in Iran vulnerable to cervical cancer.

**Keywords:** Human papilloma virus; Knowledge; Attitude; Population

## Introduction

Human Papillomavirus (HPV) is the most commonly diagnosed sexually transmitted disease worldwide. It has been estimated that at least 50% of sexually active people had acquired genital HPV infection during their lifetime [1]. It has more than 125 types, and 40 are found in the reproductive tract. Based on the association with uterine cancer, it is divided into two low-risk and high-risk categories, of which 6 and 11 are low risk, 18 and 16 high-risk components [2]. Two vaccines (Gardasil<sup>®</sup>, Merck & Co., Cervarix<sup>®</sup>, GlaxoSmithKline) have shown high efficacy against intra-epithelial cervical neoplasia and invasive cancers associated with vaccine types (HPV16 and 18) [1]. HPV is transmitted through sexual intercourse, oral communication and possibly penile sexual touch, and is more commonly transmitted to adolescents and after the first sexual intercourse [2]. HPV is the most commonly reported sexually transmitted disease worldwide, with at least 50% of active sexually transmitted infections with HPV during their lifetime [3]. In a meta-analysis study conducted in 2017, the prevalence of HPV in Iran was calculated as 38.6%. Pre-cancerous lesions are among the most commonly used types of routine diagnostic tests performed in the periodic cataract alopecia, which is commonly seen in conjunction with HPV [4]. The special and major significance of these lesions is that it can increase the risk of uterine cancer by 15% to 75%. A point that can be effective in planning for reducing the burden of HPV infection in the community

is the use of a vaccine that can be effective in preventing infection by more than 90% [5]. To prevent HPV-related diseases, a variety of vaccines has been developed, including Type 2 and Capacity 4 injected 3 times [6]. It is believed that getting the full course of the HPV vaccine strongly prevents the type of cancer involved [7]. The HPV vaccine is now licensed in over 100 countries [8]. The vaccine is regularly recommended to all 11-12 year olds as well as 13 to 26 years' old who have not received it before. Which is also allowed for girls aged 9-10 [9]. It is also used in countries up to the age of 18 or more [8]. Regarding the characteristics of the virus, its means of transmission and the prevention of diseases caused by it, the attitude and knowledge of the community is important to prevent it [10]. Considering the above-mentioned issues and the importance of prescribing the vaccine, we have made it possible to evaluate the awareness of the community about this issue.

## Methods

In this cross-sectional study, the knowledge and knowledge of 282 subjects covered by the Qods Clinic of Islamic Azad University of Tehran, Iran, were investigated for the HPV virus in 2017. These samples were randomly recruited from population of defined population of Gods clinic in 2018. In order to this survey, we used Ghojzadeh and et al, questionnaire that was face validated by 7 academic members of Tabriz University of Medical Sciences, pilot

**Table 1:** Demographic characteristics of respondents.

Characteristics	Total (n=282)
age	37.28±13.25
Sex	
Female	186(66.0)
Male	96(34.0)
Marital status	
Single	121(43.1)
Married	160(56.9)
Occupation	
Unemployed	131(46.5)
Employed	151(53.5)
Educational status	
High school	254(90.1)
Diploma and higher	28(9.9)
Cigarette smoking	
Non smoker	214(75.9)
Smoker	68(24.1)
Income	
<1 million	37(13.1)
3 million	72(25.5)
>5 million	25(8.9)
other	148(52.5)
Family history of cancer	
Yes	79(28.0)
No	203(72.0)
HPV vaccination	
Yes	7(2.5)
No	275(97.5)

Mean score of General knowledge about HPV is 4.71±3.28, knowledge about Risk Factors for Developing Cervical Cancer is 4.03±2.98, knowledge about HPV transmission ways, predisposing factors is 5.99±4.00, and Attitude about patients with HPV infection is 1.62±1.68. General knowledge about details was not high (Table 2). Additionally, 65.5% of participants correctly identified that HPV cannot be HPV is a sexually transmitted disease. 56.2% knew that risk factors for developing cervical cancer is genetic factors. Most of the participant's knowledge about HPV transmission ways and predisposing factors is HPV can cause serious health problems for women (57.3%) and 34.2% of participant's attitude about patients with HPV infection is I am not afraid of contracting with people who have HPV. There was also a considerable difference about general HPV and cervical cancer knowledge between Marital status, job, educational level, smoking and history of HPV vaccination ( $P<0.05$ ). The mean of general knowledge in singles, unemployed, people with high school diplomas, smokers and people with a history of HPV vaccination was higher. There was no significant relationship between knowledge about risk factors of HPV and none of the background variables. There was a significant relationship between the knowledge of the people about the ways of transmission of HPV and the education and history of vaccination and The mean knowledge was higher in people with high education and those who did vaccination ( $P<0.05$ ). The average attitude toward people with HPV infection was higher in those with high school diploma ( $P<0.05$ ). In general, the mean knowledge and attitude were higher among women and those with higher education than the diploma ( $P<0.05$ ).

To find the most important factors affecting knowledge and attitude of participants, factors seemed to influence the these entered in the regression model; age, gender, educational level, marital status, job, smoking, income, family history of cancer and history of HPV vaccination (Table 3). factors affecting general knowledge about HPV were rate of income ( $\beta=-.160$ ,  $P=0.003$ ) and history of HPV vaccination ( $\beta=1.643$ ,  $P=0.006$ ). smoking ( $\beta=0.13$ ,  $P=0.03$ ), knowledge about HPV transmission ways and predisposing factors and educational level ( $\beta=0.14$ ,  $P=0.02$ ) were detected to have a link with higher knowledge levels. None of the factors effect on knowledge about Risk Factors. One of the factors that affect knowledge about HPV transmission ways was educational status ( $\beta=-1.446$ ,  $P=0.018$ ). Rate of income was factor that affect attitude about patients with HPV infection ( $\beta=-.168$ ,  $P=0.020$ ).

tested and revised. The reliability was made through a pilot study with alpha Cronbach coefficient of 80% [12]. This questionnaire consists of 55 questions. The first part elicited sociodemographic details of the participants (8-item); then participants were asked a series of questions measuring their knowledge about HPV (10-item), transmission route (22-item), its relation with cervical cancer (2-item), and predisposing

factors (10-item). In the third part, participants' attitude toward people with HPV infection was tested (10 items). The initial draft of the instrument was made and circulated to technical experts and a biostatistician, objectively discussed, and modified based on their feedbacks for content validity. Informed written consent was collected from participants before enrollment. For the purpose of statistical analysis, each correct answer was given a score of "one" and wrong and do not know answers were given scores of "zero" in the items that were included in the knowledge sections of the questionnaire. The baseline characteristics of the study population were compared by using the One Way ANOVA test, and t test. Linear regression model was used in order to evaluate the confounding factors on students' knowledge. Variables with a p value $\leq 0.20$  in univariate analysis were entered in the model and a p value $\leq 0.05$  was considered statistically significant. Data were analyzed using the SPSS software version 22.0.

## Results

Mean age of respondents was 37.28±13.25years of age. A more percentage of them were female (66.0%) and married (65.9%). Table 1 show demographic information of study populations. 61.9% of the participants had heard of HPV.

Mean score of General knowledge about HPV is 4.71±3.28, knowledge about Risk Factors for Developing Cervical Cancer is 4.03±2.98, knowledge about HPV transmission ways, predisposing factors is 5.99±4.00, and Attitude about patients with HPV infection is 1.62±1.68. General knowledge about details was not high (Table 2). Additionally, 65.5% of participants correctly identified that HPV cannot be HPV is a sexually transmitted disease. 56.2% knew that risk factors for developing cervical cancer is genetic factors. Most of the participant's knowledge about HPV transmission ways and predisposing factors is HPV can cause serious health problems for women (57.3%) and 34.2% of participant's attitude about patients with HPV infection is I am not afraid of contracting with people who have HPV. There was also a considerable difference about general HPV and cervical cancer knowledge between Marital status, job, educational level, smoking and history of HPV vaccination ( $P<0.05$ ). The mean of general knowledge in singles, unemployed, people with high school diplomas, smokers and people with a history of HPV vaccination was higher. There was no significant relationship between knowledge about risk factors of HPV and none of the background variables. There was a significant relationship between the knowledge of the people about the ways of transmission of HPV and the education and history of vaccination and The mean knowledge was higher in people with high education and those who did vaccination ( $P<0.05$ ). The average attitude toward people with HPV infection was higher in those with high school diploma ( $P<0.05$ ). In general, the mean knowledge and attitude were higher among women and those with higher education than the diploma ( $P<0.05$ ).

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**Table 2:** Distribution of questions related to the knowledge and attitude towards HPV vaccination.

Items	Frequency(percent)	
	yes	No & no comment
<b>General knowledge about HPV</b>		
Have you ever heard of HPV?	174(61.9)	107(39.1)
Does HPV cause genital warts?	157(55.9)	124(44.1)
Is HPV a sexually transmitted disease?	184(65.5)	97(34.5)
Can HPV be a risk factor to develop cervical cancer?	130(46.4)	150(53.6)
Can HPV be asymptomatic?	120(42.9)	160(57.1)
Can HPV infection be diagnosed by Pap tests?	125(44.5)	156(55.5)
Does Infection involves immediate treatment?	131(46.6)	150(53.4)
Is HPV curable?	139(49.6)	141(50.4)
Is HPV found in over 90% of cervical cancers?	92(32.7)	189(67.3)
Have you ever heard of HPV?	72(25.6)	209(74.4)
<b>knowledge about Risk Factors for Developing Cervical Cancer</b>		
Smoking	116(41.3)	165(58.7)
Sun exposure	131(46.8)	149(53.2)
Use of oral contraception	102(36.3)	179(63.7)
Multiple partners	126(45)	154(55)
Alcohol use	85(30.2)	196(69.8)
Sexual intercourse at an early age	101(35.9)	180(64.1)
Genetic factors	158(56.2)	123(43.8)
Type of diet	99(35.2)	182(64.8)
Matrimony	111(39.6)	169(60.4)
<b>knowledge about HPV transmission ways and predisposing factors</b>		
HPV can be transmitted by kissing.	105(37.4)	176(62.6)
HPV can be sexually transmitted	147(52.3)	134(47.7)
HPV can be transmitted by oral sex	143(50.9)	138(49.1)
HPV can be transmitted by toilet seats	94(33.5)	187(66.5)
HPV can cause HIV/AIDS	99(35.5)	180(64.5)
HPV can cause herpes	107(38.4)	172(61.6)
HPV can cause serious health problems for women	161(57.3)	120(42.7)
HPV can be transmitted by warts on hand/feet touching the genital area	93(33.1)	188(66.9)
HPV can be transmitted by sharing underwear or towels	97(34.5)	184(65.5)
HPV can cause infertility	128(45.4)	153(54.6)
HPV can be transmitted by genital skin-to-skin contact	124(44.1)	157(55.9)
Using condoms during sexual intercourse prevents the spread of HPV	125(44.5)	156(55.5)
HPV can cause serious health problems for men	124(44.1)	157(55.9)
HPV can be transmitted by the exchange of bodily fluids	123(44.1)	156(55.9)
Percentage of sexually active people that acquire HPV (50%)	110(39.1)	171(60.9)
<b>Attitude about patients with HPV infection</b>		
The freedom of people who have HPV should not be restricted	83(29.5)	198(70.5)
People who have HPV should not be ashamed	33(11.7)	248(88.3)

It is safe for people who have HPV to work with children	91(32.4)	190(67.6)
I am not afraid of contracting with people who have HPV	96(34.2)	185(65.8)
People who have HPV are dirty	43(15.3)	238(84.7)
I do not want to be friends with people who have HPV	61(21.7)	220(78.3)
People who have HPV should be isolated	50(17.8)	231(82.2)
<b>Dependent Variable: General knowledge about HPV</b>	95.0% Confidence Interval	

and educational level ( $\beta=0.14$ ,  $P=0.02$ ) were detected to have a link with higher knowledge levels. None of the factors effect on knowledge about Risk Factors. One of the factors that affect knowledge about HPV transmission ways was educational status ( $\beta=-1.446$ ,  $P=0.018$ ). Rate of income was factor that affect attitude about patients with HPV infection ( $\beta=-.168$ ,  $P=0.020$ ).

## Discussion

In this study, different aspects of individuals were compared to HPV and it was found that the overall mean score of participants was relatively low ( $16.43\pm9.76$ ). Participants' knowledge that the HPV was an STD was 65.5%, and 57.3% of the participants knew that the HPV virus in women was causing serious problems. In addition, in terms of risk factors, 56.2% of people considered genetic predisposition associated with HPV-related diseases. In a study by Martin et al., It was found that women in the study population had very low HPV [1]. In a study conducted at Tabriz University of Medical Sciences, the knowledge of the subjects was low on the details of the transmission and prevention of the virus [12]. Knowledge about the disease, vaccine coverage and its impact are not as common in the community [2]. In this study, the marital status had a meaningful relationship with the general knowledge of people about HPV ( $p=0.02$ ). The mean of married participants were more than single participants ( $3.3\pm5.2$ ). There was no correlation between these two variables in the study of Ghojzadeh et al [3]. In a study by Salehifar et al., Married people were 5 times more likely than single adults [4]. The relationship between the level of self-esteem in various studies on knowledge and attitudes toward HPV and vaccination has been studied. There was a significant relationship between education level and general knowledge in our research ( $p=0.01$ ). The average of participants with diplomas and higher was higher than others ( $4.8\pm3.2$ ). Yum et al., Found that there was no relationship between education level and knowledge and attitude toward HPV vaccination, but financial status was introduced as an effective factor [5]. In a study by Fakoor et al., It was found that the attitude of people with a PhD degree in the field of HPV infection and vaccination in Iran was low [6]. In our study, there was a significant relationship between the history of HPV vaccination by participants and general knowledge ( $P=0.002$ ). The mean number of participants with a history of HPV vaccination is higher than those with a history of vaccination ( $7.2\pm1.3$ ). In a study by Suryadevara, it was found that people who started HPV vaccination had a better attitude towards HPV and completed vaccination [7]. In this study, there was a meaningful relationship between smoking in participants and general knowledge ( $P=0.001$ ). The mean of non-smoker participant is more than smokers ( $5.01\pm3.3$ ). In the study of Ghojzadeh et al., Smoking as a predictive factor for general knowledge of people about HPV was introduced [3]. In our study, there was no

significant relationship between age and gender, with knowledge and attitude. In a study in India, age and gender did not correlate with HPV and vaccination [8]. Also, in a study by Rosenthal et al., The age of participants did not correlate with the attitude of individuals towards the HPV virus [9]. But in a study by Uzunlar et al., You found that there was a meaningful relationship between the age of nurses and the acceptance of the HPV vaccine [10]. In this study, there was a significant correlation between knowledge of people about the transmission of the virus and the history of vaccination ( $P = 0.028$ ). A study by Paavonen found that 76% of participants believed that all people in the community should be vaccinated against HPV, and 70% of students had a tendency to vaccinate [11]. Because it has been done at the community level, the results can be useful. In our study, it was shown that people's knowledge and attitudes toward HPV are not favorable. Given the young population of Iran, a large number of people are at risk of developing a disease. Therefore, planning for community-level education is necessary by public health authorities. As a result, girls who are both vaccinated and participating in the Pap smear control program will be well protected against the disease. In the future, the combination of vaccination and control of cellular changes is expected to save the lives of many women in Sweden annually.

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