

## Attitude Towards HPV Vaccination among Iranian Women Living in Malaysia

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**Abstract:** Persistent infection with human papillomavirus (HPV) is a prerequisite for the development of cervical cancer. Highly immunogenic HPV vaccines were developed and licensed for the primary prevention of cervical cancer. This study aims to assess the attitude and its associated factors among Iranian women living in Malaysia. A cross-sectional study, using a convenience sampling method was conducted among 271 Iranian women aged 18 to 60 year olds who were living in Malaysia. Data collection was conducted using a self-administered questionnaire. A total of 271 Iranian women had participated in this study, with the mean age of 35.2 years. Majority of the respondents involved were 30 years of age and above (57.9%), single (51.7%), received tertiary education level (82.7%), unemployed (68.6%) and had no income (68.3%), did not have any children (57.9%) and also had positive attitude towards HPV vaccination (79.7%). Education level, income, history of previous genital infection and pap smear were significantly associated with the respondents' attitude towards HPV vaccination. However, only education level was found to be the significant predicting factor for positive attitude. In view of the positive attitude, they should be made highly accessible to the HPV vaccines. Providing them with an adequate knowledge on the availability and accessibility of the vaccine to their understanding is a necessity.

**Key words:** Attitude • Iranian women • HPV vaccination

### INTRODUCTION

Cervical cancer is the second most common cancer among women worldwide. About 500,000 women are diagnosed with cervical cancer contributing to around 270,000 deaths, across the globe every year [1]. Low-risk HPV types 6 and 11 cause 90% of cases of genital warts, while high-risk HPV types 16 and 18 are responsible for 70% of cervical cancers and also cause cancers of the anus, vagina, vulva and head and neck [2, 3]. During the last 2 years, two vaccines were marketed to prevent cervical infection with human papilloma virus (HPV) types 16 and 18, one of them also covering HPV 6 and 11 [4].

Vaccines preventing human papillomavirus (HPV) infection, the primary cause of cervical cancer offer dramatic new opportunities for reducing cervical cancer related deaths [5]. HPV vaccine acceptability is generally high in women over 26 [6, 7] but a number of studies report a decrease in vaccine acceptability with increasing age [8, 11], which raises the questions of whether and why older women think the vaccine is relevant to them.

In a qualitative study conducted by Williams *et al.* [12] among girls aged 17 to 18 years showed that most girls were aware that HPV is sexually transmitted, but beyond this had limited understanding of HPV and HPV vaccination and expressed a desire for further information. They also found that girls were uncertain about the need for the vaccine both in terms of perceived risk (e.g. because they were not sexually active) and because of its novelty. Some had concerns about the efficacy and safety of the vaccine, while others were mistrusting of the information provided [12].

Although, HPV infection is common and its consequences can be severe, information about it among the majority of the population is low or nonexistent [13].

This is particularly true among people with lower socioeconomic status [14]. Attitudinal and cultural aspects of HPV infection and cervical cancer can play an important role in infection rates, prevention methods including vaccine uptake, the cost, morbidity and mortality associated with HPV-related diseases [13].

People's perception of the risk of HPV infection and the benefits of prevention methods will lead to greater acceptance of the prevention policy [13]. Thus, this study aims at assessing the attitudes of the Iranian women living in Malaysia towards HPV vaccination.

## MATERIAL AND METHODS

A cross-sectional study using convenience sampling method was conducted among Iranian women aged between 18 to 60 year olds who were living in Cheras, Kuala Lumpur and Serdang, Selangor from early of April until the end of June 2010. A total of 271 women were recruited and eligible for the study. Data was collected using a self-administered questionnaire. The questionnaire involves three separate sections which are the sociodemographic characteristics, gynaecological history and also attitude towards HPV vaccination.

The questionnaire used to measure attitude was adopted from Buchanan [15], which consists of 18 questions. A 4-likert scale was used to measure the score, with '1' indicate strongly agree, '2' for somewhat agree, '3' for somewhat disagree and '4' for strongly disagree. An 'overall attitude score' was used for the purpose of the analysis which refer to the actual total score of attitude from 18 questions for each respondent, divided by the expected total maximum score of attitude multiplied by 100. Scores between 0-59 are labeled as 'negative attitude' and 60-100 as 'positive attitude' [16]. Meanwhile, questions related to gynaecological history involved any experience of genital infection, date of last genital infection, pap smear history, date of last pap smear test and history of cervical cancer.

The questionnaire was pre-tested among 30 Iranian women who lived in Malaysia but from different location, followed by slight modifications of the questionnaire thereafter. The reliability test was also performed giving the Cronbach alpha value of 0.92. Data was later analyzed using the SPSS software version 17. Chi square test was used for bivariate analysis, whereas the multiple logistic regression was performed for the multivariate analysis.

## RESULT

**Sociodemographic Characteristic of the Respondents:** Total numbers of respondents involved in this study was 271 with respond rate of 100%. The sociodemographic characteristics of the respondents were shown in Table 1. Majority of them were aged 30 years and above, single (51.7%), received tertiary education level (82.7%),

Table 1: Sociodemographic characteristics of the respondents (n=271)

Factor	N	%
Age		
< 30 year old	114	42.1
= 30 year old	157	57.9
Marital status		
Married	131	48.3
Unmarried	140	51.7
Education level		
Secondary	47	17.3
Tertiary	224	82.7
Occupation		
Yes	58	31.4
No	186	68.6
Income		
Yes	86	31.7
No	185	68.3
No. of children		
Nil	157	57.9
= 1	114	42.1

Table 2: Gynaecological history of respondents (n=271)

Factor	N	%
History of genital infection		
Yes	70	25.8
No	201	74.2
Time of genital infection (n=70)		
= 1 year	47	17.3
>1 year	23	8.5
History of pap smear		
Yes	118	43.5
No	153	56.5
Time of last pap smear (n=118)		
<1 year	89	32.8
= 1 year	29	10.7
History of cervical cancer		
Yes	0	0.0
No	271	100.0

Table 3: Attitudes of respondents towards HPV vaccination among respondents (n=271)

	f	%
Attitude towards HPV vaccination:		
Negative	55	20.3
Positive	216	79.7

unemployed (68.6%) and had no income (68.3%), did not have any children (57.9%). Those who were categorized as single were also involved divorcee and widow.

**Gynaecological History:** The gynaecological history of the respondents is presented in Table 2. Of the 271 Iranian women who participated in this study, 70 (25.8%) had history of genital infection, with 47 (17.3%) had the infection within 1 year prior to the data collection. Majority of them never had pap smear done (56.5%).

Table 4: Association between sociodemographic characteristics and gynaecological history with attitude towards HPV vaccination among respondents (n=271)

Factor	Attitude towards HPV vaccination				$\chi^2$	p
	Positive		Negative			
	f	%	f	%		
Age					1.397	0.237
< 30 year old	87	76.3	27	23.7		
≥ 30 year old	129	82.2	28	17.8		
Marital status					1.922	0.166
Married	109	83.2	22	16.8		
single	107	76.4	33	23.6		
Education level					11.392	0.001*
Secondary	29	61.7	18	38.3		
Tertiary	187	83.5	37	16.5		
Occupation					1.915	0.166
Yes	72	84.7	13	15.3		
No	144	77.4	42	22.6		
Income					4.386	0.036*
Yes	75	87.2	11	12.8		
No	141	76.2	44	23.8		
No. of children					2.47	0.116
Nil	120	76.4	37	23.6		
≥ 1	96	84.2	18	15.8		
History of genital infection					8.019	0.005*
Yes	64	91.4	6	8.6		
No	152	75.6	49	24.4		
Time of genital infection					3.4	0.065
≤ 1 year	45	95.7	2	4.3		
>1 year	19	82.6	4	17.4		
History of pap smear					11.123	0.001*
Yes	105	89	13	11		
No	111	72.5	42	27.5		
Time of last pap smear					0.666	0.414
<1 year						
≥ 1 year	78	87.6	11	12.4		
History of cervical cancer	27	93.1	2	6.9		
No	216	79.7	55	20.3		

\*Significant at p<0.05

Table 5: Determinants of attitude towards HPV vaccination among respondents (n=271)

Factor	B	Wald	p	Adj. OR	95% CI for OR
Education level	0.826	5.082	0.024*	2.284	1.114-4.684
Income	0.516	1.848	0.174	1.676	0.796-3.529
History of genital infection	0.623	1.139	0.286	1.864	0.594-5.850
History of pap smear	0.570	1.604	0.205	1.769	0.732-4.275
Constant	1.713	7.423	0.006	5.547	

\*Significant at p<0.05

Among those who had pap smear done in the past, 32.8% had it done within a year prior to data collection. None of the respondents diagnosed with cervical cancer.

#### Attitude of Respondents Towards HPV Vaccination:

Table 3 shows majority of the respondents involved in this study had positive attitude towards HPV vaccination with 79.7% had positive attitude compared to only 20.3% who had negative attitude.

**Factors Affecting Attitude Towards HPV Vaccination among Respondents:** Table 4 shows the association between sociodemographic factors and gynaecological history of respondents with their attitude towards HPV vaccination. Factors that were found to have significant association with attitude were educational level, income, history of genital infection and history of pap smear. These factors were also found to have significant association with attitude towards HPV vaccination in

simple logistic regression. However, of all these factors only education level was found to be the only significant predicting factor ( $p=0.024$ ) as shown in Table 5. Those who received tertiary level of education have 2.284 odds of having positive attitude towards HPV vaccination compared to those who only received secondary education.

## DISCUSSION

**Attitude Towards HPV Vaccination:** The findings of this study showed that majority of the Iranian women who were living in Malaysia had positive attitude towards HPV vaccination. Although most of them were more than 30 years of age, their positive attitude is very essential in promoting HPV vaccination among their teenage daughters. A positive attitude towards HPV vaccination among Iranian women was also reported by Farzaneh *et al.* [13] According to them, although knowledge of HPV, its relation to cervical cancer and prevention methods among Iranian women is not enough, their attitude towards education in this regards is extremely high.

In a different study conducted among French women, 91.4% were aware of the HPV vaccine and 54.3% favoured HPV vaccination [17]. The main barrier to acceptance was the recency of the vaccine's introduction and concern about possible side effects [17]. Whereas, factors associated with acceptance of the HPV vaccine were having previously vaccinated a child against pneumococcus (OR=3.28 [1.32-8.11]) and knowing the target population for HPV vaccination (OR=2.12 [1.15-3.90]) [17]. The study also found that, knowing the recommended frequency of Papanicolaou smear testing (Pap test) screening was associated with lower acceptance (OR=0.32 [0.13-0.82]).

On the other hand, being married and in a monogamous relationship were also among the common reasons for not wanting the HPV vaccine among women. According to Ferris *et al.* [8], women in a monogamous relationship had half the odds (OR 0.46) of wanting the HPV vaccine, while women who felt at risk for HPV infection had higher odds of wanting the vaccine (OR 2.14).

Younger women have similar reasons for wanting or not wanting the HPV vaccine [20]. Belief in the severity of cervical cancer was associated with higher intent to be vaccinated among 13-26-year olds [18]. Whereas, knowledge of HPV and its relationship to cervical cancer has been found to correlate with vaccine acceptability in young adult women [9, 19].

Awareness of HPV and the HPV vaccine is generally high in women over 26 [20]. The National Immunization Survey of 2007 found that 82.9% of US women aged 27 to 48 years had heard of HPV and 76.5% had heard of the HPV vaccine [21]. In Canada, 84.7% of adult women (mean age 33) surveyed in 2007 indicated that they had heard of HPV, though only 39.8% had heard of the HPV vaccine [10].

**Factors Associated with Attitude Towards HPV Vaccination:** This study also found that, the attitude of the Iranian women living in Malaysia towards HPV vaccination was associated with multiple factors. These include education level, income, history of genital infection and pap smear. However, only education level was found to be the significant predicting factor. Women who have higher education level, higher income are more likely to have better awareness and access to the HPV vaccine. Similarly, those who had experienced genital infection are more likely to be aware of the risk of cervical cancer and therefore, have better acceptance towards pap smear and HPV vaccination.

The role played by education level in shaping the positive attitude of women towards HPV vaccination was also reported in a study conducted among Malaysian women [22]. According to this study, 53% of the respondents involved had positive attitude towards HPV vaccination, with age, marital status and level of education were associated significantly with attitude ( $p<0.001$ ,  $p<0.001$ ,  $p=0.002$ ; respectively). In contrast, Lai *et al.* [23] found that high education and income were significantly influencing the knowledge on HPV. However, only being white race correlated with a higher likelihood of using the HPV vaccine (OR = 1.86,  $p = 0.04$ ).

In another study involving women aged 27 to 45 years, Weiss *et al.* [20] reported that, 67.4% of the respondents involved in their study reported that HPV vaccine was relevant to them. The most common reasons for relevance were protection from cervical cancer (62.8%), vaginal cancer (58.2%), precancerous cells (55.9%), HPV (55.6%) and genital warts (46.4%). Therefore, individual who have knowledge or awareness or even exposure to these problems will have better acceptance towards HPV vaccination.

Overall the study showed that majority of the Iranian women who were living in Malaysia had a positive attitude towards HPV vaccination. Their attitude towards HPV vaccination were influenced by their education level, income, had previous history of genital infection and had pap smear done in the past. Those who have higher

education will more likely to have positive attitude towards HPV vaccination respectively than otherwise. In view of the positive attitude among majority of them, relevant authorities should take the opportunity to increase the availability and accessibility of the HPV vaccine among this minority group in Malaysia, especially among the targeted age group. Health care providers may play an especially important role to educate them on the importance of HPV vaccine for the primary prevention of cervical cancer. They should also be provided with adequate knowledge on the availability and accessibility of the vaccine using method and language that can be understood by them.

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