



Research Article

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Medical Students' Awareness, Knowledge and Acceptance of Human Papilloma Virus Vaccination in the National Defence University of Malaysia

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ABSTRACT

Background: Cervical cancer is the second most frequently occurring cancer in women living in low resource countries with a predictable 445 000 new cases in 2012. Cervical cancer is triggered by the infection which is sexually transmitted with Human papillomavirus (HPV). HPV infection is most commonly occurred in the genital tract. Most of women and men who are sexually active, will get this infection at a time in their lives, and some may be recurrently infected. The ultimate time for getting an infection for both women and men is soon after becoming sexually active. HPV is transmitted sexually, but penetrative sex is not necessarily needed for the transmission. A common mode of transmission has been identified to be skin-to-skin genital contact. Methods: This was a cross-sectional survey which was carried out at the National Defense University of Malaysia (NDUM). Convenience sampling was adopted. A set of self-administered questionnaires were distributed to the participants and collected after their lectures during school days. All the statistical analyses were conducted using SPSS version. Aims of Study: This study intended to assess medical Students' awareness, knowledge, and acceptance of HPV vaccination in the NDUM. Results: The gender breakdown was 53.9% male to 46.1% female répondants with an average age of 22.0±1.6 years. Most of the respondents were aware of the indication of HPV vaccination that can strengthen the immune system to prevent cervical cancer, which should be compulsory for all adolescent females. Using condom for sex cannot prevent HPV transmission. Conclusion: The Malaysian government provided HPV vaccination free of cost as a school-based program. This opportunity should be utilized as far as possible to prevent cervical cancer and reduce the morbidity and mortality. There is a need for more educational intervention in the community to avoid cervical cancer both in medical schools and community.

Key words: *Human Papilloma Virus, Awareness, Knowledge, NDUM*

INTRODUCTION

Cervical cancer is a common gynecological cancer among women in Malaysia and all over the world [1]. Many researchers have revealed HPV especially types 16 and 18 as mostly responsible for cervical cancer, and other types can cause sexually transmitted infections. HPV transmission occurs due to vaginal, anal, or oral sex with an infected individual [2]. The incidence of cervical cancer and the prevalence of high-risk HPV infection have been significantly associated with HPV [3]. Human papillomavirus vaccinations have been a primary tool for the prevention of cervical cancer, and HPV vaccine can protect not only cervical cancer, vaginal cancer, vulvar cancer but also genital warts effectively [4]. Both female and male should receive the HPV vaccine from 9 to 26 years of age (CDC) [5].

The awareness on HPV has been generally poor in most countries among the young adults despite the high prevalence of HPV [6]. The knowledge of HPV has been correlated to of HPV vaccine acceptance in some studies [7, 8]. The predictors of HPV vaccine acceptance were related to the higher HPV knowledge [9, 10], health-care providers, and parent recommendations [9], as well as the history of sexual exposure [11, 12]. If the knowledge on the HPV is low, this will result in poor attitude towards its prevention. The acceptance of the HPV vaccine might be

influenced by the factors which affect the decisions of individuals on whether they should be or should not be vaccinated.

In Malaysia, the HPV vaccine was started to be available since 2006. However, the HPV vaccination program was fully implemented among 13-year-old school girls in 2011. The Annual Report of the Malaysian Ministry of Health [13] revealed that the immunization coverage among girls aged 13 years old was 87.12% for 3 complete dosages of HPV vaccine. However, men from the high-risk groups must pay on their own merits to obtain the HPV vaccines in the private sector health market. In Malaysia, the disability, sexual dysfunctions, and impairment of quality of lives in men have not been explored [14]. Medical students in National Defence University of Malaysia (NDUM) have been divided as pre-clinical year (year I and II) students and clinical year (year III, IV and V) students. All of them must have proficient knowledge about HPV vaccination as they will become healthcare providers. This study was aimed to determine their perception and knowledge of HPV and cervical cancer as well as the acceptance of HPV vaccination among them.

MATERIALS AND METHODS

The cross-sectional survey was conducted at the National Defence University of Malaysia. Convenience sampling was done in 217 medical students for this study. A set of self-administered questionnaires was distributed to the participants, and collected after their lectures during school days. The questionnaire was designed to collect data according to the focused areas including: (1) Basic information on their socio-demographic characteristics and academic years; (2) Their knowledge and attitude of HPV and cervical cancer, and the acceptance of HPV vaccination. Descriptive analysis was conducted for socio-demographic variables, and describing the medical background of the students and their attitudes, knowledge, and acceptance of HPV vaccination. All the statistical analyses were conducted using SPSS version 22 (IBM, Armonk, NY, USA) [15]. The participants were well informed of the purpose and contents of the study, and they were given a consent form and an information sheet to sign for their voluntary participation and freedom to withdraw from the study. This study obtained approval from the Center of the Research and Innovation Management, the National Defence University of Malaysia [Reference No. : UPNM (PPPI) 16.01/06 Jld 2. Dated 24th April 2018].

RESULTS

Socio-demographic Profile

The gender breakdown was 53.9% male to 46.1% female respondents. The mean (\pm SD) age of the medical students was 22.0 \pm 1.6. Most of the participants were Malay (71.4%). The distribution of sample by year of study was almost equal with slightly more than 5 years (24.9%) and less than 2 and 3 years (18.0% each) (Table 1).

Table 1 : Socio-demographic profile of the respondents (n = 217)

Socio-demographic characteristics	Frequency	Percentage
Gender		
Male	117	53.9
Female	100	46.1
Race		
Malay	155	71.4
Indian	17	7.9
Chinese	45	20.7
Year of study		
Year I	44	20.3
Year II	39	18.0
Year III	41	18.9
Year IV	39	18.0
Year V	54	24.9
	Mean	\pmSD
Age (year)	22.0	1.6

Knowledge and Perception Regarding HPV Vaccination

Most respondents were aware of the indication of HPV vaccination (77.8%), and they perceived that it could be strengthen the immune system (81.6%), and should be compulsory for all the adolescent females (78.7%). Most of them (70.8%) thought that it could protect against cervical cancer, (57.9%) of them considered it as essential as Hepatitis B or *Hemophilus influenzae* vaccines in Malaysia, and (50.9%) of them disagreed that the HPV vaccination will diminish the need for the annual Pap smear testing. The majority knew that the Malaysian Ministry of Health offers HPV vaccination to all 13 years old girls for free (77.4%) (Table 2).

A large proportion of the respondents (59.3%) perceived that females should only receive HPV vaccine, (56.1%) failed to identify the age (between 10 and 15 years) when HPV is indicated, and (49.5%) agreed or hesitated regarding diminishing need for annual Pap smear testing due to HPV. Less than half agreed that adolescents could receive other vaccines at the same medical consultation (46.8%), and (40.7%) stated that the use of condoms won't diminish after vaccination with HPV. Only one-fifth (20.8%) of the respondents agreed that the HPV vaccine wouldn't cause undesirable side effects (Table 2).

Association of the Level of Knowledge and Perception Regarding HPV Vaccination with Gender and Pre-clinical/ clinical year

The awareness on HPV vaccine was higher among females (82.8%) than males (73.5%). A higher percentage of females (82.0%) than males (73.5%) knew about the availability of free HPV vaccination for 13-year-old girls in Malaysia. Almost half of the females (48.5%) compared to around one-third of the males (34.2%) agreed that the use of condoms wouldn't diminish after vaccination with HPV ($p = 0.043$) (Table 2).

Most clinical students (92.5%) were aware of the indications of HPV vaccination, whereas only around half of the preclinical students (53.7%) were aware of them ($p < 0.001$). The clinical students had better knowledge (93.9%) than preclinical ones (85.8%), about the free HPV vaccination for 13-year-old girls in Malaysia ($p < 0.001$). Most clinical students (57.5%) compared to only 26.8% of the preclinical ones disagreed that HPV vaccine wouldn't cause undesirable side effects ($p < 0.001$). Almost half of the clinical students (45.5%) compared to only one-third of the pre-clinical ones (32.9%) agreed that the use of condoms wouldn't diminish after the vaccination with HPV. Most of the clinical students (63.4%) compared to only one-third of the preclinical ones (30.5%) disagreed that HPV vaccination would diminish the annual Pap smear testing ($p < 0.001$) (Table 2).

Table 2 : The distribution of knowledge and perceptions regarding HPV by gender and the years of study

	Questions	Total		Males		Females		P Value	Preclinical (Year 1-2)		Clinical (Year 3-5)		P Value
		n	%	n	%	n	%		n	%	n	%	
1	Do you know the indication of HPV?												
	yes	168	77.8	86	73.5	82	82.8	0.101	44	53.7	124	92.5	<0.001
	no	48	22.2	31	26.5	17	17.2		38	46.3	10	7.5	
2	To people of what age is HPV indicated?												
	below 10	12	5.6	6	5.2	6	6.1	0.678	8	9.9	4	3.0	--
	10 and 15	94	43.9	51	44.3	43	43.4		36	44.4	58	43.6	
	15 and 18	41	19.2	19	16.5	22	22.2		19	23.5	22	16.5	
	18 and above	67	31.3	39	33.9	28	28.3		18	22.2	49	36.8	
3	Who should receive HPV based on cost/benefits?												
	females	128	59.3	69	59.5	59	59.0	0.943	51	62.2	77	57.5	0.492
	both	88	40.7	47	40.5	41	41.0		31	37.8	57	42.5	
4	Do you know that MOH offers HPV to 13 years old girls for free in Malaysia?												
	yes	168	77.4	86	73.5	82	82.0	0.136	53	63.9	115	85.8	<0.001
	no	49	22.6	31	26.5	18	18.0		30	36.1	19	14.2	
5	HPV strengthens the immune system												
	neither agree nor disagree	24	11.1	12	10.3	12	12.0	0.731	8	9.6	16	11.9	0.865
	tendency to agree	177	81.6	95	81.2	82	82.0		69	83.1	108	80.6	
	tendency to disagree	16	7.4	10	8.5	6	6.0		6	7.2	10	7.5	
6	HPV won't cause undesirable side effects												
	neither agree nor disagree	72	33.3	40	34.5	32	32.0	0.895	37	45.1	35	26.1	<0.001
	tendency to agree	45	20.8	23	19.8	22	22.0		23	28.0	22	16.4	
	tendency to disagree	99	45.8	53	45.7	46	46.0		22	26.8	77	57.5	
7	The use of condoms won't diminish after vaccination with HPV												

	neither agree nor disagree	84	38.9	47	40.2	37	37.4	0.043	37	45.1	47	35.1	0.177
	tendency to agree	88	40.7	40	34.2	48	48.5		27	32.9	61	45.5	
	tendency to disagree	44	20.4	30	25.6	14	14.1		18	22.0	26	19.4	
8	HPV is as (or more) important as vaccines against Hepatitis B or <i>H. influenzae</i>												
	neither agree nor disagree	52	24.1	28	23.9	24	24.2	0.952	24	29.3	28	20.9	0.360
	tendency to agree	125	57.9	67	57.3	58	58.6		45	54.9	80	59.7	
	tendency to disagree	39	18.1	22	18.8	17	17.2		13	15.9	26	19.4	
9	Adolescents could receive other vaccines at the same medical consultation												
	neither agree nor disagree	69	31.9	35	29.9	34	34.3	0.500	24	29.3	45	33.6	0.063
	tendency to agree	101	46.8	59	50.4	42	42.4		46	56.1	55	41.0	
	tendency to disagree	46	21.3	23	19.7	23	23.2		12	14.6	34	25.4	
10	HPV will diminish the need for annual Pap smear testing												
	neither agree nor disagree	66	30.6	38	32.5	28	28.3	0.619	39	47.6	27	20.1	<0.001
	tendency to agree	40	18.5	23	19.7	17	17.2		18	22.0	22	16.4	
	tendency to disagree	110	50.9	56	47.9	54	54.5		25	30.5	85	63.4	
11	Do you think HPV should be compulsory for all adolescent females?												
	yes	170	78.7	91	77.8	79	79.8	0.331	64	78.0	106	79.1	0.088
	no	22	10.2	10	8.5	12	12.1		5	6.1	17	12.7	
	don't know	24	11.1	16	13.7	8	8.1		13	15.9	11	8.2	
12	Do you think HPV can protect against cervical cancer?												
	neither agree nor disagree	48	22.2	30	25.6	18	18.2	0.387	23	28.0	25	18.7	0.251
	tendency to agree	153	70.8	80	68.4	73	73.7		53	64.6	100	74.6	
	tendency to disagree	15	6.9	7	6.0	8	8.1		6	7.3	9	6.7	

DISCUSSION

Socio-demographic Profile

The Sociodemographic profile was quite similar to the other studies conducted among the medical students of the Faculty of Medicine and Defence Health, National Defence University of Malaysia [15, 16].

Knowledge and Perception Regarding HPV Vaccination

Most respondents were aware of the indication of HPV vaccination. This finding was similar to the earlier overseas studies [17, 18]. Additionally, the current study respondents perceived that HPV vaccination would strengthen the immune system which was supported by another research report [19]. This study respondents opined on HPV vaccination compulsory for all the adolescent females that was again supported by one more study [20]. Most of the respondents of the current research opined HPV vaccine would protect against cervical cancer, and it is vital as Hepatitis B or *Hemophilus influenzae* vaccines. It was similar to the earlier studies [21, 22]. Again a portion of the respondents disagreed that the HPV vaccination would reduce the need for Pap smear test. The current study findings were analogous with a study [23] but different from the study done by [24]. A large proportion of the respondents supposed that HPV vaccination was exclusive for females, and they failed to identify an appropriate age for vaccination. One study revealed that parents preferred to vaccinate their girl children with HPV vaccine more than their boy children [25]. Less than half agreed that the adolescents could receive other vaccines at the same medical consultation with HPV. The current study's findings were consistent with an earlier study [26]. "HPV infection was 30% higher among the non-monogamous men who always used condoms with non-steady sex partners, compared with the men who never used condoms (hazard ratio, 1.29), after the adjustment to the country, age, race, education duration, marital status, smoking, alcohol, and a number of recent sex partners. No protective effects of the condom use were observed among the monogamous men" [27]. Thereafter, the current study's findings were consistent regarding the condom use. One-fifth of the respondents agreed that the HPV vaccine wouldn't cause undesirable side effects. Nevertheless, multiple studies revealed that the high cost and adverse drug reaction including infertility were the barriers to HPV vaccination [28-31].

Association of the Level of Knowledge and Perception Regarding HPV Vaccination with Gender and Year of Study

The awareness regarding HPV vaccination was higher among females than males. Multiple studies reported similarly that males were much less aware than their female counterpart [32-34]. Greater percentage of females comparing to males knew about the availability of free HPV vaccination for 13-year-old girls in Malaysia. The Malaysian government provides HPV vaccine provide in the school-based program [35, 36]. Then number of females was significantly ($p=0.043$) higher in approving that the use of condoms wouldn't diminish after the vaccination with HPV. This was also in the same line of findings with the earlier study [27]. The clinical students had significantly ($p<0.001$) more awareness and knowledge level on the indications of HPV vaccination than preclinical students. Multiple studies similarly reported the same [37, 38]. The clinical students were significantly ($p<0.001$) higher in giving the opinion that the HPV vaccine was safe, and condom use did not diminish HPV transmission after HPV vaccination than the preclinical students. Multiple studies reported that the HPV vaccine safety [39, 40] and condom would hinder HPV transmission [27]. Clinical students were significantly ($p<0.001$) more aware than the preclinical students that HPV vaccination would not diminish the annual Pap smear testing. All these findings could be explained because of the seniority and clinical exposure.

CONCLUSION

This study revealed that most UPM medical students were aware of the indication of HPV vaccination, and believed that it would strengthen the immune system in order to prevent cervical cancer, and it should be compulsory for all the adolescent females. The clinical students had better awareness, knowledge and understanding than the preclinical students. HPV vaccination can prevent HPV transmission, and effectively prevent cervical cancer; thereafter all the healthcare professionals must possess the appropriate knowledge regarding this vaccination program. Medical schools should take initiatives to educate their students to provide the ample knowledge regarding HPV and its vaccination program in order to prevent this cancer, and reduce the morbidity and mortality. In fact, the availability of training courses and the implementation of the continuous education programs will increase the quality of life [41]. And, the deficient knowledge would certainly have a negative effect on the on the patients' outcomes [42]. To put it briefly, the positive role of education in improving the quality of life, introducing appropriate educational method for medication adherence and improving the quality of life are important factors which should not be under scored [43].

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Conflict of Interest

The authors possessed no conflict of interest.

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