

RESEARCH COMMUNICATION

Practice Towards Human Papillomavirus Vaccine Among Malaysian Women: a Survey of the General Population

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Abstract

Objective: The objective of this study is to determine the practice of HPV vaccine among Malaysian women in the general population. **Methodology:** This cross-sectional study was conducted among 233 women during the Academic Year 2010/2011. Written consent was obtained from the participants and written information about the study was given enclosed with the questionnaire form. The questionnaire consisted of Socio-demographic characteristics, knowledge about HPV and practice of HPV vaccine. The protocol of this study was approved by the ethics committee of Management and Science University (MSU). Data was analyzed using Statistical Package for Social Sciences (SPSS) version 13. T-test and ANOVA test were used to explore the relation between socio-demographic characteristics and the practice of HPV vaccine. **Results:** A total number of 233 women participated in this study. Majority of the participants were from the age group 17-30 years old, Malay, single and having tertiary education (67.8%, 62.7, 62.2, 86.3%; respectively). As for the knowledge of participants, the majority of them heard about HPV (82.4%), knew that the multiple sex partners increase the risk of HPV (71.7%). Regarding the practice of HPV vaccine among respondents, slightly more than half of them have been vaccinated (51.5%). Regarding the factors that influenced the practice of HPV vaccine among general population; age, marital status and family monthly income were significantly influence the practice of HPV vaccine ($p=0.001$, $p=0.001$, $p=0.001$; respectively). **Conclusion:** Slightly more than half of the participants have been vaccinated. Age, marital status and income significantly influence the practice of HPV vaccine. Therefore promotion of HPV vaccine and include HPV vaccine in the national vaccination program is very important as a primary prevention from cervical cancer among women.

Keywords: Practice - HPV - Vaccine - Malaysian women

Asian Pacific J Cancer Prev, 12, 2045-2049

Introduction

Human papillomaviruses (HPV) are double stranded DNA viruses that infect epithelial tissues (de Sanjose et al., 2010). HPV is one of the commonest sexually transmitted infections in sexually active adolescent girls and young women (Braly, 1996; Richardson et al, 2003; Syrjänen et al, 2005; Kitchener et al, 2006; Dunne et al., 2007). More than 100 different types of HPV have been described and about 30 of which infect the genital system (de Villiers et al., 2004; WHO, 2006). Some types of HPV cause morbidity by causing genital warts (Trottier and Franco, 2006). HPV is present in 10.4% of women with normal cervical cytology worldwide (de Sanjose et al., 2010). A least 15 type of HPV can cause cervical cancer (Munoz et al., 2003). HPV types 16 and 18 are the most common cancer causing virus types and are found in more than 70% of all cervical cancer cases worldwide (Bosch et al., 2008). Globally, HPV types 16,18,31,33, 35, 45, 52, and 58 are the eight most frequent cancer causing HPV types,

which are responsible for about 91% of all cervical cancer (de Sanjose et al., 2010). HPV is a particularly challenging virus as it is able to evade detection by the body's natural immune system. The availability of HPV vaccine can reduce the morbidity and mortality of cervical cancer by offering protection to HPV types 16 and 18 because the vaccine has the maximum benefit when given before a person becomes sexually active. Two international bodies: the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics, have recommended routine vaccination for girls aged 11 or 12 years (Clifford et al., 2006; American Academy of Pediatrics, 2007). Clinical trials have demonstrated that Gardasil has 100% efficacy to prevent HPV infection, if one is exposed to the virus, when the three-dose series is administered prior to coital debut (Markowitz et al., 2007). According to Markowitz et al. (2007), sustained immunity has been reported at 5 years and seems similar to long-standing immunity reports of the hepatitis B vaccine.

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Cervical cancer is almost exclusively caused by HPV which is transmitted through sexual activity including intimate skin contact. A number of types of HPV have been causally linked to cervical cancer (Bosch et al., 2008), which is the third most common cancer in women and accounts for 8.8% of all female cancers (Ferlay et al., 2010). Cervical cancer is the major cause of death among women worldwide, even though Pap smear test screening has been available for more than 50 years. In recent years, molecular biology has firmly established a causal relationship between persistent infection with high-risk human papillomavirus (HPV) genotypes and cervical cancer. Therefore, geographic variations in HPV type distributions should be an important consideration (Bosch et al. 2008).

In Malaysia, cervical cancer is the second most common cancer in women which constituted 12.9% of total female cancers (Lim et al., 2004). The death rate due to cervical cancer from 1996 to 2000 ranged from 0.29% to 0.41% (Social Statistics Bulletin, 2005). Cervical cancer can be prevented by identifying pre-cancerous lesions early using Pap smear screening and treating these lesions before they progress to cancer (Wong et al., 2009). Prevention, early diagnosis and treatment have been shown to reduce mortality due to cervical cancer in many countries and HPV vaccine has high efficacy for prevention of HPV vaccine types and related outcomes (Garland et al., 2007). In Malaysia, the cervical cancer screening program was established in 1969 to ensure early detection of cervical cancer among the target group of women aged 20-65 years (Wong et al., 2009) and many action plans and cancer awareness campaigns have been launched over the years (Lim et al., 2004). Nevertheless, no reduction in the prevalence of cervical cancer has been noted to date (Wong et al., 2009). The coverage and uptake of cervical cancer screening is considered poor as the Pap smear coverage in the country is less than 2% in 1992, 3.5% in 1995, and 6.2% in 1996 (Ministry of Health, 1997). Therefore, HPV vaccine should be considered as the most prevention measures of cervical cancer.

A little is known about the practice of HPV vaccine among Malaysian women in the general population. Previous Malaysian studies reported that the majority of participants were not aware of HPV or HPV infection (Wong et al 2009, Al-Naggar et al. 2010, Al-Dubai et al 2010). Therefore this study aimed to determine the practice of HPV vaccine among Malaysian women in the general population.

Materials and Methods

This cross-sectional study was conducted among 233 women in the public places such as food court and the places where the people gathering from Kuala Lumpur Convention Center (KLCC), Sunway Pyramid, Kuala Lumpur, Malaysia during the Academic year 2010/2011. A simple random technique was adopted in selecting the target population from each area. Written consent was obtained from the participants and all potential candidates were invited to participate through written information letter containing information about the purpose and

objectives. The letter also indicates that participation in the survey was voluntary and that privacy and confidentiality would be strictly protected. The exclusion criteria were: women aged less than 18 years and unable to communicate in English or Malay Language. The questionnaire consisted of three parts: Socio-demographic characteristics, knowledge about HPV and practice of HPV vaccine. Socio-demographic characteristics consist of five questions (age, race, marital status, educational level, and family monthly income). Knowledge about HPV consist of the following questions (heard about HPV, multiple sex partner increase risk of getting HPV, sex before the age of 16 increase risk of getting HPV, if women's Pap smear is normal, does she have HPV?, genital warts are caused by herpes virus?, if your partner has many sexual partner, does it increase risk of getting HPV? Practice of HPV vaccine consists of one question. The questionnaire was given in English and Malay languages. The protocol of this study was approved by the ethics committee of Management and Science University (MSU). Data analyzed using Statistical Package for Social Sciences (SPSS) version 13. After data were entered into SPSS, they were reviewed for the accuracy. T-test and ANOVA test were used to explore the relation between socio-demographic and the practice of HPV.

Results

A total number of 233 women recruited from the general population participated in this study. Majority of them from the age group 17-30 years old, Malay, single, having tertiary education (67.8%, 62.7, 62.2, 86.3%; respectively) (Table 1). Regarding the practice of HPV vaccine among respondents, slightly more than half of them have been vaccinated (51.5%). As for the knowledge of participants, the majority of them heard about HPV (82.4%) knew that the multiple sex partners increase the risk of HPV (71.7%). Majority of the participants knew that sex before 16 years old increase risk of HPV (58.4%) (Table 2). Regarding the factors that influenced the practice of HPV vaccine among general population; age significantly influence the practice of HPV vaccine ($p=0.001$). Marital status

Table 1. Factors Influence the Practice of Malaysian Women Towards HPV Vaccine (N =233)

Variables	Categories	Number (%)	p-value
Age	17-30	158 (67.8)	0.001*
	31-40	50 (21.5)	
	>40	25 (10.7)	
Race	Malay	146 (62.7)	0.050*
	Chinese	28 (12.0)	
	Indian	59 (25.3)	
Marital status	Single	145 (62.2)	0.001**
	Married	88 (37.8)	
Education	Primary	6 (2.6)	0.826*
	Secondary	26 (11.2)	
	Tertiary	201 (86.3)	
Income	<2000	79 (33.9)	0.001*
	2000-4000	110(47.2)	
	>4000	44(18.9)	

*ANOVA test; **T test

Table 2. Knowledge that Influence the Practice of Malaysian Women (N =233)

Variables	Categories	Number (%)	p-value
Heard about HPV	Yes	192 (82.4)	0.004*
	No	29 (12.4)	
	Don't know	12 (5.2)	
Multiple sex increase risk of HPV	Yes	167 (71.7)	0.001*
	No	18 (7.7)	
	Don't know	48(20.6)	
Sex before 16 years old increase risk of HPV	Yes	136 (58.4)	0.001*
	No	21(9.0)	
	Don't know	76 (32.6)	

*ANOVA test

significantly influence the practice of HPV vaccine among general population ($p=0.001$). Monthly family income also significantly influence the practice of HPV vaccine among Malaysian in general population ($p=0.001$). However race and educational status were not significantly influence the practice of HPV among Malaysian women in the general population (Table 1). Regarding the knowledge that influence the practice of women; heard about HPV, Knew that multiple sex partners increase the risk of HPV infection, sex before 16 years old increase risk of HPV infection ($P=0.004$, $p=0.001$, $p=0.001$; respectively) (Table 2).

Discussion

This study aimed to determine the practice and associated factors of HPV vaccine among Malaysian women in the general population. This study focuses mainly on women because the available HPV vaccine approved by the Ministry of Health Malaysia for use in female only. International guidelines recommended vaccination of girls aged 11-12 years and in Malaysia it is free of charge for girls of 13 years of age only.

In this study, the majority of the participants heard about HPV (82.4%). Similar findings reported in the previous studies that the awareness about HPV ranged from 57.6% to 84.3% (Jain et al., 2009, Christian et al., 2009). Similar findings reported by the National Immunization Survey of 2007 found that 82.9% of US women aged 27–48 had heard of HPV and 76.5% had heard of the HPV vaccine (Jain et al., 2009). However, low level of knowledge was reported in Norway study showed that only 20% of women had heard about HPV (Kahn et al., 2003). Giuseppe et al. 2008 reported that only 23.3% ever heard about HPV. Another study reported that 33% of adolescents in Finland have heard of HPV (Woodhall et al., 2007). Another study from UK reported that 58% of university students have heard of HPV (Waller et al., 2007). Phillips et al. (2003) and Yacobi et al. (1999) reported that 30.6% and 37% of their participants had heard of HPV, respectively. In Canada, 84.7% of adult women indicated that they had heard of HPV, though only 39.8% had heard of the HPV vaccine (Lenehan et al. 2008). These differences of knowledge may due to the differences of populations, sample size, and promotions

of HPV vaccine in different studies. Promoting HPV and HPV vaccine campaigns all over Malaysia, especially schools and public campaigns is very crucial to raise the awareness among the public. The knowledge about HPV vaccine can be expected to increase over time as HPV vaccination becomes more common.

In this study, slightly more than half of the participants have been vaccinated (51.5%). These data suggest that simple education might serve not only to increase awareness about the risks associated with HPV infection, but may promote changes in behavior that might lead to risk reduction of HPV infection. Even though half of the study population vaccinated, the relatively high cost of HPV vaccination could still influence the vaccine uptake in Malaysia.

The majority of the participants in this study knew that the multiple sex increase the risk of HPV (71.7%). Similar findings in American study showed that 78% of the study participants knew that HPV was sexually transmitted (Ragin et al., 2009). This is in constant to findings by Tessaro et al reported that most participants knew most of the risk factors such as multiple sexual partners, history of HPV infection and sexual intercourse at an early age (Tessaro et al., 1996). Lack of knowledge of HPV also reported among specialist, like in a study of US clinicians, most knew that HPV infection is common, chronic and often asymptomatic, but many “were unaware of information useful for counseling, e.g. most HPV infections clear spontaneously and wart-and cancer-related HPV genotypes usually differ” (Irwin et al., 2006). In a survey of general practitioners in Norway, most considered it important to inform women about HPV and its involvement in cervical carcinogenesis, but more than half admitted that they had limited knowledge about HPV and did not know where to get up-to-date information (Havnegjerde and Thoresen, 2004). Moreover, a study among Mexican physicians showed that only 19% knew that HPV types 16, 18, 31, 38 and 45 do not cause genital warts (Aldrich et al., 2005). There is a need to provide adequate, up-to-date information about HPV to health professionals globally, especially as they are important mediators of knowledge. Thus, it is important for health promotion campaigns to be able to predict women's intent to reduce future sex partners and their self-efficacy to put on a condom on their male partners during the next sexual encounter in order to prevent HPV infection.

The majority of the participants knew that sex before 16 years old increase risk of HPV (58.4). Similarly in Canadian study, more than 90% of the participants knew that the vaccine should be given before girls become sexually active (Duval et al., 2009). These differences may be explained by the fact that the HPV vaccine is still a new concept in most developing countries.

Regarding the factors that influenced the practice of HPV vaccine among general population; age significantly influence the practice of HPV vaccine ($p=0.001$). Similar finding reported that age is significantly associated with HPV vaccine uptake (Bynum et al., 2011).

In this study, marital status significantly influences the practice of HPV vaccine among Malaysian women from the general population.

Monthly family income also significantly influence the practice of HPV vaccine among Malaysian in general population ($p=0.001$). Similar study reported that the main barriers about the HPV vaccine among the participants did not take the vaccine because it's expensive (Al Dubai et al. 2010). This finding is similar to a Canadian study which reported that most young women would accept HPV vaccine if it is free of charge (Sauvageau et al., 2007). The recommended 3-dose course costs approximately US\$360 (MYR 1200) in the private sector in Malaysia and is unaffordable for lower socioeconomic status women. To ensure wide coverage, the vaccine may need to be incorporated into the vaccination program in Malaysia (Wong et al 2009). Daley et al. also reported that the cost of the HPV vaccine is a major obstacle to uptake the HPV vaccine. In previous studies, 7 to 14.6% of women aged 18–26 cited cost as a reason for not being vaccinated (Jain et al., 2009; Zimet et al., 2010). Cost was also a barrier reported by college women who had chosen not to receive the vaccine (Jain et al., 2009).

Regarding the knowledge that significantly influence the practice of women were heard about HPV, Knew that multiple sex partners increase the risk of HPV infection, and knew that sex before 16 years old increase risk of HPV infection. Similar finding reported that knowledge about HPV is significantly associated with HPV vaccine uptake (Bynum et al., 2011). There is evidence that acceptance of HPV vaccination is increased when parents or young women were well informed about the risks and benefits (Kahn et al., 2003; Davis et al., 2004)

The limitations of this study are the research questions were investigated by a cross-sectional study design. Such design precludes determination of causal relationships between different factors and outcomes. Information was collected through self-reported questionnaire and so the possibility exists that some responses may have reported incorrect information. Despite these limitations, this stud displays important strengths: first, it provides information from a general population from different ethnic groups (Malay, Chinese and Indians); second, the data were essentially complete; third, the participation rate was very high, probably reflecting heightened interest for this survey.

In conclusion, Slightly more than have of the participants have been vaccinated. Age, marital status and income significantly influence the practice of HPV vaccine. Therefore promotion of HPV vaccine and include HPV vaccine in the national vaccination program is very important as a primary prevention from cervical cancer among women.

Acknowledgements

The authors would like to thank all the participants in the study for their generous assistance on this project.

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