

FACILITATING FACTORS AND BARRIERS FOR INTENTION TO GET HPV VACCINE AMONG YOUNG FEMALE IN HANOI, VIETNAM

Nguyen Hoang Phuong^{1, 2, *}, Alessio Panza²

¹Centre for Community Health and Development (COHED), Hanoi, Vietnam

²College of Public Health Sciences, Chulalongkorn University, Bangkok 10330, Thailand

ABSTRACT: The general objectives of the study were to assess facilitating factors and barriers for intention to get HPV vaccine among 15-25 years old females in Hanoi, Vietnam. The study used simple random sampling and cluster random sampling. Overall, 386 young female agreed to answer the questionnaire. The results explored that the facilitating factors for intention to accept HPV vaccine among young female in Vietnam are high knowledge on HPV vaccine (OR= 1.97) perceived benefit (OR= 3.08) and health care provider's consultation (OR = 4.24). On the other hand, barriers towards their intention to get HPV vaccine include lacking of information related to HPV and HPV vaccine, being afraid of vaccine's side effect and the cost of the vaccine. This study's recommendations include organizing broader and more intense educational programs about knowledge on HPV and HPV vaccine.

Keywords: Facilitating factor, barriers, HPV vaccine, intention to accept HPV vaccine, young female, Vietnam

INTRODUCTION

According to WHO, there are about 510,000 women over the world diagnosed with cervical cancer each year and 288,000 women died from cervical cancer yearly. It also shows that cervical cancer is the second biggest cause of female cancer mortality worldwide [1]. Human papillomavirus (HPV) is a common virus worldwide found in almost 100% of cervical cancers cases [2] and 70% of these cancer cases are due to HPV 16 and 18 [3]. Many studies pointed out that HPV vaccination is one of the most effective ways to reduce the incidence of HPV. In 2006, the US Food and Drug Administration and the European Medicines Agency approved the first HPV vaccine called Gardasil which can protect women from four types of HPV including HPV16, 18, 6 and 11. The first two HPV types cause most (70%) cervical cancers (types 16 and 18). The second HPV vaccine named Cervarix was recommended for young females from 9 to 26 years old. Numerous studies [4, 5] indicated some obstacles toward HPV vaccination such as lack of knowledge, high cost of HPV vaccine, the recommendation of family. The concept of vaccine acceptance can be explained by using behavioural theories, especially the Health Belief Model (HBM). Some studies [6, 7] showed the influence of socio-demographic factors such as marital status, income, education on female's intention to take vaccine. Kwan et al. [5] and Hsu [7] explored that female's knowledge is the significant predictor for intention to accept HPV vaccine. Many studies

pointed out that both perceived of susceptibility and perceived severity were the predictors of intention to get HPV vaccine among women [7]. Intention to get HPV vaccine might be affected by family history, contraceptive pill, sexual behaviours among young female in US that the sexual activity may predict higher acceptance of the HPV vaccine [8].

Intention of HPV vaccine acceptance is also influenced by knowledge on HPV and HPV vaccine as well as components of Health Belief Model such as perceived susceptibility, perceived severity, perceived barriers and perceived benefits. Many researchers found out the little knowledge on HPV vaccine among young female such as Tiro [9], Moraros [10]. Moraros and colleagues mentioned in their finding that the women have very low knowledge on HPV vaccine, 90% of them never heard about HPV vaccine before. Other research [11, 12] also mentioned that higher levels of HPV vaccine knowledge correlate with the increasing of HPV vaccine acceptance. Perceive barrier is also one of the most important factors impacting on individual's intention to take vaccine. In other words, it influences individual's HPV vaccine acceptance. Barriers are considered as high cost, worry about the risk and side effect of vaccination. Cost as a barrier also extends beyond the retail price of vaccine. A study of Allen [12] on 18-30 year old American female indicated that cost is the important component that influence to the accessibility of HPV vaccination. In term of facilitating factors, both perceived of susceptibility and perceived severity were found the predictors of intention to get HPV vaccine among women [11]. Some studies [12-14] have explored that perceived benefits encouraged

*Correspondence to: Nguyen Hoang Phuong
E-mail: phuongcarina@gmail.com

HPV vaccination among young female. Cues of action are factors that remind a desire to take HPV vaccine. They can be the service provider's knowledge on HPV and HPV vaccine, the support of family members, health care providers and peers, and the accessibility to information on HPV and HPV vaccine.

MATERIALS AND METHODS

Design

Cross-sectional survey had been employed in this survey to collect data. Cross-sectional survey can help to assess the knowledge and perception of young women in a specific time.

Sample and Data collection.

A total of 386 young female in Hanoi answered the self-administered questionnaire. To derive the sample, researcher has used a list of households collected from People Committee in the selected wards of two districts that were randomly selected from 10 inner districts of Hanoi, then randomly selected households with young women between 15 and 25 years old.

Instrument

Questionnaire was adapted by using three questionnaires that were designed by Ingledue et al. [15], Gerend & Barley [16] and Zimet et al. [17]. The questionnaire is divided into 5 parts: Social Demographic Information, Reproductive health history, Knowledge of HPV & HPV vaccines, Perception on HPV and HPV vaccine, HPV vaccination.

Data analysis

Data collected from this survey were analyzed by using both descriptive and inferential statistics utilizing SPSS software for Windows version 17. Descriptive statistics were used to summarize, organize and simplify data as well as find out how much knowledge that young female gained by using frequency distribution, percentage, mean, median, mode, SD. For inferential statistics data analysis such as Chi Square, it was used to calculate association between knowledge on HPV infection, vaccination and educational levels, and living standard. Logistic Regression had also been employed to determine women's behavioural intention to get vaccine.

RESULTS

Descriptive analysis

For demographic information, nearly half of the participants are 22 to 25 years old (43.2%) and the minority of them are in the 15 – 17 age group (21%). Among those respondents, 85.8% are single, 13.5% are married and the minority of them is divorce or separate. The majority of participants

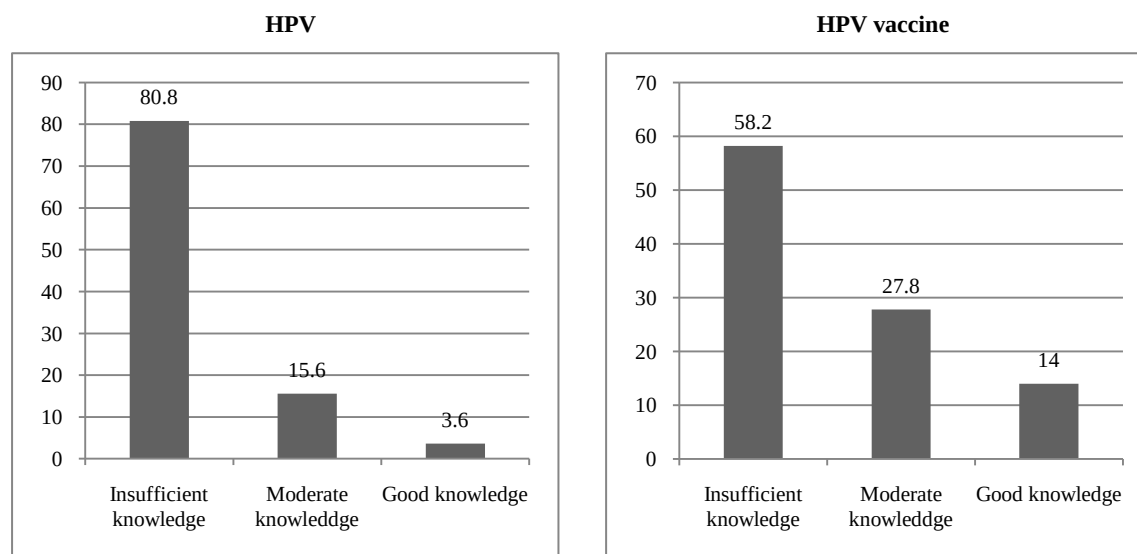
(68.9%) never heard about Pap smear. Meanwhile only a few of respondents reported having family's member getting cervical cancer (4.9%). A relatively high percent of participants who have never had sexual intercourse yet (63.7%) and 31.1% of participants already have sexual intercourse were observed. Almost participants have insufficient knowledge related to HPV (80.8%) while only 3.6% of respondents have good knowledge on HPV. There is a relatively high percent of participants (58.2%) who have insufficient knowledge on HPV vaccine. For those who have good knowledge HPV vaccine, the percent is 14% which is relatively low (Figure 1). Participants had quite high perceived severity and susceptibility on HPV. Almost all of them have moderate perception of benefit and barriers on HPV and HPV vaccine. This study found out only 1.3% of female who already got HPV vaccination. More than a half of participants (64%) reported that they had intention to accept HPV vaccine in the future. The main reason for intention to get vaccine is that they believed in the effectiveness of vaccine and it can protect them from cervical cancer and genital ward. The main reason for no intention to get vaccine is that they do not have enough information about the vaccine (64.3%). The second reason is that they are worried about the side effect of the vaccine (48.8%).

Inferential analysis

In bivariate analysis the result showed that there is no significant relationship between respondents' marital status, education, and monthly income with intention to get HPV vaccine. However, the result shows that there are significant relationship between intention to accept HPV vaccine and age (p -value=0.022), occupation (p -value=0.022). There is no relationship between intention to get HPV vaccine and sexual behaviours (p =0.43), Pap smear practice (p =0.55), cervical history of family (p =0.51). A significant relationship between knowledge on HPV (p -value=0.03) and HPV vaccine and respondents' intention to have the vaccine were found. Only perceived benefit and perceived barriers were significantly related to intention to get HPV vaccine but perceived severity and susceptibility were not. Receiving consultation from health care provider and information from internet and newspapers were found associated with intention to get vaccine. The multivariate analysis showed that the predictors of intention to get HPV vaccine were knowledge on HPV vaccine, perceived barriers, perceived benefit and getting consultation from health care providers.

DISCUSSION

The main purpose of this study was to determine the knowledge on HPV and HPV vaccine as well as find out the facilitating factor and barriers, the relationship between social demographic characteristic

Figure 1 Distribution of level of knowledge on HPV and HPV vaccine

and intention to accept HPV vaccine among young Vietnamese female in Hanoi, Vietnam. The result from bivariate analysis on the effects of socio-demographic characteristics on participants' intention to get HPV vaccine reveals that there is no relationship between income, education and marital status and the intention to get vaccine. The marital status in this research did not significantly associate with intention to get HPV vaccine. This finding was supported by the finding of Hsu and colleagues [18]. The result showed that education was not associated with intention to accept HPV vaccine among Vietnamese young female that is consistent with some other research [14, 19]. Age and occupation are the factors that have significant relationship with young females' intention in bivariate analysis. However when testing these significant factors in multivariate analysis after controlling other factors, it turned out that they were not the predictors for the intention to get HPV vaccine. Finding in this study showed that there are no significant relationships between such variables as family history of cervical cancer, Pap smear experience, sexual behaviour, condom use, oral contraceptive and intention to get HPV vaccine. Buchana [8] also indicated the non relationship between family history of cervical cancer and intention to get HPV vaccination among young female in US. Some respondents, who had sexual activities in the past but did not currently, thought that they still can have benefits from HPV vaccination. This finding corresponds with the result of Kang's study [14] about Korean female college students.

In multivariate analysis, only knowledge on HPV vaccine was significantly associated with intention to get vaccine ($p=0.05$) after controlling other variables. To prevent HPV infection and cervical cancer, high knowledge on HPV vaccine is one of

the important facilitating factors for intention to accept HPV vaccine. On the contrary, in multivariate analysis, knowledge on HPV appeared not to be predicting intention to get HPV vaccine. Lenehan [19] also found that HPV-related knowledge was not related to women's intention to get HPV vaccine. Ultimately, it was the vaccine that women aims to get, therefore for them, information about the vaccine may be considered more important than information about HPV (Table 1, 2). The perceived susceptibility and perceived severity were not significantly related to intention to have HPV vaccine in bivariate analysis. In multivariate analysis of this study, both perceived benefit and perceived barriers still remained significantly associated with young females' intention to obtain the vaccine. HPV vaccinations in Vietnam were known as vaccines to prevent cervical cancer that able to answer the question why the perceived severity and perceived susceptibility was not significant associated with intention to get vaccine. Women may concern about the effectiveness of HPV vaccine as preventing cervical cancer only without perception of risk and severity about HPV infection (Table 3).

In this study, young women with higher perceived benefits are 3 times more likely to intend to get HPV vaccine. Various study showed the association between intention to get HPV vaccine and perceived benefit among adult and adolescents [17, 20]. Thus, perceived benefit is the important facilitating factors of intention to be vaccinated. Moreover, perceived barriers were inversely and highly significantly related to young females' intention. The perceived barriers in this study included the perception of the risk of HPV vaccine, the high cost and the time of vaccination. When these three items were tested with the intention of HPV vaccination, only perception on the risk of

Table 1 Relationship between young females' knowledge on HPV and their intention to get HPV vaccine (n= 378)

Variable	Intention N (%)	No intention N (%)	χ^2	P- value ≤ 0.05
Knowledge on HPV (n=378)			6.162	0.013*
insufficient knowledge	194 (63.0)	114 (37.0)		
Moderated and good knowledge	55 (78.6)	15 (21.4)		

Table 2 Relationship between young females' knowledge on HPV vaccine and their intention to get HPV vaccine

Variable	Intention N (%)	No intention N (%)	χ^2	P- value ≤ 0.05
Knowledge on HPV vaccine (n= 378)			10.693	0.005*
Low knowledge	158 (60.5)	103 (39.5)		
Moderated knowledge	71 (78.0)	20 (22.0)		
High knowledge	20 (76.9)	6 (23.1)		

Table 3 Relationship between perceptions of HPV and young females' intention to get HPV vaccine

Variable	Intention N (%)	No intention N (%)	χ^2	P- value ≤ 0.05
Perceived susceptibility (n=378)			2.547	0.280
Perception of low susceptibility	11 (57.9)	8 (42.1)		
Perception of moderate susceptibility	17 (54.8)	14 (45.2)		
Perception of high susceptibility	221 (67.4)	107 (32.6)		
Perceived severity (n=378)			1.811	0.404
Perception of low severity	29 (67.4)	14 (32.6)		
Perception of moderate severity	190 (64.4)	105 (35.6)		
Perception of high severity	30 (75.0)	10 (25.0)		

Table 4 Relationship between perceptions of HPV vaccine and young females' intention to get HPV vaccine

Variable	Intention N (%)	No intention N (%)	χ^2	P- value ≤ 0.05
Perceived benefit (n=378)			11.973	0.003
Perception of low benefit	15 (40.5)	22 (59.5)		
Perception of moderate benefit	208 (69.1)	93 (30.9)		
Perception of high benefit	26 (65.0)	14 (35.0)		
Perceived barriers (n=378)			18.298	<0.001
Perception of low barriers	40 (85.1)	7 (14.9)		
Perception of moderate barriers	194 (66.0)	100 (34.0)		
Perception of high barriers	15 (40.5)	22 (59.5)		

Table 5 Logistic regression analysis of young females' intention to get HPV vaccine (n=378)

Variable	B	Odd Ratio	95.0% C.I. for EXP(B)		p-value
			Lower	Upper	
Age	-0.017	0.984	0.893	1.083	0.736
Internet based information	0.239	1.270	0.760	2.123	0.361
Newspaper based information	0.308	1.360	0.796	2.323	0.260
Health provider's consultation	1.446	4.247	1.917	9.411	<0.001*
Knowledge on HPV	0.292	1.339	0.759	2.362	0.313
Knowledge on HPV vaccine	0.680	1.973	1.166	3.339	0.011*
Perceived benefit	1.127	3.086	1.454	6.548	0.003*
Perceived barriers	-1.160	0.314	0.130	0.754	0.010*
Occupation	0.455	1.576	0.830	2.994	0.164

*Significant at ≤ 0.05

vaccine and high cost of vaccine were still significantly related to intention be vaccinated. This result is supported by a previous study [21] in which young women's most frequently reported

side effects, cost, and not knowing enough as the barriers towards their intention. Therefore, perceived barriers, especially, perception of high cost and the risk of HPV vaccine would be the

barriers that prevent young female in Hanoi intend to be vaccinated (Table 4). We can see that the similar barriers such as risk of vaccination, fear of side effects and cost of the vaccine for intention to get HPV vaccine in other previous studies [5, 7, 14].

According the HBM, cues of action is one of the important components that might influence behaviours. In this study, cues of action included information sources and the health care provider's consultation. In bivariate analysis, the significant differences in intention to get HPV vaccine were found among women who get information from internet and newspaper/magazines. Hsu [18] also indicated in the study among 18 to 28 year old Taiwan females that media plays an important role in decision to be vaccinated HPV vaccine. However, in regression model these variables turned out not to be associated with the dependent variable (Table 5).

This study found that the intention to accept vaccine is significantly related to the health care provider's consultation in both bivariate and multivariate analysis. Over 89% of women who were consulted about HPV by health provider said that they intend to accept the HPV vaccine. Furthermore, all of vaccinated participants in this study indicated that they received the consultation from health care providers. It points out the important role of health care providers in providing information to young females about HPV and HPV vaccine and encouraging them to receive the vaccine.

According to above result, young female in Hanoi would more likely to get vaccine when they have higher knowledge on HPV vaccine, higher perceived benefit, lower perceived barriers and health care provider's consultation. Hence, high knowledge on HPV vaccine, high perceived benefit and provider's consultation are the main facilitating factors for intention to get HPV vaccine. This result was consistent with previous studies [5, 9, 18] that indicated the important influence of health care provider and high knowledge toward intention to get vaccine.

On the contrary, perceived of barriers, especially, perception of high cost and the risk of HPV vaccine would be the barriers that prevent young female in Hanoi intend to be vaccinated. Regarding the reason for no intention to get vaccine, most of participants still gave the same barriers such as lack of information (64%), concern about side effect (48.8%). Moreover, 17.8% showed that they did not need vaccine since they never had sexual activities. Other reason of HPV vaccine rejection were high cost (32.6%), unavailability of HPV vaccine (15.5%), family recommendation (6.3%) and having sexual experience (14%). Consistently, some studies revealed that the barriers of intention to enhance HPV vaccine included high cost, low perceived risk of HPV infection, having sexually inexperience [5].

CONCLUSION

In general, the results from previous chapter suggest that the majority of young females, who are living in Hanoi, intend to get HPV vaccine in the future. However, their intention is influenced by both facilitating and barrier factors. Facilitating factors for intention to accept HPV vaccine were higher knowledge on HPV vaccine, higher perceived benefit, lower perceived barriers and health care provider's consultation. Meanwhile the lack of information about HPV vaccine, perceived of risk and cost of the vaccine highly prevent Vietnamese young female intend to get HPV vaccine.

This study's recommendations include more intense educational programs about knowledge on HPV and HPV vaccine through mass media such as internet, TV, newspapers. Policy makers should develop a health policy which partly finances the HPV vaccination to reducing the out-of pocket cost of the vaccine for young women and to encourage them to get vaccination.

ACKNOWLEDGEMENTS

This work was support by Dr. Alessio Panza, all professors at College of Public Health Sciences, Chulalongkorn University Thailand, Centre of community health and development in Vietnam and Ecumenical scholarship program (ESP) of Bread for the World. This publishing with partial support provided by the funds made available under the Higher Education Research Promotion and National Research University Project of Thailand, Office of the Higher Education (Project AS1148A).

REFERENCES

1. Baer H, Allen S, Braun L. Knowledge of human papillomavirus infection among young adult men and women: implications for health education and research. *J Community Health*. 2000; 25(1): 67-78.
2. Maissi E, Marteau TM, Hankins M, Moss S, Legood R, Gray A. Psychological impact of human papillomavirus testing in women with borderline or dyskaryotic cervical smear test results: cross sectional questionnaire study. *BMJ*. 2004; 328: 1293-1312.
3. Center for Disease Control and Prevention (CDC). Quadrivalent human papillomavirus vaccine - recommendations of the advisory committee on immunization practices; 2007 [cited 2010 Oct 29]. Available from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr56e312a1.htm>
4. Smith PJ, Chu SY, Barker LE. Children who have received no vaccines: who are they and where do they live? *Pediatrics*. 2004; 114: 187-95.
5. Kwan TT, Chan KK, Yip AM, Tam KF, Cheung AN, Young PM, et al. Barriers and facilitators to human papillomavirus vaccination among Chinese adolescent girls in Hong Kong: a qualitative-quantitative study. *Sex Transm Infect*. 2008; 84: 227-32.
6. Marlow L, Waller J, Wardle J. The impact of human papillomavirus information on perceived risk of cervical cancer. *Cancer Epidemiol Biomarkers Prev*. 2009; 18: 373.

7. Hsu YY, Fetzer SJ, Hsu KF, Chang YY, Huang CP, Chou CY. Intention to obtain human papillomavirus vaccination among Taiwanese undergraduate women. *Sex Transm Dis.* 2009 Nov; 36(11): 686-92. DOI: 10.1097/OLQ.0b013e3181ad28d3.
8. Buchanan JA. Comparing the health belief model and theory of planned behavior in predicting intent to vaccinate against the human papillomavirus in college women [Dissertation]. United States: Indiana State University, 2008.
9. Tiro JA, Meissner HI, Kobrin S, Chollette V. What do women in the U.S. know about human papillomavirus and cervical cancer? *Cancer Epidemiol Biomarkers Prev.* 2007; 16: 288-94.
10. Moraros J, Bird Y, Barney DD, King SC, Banegas M, Suarez-Toriello E. A pilot study: HPV infection knowledge & HPV vaccine acceptance among women residing in Ciudad Juárez, México. *Californian J Health Promot.* 2006; 4(3): 177-86.
11. Kahn JA, Rosenthal SL, Hamann T, Bernstein DI. Attitudes about human papillomavirus vaccine in young women. *Int J STD AIDS.* 2003; 14: 300-6.
12. Allen JD, Mohllajee AP, Shelton RC, Othus MK, Fontenot HB, Hanna R. Stage of adoption of the human papillomavirus vaccine among college women. *Prev Med.* 2009; 48: 420-5.
13. Marlow LAV, Waller J, Evans REC. Predictors of interest in HPV vaccination: a study of British adolescent. *Vaccine.* 2009; 27: 2483-8.
14. Kang HS, Moneyham L. Attitudes toward and intention to receive the human papilloma virus (HPV) vaccination and intention to use condoms among female Korean college students. *Vaccine.* 2010; 28: 811-6.
15. Ingledue K, Cottrell R, Bernard A. College women's knowledge, perceptions and preventative behaviors regarding human papillomavirus infection and cervical cancer. *Am J Health Stud.* 2004; 19: 28-34.
16. Gerend MA, Barley J. Human papillomavirus vaccine acceptability among young adult men. *Sex Transm Dis.* 2009; 36: 68-2.
17. Zimet GD, Mays RM, Fortnberry JD. Vaccines against sexually transmitted infections: promise and problems of the magic bullets for prevention and control. *Sex Transm Dis.* 2000; 27: 49-52.
18. Hsu YY, Hsu KF, Cheng MY, Fetzer SJ, Chou CY. Health belief of Taiwanese women seeking HPV vaccination. *Vaccine.* 2010; 28: 4224-8.
19. Lenehan JG, Leonard KC, Nandra S, Isaacs CR, Mathew A, Fisher WA. Women's knowledge, attitudes, and intentions concerning human papillomavirus vaccination: findings of a waiting room survey of obstetrics-gynaecology outpatients. *J Obst Gynaecol Can.* 2008; 30: 489-99.
20. Dempsey AF, Zimet GD, Davis RL, Koutsky L. Factors that are associated with parental acceptance of human papillomavirus vaccines: a randomized intervention study of written information about HPV. *Pediatrics.* 2006; 117:1486-93.
21. Burke SC. Getting vaccinated against HPV: attitudes, intentions and perceived barriers of female undergraduates. 2010 [cited 2011 April]. Available from: http://www.faqs.org/periodicals/201003/1984_269_101.html