

RESEARCH COMMUNICATION

A Qualitative Study on HPV Vaccination from a Nursing Perspective in Hong Kong

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Abstract

Objective: To identify the perception on human papillomavirus (HPV) vaccination among female nursing students in Hong Kong. **Data Sources:** Data were collected through focus group discussions and semi-structured in-depth interviews. All participants (n=28) were female nursing students of a university in Hong Kong. Tape recordings of individual interviews and focus group discussions were transcribed verbatim in Chinese, translated into English, and analyzed according to Colaizzi's phenomenological analysis. **Study Design:** Four major themes emerged from the data: nursing students' understanding about HPV vaccine, nursing students' attitude on HPV vaccine, nursing students' perspective on HPV vaccination promotion, and nursing role on HPV vaccination. **Conclusions:** Government should take initiative in promotion with vaccine suppliers. The awareness and knowledge of HPV and HPV vaccination among women should be increased in order to raise the positive attitude of women towards HPV vaccination and prevention of cervical cancer. Health professionals should work together on HPV promotion among women and increase the HPV vaccination rates. Moreover, further studies regarding attitude and awareness of HPV vaccination among women in different age groups are needed in order to identify more associated factors affecting their perceptions towards HPV vaccination.

Keywords: nursing students - HPV - vaccination - Hong Kong

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Introduction

The development of the human papillomavirus (HPV) vaccine has aroused public awareness of the existence of HPV, which has been known globally as the major cause of cervical cancer. World Health Organization (WHO, 2009) position paper declared that cervical cancer caused by HPV infection hit about 500,000 women and caused 260,000 deaths yearly. The identification of HPV as etiologic link with cervical cancer in the early 1990s stimulated the creation of HPV vaccine. Two prophylactic vaccines against HPV-16 and HPV-18, which were responsible to 70% of cervical cancers, were developed as a primary method of HPV prevention (Dawar et al., 2007). As a result HPV vaccination has been widely recommended and promoted to women in different countries to prevent HPV and cervical cancer, and at the same time to increase their awareness of HPV infections.

HPV infections are the most common sexually transmitted diseases (Galani and Christodoulou, 2009). Approximately 1%-2% of sexually active adults worldwide acquire anogenital warts due to HPV infections every year, which equals to more than 30 million individuals (Satyaprakash et al., 2009). WHO (2008) stated that genital HPVs are highly transmissible, through penetrative and non-penetrative sexual contact. It is usually acquired

within the first two years after sexual debut and the peak incidence usually occur between 16 years and 20 years. ACOG Committee on Practice Bulletins-Gynecology (2009) also stated that HPV infections are most common in teenagers and women in their early 20 years, with prevalence decreasing as women in age from 25 years to 28 years. In general, 90% of HPV infections are transient and resolve spontaneously within 2 years (Hutchinson and Klein, 2008). This suggests that HPV infections found in older women are more likely to reflect persistent infections acquired in the past which can lead to precancerous cervical lesions, and potentially invasive cervical carcinoma (ACOG Committee on Practice Bulletins-Gynecology, 2009; Huh, 2009). Although HPV is a proven causative agent in cervical carcinogenesis, only half of the infected women developed detectable antibodies against HPV, and antibodies are insufficient to prevent subsequent infections (WHO, 2008).

Since the introduction of the Papanicolaou (Pap) smear in the mid-20th century widespread programmatic or opportunistic screening has likely contributed to a reduction of about three-fourths of the cervical cancer burden in high income countries (Franco and Harper, 2005; Ault, 2008). However, recent well-controlled clinical trials have found sensitivities of only 70%-80% for conventional smears and 85%-90% for liquid-based

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cytology (Hakim and Dinh, 2009). Centers for Disease Control and Prevention (2007, cited in Hakim and Dinh, 2009) claimed HPV DNA testing, a companion to the Pap smear, approved by the U.S. Food and Drug Administration (FDA) can detect 13 high-risk types of HPV (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, and 68). It is limited to the triage of patients with equivocal Pap smear (atypical squamous cells of undetermined significance) and acts as an adjunct to a liquid based cytology test in women over 30 years of age (Hakim and Dinh, 2009). In fact, Pap smear test and HPV Deoxyribonucleic acid (DNA) test are not adequate to reduce the morbidity and mortality rate of cervical cancer. As a nursing professional, there are Pap smear and HPV DNA test for testing HPV. However, the knowledge of nurses of HPV is inadequate to provide sufficient information to HPV vaccination recipients and therefore education of nurses of HPV infections ways and prevention methods is important to enhance their knowledge of HPV.

In Hong Kong, two prophylactic vaccines, Gardasil and Cervarix, are currently approved for use in humans. In clinical trials, both vaccines were found with highly effectiveness which up to 100% at preventing oncogenic virus type 16 or 18 induced persistent infections (Hershey and Velez, 2009). According to Hakim et al. (2007), both vaccines have the potential to eliminate 70% of cervical cancers and the quadrivalent vaccine may also be able to prevent 90% of genital warts. Villa et al. (2006) suggested that a prophylactic HPV vaccine should be given to adolescents before the initiation of sexual activity because HPV is transmitted through genital contact. Therefore the reinforcement of nurses on sexual health promotion among adolescents is needed in order to promote early education of HPV transmission ways and prevention methods to adolescents.

Regarding vaccination promotion programs, health professions' recommendation was considered as an important factor affecting their acceptance (Dinh et al., 2007; Gerend et al., 2007). In addition, the acceptability and support from healthcare professionals was important to implement the vaccination programs (Duval et al., 2009). However, most studies were empirical researches with physicians to recommend HPV vaccines while a few studies with nurses were done. Furthermore, many current studies adopted questionnaire as a quantitative research to explore the nurses' knowledge and attitude towards HPV vaccinations. For example, Nganwai et al. (2008) conducted a survey (n=133) by using a self-administered questionnaire to document knowledge, attitudes and practices vis-a-vis cervical cancer and HPV infection prevention among registered nurses who worked in Sringerid University Hospital in Northeast Thailand. The study is adopted as reference in this paper because Hong Kong and Thailand are both Asian countries, which can inspire the insight of women' attitude of HPV vaccination in Chinese society. In this study, although the nurses have a moderate level of knowledge about cervical cancer and HPV, there were some misunderstandings of the beliefs and knowledge of HPV vaccines. Therefore, more information related to nurses' beliefs, knowledge and concerns of HPV vaccines is required. As no previous

study has been done to describe perspectives on HPV vaccines among nursing students, who would be nursing practitioners in the future in response to promote HPV vaccination, therefore a qualitative phenomenological perspective among them on HPV vaccination in Hong Kong is conducted.

Materials and Methods

Local female nursing students were recruited in a university in Hong Kong. A purposive sample was obtained by offering study participation to female nursing students who were studying in year two, School of Nursing, including those who were vaccinated and not vaccinated, and were interested in participating by talking about their perception on HPV vaccination. Snowball sampling method was used in order to recruit more eligible participants as introduced by the recruited participants. Those who agreed to participate were scheduled to have focus group interviews and semi-structured in-depth interviews. The ethics review of research was approved in April, 2010. Informed consent was obtained prior to the interview for voluntary participation and recording. Interviews were conducted between May and July 2010. Data saturation was reached after the fourth focus group and semi-structured in-depth interview have been conducted. A total of 28 participants were recruited, which included 4 individual in-depth interviews for female nursing students who were vaccinated (n=4) and 4 focus group discussions for female nursing students who were not vaccinated with 6 students in each group (n=24).

A question guideline corresponding to the research questions was used in the interviews. The questions were commented by external reviewer, who was the expert within the field of sexual health in United Kingdom. Two pilot tests were done to refine the final version of the guideline. The details of interview guide were shown in Table 1.

All interviews were audio taped and conducted by the researchers in classroom in the university campus. The interviews were ended when the participants indicated they had no further comments to make, which ranged from 25 to 30 minutes in in-depth interviews and ranged from 25 to 45 minutes in focus group discussions. Each audio taped interview was transcribed verbatim in Chinese and translated into English. All data were kept confidential and disposed right after the research was done.

Colaizzi and Giorgi method analysis become popular reference sources among phenomenological nurse researchers (Thorne, 2000). Moreover, Polit and Beck (2010) point out that Colaizzi's method is the only one that calls for a validation of result by returning to study participants when compared with other phenomenological analysis. In this study, data analysis was guided by the approach outlined by Colaizzi (1978) who describes seven procedural steps as: (1) all informants' narratives are listened to and read to obtain a feeling for their ideas in order to understand them; (2) researcher extracts words and sentences, referred to as significant statements, relating to the phenomenon under study; (3) meanings are formulated for each significant statement; (4) formulated

Table 1. Question Guideline for Nursing Students

Categories	Questions
Knowledge	What is the human papillomavirus (HPV)?
	What do you think about HPV vaccination?
	What is the purpose of HPV vaccine?
	What are the ways that you get the knowledge of HPV vaccination?
	Who was your information source on HPV?
Personal attitude	Who should be receiving HPV vaccination?
	Have you ever received the HPV vaccination?
	Why did you receive HPV vaccination?
	How many doses of vaccine you need to inject?
	What are your concerns that make you not receive HPV vaccination?
	What do you think about the effectiveness of HPV vaccination?
	What do you think about the safety of HPV vaccination?
	What kind of information that you want to know from the health professionals?
	What additional information you would like to have on HPV vaccine?
	How much did you spend on the HPV vaccination?
	What are your concerns when you are going to receive HPV vaccination?
	What is your most concern on HPV vaccination? and Why?
	What do you think about the chances getting STI after had been vaccinated? Why?
	How effective do you think the HPV vaccine is for preventing cervical cancer?
	How likely would you be to recommend the HPV vaccine to female relatives and friends?
How do you think offering the vaccine to young adolescents affect the likelihood of early sexual activity?	
What are the cues that will make you receive HPV vaccination?	
Who influence you to receive HPV vaccination?	
What is your feeling after vaccinated?	

meanings are organized into clusters of themes; (5) researcher integrates all resulting ideas into an exhaustive description of the phenomenon under study; (6) exhaustive description is reduced to a statement of the fundamental structure of the phenomenon and; (7) researcher returns to the participants to elicit their views on the findings and to validate them. Colaizzi method analysis was widely conducted in phenomenological research and it is commonly applied in the qualitative research papers.

Qualitative rigor

Lincoln and Guba (1985, as cited in Polit and Beck, 2010) suggested that trustworthiness can convince the audience that it is worth to pay attention and take into consideration on the research findings. The four measures for developing the trustworthiness of a qualitative research include credibility, dependability, confirmability, and transferability (Lincoln and Guba, 1985, as cited in Polit and Beck, 2010).

Four techniques were used to establish credibility. Triangulation of sources, methods and investigators were employed in order to obtain data from diverse aspects (Denzin, 1978). Additionally, various methods including focus group interviews and semi-structured in-depth interviews were adopted to collect data. Ten researchers and one supervisor were responsible for monitoring the research from the beginning of the research process. Peer debriefings were performed regularly to achieve external check. During peer debriefings, many problems and concerns were raised out and debates were held to solve until consensus were reached. Moreover, member checking was done to test the findings from the participants (Lincoln and Guba, 1985, cited in Polit and Beck, 2010). After the interviews, the whole processes were transcribed into written form and were sent back to the participants to counter check the accuracy.

Results

Participant characteristics

Twenty-eight local female nursing students who were studying in year two of a three or four year full-time undergraduate program in the same university, including those vaccinated and not vaccinated, were recruited as participants of this study. The ages of participants were between 21- to 25- years old. All of them were Chinese and permanent local residents. Cantonese, which is one of the Chinese dialects, was used in this study. No one was married or had child.

Findings

Four major themes emerged from the data: nursing students' understanding about HPV vaccine, nursing students' attitude on HPV vaccine, nursing students' perspective on HPV vaccination promotion, and nursing role on HPV vaccination. NS stands for nursing student who ranged from NS 1 to 28.

Nursing students' understanding about HPV vaccine

Each of the participants, no matter they did or did not receive HPV vaccinations, showed basic knowledge regarding HPV and HPV vaccine. All responded participants supported that HPV is a kind of virus that causes genital warts directly and cervical cancer indirectly, although not all of them described the actual relationship between HPV infections and cervical cancer. Some participants who received HPV vaccination also shared that the two targeted types (16 and 18) of HPV virus infections could be prevented after receiving HPV vaccination. However, many could not point out the ingredients of HPV vaccines and doubted the mechanism of the vaccines:

Although I do not understand the mechanism, I know

that the vaccine can be used for prevention of cervical cancer. (NS21)

Those who did not receive HPV vaccination also viewed HPV vaccine as a preventive measure for sexually transmitted diseases or cervical cancer. Participants who received HPV vaccination commented that they knew about HPV and its vaccine mostly through advertisements from streets and television. Some promotions also attracted their attention. On the other hand, some revealed that they were motivated by relatives, especially female family members. One student was encouraged by her general practitioner (GP):

The doctor in that clinic is my GP, and I talk to this GP frequently. This GP thought that all females were in need to be vaccinated; therefore the GP encouraged me to be vaccinated and delivered me the information of this vaccine. (NS27)

Besides females, medical professionals also influenced participants in receiving HPV vaccination. Furthermore, participants were found to have diverse answers regarding target group, which is believed to be caused by limited understanding on HPV infections and cervical cancer. Different answers were received, while most of them thought that females were the target group. Some could relate receiving vaccination in early age would have better effect, but only a few could explain that receiving vaccination in early age was because the vaccine post the greatest effect if they were not being infected, that is, the age before they have sexual behavior:

For teenagers, I think it would be better to be vaccinated before they enter secondary school ... the best preventive effect of the vaccine can be obtained if it is injected before having sexual behaviors (virginity), therefore it would be alright if they are vaccinated before entering secondary level of study. (NS25)

Participants, who received HPV vaccination, were found to have better understanding about HPV vaccine generally. In addition, people no matter vaccinated or not should be included in the promotion.

Nursing students' attitude on HPV vaccine

In general, participants who did not receive HPV vaccination expressed a lack in confidence in response to the effectiveness of the newly developed vaccine. Some, even those who were vaccinated, reflected the price of HPV vaccine was too expensive. Side effect was one of the main concerns while they were considering whether they should get vaccinated:

Besides the cost, I also heard about there are side effects for the vaccine. The vaccine is suggested to be effective, but I have some worries and do not feel certain to be vaccinated due to the side effects. (NS20)

Believing this vaccine could protect them from cervical cancer, two of those who were vaccinated also accepted a favorable price offered by university health care facility. One also added that she was subsidized fully by her mother:

The vaccine is too expensive. It costs USD\$128 for one dose, and a total of 3 doses cost USD\$384. I would not be vaccinated if I had to pay by myself. (NS25)

A sponsorship of the vaccine could motivate some

participants to get vaccinated. One commented that more people would be interested if government provided sponsorship:

The main concern is the price. If the government provides more subsidies to make the vaccine cheaper, may be (reducing) several hundred or hundred and something, it may make people more willing to be vaccinated. (NS6)

On the other hand, many agreed that the efficacy of this vaccine was not clear as this was newly developed:

...I know that this vaccine has not been introduced for long, only around 10 years. Therefore I think it requires long time observation to determine the effect. (NS27)

Apart from efficacy, unvaccinated participants also showed worry in the safety of the vaccine due to the unknown side effects that might not found in only ten years, while vaccinated participants thought it would be enough.

There were ethical concerns regarding whether receiving HPV vaccine in early age would encourage early sexual activity. However, most did not note there was any direct relationship between early vaccination and early sexual behaviors:

...The purpose of vaccination is preventing from suffering cervical cancer, but not the other sexual transmitted diseases. The vaccine is just a preventive measure. It does not encourage having more sexual behaviors. There is Hepatitis B vaccination campaign each year in our university. It does not mean that each person who has the test and joins the campaign has to have hepatitis B. Vaccination should not be labels to vaccinated people. (NS6)

Many participants stated that the vaccine was not user friendly because it included three doses in a half year for the whole program:

...This is trouble to remember the date that obtaining first dose and when should people back to have second dose. It would be better if only one dose is okay. This is hard to keep the passion at the beginning to follow the schedule of obtaining the vaccines. (NS6)

Some participants described that mothers agreed their daughters to have vaccination even they merely had the basic understanding of the vaccine. Several agreed that doctors brought the greatest impact on influencing people to have HPV vaccination. Sponsorship and further studies on HPV vaccine can be implemented to enhance peoples' interests.

Nursing students' perspective on HPV vaccination promotion

Participants obtained information about HPV vaccination from diverse sources including clinics, advertisements, peers, leaflets and posters. Many participants supported that promotions were enough but several of them expressed that the information in the advertisements was not enough: Maybe due to time limit, not many details can be included in an advertisement. The contents of the advertisements are not so informative. Moreover, people were encouraged to consult their physicians at last of every advertisement.

Some described that the differences on promoting the vaccine might due to cultural factors as well as

misunderstandings of the public on HPV and its vaccine. One possible difficulty was that mothers and middle-aged women might feel they did not need this extra protection due to their ages. This attitude was common among them. Another one was perceiving problem. People who had infected by some viruses which did not cause cervical cancer might think they had already had extra protection due to the infection. Moreover, the target groups for this vaccine were people who did not have sexual behavior or have frequent sexual behavior. Middle-aged women who still had frequent sexual behaviors or many sexual behaviors experiences might feel embarrassed when people introduced this vaccine for them to have more protection. They were conservative to talk about sex. Several participants expressed that cultural differences might have impact on promoting HPV vaccine. People did not plan to have vaccination because they did not expect they would suffer from cervical cancer. Furthermore, some people might think only playgirls would suffer from sexual transmitted diseases. In addition, some supported that it was not appropriate for the drug companies to initiate the promotion of HPV vaccine while the government did it:

... the government instead of the drug companies should take the role to promote (the vaccine)... If the drug companies take the initial role to promote, it could only promote through limited media sources... But if this is the government to take the role, the vaccine can be introduced in sex education. (NS25)

Therefore, the government and drug companies should promote the HPV vaccine cooperatively. Cultural difference and misunderstanding about HPV vaccine should be pinpointed.

Nursing role on HPV vaccination

Most participants indicated that basic information such as the reason for injection, differences between two vaccines, considering factors, side effects, complications, price, available HPV vaccines in society, types of viruses that can be prevented and, the side effects should be provided to the clients as they were the health professional. In addition, concept that the early people are vaccinated, the better the protection provided ought to be provided. Moreover, although some thought they would introduce HPV vaccine for other people, including relatives, friends and daughters in the future, over half of the participants would not do it until more supporting data were provided and the vaccine were well developed. One participant expressed that the focus of promotion ought to include both mothers and daughters:

Mothers are the main financial source for teenage girls to have vaccination. The girls cannot be vaccinated if the daughters want to have vaccination but the mothers do not pay for them. If the promotions are implemented well both for teenagers and mothers, the efficiency will be higher. (NS6)

Discussion

This study showed that healthcare professionals' recommendations and knowledge regarding to the HPV vaccine are two important motivating factors in receiving

HPV vaccination among women and adolescent girls (Dinh et al., 2007; Gerend et al., 2007). After reviewing previous research, it is known that no qualitative studies regarding healthcare professionals' view on HPV vaccination in Hong Kong have been done. This study revealed valuable information about the perspectives of HPV vaccination among Hong Kong female nursing students.

In this study, each participant showed basic knowledge regarding to HPV and HPV vaccine, while vaccinated participants were found to have better understanding to the HPV vaccine. Generally they can identify HPV vaccines can prevent cervical cancer, yet they have limited knowledge about the ingredients of HPV vaccines and the mechanism of the vaccines. Several studies showed that more than 99% of cervical cancers are associated with persistent infection with HPV, particularly type 16 and 18, in which cutaneous and mucosal surfaces, including the anogenital epithelial cells, are commonly infected (World Health Organization, 2007; Rogers et al., 2008; Forster et al., 2010).

The unvaccinated participants presented worries about the effectiveness and side effects of the vaccines. They postponed their vaccination due to limited research. The U.S. government's Vaccine Adverse Event Report System, however, had not received any adverse effects following Cervarix. Alternatively, 15,829 reports of adverse effects had been reported following Gardasil up till January 31, 2010. Among these reports, 8% of them are considered serious (National Health Service, 2008).

Many failed to indicate the target group of the vaccines. Only a few can specify the best timing of vaccination should be before starting sexual behavior. The Centers for Disease Control and Prevention recommended the HPV vaccines as routine vaccination for 11- to 12-year-old girls and catch up vaccination for 13- to 26-year-old women. Rogers et al. (2008) proposed vaccination can be started as early as 9 years old. Villa et al. (2006) suggested that a prophylactic HPV vaccine should be given to adolescents before the initiation of sexual activity.

Most of the participants admitted that the price of the vaccines is too expensive, and they found it is hard to afford. They suggested that it is better to be subsidized by the government and being included in the childhood immunization program. They also found it is inconvenient to remember the time and the dates when to have vaccine injections.

Promotion to mid-age women was described as a difficult action. Participants believed mid-aged women may think they are not in vaccination target group, would not suffer from cervical cancer, and thought they do not need extra protection if they are infected. Some suggested that this difficulty may be due to cultural difference that Chinese women are conservative to talk about sex. One pointed out that it would be better to promote the vaccines to mothers and daughters together to increase the vaccination rate. Promotion to pre-secondary students is recommended as they are believed to be virgins.

Interviewees suggested that government instead of drug companies should initiate HPV vaccine promotion, as the government can bring the vaccines into various level

of society. The advertisement should include the age of the target group as most of the participants expressed that they did not know the exact age for the vaccination. Ethical consideration about the age of vaccination related to the start of sexual activity had been aroused, and education about the concept of stigmatization should be reinforced.

Most participants agreed that they would like to have more statistics related to the vaccines, as the vaccines are quite new in Asia and there are inadequate Asian studies related to HPV vaccines. Further studies in Asian population are desired to enhance the database. Longitudinal studies about the efficacy and the side effects of the vaccines are required.

Participants in this qualitative study were narrowed down to a specific group of women in Hong Kong, which indicated that generalization was not applicable. The research findings did not represent the whole situation in other countries as all participants invited in this research were Hong Kong residents. Variations due to cultural or sub-cultural difference were not indicated in this research. Data collection in a cross-sectional study was at one point of time. It could only describe the point of views of HPV vaccination from those participants in a particular period of time and it did not describe the future planning of those on HPV vaccination.

This study can raise the awareness and enhance the knowledge of HPV vaccination among women. It can also provide positive attitude among women towards HPV vaccination and the prevention of cervical cancer. Nurses, as an educator, have the role responsibility to promote the positive effects of HPV vaccination in public and clinical settings among adolescent girls to middle age women in Hong Kong. Furthermore, promotion in particular group of women who have an experience of cervical cancer in the family are recommended to have HPV vaccination. Nurses can work effectively together with doctors on HPV promotion among women and increase the HPV vaccination rates. On the other hand, further studies regarding attitude and awareness of HPV vaccination among women in different age groups may be able to identify more associate factors affecting their attitudes towards HPV vaccination.

Cross-sectional research design can collect the perspective ideas and opinions from participants at a particular time. A longitudinal study may be able to provide a trend and compare the associating factors in a more causative way. Moreover, an in-depth interview method can ensure the researchers to obtain all information required in great details, and interviewees can elaborate more about what is relevant to them in order to collect the great detail information.

More in-depth promotions are required to provide correct information among Hong Kong women towards HPV vaccination. Sponsorships of HPV vaccination and evidences of HPV vaccination research studies highly motivate people to have vaccination and minimize their concerns. In addition, vaccine promotions should not only focus on the use of the vaccine, but also pinpoint the cultural differences and misunderstandings of HPV vaccine among Hong Kong women. The government and drug companies can share responsibilities on the

promotion of HPV vaccination. Parents and teenage girls can also be the targets of the promotion as well.

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