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Knowledge and beliefs about HPV among college students in Vietnam and the United States

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ABSTRACT

Any sexually active person has the possibility of contracting the human papillomavirus (HPV) sometime in their lifetime. HPV vaccines are effective in preventing HPV if obtained prior to viral exposure. Research on knowledge and beliefs of HPV and HPV vaccination among college students in Vietnam is significantly scarce. The purpose of this study is to examine the knowledge and beliefs about HPV among college students in Vietnam compared to college students in the US. This cross-cultural comparison will fill a void in current research on this subject. Over 900 college students ($N=932$; $n=495$ in Vietnam and $n=437$ in the US) participated in a self-administered survey on the knowledge and beliefs about HPV in September and October 2016. Vietnamese participants reported lower levels of knowledge and experiences with the HPV virus and vaccines ($p<0.01$). Additionally, Vietnamese participants also exhibited more barriers in obtaining the vaccination, as well as, HPV risk denial ($p<0.01$). The level of knowledge is an important predictor of barriers ($p<0.01$; $\eta_p^2=0.022$) and risk denial ($p<0.01$; $\eta_p^2=0.116$). On average, both Vietnamese and US participants could correctly answer less than half of the survey questions regarding HPV knowledge. Additionally, provider recommendations are potentially more important than informal connections (e.g. friends, family) to reduce barriers to HPV vaccination ($p<0.01$; $\eta_p^2=0.035$) and denial of HPV risks ($p<0.05$; $\eta_p^2=0.008$). The increase of knowledge about HPV prevention, including and vaccination, has the potential to be improved through provider interventions. Vietnam could take action toward promoting HPV vaccinations not only at an individual level but also at a national or local level. Further research may examine the effects of a lack of knowledge on HPV-related health outcomes.

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Introduction

Any sexually active person has the possibility of contracting the human papillomavirus (HPV) sometime in their lifetime [1]. While most HPV infections are asymptomatic, approximately 10% of women with high-risk cancer-causing HPV will develop long-term HPV infections, which increases the risk for developing cervical cancer and pre-cancers in other areas of the body [2]. HPV vaccines are effective for the prevention of HPV [3]. While the rates of HPV vaccination have been improving, the rates are not necessarily very high [4,5]. In the United States (US), the percentage of 13 to 17-year-old girls who completed one or more doses of the HPV vaccine

was 60% in 2014 [6]. The percentage of 13 to 17-year-old-boys who received the HPV vaccine was only 42% [7]. Barriers to HPV vaccination include: lack of provider recommendations, lack of knowledge, lack of social support, unavailability of health care providers, difficulty in accessing services, as well as negative attitudes or beliefs about the HPV vaccine [4,8,9].

In the US, the HPV vaccine is recommended for girls/women age 11 or 12 through 26 and for boys/men through 21 [3]. The cost of HPV vaccine is \$130 per injection, which equates to \$390 for the three doses [10]. Insurance coverage and public financing for the HPV vaccine are also available for those who qualify [10]. This includes free vaccine programs available for low income adults [10]. Because individuals ages 20 to 24 years-old are considered a high-risk age group for contracting HPV [11], US studies that explored the knowledge, attitudes and beliefs of HPV and the HPV vaccination often target college students. Among female college students in particular, attitudes and norms are strong predictors

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of HPV vaccine uptake [12]. Adult vaccination finders exist and can be useful in assisting college students in locating a health center where they can receive a HPV vaccine [13,14]. Although female college students acknowledge HPV infections are serious, they do not believe they are at risk for HPV due to a lack of overall education on the topic [15]. Although HPV infections affect both women and men, male college students tend to have inadequate knowledge about HPV and frequently believe that they are not susceptible to infection [16]. There is a possibility that a male student is less likely to get a vaccination due to this perception of immunity [17]. College students are healthy and only a few vaccines are recommended for such group. The vaccine acceptance rates rank high among college students due to social norms [18]. However, disparities still exist between populations who receive the vaccine and those who are at the highest risk [19]. It can be surmised that colleges may not want to require a vaccine that is not yet equitably accessible.

Although nearly 90% of cervical cancer cases occur in low-income countries [20], the majority of research examining social factors and HPV vaccination have been conducted in high-income countries such as in the US. In Vietnam, similar to many other countries, cervical cancer is the most common cancer among women [20]. Since the Vietnamese population as a whole is currently relatively young, many women are at a reproductive age and thus are at a high risk of HPV infection [21,22]. In Vietnam, the HPV vaccine is recommended for 11-year old girls [23]; however, health care providers recommend female patients have the HPV vaccination at age 22 because the vaccine was free for women aged 22 [24]. There is no specific age recommendation for boys/men [23]. One HPV vaccine costs US \$0.02 in Vietnam with the assistance from the GAVI Alliance for low- and middle-income countries [25]. However, overall delivery cost for the HPV vaccine is a financial burden for Vietnam [25]. The primary HPV vaccine programs are school-based or community health center-based [25]. Because most vaccinations are recommended at much younger age [26], little is known about how responsive Vietnamese college students pursue other recommended immunizations. Unfortunately, due to the overall high cost of implementing the HPV vaccine recommendations in Vietnam, it has been challenging to put voluntary HPV vaccination programs into operation in the country, despite the efforts by the Vietnamese government to make the HPV vaccine more widely available [27]. Lack of information about the HPV vaccine and the high cost of HPV vaccinations are the two largest barriers among Vietnamese girls and young women [28]. Previous studies on HPV in Vietnam only targeted a specific population of girls and their parents [27,29,30] or sex workers [31,32] which limits the generalization to other subgroups. Overall, little is known about the knowledge and beliefs related to HPV and the HPV vaccination among college students in Vietnam. In particular, research on knowledge and beliefs of HPV and HPV vaccination among male college students in Vietnam is scarce.

This study intends to expand upon information about knowledge and beliefs of HPV vaccination among college students in Vietnam as well as in the US. The information obtained from this study will help to develop health education programs with the following goals: to improve knowledge, reduce negative beliefs, and promote HPV vaccines. Previous studies have shown that in general there are no particularly effective educational programs to improve HPV vaccinations and attitudes [33]. The primary goal of this study is to conduct a comparative analysis of the knowledge and beliefs about HPV among college students in Vietnam compared to college students in the US. The detailed information from such a comparative study is not available in current literature focused on international HPV prevention. This study works to fill in this gap in literature which is currently devoid of information comparing HPV vaccination tendencies between the US and Vietnam. International studies are vital in comparing how culture influences

health policy and health-related behaviors, including vaccination tendencies. International studies are also beneficial in providing information to health consumers about how a nation can improve from observing public health laws in other nations. A better understanding of differences in the knowledge of and the attitudes to the HPV vaccine between the two countries is important to develop culturally appropriate and country-specific programs to promote the HPV vaccine.

Methods

Study participants and data collection

The cross-sectional data were collected using a self-administered survey in September and October 2016 at a national university in Vietnam in a large city (University of Social Sciences and Humanities, Vietnam National University, Ho Chi Minh City) and a state university which is in a metropolitan area in the US (University of Utah, Salt Lake City). The Vietnamese university has approximately 22,000 students including undergraduate and graduate students and offers courses in social sciences, and humanities. The US university is the state's flagship university, which has approximately 32,000 students (approximately 75% undergraduate students) and programs in natural science, social science, humanities, engineering, business, education, social work, law, medicine, dentistry, nursing, pharmacy, and health professions. Prior to data collection, the Institutional Review Board (IRB) of the US university approved this study as an exempt protocol. The Vietnamese University did not have an IRB at the time of this study. The US university's IRB has a policy on conducting international research including cases in which there is no local IRB in other countries. This study followed this IRB policy to ensure research ethics in Vietnam were respected as well as those in the US.

Undergraduate students ages 18 to 30 years old were given a consent cover letter and paper survey in their university classes related to social sciences or similar fields. Consent was obtained from each participant. The survey instrument was translated into Vietnamese from English for participants in Vietnam. The survey was translated by a native Vietnamese speaker who is bilingual in Vietnamese and English, and was back translated by another translator into English. Both translators were graduate students in social science in the US who completed undergraduate education in Vietnam. The accuracy of the translation was checked by both translators. To ensure the questions were relevant in Vietnam as well as the US, Vietnamese researchers (one of them is a faculty at the Vietnamese University, and the other was a Vietnamese graduate student at the US university) carefully reviewed the entire survey instrument. In Vietnam, surveys were collected at eight classes. In the US, surveys were collected at nine classes. The response rate of the survey was 79.5% in Vietnam and 52.7% in the US. There was no compensation or incentive offered to participants who completed the survey.

Measures

Knowledge about HPV and the HPV vaccine

A total of 20 statements about HPV and HPV vaccines (true/false/don't know) were developed using the information on HPV provided by the Centers for Disease Control and Prevention [34]. Examples of the statements include "Only women can get HPV," "Anyone who is sexually active can get HPV," and "The HPV vaccination is recommended only for women and girls." A count-based score was calculated from the total number of correct answers. This score demonstrated the overall level of knowledge related to HPV and the HPV vaccine.

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