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Human Papillomavirus Knowledge and Awareness Among Vietnamese Mothers

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Abstract

Background—Human papillomavirus (HPV) is the most common sexually transmitted disease in the US and the primary cause of cervical cancer. Vietnamese American women have the highest incidence rates of cervical cancer but one of the lowest HPV vaccination rates. Parental knowledge is an important predictor of HPV vaccination; however, little is known about HPV knowledge in the Vietnamese American community. We aimed to describe the HPV knowledge of Vietnamese mothers in Houston, Texas and their intention to vaccinate their daughters.

Methods—We conducted face-to-face interviews with Vietnamese mothers who had daughters aged 9–26 years. We collected data on demographics, acculturation, HPV knowledge, and vaccination intention. Knowledge scores (0–5) were calculated using 5 knowledge questions. We used logistic regression to identify predictors of HPV knowledge.

Results—Participants had low levels of acculturation by report of reading (31%) and writing (23%) English well. Less than 50% of participants (n=47) had heard of HPV, and among these, the mean HPV knowledge score was 4. Although only 1 in 3 had discussed HPV with their medical provider, nearly 86% of participants who had not heard of HPV would vaccinate their daughter if their doctor had recommended it. Good written English skills and belief that the HPV vaccine was not expensive were predictors of HPV awareness.

Conclusions—HPV awareness is low among less acculturated Vietnamese mothers in Houston. Future educational efforts about the role of HPV vaccine in preventing cervical cancer should be made in their language when targeting parents of a high risk Vietnamese population.

Keywords

Human papillomavirus; Vietnamese; Knowledge; Awareness

Introduction

The human papillomavirus (HPV) is the most common sexually transmitted disease and is responsible for most cervical cancers [1], despite available effective vaccines [2]. Though the Centers for Disease Control and Prevention has approved the Advisory Committee on

Immunization Practices' recommendation that all girls aged 11–12 years be vaccinated for HPV [3, 4], only about 40% of Asian-American girls 13–17 have received one or more doses of the HPV vaccine [5]. In Houston, Texas, where the Vietnamese population is the largest Asian American subgroup and is steadily increasing [6], providers have reported overall vaccination rates of approximately 25% and 36% for girls age 9–12 and 13–17 years, respectively [7].

The incidence of cervical cancer among Vietnamese American women is the highest in the US, 16.8 per 100,000 [8], but screening is among the lowest in the country, with only 60–70% of Vietnamese American women receiving a Pap test over three years [9–11]. Though studies have shown that education level [12], English proficiency [13], and income [14] are associated with Pap test knowledge, there is a lack of literature about HPV vaccine knowledge within the Vietnamese American community. Previous studies have shown missed opportunities for physicians to educate their patients about HPV and cervical cancer. Low rates of physician recommendation for the HPV vaccine have also been reported, especially among younger children [15, 16]. Physician recommendation has been shown to be a predictor of HPV vaccine acceptance [17] and has been shown to be an important predictor of Asian mothers' likelihood to have their daughters vaccinated [18].

With new recommendations for a broader HPV vaccination campaign [3] and evidence that HPV is responsible for more cancers than originally thought [19], community education is important in reducing the incidence of HPV and cervical cancer. Targeted interventions for young women at risk and their families are needed, but gaps in HPV knowledge must first be identified. To that end, we aimed to study HPV knowledge among Vietnamese mothers in Houston, Texas.

Methods

Study Population

This study was approved by the University of Houston Committee for the Protection of Human Subjects. We used a purposive sample method during a 2-month period in 2011. We approached Vietnamese women at the largest Vietnamese shopping center in the greater Houston, Texas area for possible participation in the study. We chose this recruitment method in order to access hard to reach populations such as Vietnamese-American women with limited English proficiency because traditional sampling methods (e.g., random digit dialing) are not consistently feasible [20, 21]. A participant was eligible for the study if she: 1) provided informed consent; 2) self-identified herself as Vietnamese; and 3) had a daughter aged 9–26 years old. Two trained female research staff, bicultural and bilingual in Vietnamese and English, conducted face-to-face interviews using an English or Vietnamese survey instrument, depending on the interviewee's language preference. Participants received a \$10 gift card to compensate for their time.

Survey Instrument

Questionnaires were translated from English into Vietnamese by native Vietnamese speaking research staff. This instrument was piloted with a lay audience and reviewed and approved by a Project Advisory Committee composed of 10 members, including physicians, health educators, nurses, and Vietnamese community organization leaders, and other health professionals with cancer expertise. The instrument included demographic information such as participant's age, educational level, length of residence in the US, acculturation level, and insurance. Questions that assessed knowledge about HPV and cervical cancer were derived from previous survey tools [10, 22, 23].

Outcome Measures

We asked all participants whether they had heard of HPV infection. Of those who indicated that they had heard of HPV, we asked them if their doctor had ever talked about HPV and whether their daughter had received the HPV vaccine in the past. Also, among participants who had heard of HPV, we asked a series of specific questions to assess their knowledge. A knowledge score was calculated using the respondent's answers to five HPV knowledge questions. These questions assessed knowledge about: (i) causative relationship of HPV and cervical cancer, (ii) transmission route, (iii) symptoms, (iv) prevention, and (v) behavioral risk. One point was assigned for each question that was answered correctly with a total possible score between 0 and 5. We then averaged the knowledge scores of all respondents.

Statistical Methods

We compared characteristics between patients who were screened and were not screened using Pearson's chi-square tests. We examined the relationships of the main outcomes with each independent variable using simple logistic regression. Potential predictors with a p-value less than 0.20 in univariate analyses were entered into multiple logistic regression models for each outcome. The final model was selected using a backward elimination method where variables with a p < 0.05 remained in the model. We used SAS software, version 9.13 (SAS Institute, Cary, North Carolina) and the Statistical Package for the Social Sciences, version 19 (IBM, Armonk, New York) for statistical analyses.

Results

Participant Characteristics

Characteristics of our study population are shown on Table 1. All 95 women had been born in Vietnam and described their level of acculturation to be low despite having lived in the US for an average of 18 years. Nearly half of participants had heard of HPV infection, and in general, they were more acculturated than the women who had not heard of HPV. Compared to those who had not heard of HPV, mothers who had heard of the virus had higher levels of education, insurance, and proficiency in writing English ($P < 0.05$). Mothers who had heard of HPV also tended to be more proficient at understanding and speaking English ($P < 0.10$). Among those who had heard of HPV, only 31.9% ($n = 15$) had talked with their doctor about HPV; however, 86% reported that they would vaccinate their daughter if their doctor recommended it.

HPV Knowledge

Knowledge was further assessed for participants who indicated that they had heard of HPV infection (Table 2). Most of the respondents answered the knowledge questions correctly, with an average score of 4 (± 0.86) out of 5 for this group. However, only 45% of respondents knew that individuals with HPV infection may not have any symptoms, therefore making it difficult to know that they are infected.

Predictors of HPV Awareness

Univariate analyses showed that insured participants and those who could write English were significantly more likely to have heard of HPV (Table 3). In the multiple logistic regression analysis, both English writing proficiency and belief that the HPV vaccine was affordable were significantly associated with awareness of HPV infection.

Discussion

This is the first, in-depth study of HPV knowledge and awareness among Vietnamese American mothers and was conducted in the 3rd largest Vietnamese population in the US. We found that HPV awareness was low among Vietnamese mothers who had daughters, and written English proficiency predicted HPV awareness. Among participants who had heard of HPV infection, we found that more than 55% incorrectly reported that HPV patients usually have symptoms indicating infection.

Our finding of low HPV awareness among Vietnamese mothers in Houston (49.5%) was consistent with other studies that found between 19% and 66% of Asian American women had previously heard of HPV [18, 24–27]. At the time of our study, our results represented the largest study of Vietnamese American women whose risk of cervical cancer is the highest among all US women [8].

We found that most participants who were aware of HPV incorrectly thought that HPV symptoms were obvious, a finding consistent with another study of Asian parents [28]. Studies conducted in other populations also found that most women had low knowledge of HPV symptoms [29, 30]. Future educational efforts should be made to inform at risk group of the relatively silent symptoms of HPV infection and the importance of screening and vaccination in asymptomatic individuals.

Our finding that English writing ability was associated with HPV awareness also has important implications for future educational campaigns, highlighting the need for culturally and linguistically competent educational materials and tools. Vietnamese American mothers who lack written English proficiency may represent a special group of women at risk, and more community-based research will be needed to elucidate optimal educational and behavioral strategies to improve awareness and prevention. Indeed, previous research has found English proficiency to be a predictor of HPV vaccination among immigrant Asian women [31].

We found that participants who were aware of HPV were significantly more likely to be insured. This finding has important implications for the Vietnamese American community. One study found that 30% of the Vietnamese population in Houston and its surrounding areas were uninsured in 2004 [32] compared to 11% of whites in 2010 [33]. Studies have shown that having insurance is associated with intent to receive the HPV vaccine in Asian [31] and other [34] populations.

Our study had several limitations. The study participants represented a convenience sample of Vietnamese American women and thus our results may not be generalizable to other populations. There may have been inherent biases in our sampling technique; however, we targeted patrons from various socioeconomic statuses at the largest Vietnamese shopping center at multiple times of the day over a 2-month period. Additionally, although our study focused on HPV awareness and knowledge, we did not explore the health literacy of the study participants. Future research should further study this and validate participants' HPV knowledge and ability to discern HPV from other viruses, such as human immunodeficiency virus, or hepatitis B or C infections. Finally, our knowledge score represents an initial step in describing participants' HPV knowledge, and this score will require future validation in a larger study.

Our findings will allow us to take the next step in developing tailored community-based educational programs for Vietnamese American mothers. This will improve their awareness of HPV infection and help them understand the importance of HPV vaccination for their daughters who may be at high risk of cervical cancer. Additional studies are needed to

confirm the effect of culturally competent educational programs and the impact medical providers who care for Vietnamese American mothers and their daughters have on improving HPV vaccination rates.

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Table 1

Characteristics of participants by HPV awareness

Characteristic	Total Sample (n=95)	Heard of HPV (n=47)	Had Not Heard of HPV (n=48)
	n (%)	n (%)	n (%)
Age, years (mean ± SD)	48.9 ± 7.3	47.8 ± 7.2	50.1 ± 7.4
Born in Vietnam	95 (100)		
Time living in US, years (mean ± SD)	18.2 ± 10.9	19.1 ± 11.0	17.3 ± 10.8
Understands spoken English			
Not at all to somewhat well	63 (66.3)	27 (57.5)	36 (75.0)
Well to very well	32 (33.7)	20 (42.6)	12 (25.0)
Speaks English			
Not at all to somewhat well	67 (70.5)	29 (61.7)	38 (79.2)
Well to very well	28 (29.5)	18 (38.3)	10 (20.8)
Reads English			
Not at all to somewhat well	66 (69.5)	29 (61.7)	37 (77.1)
Well to very well	29 (30.5)	18 (38.3)	11 (22.9)
Writes English *			
Not at all to somewhat well	73 (76.8)	30 (63.8)	43 (89.6)
Well to very well	22 (23.2)	17 (36.2)	5 (10.4)
Education *			
Grade 12	58 (61.1)	23 (48.9)	35 (72.9)
Some college	14 (14.7)	8 (17.0)	6 (12.5)
College degree and above	23 (24.2)	16 (34.0)	7 (14.6)
Job status †			
Employed (full/part-time)	60 (63.2)	31 (66.0)	29 (60.4)
Unemployed	9 (9.5)	4 (8.5)	5 (10.4)
Retired/student/homemaker	23 (24.2)	11 (23.4)	12 (25.0)
Other	2 (2.1)	0 (0)	2 (4.2)
Religion			
Catholic	42 (44.2)	18 (38.3)	24 (50.0)
Buddhist	48 (50.5)	24 (51.1)	24 (50.0)
Other	5 (5.3)	5 (10.6)	
Relationship status			
Single (not dating/not living together)	3 (3.2)	2 (4.3)	1 (2.1)
Living w/ significant other	85 (89.5)	43 (91.5)	42 (87.5)
Separated/divorced	7 (7.4)	2 (4.3)	5 (10.4)
Type insurance *†			
Insured	62 (65.3)	36 (76.6)	26 (54.2)
Uninsured	28 (29.5)	9 (19.2)	19 (39.6)
Income †			
< \$20,000	27 (28.4)	14 (29.8)	13 (27.1)

Characteristic	Total Sample (n=95)	Heard of HPV (n=47)	Had Not Heard of HPV (n=48)
	n (%)	n (%)	n (%)
\$20,000 to \$40,000	25 (26.3)	13 (27.7)	12 (25.0)
> \$40,000	35 (36.8)	15 (31.9)	20 (41.7)

* p < 0.05 when comparing participants who had heard of HPV and those who had not

† Job status: n < 95 because of missing data (n=1)

Type insurance: n < 95 because responses of "Don't Know" (n=4) and "Refused" (n=1) were omitted Income: n < 95 because responses of "Don't Know" (n=6) and "Refused" (n=2) were omitted

Table 2

Knowledge among 47 participants who had heard of HPV

HPV Knowledge	Response, n (%)
	Correct ¹
People infected with HPV are at higher risk for cervical cancer	43 (91.5)
Women get infected with HPV, and pass the virus to partners.	43 (91.5)
People infected with HPV usually can tell they have it	21 (44.7)
Vaccination against HPV will help reduce the risk of developing cervical cancer	43 (91.5)
Adolescents are likely to get infected with HPV once they start having sex	38 (80.9)
HPV Knowledge Score ²	Mean ± SD
	4.00 ± 0.86

Abbreviations: SD, standard deviation

¹The correct response for all questions is “True,” except for “People infected with HPV usually can tell they have it.”

²Knowledge scores were calculated by assigning 1 to all correct responses to HPV knowledge questions. Each of the 47 respondents who answered the HPV knowledge questions was assigned a score ranging from 0–5.

Table 3

Predictors of HPV awareness

Characteristic	Total (n=47)	Simple LR			Multiple LR [†]		
		n (%)	OR (95%CI)	p-value	OR (95%CI)	p-value	
Education							
HS	23 (48.9)	0.36 (0.15–0.84)	0.02				
> HS	24 (51.0)	Ref	--				
Job status							
Employed	31 (51.7)	1.2 (0.51–2.9)	0.66				
Unemployed	4 (44.4)	Ref					
Religion							
Catholic	18 (42.9)	Ref	--				
Buddhist	24 (50.0)	1.3 (0.58–3.1)	0.50				
Relationship status							
Single/separated/widowed	4 (8.6)	Ref	--				
Living together	43 (50.6)	1.5 (0.40–5.8)	0.53				
Type insurance							
Insured	36 (58.1)	2.9 (1.1–7.5)	0.02	3.3 (1.0–10.9)	0.05		
Uninsured	9 (32.1)	Ref	--	Ref	--		
Income							
<20,000	14 (51.9)	1.4 (0.52–3.9)	0.48				
20,000–40,000	13 (52.0)	1.4 (0.52–4.0)	0.48				
>40,000	15 (42.9)	Ref	--				
Understand English							
Not at all to somewhat well	27 (42.9)	Ref	--				
Well to very well	20 (62.5)	2.2 (0.93–5.3)	0.07				
Speak English							
Not at all to somewhat well	29 (43.3)	Ref	--				
Well to very well	18 (64.3)	2.4 (0.95–5.9)	0.06				
Read English							

Characteristic	Total (n=47)	Simple LR		Multiple LR ¹		
		n (%)	OR (95%CI)	p-value	OR (95%CI)	p-value
Not at all to somewhat well	29 (43.9)	Ref				
Well to very well	18 (62.1)	2.1 (0.85–5.1)	0.11			
Write English						
Not at all to somewhat well	30 (41.1)	Ref	--	Ref	--	
Well to very well	17 (77.3)	4.9 (1.6–14.6)	0.00	7.7 (2.0–30.1)	0.00	
Easy to understand provider						
Agree	41 (48.8)	0.38 (0.07–2.1)	0.26			
Disagree	5 (71.4)	Ref	--			
HPV vaccine too expensive						
Agree	26 (58.3)	0.56 (0.24–1.3)	0.18	0.11 (0.02–0.78)	0.03	
Disagree	21 (44.1)	Ref	--	Ref	--	

¹ Only variables that had a p-value < 0.25 were included in the multiple logistic regression; Missing ORs and p-values due to unstable estimates because of small sample sizes