



# Acceptability of human papillomavirus vaccination among male university students in the United Arab Emirates



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## ABSTRACT

**Objective:** To assess the knowledge about and acceptability of human papillomavirus (HPV) vaccination among male university students in the United Arab Emirates (UAE).

**Methods:** Between June and August 2012 we approached 356 male university students from the UAE and asked them to fill out a 12-item self-administered questionnaire.

**Results:** Knowledge of HPV was low among the university students who participated (32%). Less than half of the students (46%) indicated they would accept HPV vaccination, and around 30% were unsure of their decision. Safety (68%), protection of their female partner (65%) and doctor's recommendation (64%) were rated as the factors most likely to increase the uptake of HPV vaccination among participating students. The factors rated most likely to stop students from using the vaccine were fear of side effects (85%), absence of clear benefits (38%) and objections from a religious authority (25%). Marital status and sexual activity were associated with greater knowledge of HPV but not with greater acceptance of vaccination among university students in the UAE.

**Conclusion:** Overall acceptability of and knowledge about HPV infection and vaccination were low in a sample of male university students in the UAE. Marital status and sexual activity are associated with greater knowledge of HPV infection but have no effect on the acceptability of HPV vaccination.

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## 1. Introduction

Human papillomavirus (HPV) infection is the most common sexually transmitted infection worldwide; males can be at the same risk for this infection as females [1,2]. High-risk HPV subtypes are associated with various female cancers; for example, HPV is responsible for 99% of all cases of cervical cancer. HPV also causes 60–90% of vaginal cancers and around 40% of vulvar cancers. In males HPV infection can cause up to 40% of penile cancers. In both sexes HPV is associated with 40–70% of head and neck cancers and up to 80% of anal cancers [3,4]. Low-risk HPV subtypes (e.g., HPV 6 and 11) cause genital warts, which affect both males and females and have a major impact on quality of life, often requiring extensive, recurrent treatment [5]. In males with genital warts, concordant infection rates are high for other HPV subtypes [6], therefore infected males also put their current sexual partner at high risk for other high-risk HPV subtypes [7]. There are no studies of the prevalence of HPV in the

United Arab Emirates (UAE); however, studies from other Arabian Gulf countries have reported a prevalence rate of 11% in females [8].

In October 2009 The US Food and Drug Administration (FDA) approved the use of a quadrivalent HPV vaccine (which covers HPV subtypes 6, 11, 16 and 18) for use in males aged 9–26 years [9]. The FDA and Advisory Committee for Immunization Practice recommended HPV vaccine for the prevention of genital warts and anal cancer in males [9,10]. In addition, vaccinating males ages 9–26 years against HPV has considerable public health and economic benefits by reducing the burden of genital warts [11]. It has also been suggested that vaccinating males against HPV may offer cross-protection to their current or future sexual partners, in turn reducing the incidence of cervical cancer and other HPV-related diseases [13].

In 2008, the Health Authority of Abu Dhabi (HAAD) included HPV vaccination in the Abu Dhabi Extended Program of Immunization for girls entering grade 11. Abu Dhabi State is the first state in the Middle East and Arab countries to introduce HPV vaccination in the public sector. An awareness and training campaign among health care providers was organized by HAAD, and an extensive media campaign was also run. People were reached through the media and at work places. Previous studies of knowledge about cervical screening and HPV vaccination in the UAE revealed a large

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knowledge gap among parents and health care providers [13,14]. Initially, the uptake of HPV vaccination in Abu Dhabi State was low (50%); it later increased to 80% as reported by HAAD. The most important factors found by HAAD to make a significant difference in HPV vaccination uptake were training health care providers and informing women about the exact nature of HPV infection. This was also shown in previous studies, which suggests that the most important factor associated with positive attitudes toward HPV vaccination is actual knowledge about it [14]. In the UAE, the HPV vaccine is not yet licensed for males but it is expected that after complete implementation of school vaccination and a catch-up program, the health authority in Abu Dhabi may consider introducing the vaccine for males. To our knowledge, no studies have investigated the uptake of HPV vaccination among males in the UAE or in the Arabian Gulf Region. The objectives of this study were to assess the knowledge about and acceptability of HPV vaccination among male university students in the UAE.

## 2. Materials and methods

This cross-sectional quantitative survey was carried out with a self-completed questionnaire. Students from all colleges of United Arab Emirates University were asked to participate. The survey was conducted from June to August 2012. The Ethics Committee of the College of Medicine and Health Sciences at United Arab Emirates University approved the study in May 2012. This University, located in the city of Al-Ain, is one of the largest universities in the Arabian Gulf Region and is the only federal university in the UAE, with students from all over the Emirates. Students were chosen from all colleges based on convenience sampling. Fifteen students were interviewed for piloting; two questions were modified following the initial piloting phase. We sought information on demographic factors, sexual activity, history of sexually transmitted infection and knowledge of HPV infection and vaccination. We also tested the acceptability of HPV vaccination and the factors affecting uptake with open questions. All those who agreed to participate in the study provided their informed consent and were then asked to complete an anonymous questionnaire. The students were asked to place the forms in a drop-off box to maintain confidentiality.

To detect differences of 15% from the hypothesized value (30%) and to identify factors associated with the acceptability of HPV vaccination among participants, we needed a sample size of 290 for a power of 80% and a 5% level of error. This sample size was increased by 20% to adjust for non-responders, so the final sample size needed for this study was 350 male students.

All data were entered into Epi-data version 3.1 software and then transferred to SPSS version 19 for analysis. Descriptive statistics were reported at the mean  $\pm$  SD for age, and as the frequency and percentage for all categorical variables. To measure the association of HPV knowledge and vaccination acceptability with sexual activity and marital status, chi-squared analysis was performed, and a *P*-value less than 0.05 was considered significant.

## 3. Results

Between June 2012 and August 2012, 356 male university students (mean age  $21 \pm 1.5$  years) responded to our self-completed questionnaire. We approached 500 students in all, so our response rate was 71%. Ten percent of the students in our sample were married; however 19% reported being sexually active, and 11% did not respond to this question. Most students had not heard of HPV infection before. Only 46% of the students sampled agreed to HPV vaccination (Table 1).

Table 2 shows the factors that either favored or represented barriers to HPV vaccination uptake. Of those who responded to

**Table 1**  
Demographic description, knowledge and acceptability of HPV vaccine among male university students.

	Count	356	Percentage %
Married	34		10
Ever heard of HPV	112		31
Know the relation between HPV and cancer	96		27
Which cancer caused by HPV			
Cervical cancer	90		25
Vaginal cancer	21		06
Anal cancer	14		04
Penile cancer	11		03
Oropharyngeal cancer	9		02
Ever had any sexual activity	Yes	67	19
	No	248	70
	No response	40	11
Ever had any STI	Yes	5	01
	No	338	95
	No response	13	04
Will consider taking the HPV vaccine	Yes	164	46
	No	87	24
	Not sure	105	30

**Table 2**  
Factors enhancing and barriers to uptake of HPV vaccine among male university students.

	Count	Percentage %
Factors enhancing the uptake ( <i>n</i> = 274)		
It protects my partner from cervical cancer	181	65
If it is safe	189	68
Protects me from getting cancer	140	50
I'm sexually active	22	8
If it is recommended by family or friends	39	14
Recommended by doctor	101	36
If it is recommended by religious authority	36	13
Barriers to uptake of vaccine ( <i>n</i> = 274)		
If it has side effects	234	85
If it has no clear benefits for myself	104	38
Objections from my family and friends	42	15
Objections from religious authority	Yes	25
I'm not sexually active	32	12

**Table 3**  
Association of marital status with knowledge of HPV and acceptability of HPV vaccine.

	Married	Not married	<i>P</i> -value
Knowledge about HPV	17 (50%)	95 (30%)	0.020
Accepts to take HPV vaccine	21 (75%)	143 (66%)	0.149

this question (*n* = 274), vaccine safety (68%), protecting their partner from cervical cancer (65%) and self-protection against cancer (50%) were rated as the top factors that would increase vaccination uptake. On the other hand, fear of side effects (85%) was rated as the top barrier to uptake.

Tables 3 and 4 report data that describe the relationship of marital status and sexual activity with knowledge about HPV infection and the acceptability of HPV vaccination. Marital status (*P* = 0.020)

**Table 4**  
Association of sexual activity with knowledge of HPV and acceptability of HPV vaccine.

	Sexually active	Not sexually active	<i>P</i> -value
Knowledge about HPV	35 (52%)	65 (23%)	<0.000
Accepts to take HPV vaccine	35 (52%)	113 (46%)	0.140

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