

RESEARCH ARTICLE

Awareness and Knowledge about Human Papillomavirus Infection and Vaccination among Women in UAE

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Abstract

Background: Cervical cancer is the second commonest female cancer worldwide. The 50-55 cases of cervical cancer are reported annually in the UAE. There is a scarcity of data from Middle Eastern region regarding knowledge and attitude of women towards HPV infection, cervical cancer prevention and HPV vaccine. The aim of our study was to assess the knowledge of women regarding HPV infection and vaccine in UAE. **Materials and Methods:** A cross-sectional survey of 640 women aged 18-50 years was conducted in Al-Ain district in UAE using convenience sampling. Women with previous diagnosis of cervical cancer, non-residents of UAE, younger than 18 or older than 50 years of age and those unable to speak Arabic or English were excluded from the study. Logistic regression analysis was performed to assess the association of HPV knowledge with independent factors like age, education etc. **Results:** Only 29% of our sampled women have ever heard of HPV infection. Only 15.3% women recognized it as STI. Only about 22% women have also heard of the HPV vaccine. Three quarter of the women in our study thought that cervical cancer can be prevented. About 28% recognized vaccine as a preventive measure against cervical cancer. Age (AOR 1.049, 95% CI 1.02-1.08) and husband's level of education were found to be significant (p value 0.015) after adjusting for women's age. **Conclusions:** The knowledge of HPV infection and vaccine is low in the UAE. Few women recognized HPV as sexually transmitted infection. Increasing age and husband's education are associated with better knowledge of HPV infection.

Keywords: HPV infection - HPV vaccine - cervical cancer - women - United Arab Emirates

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Introduction

Cervical cancer is the second commonest cancer in females worldwide and is one of the most important causes of premature deaths in women at reproductive age. There are approximately 500,000 new cases of cervical cancer worldwide and 250,000 cervical cancer related deaths each year (GLOBOCAN, 2013) (<http://globocan.iarc.fr/factsheet.asp>). Most of cases of cervical cancer and related deaths occur in less developed countries. Like most of countries, in United Arab Emirates (UAE) cervical cancer is the second commonest cancer in females. The Health Authority Abu Dhabi (HAAD) (<http://www.haad.ae/haad/tabid/1213/Default.aspx>) reports around 50-55 cases annually in the Emirate of Abu Dhabi with an incidence of 7 per 100,000 women; half of these cases occurring in relatively young women aged 35-55 years (HAAD, 2013). Similar incidence and trend were found in other studies from the Arabian Gulf region (Nooyi and Al-Lawati, 2011).

Human Papilloma Virus (HPV) is a necessary cause for all cases of cervical cancer. HPV infection is the commonest sexually transmitted infection in the world (Schiffman and Castle, 2003), 12% of all females are thought to be infected at any time (Kjaer et al., 2008).

There is no data on the prevalence of HPV infection in the United Arab Emirates, however the prevalence of HPV infection in other gulf countries was found to be similar to the rest of the world (Hajjaj et al., 2006). HPV infection is also responsible for a wide range of cancers along with some other diseases like cancers of vulva and vagina in females, cancer of penis in males and cancers of anus and head and neck cancer in both sexes.

Dr. Papanicolaou introduced the first ever work on cervical cancer prevention using cervical/vaginal smear (Pap smear), his work was not recognized until 1943 when his paper "Diagnosis of Uterine Cancer by the Vaginal Smear" was published (Thoms, 1943). Organized cervical screening has been shown to reduce the incidence and mortality of cervical cancer significantly (Bray et al., 2005). Until recently cervical screening was the only acceptable method of cervical cancer prevention. However in June 2006, HPV vaccine was approved by Food and Drug Administration in United States of America for primary prevention of cervical cancer. HPV vaccine rapidly gained popularity in many countries and is licensed now in more than 150 countries all over the globe.

In 2008, the Health Authority-Abu Dhabi introduced HPV vaccine free of charges for all school girls entering grade 11 in Abu Dhabi State whether they are national or

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not. Abu Dhabi became the first state in the Middle East to introduce HPV vaccine. The Abu Dhabi HPV vaccination program is a school based program. The uptake of the vaccine has increased significantly over the last three years. The most recent data showed that the uptake of the vaccine is more than 95% (HAAD, 2013).

There is a scarcity of data from Middle Eastern region regarding the knowledge and attitude of women towards HPV infection and vaccine. The aim of our study was to assess the knowledge of women regarding HPV infection and vaccine in UAE.

Materials and Methods

A cross-sectional study of 640 women aged 18-50 years was conducted in Al-Ain district in UAE from April 2012 to October 2012. Al Ain is the second largest city in Emirate of Abu Dhabi with population over half million. Ethical approval was obtained from the Research Committee at College of Medicine of United Arab Emirates University. A detailed questionnaire was initially drafted and subsequently modified following advice obtained during piloting. Twenty women were interviewed during the piloting phase. Data was collected with direct face to face interview. Three data collectors who were fluent in both English and Arabic were rigorously trained for two days on data collection techniques and questionnaires. Data collection was performed in both Arabic and English. Women with previous diagnosis of cervical cancer, those who were not UAE residents, women younger than 18 or older than 50 years of age and those who do not speak Arabic or English were excluded from the study. Data was collected using convenience sampling method; women were approached at homes, shopping malls, places of work and community centers. No data was collected from hospitals or any other clinical settings.

Details on knowledge of HPV infection and vaccine were asked as direct questions 'have you ever heard of HPV infection/vaccine?' Women who had heard about HPV infection were then asked about the nature of HPV infection, those who described HPV infection as sexually transmitted infection were considered as having correct knowledge about HPV infection.

Data was entered into Epi-data version 3.1 and then transferred to SPSS version 19 for the purpose of analysis. Descriptive statistics were reported using mean±SD for Age and frequency and percentage for all the rest categorical variables. Logistic regression analysis was performed to assess the association of knowledge of women with several independent factors like age and education level etc.

Results

Six hundred and sixty two women were approached for the study. Twenty declined to respond and two were older than 50years; in total 640 women were included in our study making a response rate 97%.

Table 1 shows the demographic information of the sampled women. The mean age was 32.41 (SD 8.25). Forty percent of the sampled women were UAE nationals.

The majority of them were working women (57%). Nearly half of the sampled population (49%) reported total family income of more than 10000AED (2000 USD) per month. More than two third of the women (72%) were married, the mean age of marriage was 22.32 (SD 4.275). Eighty percent of those who were married reported having school aged daughters.

Table 2 demonstrates the knowledge about the HPV infection and vaccine among the sampled women. Twenty nine percent of our sampled women have ever heard of HPV infection while only 22% ever heard about the vaccine. Only 15% of women in this study recognized HPV infection as a sexually transmitted infection.

Table 1. Socio-Demographic Characteristics of Study Participants

	Count (%)
Age (mean±SD)	32.41±8.246
Nationality	National 275 (43.9%) Non-national 352 (56.1%)
Family income	Don't know 141 (22.0%) <10000 AED 181 (28.3%) >10000 AED 316 (49.4%)
Working Status	Working women 362 (56.6%) Housewife 278 (43.4%)
Highest level of education	No education 12 (1.9%) Primary education 34 (5.3%) Secondary education 198 (31.0%) Bachelors 355 (55.6%) Masters and above 40 (6.2%)
Marital status	Single 178 (27.8%) Ever married 462 (72.2%)
Age at first marriage (mean±SD)	22.32±4.275
Husband's highest level of education	No education 12 (2.6%) Primary education 35 (7.7%) Secondary education 145 (31.9%) Bachelors 217 (47.8%) Masters and above 45 (9.9%)
Having daughters	334 (79.5%)

Table 2. Awareness and Knowledge on HPV Infection and Its Risk Prevention (n=640)

	Count (%)
Ever heard about HPV	185 (28.9%)
Ever heard about HPV Vaccine (n=185)	139 (75.1%)
Opinions about HPV infection (n=185)	STD 98 (53.0%) Airborne infection 3 (1.6%) Blood infection 15 (8.1%) Others 15 (8.1%) Dont know/ No response 54 (29.1%)
Ever heard about any relation between HPV and any type of cancer (n=185)	95 (51.4%)
Opinions about type of cancer caused by HPV causes (n=95)	Breast cancer 5 (5.3%) Ovarian cancer 9 (9.5%) Cervical cancer 78 (82.1%) Don't know 3 (3.2%)
Can the cancer of the neck of womb (cervical cancer) be prevented	483 (75.5%)
How can cervical cancer be prevented (n=483)	Antibiotic 22 (4.6%) Pap smear 187 (38.7%) Regular ultrasound 20 (4.1%) Vaccination 181 (37.5%) Dont know/No response 73 (15.1%)

Table 3. The Factors Associated with Knowledge on HPV Infection

		OR (95% CI)	p value	AOR (95% CI)	p value
Age		1.021 (1.00-1.04)	0.053	1.049 (1.02-1.08)	0.004
Nationality	National	1			
	Non-national	1.231 (0.87-1.75)	0.246		
Family income	Don't know	1	0.123		
	<10000 AED	1.136 (0.68-1.89)			
	>10000AED	1.522 (0.97-2.39)			
Working Status	Housewife	1			
	Working women	1.38 (0.98-1.96)	0.069		
Highest level of education	No education	1	0.007	1	0.110
	Primary education	0.345 (0.08-1.59)		1.426 (0.05-3.44)	
	Secondary education	0.731 (0.21-2.53)		1.613 (0.27-9.59)	
	Bachelors	0.806 (0.24-2.74)		1.758 (0.30-10.41)	
	Masters and above	2.211 (0.57-8.54)		3.909 (0.55-27.98)	
Marital status	Single	1			
	Ever Married	1.285 (0.87-1.90)	0.205		
	Age at First Marriage	1.015 (0.97-1.06)	0.535		
Husband's highest level of education			0.025		
	No education	1		1	0.015
	Primary education	0.35 (0.09-1.44)		0.274 (0.36-2.08)	
	Secondary education	0.737 (0.22-2.44)		0.572 (0.09-3.43)	
	Bachelors	0.487 (0.15-1.60)		0.271 (0.04-1.66)	
	Masters and above	1.225 (0.34-4.44)		0.695 (0.10-4.74)	
Have daughters	No	1	0.601		
	Yes	0.873 (0.53-1.45)			

Table 3 shows the factors affecting correct knowledge of HPV infection. Age and husband's level of education were found to be significant (p value 0.004 and 0.015) after adjusting for women's age. The odds of knowledge about HPV increased with increasing age (AOR 1.049, 95%CI 1.02-1.08). Overall there was also an increasing trend for knowledge of HPV with increasing husband's education. Marital status, working status, age at first marriage and having daughter/s were not significantly associated with the knowledge of HPV infection.

Discussion

We sampled 640 women from the Emirate of Abu Dhabi in the UAE. We achieved an excellent response rate of 97%, we think this good response was achieved because we invested time in training our data collectors, being all females made it easier for them to approach women in the UAE community which is a conservative community. Forty four percent of the sampled women were UAE nationals; this is not surprising given the demographic built up of the society where more than half of the population is expats. The mean age of women in this study is 32.4±8.2 years while the mean age at first marriage was 22.3±4.3 years. UAE is one of the wealthiest countries in the world, nearly half of the sampled women stated that their family income is more than 10,000 AED (i.e. 2,500 USD). More than half of the studied women (57%) were working women, this might be due the using the convenient sampling technique rather than random sampling. The majority of women in this study had secondary or university education (31% and 57% respectively). The level of husband education was mirroring the level of education of their female partners. Seventy one percent of women reported that their husbands had secondary or higher degree. Our results on the demography of the sampled women in the UAE was

not far away from what was found by other similar studies in the Arabian Gulf region where significant percentage of the society formed of professionals expats (Al Sairafi and Mohamed, 2009). Eighty percent of our sampled women reported to have one daughter or more which could explain why most of them were very keen to know about HPV infection and vaccine after they finished their interviews. We did provide them with an information leaflet about cervical cancer, HPV infection and HPV vaccine; both in Arabic and English with all necessary contact details should they require further information.

Only 30% of the sampled women have heard about HPV infection. This is relatively low compared with another Islamic country like Turkey (45-46%) (Dursun et al., 2009; Ilter et al., 2010) and non-Islamic countries like Belgium (50%) (Donders et al., 2008). This may be due to the conservative nature of UAE community. Although public programs for HPV vaccine are in place in Emirate of Abu Dhabi since 2007, however we demonstrated that the awareness of the public about the HPV vaccine in UAE is still low. Previous research studies have mentioned Social and Cultural barriers to affect the uptake of HPV vaccine in UAE (Ortashi et al., 2012). The Health Authority in Abu Dhabi (HAAD) worked hard to overcome all the social and cultural barriers through a series of public campaigns and educational workshops for health care providers in partnership with private sectors and academic institutes. This effort has result in an outstanding outcome where the HPV vaccine coverage in the first quarter of 2013 reached more than 95%. The high uptake of the HPV vaccine in Abu Dhabi did not reflect in good knowledge of the HPV infection and vaccine as shown in our study. We think the discrepancy between the outstanding uptake and the low awareness of HPV infection and vaccine is due to the fact that most public in the UAE accept the governmental and health care provider's advice and recommendation very well knowing that those recommendations are for their

best interest, this is contrary to many other countries where public have less trust in their health care providers. This fact was well recognized by HAAD therefore all service providers were trained well to give one and consistent message about HPV vaccine. Only 15% (n=98) of all our sampled women recognized HPV as sexually transmitted infection. The same percentage of women realized that there is a relation between HPV infection and any cancers. Even less women (12%) correctly related HPV infection to cervical cancer. This is not surprising as the knowledge of HPV as sexually transmitted disease is not very common especially in developing countries (Lee et al., 2010; Charakorn et al., 2011). Low levels of knowledge regarding sexual nature of HPV infection may be delineated to the lack of any public program for sexual and reproductive education. High levels of knowledge (80-90%) on HPV and cervical cancer has been observed in countries with good sexual and reproductive education programs as is the case with Australia (Giles and Garland, 2006).

Twenty nine percent of women in this study knew that cervical cancer can be prevented with cervical smear and HPV vaccine (28%). The knowledge of women about cervical smear in this study was very low even compared with other Gulf countries like Kuwait, where knowledge of cervical smear is reported to be 52.3% (Al Sairafi and Mohamed, 2009). Lack of an organized cervical screening program in the UAE may be an explanatory factor for such a low knowledge of HPV infection and cervical cancer screening. In an effort to create a comprehensive cervical screening program, in June 2013 HAAD launched Abu Dhabi Cervical Cancer Screening Program. This is the first organized and comprehensive cervical screening program in whole region.

In our study, age was found to have strong association with knowledge of HPV infection (AOR 1.021, 95%CI 1.00-1.04). This finding is consistent with other studies where increasing age was found to be significant and independent factor for knowledge of HPV infection (Donders et al., 2008).

Interestingly women education was not found to be significant, and was not associated with better knowledge of HPV infection (p value 0.1100), but the level of husbands education was found to be significantly associated with better knowledge of HPV infection (p value 0.015), this is contrary to other studies which showed that women education is the best single factor determining the knowledge of HPV infection and vaccine (Al-Dubai et al., 2010). We think this might be due to the dominant role of men in the conservative UAE community.

The major limitation of our study is the sampling technique. We employed convenient sampling for our study. This technique is not the ideal or the best technique. We mostly carried out our study in public places and work places. UAE is a conservative country and home visits for the purpose of research are not very much welcomed leaving us with the option of convenient sampling only. On the other hand the main strengths of our study is that ours is the very first study to assess the knowledge of HPV among women in UAE, we had a large representative sample and we used face to face interviews

to increase the reliability of our data. A very good response rate adds to the strength of our study.

In conclusion, the knowledge of HPV infection and vaccine is low in the UAE. Few women recognized HPV as sexually transmitted infection. Only one third of women are aware of the fact that cervical cancer is preventable disease. Women age and husband's level of education are associated with better knowledge of HPV infection after adjusting for women's level of education.

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