

A survey of knowledge and awareness of Jordanian female university students of human papillomavirus infection and its vaccine

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Summary

Objective: To assess the knowledge and awareness of Jordanian female university students regarding human papillomavirus (HPV) infection and its vaccine. **Materials and Methods:** A self-administered, anonymous questionnaire was distributed to 450 participants at Jordan University of Science and Technology (JUST) in Jordan. The survey focused on three areas: knowledge and awareness of HPV infection, knowledge of HPV vaccine, and source of information about HPV infection and its vaccine. **Results:** The survey response rate was 79.8%. Most of the respondents (about 68%) have heard about HPV and knew that the HPV is a virus in the genital area that is sexually transmitted, and 59% of them knew that persistent infection with HPV virus can cause precancerous/cancerous diseases in the genital tract. Only 45% of the respondents have ever heard about HPV vaccine and 37.8% of them knew that HPV vaccine is very effective in preventing HPV infection and its related precancerous/cancerous diseases. Majority of the respondents, 78.7 % and 73.5%, who knew about HPV and HPV vaccine, respectively, had heard about it from healthcare providers. **Conclusion:** The study suggests that more health education and information about the HPV characteristics and HPV vaccine is needed for female university students.

Key words: Awareness; Human papillomavirus; Knowledge; university; Vaccine.

Introduction

Cervical cancer is the third most prevalent cancer in women worldwide [1], and the most common malignancy in women of developing countries [2]. Although there are many known factors related to the development of cervical cancer, the persistent infection with oncogenic types of human papillomavirus (HPV) is the main risk factor [3-8].

Among university students, HPV infection is the most common sexually transmitted disease [9]. In this group its prevalence reaches near 50% [8], therefore the assessment of awareness and knowledge in this area is needful.

Studies propose much uncertainty surrounding the difference between genital warts and genital herpes, the asymptomatic nature of HPV, the link between HPV and cervical cancer, and the purpose of Pap testing [10-14]. Greater knowledge of HPV is typically observed among older, female, and sexually active individuals, as well as individuals with a history of genital warts or cervical dysplasia [10, 12, 14-16]. In placebo-controlled trials, two prophylactic vaccines, a bivalent (types 16 and 18) [17, 18] and a quadrivalent (types 6, 11, 16, and 18) [19, 20] have demonstrated almost 100% efficacy in preventing anogenital warts, persistent infection, and the development of precancerous lesions caused by the most preva-

lent HPV types (6, 11, 16, and 18). Other studies show that HPV vaccines are safe and that its usage reduces nearly 70% the probability to develop cervical cancer [21, 22].

Because HPV infection is sexually transmitted, prophylactic vaccine before the first experience of sexual intercourse is now recommended [23]. The age of first sexual intercourse varies across individuals and populations, causing disagreement regarding the proper age to administer the HPV vaccine. In Jordan, because the culture is conservative, the tradition for the females is to start sexual intercourse after marriage at an average age of 25 years, or at university age. Therefore, university-aged women seem to be the likely high-risk group for HPV infection in the Arab countries like Jordan.

This study is the first of its kind in Jordan and Middle East Arab countries overall. It provides the first estimate of knowledge and awareness of the Jordanian female students about HPV infection and its prevention. The aim of this study was to assess the knowledge and awareness of a national representative sample of Jordanian female university students about HPV infection and its vaccine.

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Materials and Methods

From January to November 2014, a survey regarding knowledge and awareness of the female students at Jordan University of Science and Technology (JUST) in Jordan was conducted. The study was approved by the institutional review board committee of JUST. Nominal variables were numerically coded and entered into a database prior to analysis using Microsoft Excel program 2010. Percentages were based on the number of respondents for each variable.

Survey population and administration

The survey was distributed to 450 female students attending their programmed lectures at JUST. The questionnaire was distributed to the students of different academic faculties. The study population represented a national sample of female students at one of the main governmental universities in Jordan.

Survey design

The English-language structured questionnaire was anonymous and self-administered to protect confidentiality. Thus, non-responders were not identified. The two-page with 12 items questionnaire focused on three areas: seven questions focused on knowledge and awareness of HPV infection, two questions focused on knowledge and awareness of HPV vaccine, and three open-ended questions focused on the source of information and the preferred healthcare provider for more information about HPV infection and vaccine.

As a first step, a consent form in Arabic language explaining the purpose and the non-compulsory nature of the study was delivered to each participant to read and sign before the distribution of the questionnaire. The questionnaires were distributed by the contact person, co-author Y.A, where they were filled out in the students' classroom after the lecture, immediately recollected, and sent back to the survey principal investigator. Participation was always on voluntary basis and without remuneration.

Results

Of the 450 female university students who received the questionnaire and agreed to participate in the study, 425 participants returned the surveys and 25 did not. Of those, 339 surveys were complete and included in the analysis, giving a response rate of 79.8% and 86 surveys were excluded as incomplete.

Knowledge and awareness of HPV infection and its vaccine

Respondents' answers for items concerning the area of knowledge and awareness of HPV infection and HPV vaccine are shown in Table 1. Most of the respondents (about 68%) have heard about HPV and knew that the HPV is a virus in the genital area that is sexually transmitted and 59% of them knew that persistent infection with HPV virus can cause precancerous/cancerous diseases in the genital tract. Minority of the respondents knew the following items: HPV infection is very common, most of HPV infection has no symptoms and last 6-24 months, there is no treatment for HPV infection, and over 95% of cervical cancer is due to persistent HPV infection. Forty-five percent of the respondents have ever heard about HPV vaccine and 37.8% of the respondents knew that HPV vaccine is very effective in preventing HPV infection and its related pre-

Table 1. — *The percentage of female university students who answered "yes" with the statements related to human papillomavirus (HPV) infection and its vaccine.*

Statement	n	%
Have you ever heard about HPV?	230	67.8
Do you know that HPV is a virus in the genital area that is sexually transmitted?	231	68.1
Do you know that HPV infection is very common?	121	35.8
Do you know that there is no treatment for HPV infection?	72	21.2
Do you know that most of HPV infection has no symptoms and last 6-24 months?	85	25.1
Do you know that persistent infection with HPV virus can cause precancerous/cancerous diseases in the genital tract (cervix)?	200	59.0
Do you know that over 95% of cervical cancer is due to persistent HPV infection?	128	37.9
Have you ever heard about HPV vaccine?	155	45.7
Do you know that HPV vaccine is very effective in preventing HPV infection and its related precancerous/cancerous diseases?	128	37.8

Table 2. — *Source of information on HPV among those who heard about HPV and HPV vaccine.*

	HPV n (%)	HPV vaccine n (%)
Newspaper	26 (11.3)	17 (13.3)
Gynecologist	72 (31.3))	55 (43.0)
Health center/general practitioner	109 (47.4)	39 (30.5)
Friends/relatives	23 (10.0)	13 (10.2)
Radio/TV	12 (5.2)	5 (3.9)
Internet	63 (27.5)	29 (22.7)

cancerous/cancerous diseases.

Sources of information about HPV and HPV vaccine

Table 2 shows the source of information on HPV and HPV vaccine among those who heard about HPV and its vaccine.

The majority of the female students (78.7%) who knew about HPV had heard about it from the healthcare providers (47.4% and 31.3% from general practitioners and gynecologists, respectively). Only minority of the respondents (16.5%) heard about it through public media (newspaper, radio, and TV). Internet was the source of information in 27.5% of those who had heard about HPV.

Most of the female students (73.5%) who knew about HPV vaccine had heard about it from the healthcare providers, (43% and 30.5% of the respondents heard from gynecologists and general practitioners, respectively). Only minority of the respondents (17.2%) heard about it through public media (newspaper, radio, and TV). Internet was the source of information in 22.7% of those who had heard about HPV.

With regards to the additional information that the re-

spondents would you like to have on HPV vaccine, the answers were as the following: 61.5% of them want more information about safety of HPV vaccine, 48.7% about efficacy, 44.8% about duration, and 38.3% about the cost of the vaccine. The majority of the respondents (75.8%) preferred to get information about HPV and its vaccine from gynecologist, 20.3% from health center, 9.4% from general practitioner, and 10.2% from other medical specialists.

Discussion

The present study is the first to assess the knowledge of the female university students about HPV infection and the HPV vaccine in the Middle East Arab countries. The results of this study provide an insight into university students' knowledge about HPV and its vaccine. It also gives an idea about the different sources of health information.

The present authors focused this study on the knowledge and awareness of HPV and HPV vaccine and they were also interested in examining the different sources of information and to identify the preferred source. The survey had a relatively high response rate (79.8%) for a representative sample of female university students.

The findings of this study demonstrate that most of the respondents (about 68%) have heard about HPV and knew that the HPV is a virus in the genital area that is sexually transmitted, and 59% of them correctly identified the vital role of infection with HPV in the development of pre-invasive and invasive cervical cancer and the route of transmission of HPV. Previous studies have reported much poorer understanding of this relationship [12-13, 15]. Studies conducted in the early 1990s reported that less than 15% of students had heard of HPV. HPV awareness has been noticeably higher in recent studies, with rates between 30% and 45% in college student samples [12, 15, 24, 25]. Findings from the present study provide support for the hypothesis that awareness of HPV among university students may be increasing even further.

Minority of the female students knew the general characteristics of HPV and knowledge of the HPV vaccine in this sample was relatively poor, highlighted by the fact that 45% of them have ever heard about the HPV vaccine and the majority of them also underestimated the efficacy of the vaccine, with only 37.8% correctly reported that the HPV vaccine is effective in preventing HPV infection and its related precancerous/cancerous diseases.

Awareness does not necessarily reflect knowledge. The present data suggest that many students do not know the general characteristics of HPV, underestimate the efficacy of the vaccine, and its role in preventing precancerous/cancerous diseases. Although poor knowledge may reflect minimal educational efforts at increasing HPV knowledge, but it may also reflect the inherently complex nature of HPV (majority of the infection is asymptomatic and only the persistent infection of certain subtypes may progress to pre-

cancerous/cancerous diseases).

Healthcare providers were the main source of the students' knowledge. The majority of the respondents who knew about HPV and HPV vaccine, 78.7% and 73.5%, respectively, had received their information from the healthcare providers. The results are similar to those reported by Lambert, who indicated that healthcare providers were an important source of college students' knowledge about HPV [25]. The internet and social media would appear to represent another powerful educational tool for college students but guidance may be needed to find the appropriate sites.

Because of the vital role of the media in the current education, it can be an essential source of information about HPV and its vaccine, Anhang *et al.* [26] recommended that professionals should ensure that study results and clinical guidelines should be communicated clearly and accurately to the media.

Limitations of this study include: relatively small sample size, sample recruited from one university, sampling bias as surveyed students were higher qualified university students, whose knowledge may not represent the average 18–22-year-old female. Although the present findings may not generalize to all female university students of Jordan or Middle East Arab countries, they provide a valuable first glance into a population that has not been studied before.

In conclusion, the results of this study suggest that more health education and information about the HPV characteristics and HPV vaccine are needed for female university students.

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