

## RESEARCH ARTICLE

# Knowledge about Cervical Cancer Early Warning Signs and Symptoms, Risk Factors and Vaccination among Students at a Medical School in Al-Ahsa, Kingdom of Saudi Arabia

Abdulaziz Ahmed Al-Darwish<sup>&</sup>, Abdullah Fouad Al-Naim<sup>&</sup>, Khalid Saleh Al-Mulhim<sup>&</sup>, Nasser Khaled Al-Otaibi<sup>&</sup> Mohammed Saad Morsi, Ansari Mukhtar Aleem<sup>\*</sup>

## Abstract

**Background:** Cervical cancer is the second most common cancer among females and also the most preventable. In the literature there is abundant evidence that awareness regarding cervical cancer and its prevention is low in the developing countries. Medical students are the future health professionals and can play an important role in increasing awareness among the general population. To assess the knowledge regarding symptoms, risk factors and prevention of cervical carcinoma among medical students in the Kingdom of Saudi Arabia, the present study was planned. **Materials and Methods:** This cross-sectional study was conducted using a self-administered questionnaire with students at the College of Medicine, King Faisal University, Al-Ahsa, KSA, from December 2012 to May 2013. **Results:** The responses of 188 students (males 111, females 77) in their second, third, fourth, and fifth years were recorded and used in the data analysis. The majority of the students were not aware of the early warning signs, symptoms and risk factors. On average, only 43.7% males and 56% of females were aware about the early signs and symptoms whereas 51.4% males and 57.8% females had knowledge about the risk factors of cervical cancers. Some 55% males and 46.8% females were unable to select the correct answer regarding human papilloma virus (HPV) infection as the cause of cervical cancer. Majority of the students (67%) were not aware about the availability of vaccine against HPV. **Conclusions:** Lack of knowledge regarding early signs and symptoms, risk factors and prevention of cervical cancer was observed in the present study.

**Keywords:** Cervical cancer - medical students - knowledge - HPV vaccine - Kingdom of Saudi Arabia

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## Introduction

Cervical cancer is the major health problem throughout the world. After breast cancer, it is the second most common cancer in females and one of the most important causes of premature deaths in women at reproductive age. Each year, half a million new cases of cervical cancer with 250,000 deaths are reported (Arbyn et al., 2011; GLOBOCAN, 2012). Kingdom of Saudi Arabia (KSA) has a population of 6.51 million women of ages 15 years and older who are at risk of developing cervical cancer. In KSA, cervical cancer accounts for 33.5% of all genital cancers (Mahoka and Raheem, 2008). According to WHO, every year 152 women are diagnosed with cervical cancer and 55 die from the disease and it ranks as the eighth most frequent cancer among women between 15 and 44 years of age in the Kingdom.

It has been known since 1960s that cervical cancer is caused by long term infection of a particular type of virus. It is now an established fact that this particular virus is

Human Papilloma Virus (HPV). HPV is the most common sexually transmitted virus and its infection is linked to 99% of cervical cancer (Walboomers et al., 1999; Bosch et al., 2002; Munoz et al., 2003; Stanley, 2010). Worldwide, 70% of cervical cancer is caused by common high risk HPV types 16 and 18, whereas low risk HPV of 6 and 11 genotypes are predominantly involved in the development of genital warts (Khan et al., 2007). The identification of the virus led to the development of vaccines. Bivalent HPV vaccine that prevent against HPV types 16 and 18 infection and quadrivalent vaccine against HPV 6, 11, 16, 18 types are now available. Both the vaccines have been tested in a randomized placebo controlled studies and were shown to be safe, immunogenic and efficacious and have the potential to reduce the incidence of cervical and other anogenital cancers (Harper et al., 2004; 2006; Villa et al., 2005; The Future II Study Group, 2007; Roteli-Martins et al., 2012).

A simple PAP test to detect premalignant lesion and availability of vaccine made the adage 'prevention

College of Medicine, King Faisal University, Al-Ahsa, Kingdom of Saudi Arabia <sup>&</sup>Equal contributors <sup>\*</sup>For correspondence: aaleem@kfu.edu.sa

is better than cure ' appropriate for cervical cancer. Literature cites that it is the most preventable form of Gynecological cancer. Cervical cancer is also curable when detected early and knowledge about early warning signs and symptoms is crucial for early diagnosis. Though preventable and curable, most women in developing countries including KSA presents at an advanced stage that requires extensive treatment modalities like surgery, radiotherapy, chemotherapy and has markedly diminishes chance of success (Manji, 2000). Awareness and attitude toward cervical cancer is an important factor that determines the stage at which the cancer patient presents to the health facility. There are many studies highlighting lack of the awareness regarding HPV infection, screening and availability of vaccine, not only in general population but also among health professionals (Donders et al., 2008; Dursun et al., 2009; Ilter et al., 2010; Zhao et al., 2012; Berraho et al., 2013; Ortashi et al., 2013; Newman et al., 2013).

Health professionals are the best and reliable medium that can help raise the awareness of the public about this dreadful but preventable cancer. Medical students are the future health professionals and it is important to assess their knowledge in order to develop education and awareness policy to increase their knowledge that can then be disseminated into the society to reduce the morbidity and mortality due to cervical cancer. Studies are available regarding the knowledge and awareness of medical students from different region of the world regarding cervical cancer (Al-Naggar et al., 2010; Pandey et al., 2012; Rashwan et al., 2012; McCusker et al., 2013). No study exists for the medical students in Al-Ahsa, KSA, hence the aim of the present study is to determine their knowledge regarding early sign and symptoms, risk factors and vaccination about cervical cancer. Within a few years the students surveyed will become practicing doctors and are the best medium to spread awareness about this preventable cancer in KSA.

## Materials and Methods

### Study design

It is a cross-sectional study conducted at College of Medicine, King Faisal University, Al Ahsa, KSA between December 2012 and May 2013.

### Target population

Medical students in their second, third, fourth, and fifth year of study were surveyed in the study.

### Instrument, procedure and statistical analysis

A self-administered questionnaire containing 19 questions has been used for the assessment of awareness of medical students regarding cervical cancer. Questions related to early signs and symptoms and risk factors were obtained from CAM tool kit version 2.1, however some of the questions were modified based on expert opinions because of cultural barriers to acceptance of these questions. In addition, a question regarding the availability of vaccine against HPV was added to determine their awareness regarding the same. The

questionnaire was handed to the target population and the filled questionnaire was collected after 10 minutes. The students were requested not to use their high tech gadgets. It was voluntary for the students to participate in the study and the only exclusion criterion was unwillingness to participate. Student's personal data was not collected except for the age, marital status and year of study and that too was guaranteed to be confidential. The questionnaires not properly filled were not included in the data analysis. The collected data was analyzed using Statistical Package for Social Sciences (SPSS) version 17 and Chi square was used for analysis of independent samples for comparison of awareness among students.

## Results

### Demographic data

The total of 188 students participated in the study of which 111 were males and 77 females. Six questionnaires that were incomplete or not properly filled were excluded from the final analysis. Out of the total participants, 78 were in the second year, 35 each in third and fourth year and 40 in the fifth year of study. 43 participants in the study were married.

Knowledge about the early sign and symptoms of cervical cancer 69.4% of males and 76.6% females responded that vaginal bleeding between periods as the symptoms of cervical cancer. As for lower back pain, persistent vaginal discharge that smells bad and discomfort or pain during sex it was (34.2% males, 54.5% females), (69.4% males, 55.8%) and (58.6% males, 81.6% females) respectively. Positive response for vaginal bleeding during or after sex and menstrual period that is heavier or longer than usual were 59.4% males, 74% females and 25.2% males, 48% females. For vaginal bleeding after menopause it was 35.1% males and 57.1% females students. 31.6% male and 19.4% females students responded that blood in stool or urine could be the symptom of cervical cancer. As for the symptoms like persistent diarrhea, persistent pelvic pain and unexplained weight loss it was (20.7% males, 25.9% females), (44.1% males, 67.5% females) and (33.3% males, 55.8% females) respectively (Table 1). On average, the correct response regarding early sign and symptom was 44.36%, 30.5%, 50.3% and 64% for second, third, fourth, and fifth year students respectively.

### Knowledge regarding risk factors

Only 45% of the male and 53.2% female students responded positively regarding HPV infection as cause for cervical cancer. Regarding smoking and infection with HIV it was (37.8% males, 41.5% females) and (59.5% males, 62.3% females) respectively. For other risk factors, the correct response regarding long term use of contraceptive pills (61.3% males, 61% females), having sex at a young age (40.5% males, 68.8% females), having many sexual partners (77.4% males, 72.7% females) and not going for a regular test Pap it was (38.7% males, 27.2% females) (Table 2). Year wise, the average knowledge regarding the risk factors was 51%, 49.3%, 59.1% and 63.4% for second, third, fourth, and fifth year students respectively.

**Table 1. Correct Response of the Students Regarding Cervical Cancer Early Signs and Symptoms**

Variables	Male	Female
	n (%)	n (%)
Vaginal bleeding between periods	77 (69.4)	59 (76.6)
Lower back pain	38 (34.2)	42 (54.5)
Persistent vaginal discharge that smells bad	77 (69.4)	43 (55.8)
Discomfort or pain during sex	65 (58.6)	63 (81.8)
Vaginal bleeding during or after sex	66 (59.4)	57 (74)
Menstrual period that is heavier or longer than usual	28 (25.2)	37 (48)
Vaginal bleeding after menopause	39 (35.1)	44 (57.1)
Blood in stool or urine	34 (31.6)	15 (19.4)
Persistent diarrhea	23 (20.7)	20 (25.9)
Persistent pelvic pain	49 (44.1)	52 (67.5)
Unexplained weight loss	37 (33.3)	43 (55.8)

**Table 2. Correct Response of the Students toward Cervical Cancer Risk Factors**

Variables	Male	Female
	n (%)	n (%)
Infection with HPV	50 (45)	41 (53.2)
Smoking	42 (37.8)	32 (41.5)
Infection with HIV	66 (59.5)	48 (62.3)
Long-term use of contraceptive pills	68 (61.3)	47 (61)
Having sex at a young age	45 (40.5)	53 (68.8)
Having many sexual partners	86 (77.4)	56 (72.7)
Not going for a regular Pap smear	43 (38.7)	35 (45.4)

**Table 3. Source of Knowledge Regarding Cervical Cancer**

Source of knowledge	Male (%)	Female (%)
Self-learning	38.7	31.1
Curriculum	32.5	23.3
Faculty	5.5	31.3
Hospital	5.4	3.8
Internet	15.3	2.5

#### Awareness regarding vaccine against cervical cancer

Only 38.7% male and 27.2% female students were aware that vaccine is available against cervical cancer. 52.5% of fifth year students were aware about the availability of the vaccine.

#### Source of student's knowledge

Self-learning was the major source of knowledge regarding cervical cancer which is 38.7% and 31.1% in males and females students respectively. This was followed by curriculum (32.5% males, 23.3% females), faculty (5.5% males, 31.3% females) and hospital (5.4% males, 3.8% females). Internet was the source of information for 15.3% male and 2.5% female students (Table 3).

## Discussion

Cervical cancer is the second most life threatening cancer among women worldwide. The present study was conducted among the medical students in order to determine their knowledge regarding cervical carcinoma. The majority of the participant's knowledge regarding early sign and symptoms of the cervical cancer was inadequate; on average it is 43% for male 56% for female students. Furthermore the results depicted that the second

year students had a better knowledge about the symptoms than the third and fourth year. Perhaps this increase in awareness could be attributed to the Problem Based Learning (PBL) curriculum that the college has adopted in 2012. So far only second year is pursuing PBL curriculum whereas the third and fourth year are being thought through the old curriculum. Fifth year students answered most of the question related to symptoms correctly. This may be attributed to near completion of their medical study and clinical training.

In the present survey, on average only 55% of the students had knowledge about the risks factors. In a descriptive cross-sectional study, Mutyaba et al. (2006) have reported the knowledge about risk factors to be less than 40% among medical workers that included nurses, doctors and final year medical students. In order to understand the preventive measures, students should know the causes and risk factors of the disease and HPV is the most important risk factor for cervical cancer. Nevertheless only 45% of male and 53.2% of female students in the present study had knowledge that this form of cancer is caused by HPV infection. The results are similar to results obtained from a questionnaire-based study in general educated youth from India, Sri Lanka and Nepal, which was 48.9% in India, 52.5% in Nepal and 48.5% in Sri Lanka (Teresa et al., 2011). The respondent's lack of knowledge regarding HPV infection translated into lack of awareness regarding the availability of the vaccine. Only 38.7% male and 27.2% female students were aware of the availability of the vaccine, which is low when compared to studies at other medical schools. Pandey et al. (2012) in their study at a medical college in Mumbai, India had shown much more awareness regarding HPV (90%) and vaccination (75.6%). Other studies with the medical college students in Malaysia and Scotland have also shown high awareness (Rashwan et al., 2012; McCusker et al., 2013). In a qualitative survey at a medical school in Malaysia, 65% of the students mentioned that vaccination is the most effective method of prevention (Al-Naggar and Isa, 2010). May be the issue of HPV infection as the cause of cervical cancer and vaccination to prevent it isn't addressed compressively at undergraduate level could be the reason for less awareness of the respondents in the present study. In the present survey, the students in the fifth year had increased level of awareness with 52.5% students responding positively to the availability of vaccine against cervical cancer. Though more than the second, third and fourth year students, it is still inadequate considering that in a year the students will be health professionals and in a study in Turkey it was shown that the recommendations of the health worker was the most significant influence in getting vaccinated (Ilter et al., 2012). Though vaccine against cervical cancer is a relatively new concept but students low level of awareness also indicates that students are not updating them very frequently. In fact in a study conducted at King Abdulaziz University hospital, Jeddah, KSA, Sait (2011) found out that 48.5% physician were unaware of the vaccine against HPV. This leads to recommendation that the curriculum at the medical school should incorporate such high priority practical new issues.

For our study population, the main source of information was self-learning followed by medical school curriculum, faculty, hospital and Internet. A survey at a medical school in Malaysia found out that main source of 38.7% respondents in getting information regarding cervical cancer, HPV infection and vaccination was education (Rashwan et al., 2012). In the present survey, self-learning as the main source of information could be due to PBL curriculum in which self-learning is encouraged. But, only second year students are pursuing PBL curriculum whereas others, the old traditional curriculum. 42.8% and 40% students in the third and fourth year also mentioned self-learning as the main source of information that is more than the second year student (34.9%). Faculty was the third main source of information in the current survey. We believe that initially directed self-learning is more appropriate for motivating our student for life long learning as faculty can interact, guide and motivate them for self-directed learning.

To summarize, inadequate knowledge regarding cervical cancer signs and symptoms, risk factor and lack of awareness regarding availability of vaccine is observed in the present study. Medical students surveyed are the future doctors and they are a good source to increase the awareness in the society regarding the preventable nature of the cervical cancer. To increase their knowledge and awareness, medical students should receive comprehensive information at undergraduate level.

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