

# Perception of the Saudi Community towards Human Papilloma Virus Vaccination in Jeddah, Saudi Arabia

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## Abstract

To examine the awareness and perception of Saudi community towards Human Papillomavirus Vaccination. A cross-sectional study has examined the perception and awareness of Saudi individuals towards Human Papillomavirus HPV vaccination. A sample of 278 Saudi individuals were included. A close-ended survey questionnaire was employed to collect the data of Papillomavirus HPV vaccination. Around, 78.30% female and male participants were unaware of the availability of HPV vaccination against cervical cancer. 90.06% of females supported cervical cancer screening Pap smear by gynecologist after enduring vaccination. Only, 40.66% visited the gynecologist for screening. Results demonstrated 85.77% female agreed on receiving expensive vaccination. Conversely, 97.48% supported on HPV vaccination free of charge. A lack of knowledge about HPV, Pap smear, and cervical cancer. The data obtained can be used as a standard to devise effective awareness programs. Data was collected particularly from Saudi Arabia for evaluating Saudi community perception. Both males and females were observed to be interested in taking vaccination and prevention initiatives against the cervical cancer, whereas, there is a lack of awareness observed among the males and females included in the study.

**Keywords:** HPV Virus, HPV vaccination, cervical Cancer

## 1. Introduction

Saudi Arabian community lies among the semi-developed countries of the world. New medical inventions, medications, procedures, and vaccinations are generally adopted in the developed countries that deal with similar infections like Human Papilloma Virus (HPV) vaccination, first licensed in the year 2006 (WHO, 2009). World Health Organization advocated that vaccination of HPV needs to be introduced into “national immunization programs” where cervical cancer prevention is a priority for improving public health. The introduction is economically sustainable and programmatically feasible, and where the cost-effectiveness factors have been duly considered (WHO, 2015). Limited data is available from Middle Eastern region regarding the level of awareness and knowledge of Saudi community towards HPV vaccine and infection further leading to cervical cancer. Therefore, this study aimed to examine the knowledge of Saudi community about the existence of vaccination.

Cervical cancer is considered to be the second most widespread types of cancer among women across the world. About 500,000 cervical cancer cases are diagnosed annually with around 90% of the cases originated in developing nations (Hughes, 2009). Approximately, 89% of the cervical cancers cases in Saudi Arabia was concerned with HPV infection, and 78.7% (70/89) of HPV-positive tumors were infected with HPV-16/18 (Alsbeih et al., 2011). No published research has managed to assess awareness of this issue in the Saudi Arabian community. Exploring information on this issue may help decision makers and community health professionals to identify the needs towards combating this type of female cancer. Around 80% of the mortality cases have been identified in the developing countries and 87% in the developed regions due to cervical cancer (Abudukadeer et al., 2015; International Agency for Research on Cancer. 2012). Cervical cancer has been recognized as one of the common cancers among females with an estimation of 266,000 death cases and 528,000 new cases in 2012 worldwide (International Agency for Research on Cancer, 2012).

Saudi Arabia Ministry of Health (MOH) 2013 revealed that one of the main risk factor of cancer worldwide is infections caused from HPV virus, consequently initiating cervical cancer (Ministry of health portal kingdom of Saudi Arabia, 2013). Moreover, MOH 2014 stated that immunizations protect from virus causing cancer, such as (HPV), which may lead to cervical cancer (Ministry of health portal kingdom of Saudi Arabia, 2014). In 2011,

HPV prevalence was determined in women of Saudi Arabia. Approximately, 89% of cervical cancers were linked with the infections of HPV and 78.7% of the HPV-positive tumors were associated and infected with HPV-16/18 (Ministry of health portal kingdom of Saudi Arabia, 2013). In the year 2012, out of hundred cervical cancer patients, 82 cases demonstrated positive HPV sequences (Alsbeih et al., 2013). Conversely, about 43% of the specimens were infected with HPV. The most widespread genotypes included HPV 188.0%, HPV 16 (30%), followed by type HPV 45, taking place at 5.0% (Turki et al., 2013). In 2014, 92% of cervical tumors were infected with HPV, out of which 78% are HPV-16 and -18 genotypes. Hence, it can be concluded that in women of Saudi Arabia there is alarming increase in the prevalence of HPV (Alsbeih, 2014).

WHO found that “every year more than 270,000 women die from cervical cancer; and more than 85% of such deaths occur in low-and middle-income countries”. Around 45 countries had introduced HPV vaccination by the end of 2012; majority of these include developed countries (WHO, 2013). Six years after the introduction of HPV vaccine in the Danish vaccination program, decline in cervical lesions risk was observed at community level (Balduf-Felskov et al., 2014). Further decline was observed in the number of cervical cancer patients after five years of implementing HPV vaccine in the Australian vaccination program on April 2007 (Gertig et al., 2013). The reduction in the existence of cervical cancer was observed after four years of introduction of vaccine within the vaccination programs of United States and other countries (Hariri et al., 2013).

In Saudi Arabia, limited data is available on the prevalence of HPV infection. The HPV prevalence in numerous other Middle Eastern states was found to be same as the rest of the world (Hajjaj et al., 2006). The studies conducted in Saudi Arabia concluded that the occurrence of abnormalities related to epithelial cell in western region of a country was observed to be 2.2%, 1.5%, and 5.0% (Helmerhorst, 2006; WHO, 2007; Conry et al., 2009). Additionally, few sub-fertile females attending fertility consulting clinics relate to the occurrence of cervical cytology abnormality. Such data paucity relates back to the nonexistence of national screening program in Saudi Arabia for cervical cancer.

The objective of the study was:

- To identify the level of awareness of the Saudi community toward human papilloma virus (HPV) vaccination.
- To identify the level of awareness of cervical cancer screening in early stages to determine the existence of cancer and its treatment.
- To explore the attitude and perception of the Saudi community towards human papilloma virus (HPV) vaccination.

## 2. Method

A population based survey was conducted by employing a set of standardize data collection sheets demanding a band of questions based on Likert scale. A self-administered questionnaire was constructed and pre-tested to collect the data from male and female clients in the waiting area. All the participants were included, who were above 15 years of age and were recruited from the Saudi Airlines medical center in Jeddah, Saudi Arabia. The data collection procedure was done over the course of one month (September 2014) and filled by the participants. The target population was selected randomly covering different age groups and jobs. The participants were selected through random sampling approach and then cluster sampling was applied to create clusters of the participants involved in the study. This technique assisted to identify and include the participants in the study. The sample size taken for the study was 278 including both males and females. 163 female participants and 115 male participants were recruited for the data collection. The collected data was analyzed through SPSS or Statistical Package for the Social Science software version 22. The frequencies of participant’s responses concerning their awareness have been obtained through the analysis. A written and verbal approval was obtained from the participants and was approved by the faculty committee of research.

## 3. Results

Table 1 indicated the responses of male and female participants, who were well aware about the availability of HPV vaccination against cervical cancer. Around, 13 males (4.78%) and 46 female (16.91%) were fully aware of availability of HPV vaccination. The majority of the respondents i.e. 100 male 36.76% and 113 female 41.54% were not at all aware of such availability. Therefore, it can be determined that HPV awareness has been found generally low in Saudi community. Currently, increase in the knowledge and awareness of HPV is likely to be associated with the HPV vaccines availability.

Table 1. Participants' knowledge about the availability of HPV vaccination

Gender	Responses	
	Yes	No
Male	4.78%	36.76%
Female	16.91	41.54%

Table 2 indicated responses of unmarried female participants, who like to take HPV vaccination before getting married. The results indicated that 64 females (90.14%) desire to receive this vaccination before marriage, while 7 female (9.86%) restrain from getting vaccinated. Hence, majority of the females get the human papillomavirus (HPV) vaccine before getting married as they believe that it can aid to prevent the risk of cervical cancer. People are reluctant to get vaccinated before they are sexually active. While, other females are concerned about their safety as they consider these vaccines to be extremely effective and harmless.

Table 2. Responses of the participants

Responses of female participants who like to take HPV vaccination before getting married	
Yes	No
90.14%	9.86%
Married female participants who would have taken the HPV vaccination if they knew about it prior to their marriage	
Yes	No
93.41%	6.59%
Responses of married female participants who visited the gynaecologist to perform cervical cancer screening (Pap smear)	
Yes	No
40.66%	59.34%
Female participants support cervical cancer screening (Pap smear) for married women by gynecologist even after taking the vaccination	
Yes	No
90.06%	9.94%
Male participants who supported giving the vaccination to their daughters prior to the marriage	
Yes	No
94.69%	5.31%
Male participants who allow their wives to go to a gynaecologist for screening of cervical cancer (Pap smear)	
Yes	No
95.58%	4.42%

It has also been indicated that the responses of married female participants, who would have taken the HPV vaccination if they knew about it prior to their marriage. Majority of the female respondents 85 women (93.41%) provided positive responses sufficient for the intended analysis, while 6 women (6.59%) were reluctant to get vaccinated before marriage.

The efficacy of Papanicolaou (Pap) smear screening in diminishing the mortality of cervical cancer is almost collectively accepted. The responses of married female participants visiting a gynecologist for routine (Pap smear) screening have also been presented. Thirty women (40.66%) indicated that they visited the gynecologist to perform cervical cancer screening Pap smear, while 54 women (59.34%) had a very negative stance toward Pap smear screening (Table 2). 145 female respondents (90.06%) supported cervical cancer screening (Pap smear) of married women conducted by a gynecologist, even after taking the vaccination. On the other hand, 16 female participants (9.94%) had a negative perception about it. Whereas, 107 male participants (94.69%) supported the opinion that HPV vaccination should be given to their daughters before they get married. On the contrary, 6 male

participants (5.31%) did not support these views.

It has been demonstrated that 108 male participants (95.58%) permitted their wives to go to the gynecologist for the performance of cervical cancer screening (Pap smear). While, 4.42% male participant did not allow their wives to go to a gynecologist for screening of cervical cancer (Pap smear). This means that majority of the male participants supported their wives to undertake a Pap smear screening.

There is a critical need to ascertain that vaccines are available to the medically underserved population in the Saudi community. The findings have highlighted the awareness of male and female participants about the HPV vaccination availability at private hospitals or clinics. It costed one thousand Saudi riyals. Hence, majority of the respondents i.e. 96 male (35.04%) and 139 female (50.73%) were ready to pay for HPV vaccination. While, 16 male (5.84%) and 113 female (8.39%) considered it to be expensive.

Table 3. Male and Female responses, who supported HPV vaccination

Responses of male and female participants who supported taking the HPV vaccination only if it is available at private hospitals or clinics costing around 1000 SAR		
Gender	Responses	
	Yes	No
Male	35.04%	5.84%
Female	50.73%	8.39%

  

Male and female participants who support the addition of HPV vaccination free of charge to pre-marriage national examination program conducted by Saudi Arabia Ministry of healthcare		
Gender	Responses	
	Yes	No
Male	40.65%	0.72%
Female	56.83%	1.80%

It has been observed through the analysis that male and female participants, who support the introduction of HPV vaccination before marriage. It is a free of cost national examination program conducted by Saudi Arabia ministry of healthcare. Majority of the participants 113 males (40.65%) and 158 females 56.83% supported this program. While, 2 male (0.72%) and 5 female 1.80% refuted in particular.

**4. Discussion**

This study aimed to examine the level of awareness among Saudi community towards human papilloma virus (HPV) vaccination and cervical cancer screening. Around 6.51 million females aged 15 years and above are at risk of creating cervical tumor in Saudi Arabia, according to WHO. Whereas, it has also been reported that 55 females die from cervical tumor every year and 152 females are diagnosed with the cervical growth in Saudi Arabia (World Health Organization, 2014). Thorough investigation is being conducted to combat malignancy in acknowledgement of the worldwide pervasiveness to make this disease treatable.

Lack of clinical knowledge, primary and secondary prevention along with risk factors regarding cervical malignancies have been renowned in both developed and developing countries (Notara et al., 2012; Kamzol et al., 2013). The obligatory treatment in society is able to swift the recession and its poor observance, which may cause lack of knowledge about HPV indicators. Additionally, the HPV defamatory group mentalities could unfavorably affect the early treatment and its determination. The practices and knowledge of HPV might play a crucial role in permitting early adherence and findings to HPV control. Therefore, the study recruited a small sample of participants to gain knowledge about the perspectives of Saudi Arabian society related to the origin of woman cervical cancer caused by HPV. The results were concluded on the basis of previous studies. In addition, the study explored the availability of HPV vaccine, its price if not offered free of cost, and willingness of women to buy this vaccine. The diversity among the participants assisted to analyze their opinions and convert it into real data. Participants varied in gender and age. More females were recruited than male because females get more advantage from this vaccine. Thus, 58.6% of participants were females and 41.4% were males.

Saudi Arabian societies lack in the awareness about HPV vaccinations availability in the world. They totally

depend on the Saudi ministry of health announcements for administration of vaccinations. In general, high percentages from both male and female participants (78.30%) were not aware about the availability of HPV vaccination against cervical cancer. With regards to HPV vaccination, majority of the married female participants would have taken the vaccination if they knew prior to their marriage. Whereas, unmarried female participants desire to take vaccination before marriage. These results are supported by the findings of a study conducted by Johargy et al. (2016), which has observed that the adult females has lack of knowledge, prevention, vaccination and transmission about the HPV and infection. It has been recommended that written, visual and verbal communication through internet should be utilized efficiently and intensively for the HPV teaching and knowledge related with cervical cancer. A study conducted among the medical students in Al-Ahia, Saudi Arabia has established that health professionals are the reliable and best medium that may assist to raise the knowledge and awareness of the people about the alarming but preventable disease (Mulhim et al., 2014).

With regards to visiting the gynecologist, more than half of married female (59.34%) did not perform cervical cancer screening Pap smear. Additionally, 90.06% of the female participants supported the fact that cervical cancer screening (Pap smear) for married women should be conducted by the gynecologist even after taking the vaccination. About, 94.69% male participant supported the fact that vaccination should be administered to their daughters prior to their marriage; whereas, 95.58% allowed their wives to go to a gynecologist for undertaking cervical cancer screening (Pap smear).

The study demonstrated that 85.77% of both male and female agreed about female taking the vaccination at private hospitals at a cost of 1000 SR. 97.48% of both male and female participant supported the addition of HPV vaccination free of charge to pre-marriage national examination program prepared by Saudi Arabia Ministry of Health. Results of the present study are consistent with the data related to national trends demonstrating substantial augmentation in the awareness of HPV over prior decades (Gerend et al., 2008; Klug et al., 2008). When comparing the findings of the current study with past evidence, it is essential to consider the ways through which the HPV knowledge was examined. The present study measures the perceptions and knowledge of respondents through closed-ended yes/no items. Data from a recent research indicates that higher knowledge of HPV considerably utilize close ended queries than open ended. Hence, the present study improved and extended upon prior studies aimed to examine the knowledge of HPV (CDC, 2008).

Healthcare workers play a significant role as a health promoter and educator. Therefore, low compliance and unsatisfactory knowledge with screening suggestions may lead to negative influence on the public in undergoing a Pap smear. The significance of having diagnostic tests should be re-highlighted and the importance of this issue in trainings for female health care workers should also be promoted (Nilaweera et al., 2012). Strategies for vaccination concerning HPV purely depend on the target audience for vaccination. Various catch-up vaccinations are considered in few nations with financial means including Saudi Arabia. In terms of HPV vaccination program, available data from numerous developed nations indicate that school-based vaccination result in higher coverage of vaccines in comparison to provider-based vaccination (Brabin et al., 2008; LaMontagne et al., 2011). PATH or (Program for Appropriate Technology in Health) conducted demonstration projects in low income countries that also indicated that vaccination programs conducted at school attains high vaccine coverage (80–95%) (Luciani et al., 2009). However, it also reveals that such program tend to miss a large number of girls population, not attending school.

## 5. Conclusion

The results of the study have indicated that there is a lack of awareness about HPV vaccination against cervical cancer in Saudi Arabia. It has been observed that both males and females are interested to take prevention initiatives by taking vaccinations either at any cost or free of charge offered by the Health Ministry. However, some of the participants refused to pay for HPV vaccination because it was too expensive. Moreover, females were also unaware about the importance of cervical cancer screening (Pap smear) for early disease detection and treatment. Further initiative should be implemented that can translate findings into strategies and messages to promote the vaccination of HPV throughout Saudi community. It is therefore recommended:

- The HPV vaccination should be made available all over the Kingdom of Saudi Arabia
- Ministry of health should distribute HPV vaccination free of cost as a part of pre-marriage national examination program.
- Ministry of Health and private hospitals should put in efforts to raise awareness among Saudi population through medical camping about the virus and its vaccination.
- Married females should be encouraged to get screened for cervical cancer Pap smear by gynecologist.

- Effective educational programs should be conducted to raise knowledge and awareness about the HPV vaccination and boost public confidence regarding the safety of vaccine.
- Evidence based behavioral interventions are needed to be implemented.

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### Competing Interests Statement

The authors declare that they has no competing or potential conflicts of interest.

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