Original Article

Knowledge, Attitude, And Practice Towards HPV And HPV Vaccine Among Family Physicians: A Cross-Sectional Study in AlAhsa, Saudi Arabia

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ABSTRACT

Background: Human papillomavirus (HPV) is a common sexually transmitted viral infection and a major risk factor for cervical cancer. The HPV vaccines can prevent HPV infection and, ultimately, cervical cancer. Despite vaccination programs in Saudi Arabia, family medicine physicians play a crucial role in providing patients with information about the HPV vaccine. Therefore, this study aimed to assess the knowledge, attitudes, and practices of family medicine physicians towards HPV vaccination.

Method: We conducted a cross-sectional study in AlAhsa, Saudi Arabia, from June to September 2023, among family medicine physicians using a validated online questionnaire to assess their knowledge, attitudes, and practices regarding the HPV vaccine.

Results: A total of 141 physicians responded to the questionnaire. 49.6% of the respondents have knowledge about the three types of HPV vaccines, while 12.8% were unaware of any type of HPV vaccine. 73.8% of physicians recommended the HPV vaccine to sexually active patients. Moreover, 31 (22%) physicians believed that vaccination should not be mandatory.

Conclusion: To enhance family medicine physicians' knowledge and practices regarding the HPV vaccine, more effective educational programs and campaigns are necessary. These professionals play a crucial role in influencing and educating patients.

Keyword: HPV vaccine; Family Physicians; Saudi Arabia; Awareness.

Introduction

Human papillomavirus (HPV) is one of the most common viral infections affecting the human reproductive tract [1]. Several genotypes have been identified; the most common ones are 6, 11, 16, and 18 [2]. These genotypes are classified as low-risk, such as 6 and 11, which are associated with benign genital warts [3]. Conversely, 16 and 18 are considered high-risk genotypes associated with malignant tumors of the genital tract, especially cervical cancer, and occasionally endometrial and ovarian cancers [3]. This virus is commonly transmitted sexually through skin-to-skin contact [2]. The incidence of HPV varies globally among different countries and communities, depending on sexual behavior, societal norms, and religious inclinations [2].

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Worldwide, cervical cancer ranks as the fifth fatal and fourth most common cancer diagnosed most frequently among women aged between 15 and 44 years [4, 5]. HPV prevalence is comparatively low in conservative societies like Saudi Arabia, where sexual relationships are governed by strict social and religious norms. However, there is growing concern over the rising number of reported HPV infections in the country over the past decade. Despite varying findings, studies indicate that up to 43% of cervical samples from healthy Saudi women test positive for HPV DNA [6, 7]. Cervical cancer is the ninth most common cancer in Saudi Arabia, where HPV-16 and 18 are the most common genotypes, accounting for 89–96% of cases, and it is the sixth leading cause of death in Saudi women [8, 9, 10]. Since cervical cancer is one of the preventable gynecological cancers with an identifiable major risk factor of HPV infection, which is curable if the infection of a high-risk HPV types is detected early, this can be done by a screening test called Pap smear [2–10]. The vaccine has been successful as a primary prevention intervention against cervical cancers and is typically administered in doses over a period of six months to women aged 12–26 years [11]. Despite its proven effectiveness, the uptake among Saudi women remains low [11]. Furthermore, without any intervention, the adaptive statistical iterative reconstruction (ASIR) of cervical cancer in the kingdom is projected to increase by 100% to 120% by the end of 2025 [2]. Family medicine physicians serve as the first point of contact for patients and their families [11]. These physicians can play a crucial role in educating and advocating for the HPV vaccine, as their recommendations are considered the most effective method to spread awareness of cervical cancer and the importance of HPV vaccination [11]. Therefore, this study aimed to assess the knowledge and attitudes of family medicine physicians towards HPV vaccination and to measure the influence of their knowledge on their medical practice.

Methods

A knowledge, attitude, and practice (KAP), cross-sectional study was carried out in AlAhsa, located in the Eastern region of Saudi Arabia, between June and September 2023. A convenient sampling method was employed to explore physicians' perspectives on HPV vaccination. The questionnaire used in this study was adapted from a previously published cross-sectional study conducted among Polish obstetricians and gynecologists, where it was reported as a validated and reliable tool [1]. It was distributed randomly via social media platforms over a three-week period, specifically targeting family physicians in AlAhsa, Saudi Arabia. Participants were required to be family physicians practicing within AlAhsa; those from other cities were excluded. The responses were collected through social media applications by distributing the questionnaire link randomly, we didn't know the names of the physicians as it wasn't required by the questionnaire. We did not send or receive the responses through emails. The questionnaire comprised four sections: (A) Sociodemographic information, (B) Views on preventive vaccinations, (C) Knowledge regarding HPV, (D) Attitude regarding HPV, and (E) Clinical practice. Prior to participation, an online consent form was provided, detailing the study objectives and the approximate time required to complete the survey. A sample size of 141 participants was determined using a single-proportion sample size formula. Data analysis was performed using IBM SPSS Statistics version 26.0, and the results were presented in tables and graph created with Microsoft Excel 2016. The results were presented as frequency tables. Attitudes were measured using a 10-point Visual Analogue Scale (VAS) and categorized into three levels: 1–6, 7–8, and 9–10.

Ethical consideration: The study received an ethical approval from the Scientific Research Deanship's Ethical Committee at King Faisal University, AlAhsa, Saudi Arabia. KFU-REC-2023-APR-ETHICS749.

Results

Biographical data: The total number of participants in this research is 141, with 72 (51.1%) being females. The majority of them are Saudi, at 94.3% (n=133), 56% aged less than 30 years old, 39.7% aged 30-40 years old, and 4.3% were more than 40 years old. The participants in this study include family medicine residents (the majority: n=79, 56%), specialists (n=51, 36.2%), and consultants (n=9, 6.4%). Among these practitioners, 32 (22.7%) physicians work in cities with fewer than 100,000 citizens, 94 (the majority, 66.7%) physicians work in cities with more than 100,000 citizens, 21 (14.9%) physicians work in villages, and 4 (2.8%) physicians work across the last three mentioned locations. There are different types of practices among the family medicine physicians. One hundred five (74.5%) physicians work in offices (the majority of practitioners), 20 (14.2%) physicians work in hospitals, 2 (1.4%) physicians work in the private sector, 12 (8.5%) physicians work in both offices and hospitals, and 2 (1.4%) family medicine physicians

work in all the mentioned types of practices. According to their period of practice in the family specialty, 65.2% (n=92) of physicians worked for less than 5 years, 25.5% (n=36) worked for 5-10 years, and 9.2% (n=13) worked for 11-20 years. Demographic data is shown in (Table1). State of doctors and patient knowledge about HPV Vaccination: The majority of respondents (n=72, 51.1%) assessed the patients' knowledge about HPV and HPV vaccination as insufficient. Regarding physician's knowledge about HPV vaccines, around 67% of healthcare professionals correctly identified types 16 and 18 as highly oncogenic as shown in (Figure 1). Moreover, 20.6% (n=29) know the Cervarix type (bivalent) and 12.8% (n=18) know the quadrivalent type. Twelve participants (8.5%) are familiar with the nano-variant. Seventy participants (49.6%) know the three types: bivalent, quadrivalent, and nano-variants. Eighteen physicians are not familiar with any of these types, representing 12.8% of the total (Table 3). Doctor attitude towards vaccination: Sixty-six percent of physicians discussed sexually transmitted diseases (STDs) with their patients ,as shown in table3. Additionally, 67.4% of the total physicians introduced the possibility of the HPV vaccine. In total, 105 (74.5%) supported vaccinations. However, 31 (22%) of them believed that vaccination should not be mandatory. In terms of safety, effectiveness, and confidence, 73.1% (n=103), 66.6% (n=94), and 54.6% (n=77) respondents marked a value of 9-10 on the (VAS) scale, respectively (Table 2, Table 3). The lower age limit mentioned by physicians varies. However, the majority (n=71; 50.4%) mentioned 8-11 years as the range. The upper age limit most frequently mentioned (n=50, 35.5%) is 20-31 years old, followed by 45-54 years old (n=28, 19.9%) (Table 3). The physicians who proposed the HPV vaccine to sexually active patients accounted for 104 (73.8%). The physicians who proposed the HPV vaccine to patients who underwent cervical ablation or surgery were 70 (49.6%). With respect to the primary HPV vaccine dosing schedule, out of 141 physicians, 82 (58.2%) use a 2-dose HPV vaccine schedule. (Table 3) Doctor opinion towards HPV vaccine: As in (Table 4), thirty-three (23.4%) physicians consider all types of HPV vaccines to be available in Saudi Arabia. However, 22 (15.6%) physicians believe only two types of vaccines are available, 5 (3.5%) physicians consider the availability very limited, and 81 (57.4%) physicians have no opinion. Moreover, 40.4% (n=57) believe HPV vaccinations should be mandatory and reimbursed for both girls and boys; however, 34% (n=48) believe that the vaccine should be mandatory only for girls. Additionally, 58.9% (n=83) agree with the statement that HPV vaccination encourages early sexual initiation.

Discussion

The authors of this study believe that recommendations from family medicine physicians strongly influence the prevalence and prevention of many contagious diseases, such as HPV in Alahsa. Therefore, family medicine physicians are expected to possess a high level of knowledge about HPV and its vaccine. It is advised to receive the HPV vaccine as a standard vaccination at the age of 11 or 12 years. However, if not vaccinated at this age, it is recommended to get the HPV vaccination up until the age of 26 years, as recommended by the Advisory Committee on Immunization Practices (ACIP) [12]. Even though almost half of the doctors (49.6%) are aware of the three HPV vaccine types—bivalent, quadrivalent, and nano-variants—12.8% are not, underscoring the need for additional education. Similarly, a Polish study found that although Polish physicians had a high degree of awareness, they still required more education [1]. However, a study published in Saudi Arabia reported that family medicine physicians in Saudi Arabia have a lower level of knowledge than their counterparts in other Asian settings [13]. HPV types 16 and 18 are recognized as highly carcinogenic by 66.7% and 68.1% of healthcare professionals, respectively. Although the majority of physicians correctly recognize these highly carcinogenic types, it is imperative that all physicians do so to develop more efficient screening programs and serve as reliable sources of information for patients. Similarly, a previous study conducted in Saudi Arabia showed that more than half of the physicians considered types 16 and 18 to be strongly associated with cervical cancer [11]. Physicians' practices toward the HPV vaccine vary from country to country. In this study, physicians prefer to start administering the vaccine to individuals aged 8–11 years old, up to the age of 45–54 years. This practice slightly differs from ACIP recommendations [12]. According to a study conducted in Saudi Arabia, family physicians recommend the HPV vaccine for those aged 16-26 years [11]. In the United States (US), it is reported that the ideal age for vaccination begins at 13 years. However, there is a preference to recommend HPV vaccination for older adults over younger adults [15]. Approximately 86% of physicians agree that the HPV vaccine is safe, consistent with our study's findings [14]. The majority

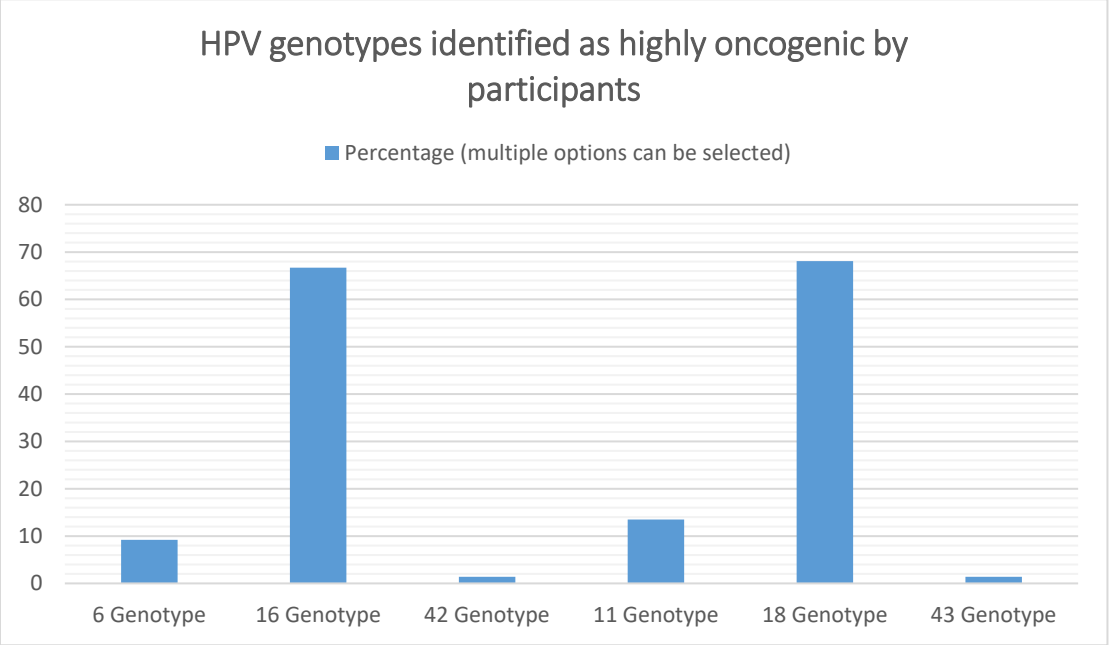

Figure 1: HPV genotypes identified as highly oncogenic by participants.

Table 1: Demographic data of the participating family physicians**.**

Item		N	%
Gender	Male	69	48.9%
	Female	72	51.1%
Nationality	Saudi	133	94.3%
	Non-Saudi	8	5.7%
Age	< 30 years	79	56.0%
	30–40 years	56	39.7%
	41–50 years	6	4.3%
Place of practice (multiple options can be selected)	City > 100,000 residents	94	66.7%
	City < 100,000 residents	32	22.7%
	Village	21	14.9%
	All of them	4	2.8%
Type of practice	Private practice	2	1.4%
	National healthcare practice (office)	105	74.5%
	National healthcare practice (hospital)	20	14.2%
	Both of national	12	8.5%
	All of the above	2	1.4%
Medical hierarchy	Resident	79	56.0%

	Specialist	51	36.2%
	Consultant	9	6.4%
	Senior register	1	0.7%
	Family medicine and palliative therapy	1	0.7%
Experience	< 5 years	92	65.2%
	5–10 years	36	25.5%
	11–20 years	13	9.2%

Table 2: Opinion of the family physicians towards HPV preventive vaccinations**.**

Item		**N**	**%**
Attitude to mandatory vaccinations	Supporter of vaccinations (mandatory)	109	77.3%
	Supporter of vaccinations (voluntarily)	31	22.0%
	I have no opinion	1	0.7%
Vaccinations SAFETY (10 POINTS SCALE)	Two	1	0.7%
	Five	4	2.8%
	Six	4	2.8%
	Seven	8	5.7%
	Eight	21	14.9%
	Nine	31	22.0%
	Ten	72	51.1%
Vaccinations EFFECTIVENESS (10 POINTS SCALE)	Three	1	0.7%
	Five	5	3.5%
	Six	4	2.8%
	Seven	11	7.8%
	Eight	26	18.4%
	Nine	25	17.7%
	Ten	69	48.9%

Table 3: Knowledge of the family physicians about HPV**.**

Item		N	%
Do you consider HPV vaccine as important?	Yes	134	95.0%
	No	7	5.0%
Discuss STDs with patients?	Yes	93	66.0%
	No	48	34.0%
Discuss HPV vaccination with patients?	Yes	95	67.4%
	No	46	32.6%
Lower age limit to propose a patient with HPV vaccination?	8-11	71	50.4%
	12-15	24	17.0%
	16-18	17	12.1%
	19-21	17	12.1%
	23-50	6	4.3%
	No limit	1	0.7%
	Don't know	5	3.5%
Upper age limit to propose a patient with HPV vaccination?	11-13	5	3.5%
	14-16	7	5.0%
	17-19	13	9.2%
	20-23	8	5.7%
	24-26	34	24.1%
	28-31	8	5.7%
	35-40	12	8.5%
	45-54	28	19.9%
	55-70	14	9.9%
	No limit	4	2.8%
	Don't know	8	5.7%
Propose HPV vaccine for sexually active patients?	Yes	104	73.8%
	No	37	26.2%
Propose HPV vaccine for post-ablation patients?	Yes	70	49.6%
	No	71	50.4%
Assessment of patients' HPV knowledge?	Satisfactory	20	14.2%
	Acceptable	25	17.7%
	Insufficient	72	51.1%
	Have no opinion	24	17.0%
Primary HPV vaccine dosing schedule?	1-dose	10	7.1%
	2-dose	82	58.2%
	3-dose	18	12.8%
	Don't use it	31	22.0%
Assessment of HPV vaccine availability?	All vaccine variants are available (2-, 4-, and 9-valent)	33	23.4%
	Only 2-valent and 4-valent vaccine variants are available	22	15.6%

	The HPV vaccine is very difficult to obtain	5	3.5%
	Have no opinion	81	57.4%
Should HPV vaccination be mandatory and reimbursed?	Yes, for both boys and girls	57	40.4%
	Yes, but only for girls	48	34.0%
	No	16	11.3%
	Have no opinion	20	14.2%
Do you think that HPV vaccination favors early sexual initiation?	Yes	83	58.9%
	No	58	41.1%
Vaccinations CONFIDENCE (10 POINTS SCALE)	Three	2	1.4%
	Four	8	5.7%
	Five	7	5.0%
	Six	6	4.3%
	Seven	16	11.3%
	Eight	25	17.7%
	Nine	26	18.4%
	Ten	51	36.2%

HPV; Human Papilloma Virus, STDs; Sexually Transmitted Diseases.

Table 4: Practice of the family physicians towards HPV preventive vaccinations**.**

Item		**N**	**%**
Do you order genotyping for HPV types 16 and 18?	Yes	42	29.8%
	No	99	70.2%
What types of HPV vaccines do you know? (multiple types could be reported)	Bi variant	29	20.6%
	Quadri variant	18	12.8%
	Nano-variant	12	8.5%
	All	70	49.6%
	Don’t know	18	12.8%

HPV; Human Papilloma Virus.

of physicians rated the effectiveness of the HPV vaccine as 10 out of 10. Similar to a previous Saudi study, physicians believe that the vaccine effectively decreases cervical cancer rates [11]. Sixty-six percent of family physicians discussed STDs with patients, and 67.4% of them discussed HPV vaccination with their parents, which is considered a high percentage that achieves the goal of any healthcare facility. The remaining doctors avoid talking about HPV with their patients because, in our conservative culture, it is viewed as an STD and is therefore considered a difficult matter [13]. Almost half of the physicians (49.6%) proposed the HPV vaccine to patients after cervical ablation. We believe that it is important to raise awareness regarding HPV vaccines after any cervical procedures done for any suspicious lesions. A previous study suggested that HPV vaccination after high-grade cervical intraepithelial neoplasia (CIN2-3) treatment is effective in preventing the recurrence of CIN2-3 [16]. In a US study, family doctors stated that they were more likely to advise girls than boys to receive the vaccination. However, our research demonstrates that HPV vaccinations are required for both boys and girls [15].

Conclusion

The findings of this study indicate that while healthcare professionals possess adequate knowledge, there is a need to enhance their understanding of fundamental concepts related to HPV, cervical screening, and vaccine efficacy. Although family physicians generally hold a positive view of the HPV vaccine and its acceptance, they do not actively promote vaccination programs among patients. To address this, health policymakers should prioritize implementing targeted training programs to expand healthcare professionals' knowledge and refine their practices. Such initiatives could enhance primary care providers' efforts in advocating for the HPV vaccine, ultimately raising patient awareness about the risks of HPV infection and the importance of preventive measures.

Study limitations: The response rate was comparatively low. This could be attributed to several factors, such as the survey's length, practitioners' limited knowledge about genital warts or cervical cancer, and their hectic schedules. The low response rate may limit the applicability of the results to all family physicians, although it does not affect the findings' internal validity. It's possible that the low response rate caused little non-response bias, as doctors generally have uniform opinions and actions. However, further research with larger samples of physicians from different regional areas and subspecialties is required.

Conflict of Interest

None

Funding

None

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