

Public acceptance of Human Papillomavirus (HPV) Vaccination in Saudi Arabia

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Abstract Objective: This study was carried out to evaluate the public acceptance to HPV vaccinations as a mean of preventing cervical cancer in various regions of Saudi Arabia. **Methods:** This study used data from a sample of 516 Saudi participants and was cross-sectional in nature. The participants filled out anonymous online surveys that were disseminated via Google Forms on several social media sites. **Results:** A total of 516 participants made up the sample for this study and 43.7% (n=225) of the participants showed high acceptance level of HPV vaccine. The results established statistically significant association between gender, education level, occupation with p-values<0.005 (0.023*, 0.003*and 0.001*) respectively and the level of acceptance of HPV vaccine. **Conclusion:** Overall, study revealed that 43.7% of the participants showed high acceptance level of HPV vaccine. The female participants were found to have higher acceptance levels of HPV vaccination than male respondents. The participants with the university degree and post-graduate degrees had higher acceptance levels of HPV vaccines than others who had lower education levels. A statistically significant association was revealed between gender, education level, occupation and the level of acceptance of HPV vaccine.

Key Words human papillomavirus, acceptance, vaccination, Saudi Arabia

1. Introduction

Saudi Arabia's Ministry of Health has approved and initiated the vaccination of females ages 11 and 12 against the human papillomavirus (HPV). People as young as nine years old can also receive the HPV vaccination. First of all A common sexually transmitted infection called the papillomavirus (HPV) has been linked to several cancers, including those of the cervical, anal, vaginal, and oropharyngeal regions [1]. Globally, cervical cancer is the fourth most frequent malignancy among women [2]. 358 new cases of cervical cancer, 179 fatalities from its complications, and 2 deaths from penis cancer were reported in Saudi Arabia in 2020. Furthermore, among the most prevalent cancers in Saudi Arabia, penile cancer comes in at number 35 and cervical cancer at number 8 [3]. Immunization, coupled with screening initiatives, offers a promising avenue for mitigating the burden of HPV-related diseases [1]. Given the efficacy and effectiveness of the HPV vaccine in preventing cancer,

prioritizing vaccination for girls aged 9 to 14 assumes heightened importance, aiming to provide optimal protection before potential exposure to the virus. [4], [5].

Public acceptance and decision-making are critical for the successful implementation of HPV vaccination programs for young girls [6]. Developing effective strategies to increase vaccination uptake rates requires an understanding of the factors that affect public acceptability. The acceptability of HPV vaccination by population is influenced by a number of variables. One important component is understanding HPV and the related risks. people who understand HPV and its effects are more likely to agree to vaccinate their children against the virus [7]. Consequently, determining the public levels of HPV knowledge and awareness will provide important information on their acceptance of the vaccine.

Public decision-making is also influenced by societal and cultural variables. The acceptability of vaccination by population can be influenced by cultural beliefs, attitudes about

immunization, and socioeconomic standards. It will be easier to develop methods to remove obstacles and boost vaccination adoption if these cultural and socioeconomic aspects unique to each community are understood [8].

The purpose of this study is to contribute to the existing literature on HPV vaccine acceptance. The results will help public health experts and healthcare practitioners create focused interventions and strategies to increase public acceptability and HPV vaccine uptake.

2. Methodology

A cross-sectional study was undertaken to evaluate the public acceptance to HPV vaccinations as a mean of preventing cervical cancer in various regions of Saudi Arabia. The research, conducted between June 2023 and September 2023, focused on individuals from Saudi Arabia who were 18 years old or older. The sample size of 516 was chosen using sample size computation, and an online questionnaire was randomly distributed across several social media sites. A closed-ended questionnaire on Google Forms were used to collect data, which included demographic information as well as level of acceptance of HPV vaccine. The online questionnaire was designed to ensure easy comprehension and accessibility for participants. Additionally, efforts were made to reach a diverse range of participants from different regions of Saudi Arabia to ensure a representative sample. The statistical analysis was conducted using SPSS 25. The ethics committee of the Majmaah University gave their approval with IRB No. MUREC-jun.19/COM-2023/23-10, and the participants gave their consents.

3. Result

The questionnaire was completed by a total of 516 individuals. Out of the total participants, 83.5% (n=431) were females, with 77.1% (n=398) of them being Saudi nationals. Most of participants, 78.3% (n=404), were aged between 18 and 25 years. 146 participants, accounting for 28.3% of the total, were from the central region. 285 participants (42.2%), had vocational school education. Meanwhile, 359 participants, representing 69.6% of the total, were students (Table 1).

22.1% (n=114) of the participants had daughters aged between 9-14 years; 5.4% (n=28) of them had their daughters vaccinated; 22.1% (n=114) of the participants cited cultural background as the impediment for accepting HPV vaccination. 66.5% (n=343) of the participants found it necessary to have HPV vaccine included in routine immunization program; Majority of the participants believed that the vaccines were safe 51.9% (n=268); effective 62.6% (n=323); prevent HPV infection 72.7% (n=375); Only 46.3% (n=239) of the participants were willing to have their children vaccinated; More than half 64.5% (n=333) of them acquired information about HPV from social media and internet. 30.8% (n=159) of the participants believed that vaccination is the best way to prevent their daughter from cervical cancer with 21.1%

(n=109) of them worried about HPV vaccine's side effects hence not willing to have them vaccinated.

Decision making process related to HPV vaccination presented in frequencies (n) and proportion (%)

The association between participant demographics, including gender, age, nationality, place of residence, education, occupation, and level of acceptance of HPV vaccine, is shown in Table 3 (below). The findings demonstrated a statistically significant correlation between the degree of acceptance of the HPV vaccine and gender, education level, and occupation, with p-values<0.005 (0.023*, 0.003*, and 0.001*), respectively. Nationality, age, housing location, and the degree of HPV vaccine acceptability were not statistically significantly correlated (p>0.005). The study's findings indicate that whereas 56.3% of respondents (n=291) had low acceptance of the HPV vaccine, 43.7% of respondents (n=225) had a high level of acceptability.

4. Discussion

The study aims to assess the public acceptance of HPV vaccination among population of the Saudi Arabia. The sample for the current study primarily consisted of participants aged 18-25 years, with a predominance of females, majority of them were residence of Central region with vocational education level.

The findings revealed that 43.7% (n=225) of the participants showed high acceptance level of HPV vaccine. The findings of the study were consistent with those of the cross-sectional study conducted by Tran et al. in Hanoi, Vietnam which found 37% acceptance level of HPV vaccine [9]. The findings of the current study showed a lower acceptance level compared to the study conducted by Hussein et al in Riyadh which revealed 63% acceptance level [8]. Additionally, a national wide study conducted by Sait (2009) in Saudi Arabia found a 55% acceptance level of HPV vaccine [10]. Furthermore, the study conducted by Farsi et al. in Saudi Arabia showed over 50% were willing of receiving HPV vaccination among Jeddah medical students [11]. In systematic review done by Zenobia et al which include 36 articles they found that most women had high intention to be vaccinated [12]. Another systematic review which include 53 studies shows variations in parental acceptance to vaccinate their children with percentage ranging from 67% to 86% [13] The result of both of these systematic review reveal higher acceptance level compared to our study. But the findings of systematic review conducted by Newman et al shows similar findings to our study which include 79 studies in which they found out that the mean parental acceptance is 41.5% [14].

The study showed that the female participants had higher acceptance levels of HPV vaccination than male respondents. This finding is going with the systematic review by Newman et al in which they have that female have higher acceptance level compared to male participants [15]. Additionally, participants with the university degree and post-graduate degrees had higher acceptance levels of HPV vaccines than others who had lower education levels. The findings mirror

Socio-demographic information	Category	Frequency and Proportion n (%)
Gender	Male	85 (16.5%)
	Female	431 (83.5%)
Nationality	Saudi	398 (77.1%)
	Non-Saudi	118(22.9%)
Age	18-25	404 (78.3%)
	25-30	37 (7.2%)
	30-40	42 (8.1%)
	40-50	25 (4.8%)
	More than 50	8 (1.6%)
Place of residence	Central	146 (28.3%)
	Eastern	97 (18.8%)
	Northern	49 (9.5%)
	Southern	97 (18.8%)
	Western	127(24.6%)
Education Level	Uneducated	2 (0.4%)
	Elementary School	3 (0.6%)
	Intermediate	11 (2.1%)
	High School	170 (32.9%)
	Vocational school	218 (42.2%)
	Diploma	20 (3.9%)
	Bachelor's degree	80 (15.5%)
	Post-graduation education	12 (2.4%)
Occupation	Healthcare professional	15 (2.9%)
	student	359 (69.6%)
	Unemployed	87 (16.9%)
	Other	55 (10.6%)

Table 1: Socio-demographic information of the Participants (N=516)

Questions	Categories	Frequency and Proportion n (%)
Do you have daughter between 9-14 of age?	Yes	114 (22.1%)
	No	402 (77.9%)
Has your daughter received the vaccine?	Yes	28 (5.4%)
	No	488 (94.6%)
Does having a cultural background influence your decision not to get vaccinated against HPV?	Yes	114 (22.1%)
	No	402 (77.9%)
Do you believe the HPV vaccine has to be a part of the regular immunisation programme administered by the health authorities?	Yes	343 (66.5%)
	No	173 (33.5%)
Do you think HPV vaccine is safe?	Yes	268 (51.9%)
	No	248 (48.1%)
Do you believe the HPV vaccine works?	Yes	323 (62.6%)
	No	193 (37.4%)
Do you believe that the HPV vaccination may stop cervical cancer?	Yes	272 (52.7%)
	No	244 (47.3%)
Do you also think that getting vaccinated can help avoid getting HPV?	Yes	375 (72.7%)
	No	141 (27.3%)
Are you willing to vaccinate your child with HPV vaccine?	Yes	239 (46.3%)
	No	277(53.7%)
If you don't have a daughter in the 9-14 age range, will you vaccinate her if you have one in the future?	Yes	326 (63.2%)
	No	190 (36.8%)
How can one learn more about HPV, cervical cancer, and the HPV vaccine?	Social media and internet	333 (64.5%)
	Public healthcare facilities	95 (18.4%)
	Families, Neighbors, and Friends	23 (4.5%)
	Health Professionals	65 (12.6%)
Who can influence your decision on HPV vaccination?	Health professionals	217 (42.1%)
	My partner	134 (26.0%)
	My child	32 (6.2%)
	Other member of families	107(20.7%)
	Others	26 (5.0%)
When can get vaccinated against HPV	9 Years and above	197 (38.2%)
	12Years and above	139 (26.9%)
	18Years and above	180 (34.9%)
Are you willing to vaccinate your child with HPV vaccine?	Yes	370 (71.7%)
	No	146 (28.3%)
If you are willing to vaccinate your child with HPV vaccine, what is your main reason?	HPV vaccine is the best way to prevent girls from cervical cancer	159 (30.8%)
	I believe HPV vaccine is important	156 (30.2%)
	I believe HPV vaccine is effective	46 (8.9%)
	Other reason	155 (30.0%)
What is the main reason you are unwilling to vaccinate your child with the HPV vaccine?	HPV infection is a sexually transmitted disease	46 (8.9%)
	Limited information about cervical cancer and HPV	73 (14.1%)
	Worried about HPV vaccine's side effects	109 (21.1%)
	Limited information about HPV vaccine	56 (10.9%)
	Not applicable because am willing to vaccinate	213 (41.3%)
Other reason	19 (3.7%)	

Table 2: Respondent's Decision-Making Process related to HPV Vaccination

Variables	Acceptance level		p value	
	Category	Low		High
Gender	Male	50 (58.6%)	35 (41.4%)	0.023*
	Female	216 (50.1%)	215 (49.9%)	
Nationality	Saudi	183 (45.9%)	215 (54.1%)	0.149
	Non-Saudi	68 (57.7%)	50 (42.3%)	
Age	18-25	219 (54.2%)	185 (45.8%)	0.306
	25-30	21 (57.6%)	16 (42.4%)	
	30-40	26 (60.8%)	16 (39.2%)	
	40-50	15 (58.2%)	10 (41.8%)	
	More than 50	5 (56.9%)	3 (43.1%)	
Place of residence	Central	87 (57.2%)	62 (42.8%)	0.210
	Eastern	58 (59.4%)	39 (40.6%)	
	Northern	29 (59.7%)	20 (40.3%)	
	Southern	57 (58.8%)	40 (41.2%)	
	Western	75 (59.1%)	52 (40.9%)	
Education level	Uneducated	1 (69.1%)	1 (30.9%)	0.003*
	Elementary school	2 (67.9%)	1 (32.1%)	
	Intermediate	7 (60.3%)	4 (39.7%)	
	High school	102 (59.8%)	68 (40.2%)	
	Vocational school	124 (56.9%)	94 (43.1%)	
	Diploma	11 (52.5%)	9 (47.5%)	
	Bachelor's degree	40 (50.1%)	40 (49.9%)	
	Post-graduate	5 (48.7%)	7 (51.3%)	
Occupation	Healthcare profession	6 (42.8%)	9 (57.2%)	0.001*
	Students	177 (49.3%)	182 (50.7%)	
	Unemployed	46 (52.7%)	41 (47.3%)	
	Others	33 (59.6%)	22 (40.4%)	

Table 3: The association between Socio-demographic information and Level of acceptance of HPV vaccine

the findings of the study conducted by Alhamlan et al in Saudi Arabia which found that individuals with higher levels of education were willing to accept HPV vaccination more easily than those with lower levels of education because they understood the health benefits of the vaccines [16]. Also another study have similar findings to our study which showed that those girls who are 11 years of school education have higher acceptance level compared to those with less than 11 years of school education [17]. Another study in concordance with our study found that girls with a high school diploma or higher had a higher rate of vaccine initiation compared to girls with a lower degree [18]. In terms of occupation, the findings revealed that healthcare professionals had higher acceptance levels of HPV vaccines than other professionals. The findings are in line with the findings of the study conducted by Al-Mandheel et al which noted that parents who were physicians and health practitioners had a high acceptance levels of vaccines and were able to persuade other participants on the need to take HPV vaccines as well as explaining to them the health benefit of using the vaccine [19]. Regarding barriers to getting vaccination, in our finding, the main reason found was concern about HPV vaccination safety, with 109 (21.1%) among participants. This finding is consistent with Loretta et al.'s findings in Manchester [20].

Such consistency underscores the need for enhanced educational initiatives and the dissemination of knowledge about vaccine safety, which could potentially improve vaccination uptake.

5. Conclusion

The study revealed that 43.7% (n=225) of the participants showed high acceptance level of HPV vaccine. The female participants were found to have higher acceptance levels of HPV vaccination than male respondents. The participants with the university degree and post-graduate degrees had higher acceptance levels of HPV vaccines than participants who had lower education levels. A statistically significant association was revealed between gender, education level, occupation and the level of acceptance of HPV vaccine.

Conflict of interest

The authors declare no conflict of interests. All authors read and approved final version of the paper.

Authors Contribution

All authors contributed equally in this paper.

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