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Knowledge and attitudes towards Human papilloma virus (HPV) and HPV-vaccine among Saudi women attending FMC

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ABSTRACT

Human papillomavirus (HPV) is associated with serious diseases including cervical cancer, oropharyngeal tumors, and warts. The current study aimed to assess the level of awareness, knowledge, and attitude toward HPV and HPV vaccine among Saudi Women in Tabuk City, Saudi Arabia. This cross-sectional study was conducted among 400 adult women attending a clinic in King Salman Military hospital in Tabuk City, Saudi Arabia. A simple random technique was used and a structured questionnaire dealing with the socio- demographic, awareness, knowledge, and attitudes towards HPV and HPV vaccine was used to interview the participants. All the participants signed a written informed consent and the Statistical Package for Social Sciences was used for data analysis. Participants (77.8% housewives and 70.3% had higher education), only 9.9% were aware of HPV, and 10.22% have heard about the vaccine, the knowledge regarding the mode of transmission and diagnosis was suboptimal (29.7%, and 59.5% respectively), 58% of women aged 18-25 years were willing to take the vaccine and 60.2% agreed to give the vaccine to their daughter. However, only 7.7% were performing Pap smears. No influence of sociodemographic factors on knowledge and attitude (P >0.05). Knowledge and attitude of Saudi women in Tabuk were suboptimal; intervention education programs to raise awareness are highly needed.

1. INTRODUCTION

Human papillomavirus (HPV) association with cervical cancer is well established, with accumulating evidence in non-melanomas skin cancer, and other head and neck cancer. HPV burden is rapidly growing despite the vaccine and oropharyngeal cancer due to the virus might outmoded cervical cancer in the coming decades [1]. Although, the main route of transmission is sexual, however, there is an increasing awareness about vertical and intimate contact transmission [2]. Cervical cancer is fourth cancer among women worldwide and the prevalence is reflected largely by the prevalence of HPV. The later rates varied widely depending on the access and quality of local service [3]. HPV vaccine showed a high safety profile regarding the serious and systemic side effects, however, its uptake is low and influenced by knowledge and attitude regarding the vaccine, community beliefs, geography, and professionals attitude [4], [5]. Recent

literature showed misinformation regarding the HPV vaccine by social media and is the main barrier to vaccine uptake [6]. In the Kingdom of Saudi Arabia, suboptimal knowledge about HPV was reported even among primary healthcare physicians, local literature indicated that 2.3% of the women in the general community setting harbor the infection at a given time, and the rate is on the rise [7]. Literature regarding this important health issue lack in Saudi Arabia, we found a study with a conclusion of poor knowledge regarding HPV and its vaccine even among University women. Thus, this study aimed to assess the level of awareness, knowledge, and attitude toward HPV and HPV vaccine among Saudi Women in Tabuk City, Saudi Arabia.

2. Subjects and Methods

2.1 Study design

Descriptive cross-sectional study

2.1 Study area and setting

This study was conducted at FMC in King Khalid part of King Salman Military hospital; one of main 3 tertiary care general hospitals in Tabuk city. Tabuk city is located 2200 feet above sea level and has a population of 534,893 (2010 census)

2.3 Population and sample

2.3.1 Target population

All Saudi women are aged 18-60 years attending the family medicine clinics at King Khalid Military hospital in Tabuk from May to June 2021.

2.3.2 Population selection criteria

The inclusion criteria for participants were:

(1) Women above 18 years old.
(2) Saudi women.

The exclusion criteria for participants were:

(1) Women below18 years old.
(2) Women are older than 60 years of age.
(3) Non-Saudi women.

2.4 Sample size

The sample size was calculated with the following formula:

$$n = \frac{Z\alpha^2 \text{ X } P \text{ X } Q}{D^2}$$

Where:

- n: Calculated sample size
- Zα: The z-value for the selected level of confidence (1-α) = 1.96.
- P: expected prevalence.
- P:28.9 [19]
- Q: (1 – P).

- D: The maximum acceptable error = 0.05.

The calculated minimum sample size is:

$$n = \frac{(1.96)^2 \text{ X } 28.9\text{X } 0.5}{(0.05)^2} = 336$$

The sample size was increased to 400 to compensate for the possible none or incomplete response.

2.5 Sampling Technique

All women aged 18-60 years who attended family medicine clinic (FMC) at King Khalid Military hospital in Tabuk throughout the period May to June 2021 were eligible. These clinics operated daily from 8 am to 4 pm. A systemic random sampling technique was applied daily to recruit participants. The daily no of patients was almost 300, so for 1 month, 6000 patients attended the clinic (20 working days). Twenty patients were recruited for the study daily. One every 15 patients were selected daily (300/15) = 20 patients per day. The first patient was selected through a simple random technique.

2.6 Data collection tools

Data were collected with a direct face-to-face interview. A detailed questionnaire was initially drafted and distributed to three consultants in obstetric gynecology and necessary amendments were done accordingly. Twenty women were interviewed during the piloting phase. The questionnaire is dealing with the socio-demographic, awareness, knowledge, and attitudes towards HPV and HPV vaccine.

If the respondent answered "No" to the first of these questions ("Have you heard of HPV?"), then the remaining HPV knowledge questions were not asked, attitudes to HPV and its vaccine were assessed using the 4 questions.

2.7 Data analysis

Collected data were entered, stored, and analyzed using the Statistical Package for Social Sciences (SPSS) version 22. Differences were tested using chi-square tests (χ^2). A p-value less than or equal to 0.05 was considered statistically significant. Regarding scoring of the13 knowledge questions, correct answers were assigned a score of "1" whereas incorrect and don`t know responses were assigned a score of "0". The total knowledge score and its percentage for each participant were computed. Participants who scored 50% or above were considered as having "adequate knowledge" whereas those who scored below 50% were considered as having "inadequate knowledge".

2.8 Ethical considerations

- Taking ethical approval from the research committee at the Saudi Commission for health specialties
- Taking ethical approval from the research committee at King Salman military hospital.
- All information was treated confidentially
- The consent form was taken verbally before participation in the study
- The participation was voluntary and acceptance any refusal or withdrawal from the research at any time, without giving any reason.

3. Results

The study included 374 adult females. Table 1 presents their socio-demographic characteristics. About 29.9% of them were aged between 18 and 25 years and 29.5% were between 31 and 40 years. Most of them

(73%) were married. Less than half of them (42%) were university graduates and above. Regarding job status, 77.8% were homemakers or not working whereas 15.2% were working. Husbands of 45.6% of them were secondary school graduated and the majority of them (78.4%) were militaries. Family income of more than half of them (52.7%) ranged between 5001 and 10000 SR/month.

Table 1: Sociodemographic characteristics of the participants (n=374).

	Categories	Number	Percentage
Age (years)	18-25	112	29.9
	26-30	101	27.0
	31-40	110	29.5
	41-50	43	11.5
	51-60	8	2.1
Marital status	Single	83	22.2
	Married	273	73.0
	Divorced	9	2.4
	Widowed	9	2.4
Educational level	Illiterate	21	5.6
	Read and write	15	4.0
	Primary	28	7.5
	Intermediate	47	12.6
	Secondary	106	28.3
	University/Above	157	42.0
Job-status	Housewife/not working	291	77.8
	Working	57	15.2
	Student	26	7.0
Husband`s educational level (n=287)	Illiterate	8	2.8
	Read and write	5	1.7
	Primary	22	7.7
	Intermediate	63	22.0
	Secondary	131	45.6
	University/Above	58	20.2
Husband`s job (n=287)	Military	225	78.4
	Employee	29	10.1
	Retired	25	8.7
	Not working	8	2.8
Family income (SR/month)	<5000	83	22.2
	5001-10000	197	52.7
	10001-15000	82	21.9
	>15000	12	3.2

3.1 Awareness about human papillomavirus

Figure 1 demonstrates that only 37 women (9.9%) were aware of the human papillomavirus. Of them, only 10 (27%) were aware of the anti-HPV vaccine as seen in figure 2. All women who were aware of the vaccine stated that it is effective; however, they did not take it.

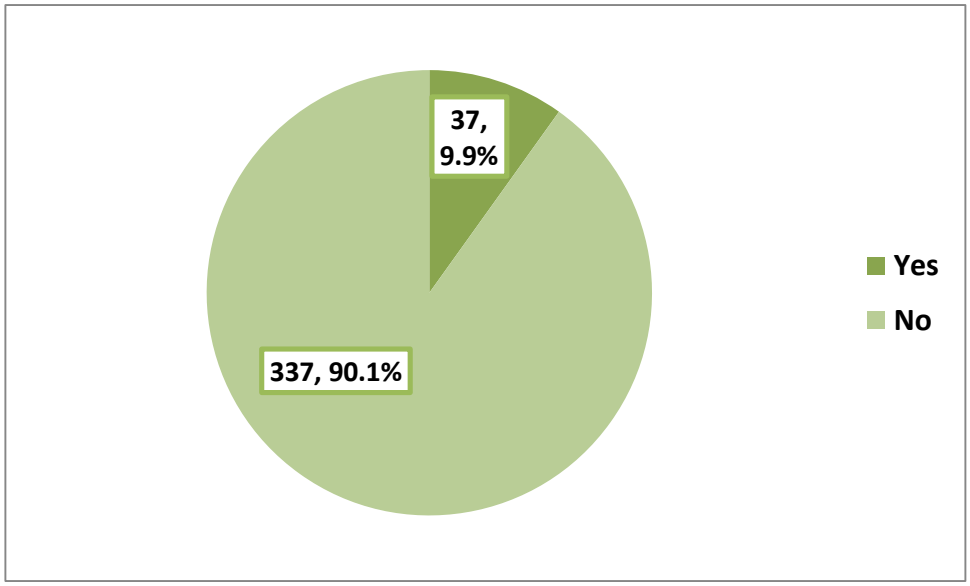

Figure 1: Awareness of the participants about human papillomavirus

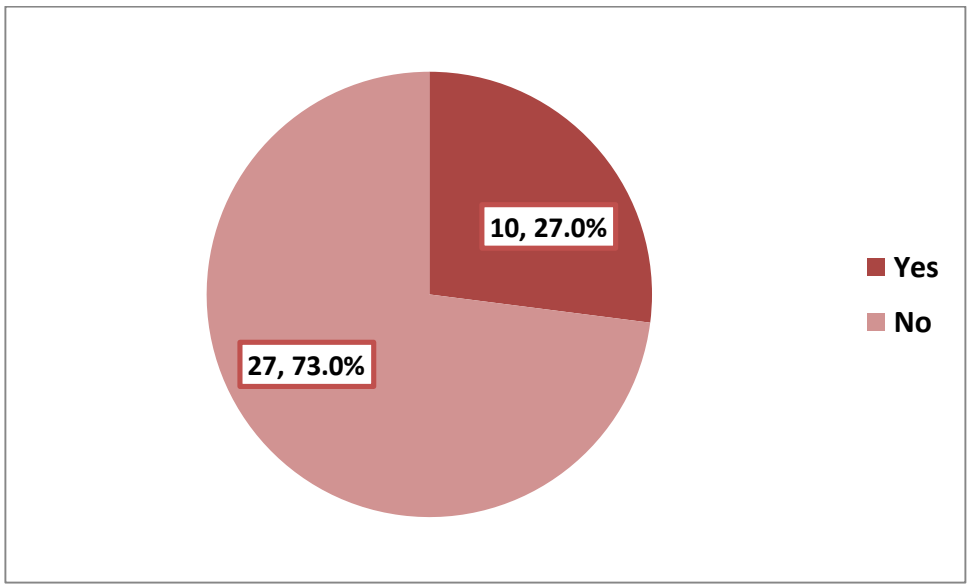

Figure 2: Awareness about anti-HPV vaccine among participants aware of HPV (n=37)

3.2 Knowledge about the Human papillomavirus

Table 2 summarizes the responses of the participants to knowledge questions about human papillomavirus and vaccine. Most of them (75.7%) knew correctly that HPV causes cancer cervix and the HPV vaccine protects against cervical cancer (73%). More than half of them (59.5%) recognized that it is possible to detect the HPV virus through Pap smear. Approaching half of them (48.6%) recognized that there is a vaccine against the HPV and there is a vaccine for HPV (47.2%). Only 16.2% of the women knew that HPV causes genital warts and 21.6% knew that the HPV vaccine can be given to girls 19 years onwards. A minority of them (5.4%) knew that the HPV vaccine is not available in the Ministry of health centers and private hospitals (10.8%) whereas 21.6% knew that the HPV vaccine is available at King Salman Military hospital.

Overall, adequate HPV knowledge was observed among 8 patients (21.6%) out of those aware of HPV. Figure 3

None of the studied socio-demographic variables (age, marital status, educational level, job status, income, husband`s job, and educational level) was significantly associated with knowledge regarding HPV among the participants as realized from table 3.

Table 2: Knowledge of the adult women about human papillomavirus (n=37)

Questions	Correct response	
	No.	%
Is HPV cause genital warts? (Yes)	6	16.2
Is HPV cause cancer cervix? (Yes)	28	75.7
Is HPV very common? (Yes)	10	27.0
Is HPV a sexually transmitted disease? (Yes)	11	29.7
Are most people with genital HPV-infection remains without symptoms for a long time? (Yes)	15	40.5
Is it possible to detect the HPV virus through a Pap smear? (Yes)	22	59.5
Is there a vaccine for HPV (Yes)	17	47.2
Is there a vaccine against HPV? (Yes)	18	48.6
Is the HPV vaccine protects against cervical cancer? (Yes)	27	73.0
Is the HPV vaccine protects against genital warts? (Yes)	15	40.5
Can HPV vaccine be given to girls 19 years onwards? (Yes)	8	21.6
Is the HPV vaccine available at King Salman Military hospital? (Yes)	8	21.6
Is the HPV vaccine available in the Ministry of health centers? (No)	2	5.4
Is the HPV vaccine available in private hospitals? (No)	4	10.8

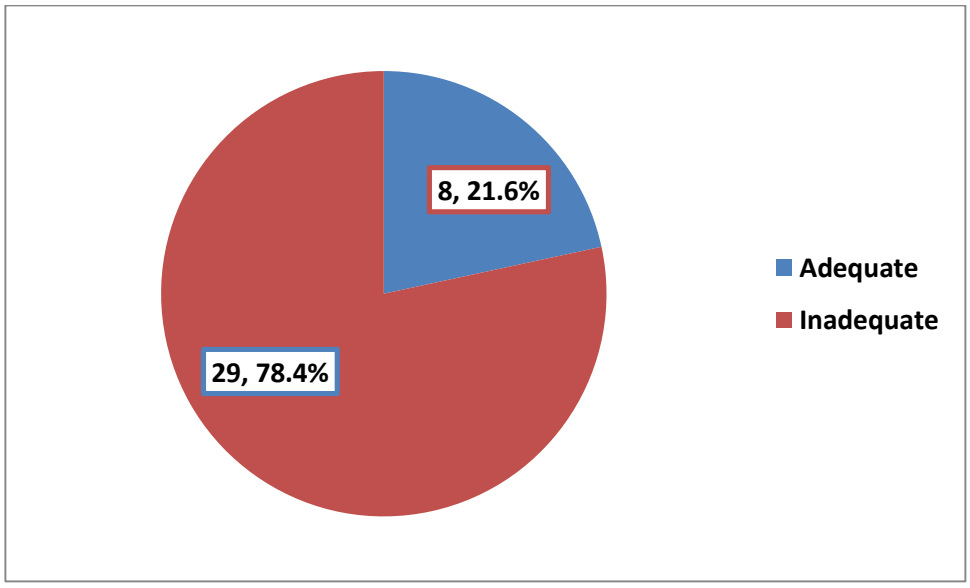

Figure 3: Knowledge level of the participants regarding HPV and HPV vaccine

Table 3: Factors associated with Knowledge of the adult women about human papillomavirus (n=37)

	HPV knowledge		**X^2-value**	**p-value**
	Inadequate N=29	**Adequate N=8**		

Age (years)				
18-25 (n=12)	11 (91.7)	1 (8.3)		
25-30 (n=13)	10 (76.9)	3 (23.1)		
>30 (n=12)	8 (66.7)	4 (33.3)	2.24	0.327
Marital status				
Single (n=12)	11 (91.7)	1 (8.3)		
Ever married (n=25)	18 (72.0)	7 (28.0)	0.177*	
Educational level				
Below University (n=9)	6 (66.7)	3 (33.3)		
University and above (n=28)	23 (82.1)	5 (17.9)	0.292*	
Job-status				
House wife/not working (n=21)	16 (76.2)	5 (23.8)		
Working/student (n=16)	13 (81.3)	3 (18.8)	0.517*	
Husband`s educational level				
Below University (n=7)	4 (57.1)	3 (42.9)		
University and above (n=30)	25 (83.3)	5 (16.7)	0.156*	
Husband`s job				
Military (n=18)	15 (83.3)	3 (16.7)		
Others (n=19)	14 (73.7)	5 (26.3)	0.379*	
Family income (SR/month)				
<5000 (n=7)	5 (71.4)	2 (28.6)		
5001-10000 (n=19)	14 (73.7)	5 (26.3)		
>10000 (n=11)	10 (90.9)	1 (9.1)	1.47	0.481

* Fischer Exact test

3.3 Attitude towards Human papillomavirus and vaccine

As shown in Table 4, the majority of the participants (93.9%) wanted to get more information about HPV and HPV vaccination. Among those aged between 18 and 25 years (n=112), 58% agreed to get the HPV vaccine whereas 24.1% needed more information about the vaccine. Among those who had daughters (n=274), 60.2% agreed to give HPV vaccine to their daughters. Regarding Pap smear, a minority of the participants (7.7%) reported performing Pap smear every 3 or 5 years.

Table 4: Attitude of adult Saudi women towards human papillomavirus and vaccination

Attitude questions	Number	percentage
Do you want to get more information about HPV and HPV vaccination? (n=374)		
Yes	351	93.9
No	23	6.1
Do you agree to get the HPV vaccine (Age from 18-25)? (n=112)		
Yes	65	58.0
No	20	17.9
Need more information about vaccine	27	24.1
Do you agree that your daughter gets the HPV vaccine? (n=274)		

Yes	165	60.2
No	30	11.0
Need more information about vaccine	79	28.8
Are you performing a Pap smear every three or five years? (n=274)		
Yes	21	7.7
No	253	92.3

3.4 Factors associated with Pap smear performance

None of the studied socio-demographic variables (age, educational level, job status, income, husband`s job, and educational level) and HPV awareness was significantly associated with performing pap smear at 3 or 5 years intervals among the participants as shown in table 5.

Table 5: Factors associated with performing pap smear among the participants (n=374)

	Pap smear performance		**X^2-value**	**p-value**
	Yes N=21	**No N=253**		
Age (years)				
18-25 (n=112)	9 (8.0)	103 (92.0)		
25-30 (n=101)	2 (2.0)	99 (98.0)		
>30 (n=161)	10 (6.2)	151 (93.8)	3.86	0.145
Educational level				
Below University (n=157)	7 (4.5)	150 (95.5)		
University and above (n=217)	14 (6.5)	203 (93.5)	0.68	0.409
Job status				
House wife/not working (n=291)	15 (5.2)	276 (94.8)		
Working/student (n=83)	6 (7.2)	77 (92.8)	0.52	0.469
Husband`s educational level				
Below University (n=55)	2 (3.6)	53 (96.4)		
University and above (n=319)	19 (6.0)	300 (94.0)	0.378*	
Husband`s job (n=287)				
Military (n=225)	12 (5.3)	213 (94.7)		
Others (n=149)	9 (6.0)	140 (94.0)	0.09	0.771
Family income (SR/month)				
<<5000 (n=83)	5 (6.0)	78 (94.0)		
5001-10000 (n=197)	11 (5.6)	186 (94.4)		
10001-15000 (n=82)	4 (4.9)	78 (95.1)		
>15000 (n=12)	1 (8.3)	11 (91.7	0.28	0.964
HPV awareness				
Yes (n=37)	3 (8.1)	34 (91.9)		
No (n=337)	18 (5.3)	319 (94.7)	0.345*	

* Fischer Exact test

3.5 Readiness to have human papillomavirus among vaccine women aged 18-25 years

As displayed in table 6, none of the studied socio-demographic variables (age, marital status, educational

level, job status, income, husband`s job, and educational level) was significantly associated with the readiness of women aged 18-25 years to have human papillomavirus vaccine.

Table 6: Factors associated with readiness to have human papillomavirus vaccine among women aged 18-25 years (n=112)

	Readiness to have HPV vaccine			X^2 (p-value)
	Yes N=65	No N=20	Need more information N=27	
Marital status				
Single (n=67)	40 (59.7)	12 (17.9)	15 (22.4)	
Ever married (n=45)	25 (55.6)	8 (17.8)	12 (26.7)	0.28 (0.867)
Educational level				
Below University (n=52)	31 (59.6)	6 (11.5)	15 (28.8)	
University and above (n=60)	34 (56.7)	14 (23.3)	12 (20.0)	3.12 (0.211)
Job status				
House wife/not working (n=83)	45 (54.2)	17 (20.5)	21 (25.3)	
Working/student (n=29)	20 (69.0)	3 (10.3)	6 (20.7)	2.23 (0.328)
Husband`s educational level*				
Below University (n=34)	19 (55.9)	7 (20.6)	8 (23.5)	
University and above (n=15)	8 (53.3)	1 (6.7)	6 (40.0)	2.24 (0.327)
Husband`s job*				
Military (n=40)	21 (52.5)	8 (20.0)	11 (27.5)	
Others (n=9)	6 (66.7)	0 (0.0)	3 (33.3)	2.16 (0.340)
Family income (SR/month)				
<5000 (n=27)	15 (55.6)	7 (25.9)	5 (18.5)	
5001-10000 (n=59)	37 (62.7)	10 (16.9)	12 (20.3)	
>10000 (n=26)	13 (50.0)	3 (11.5)	10 (38.5)	5.05(0.282)

4. Discussion

In the present study, only a minority (9.9%) have heard about HPV in similarity to a study conducted in Bahrain and the United Arab Emirate (UAE) and showed that only 13.5% and 29% of females were aware of the virus respectively [8], [9], studied from China showed that 42.3% had heard about HPV [10]. The knowledge regarding the vaccine is not better as only 27% of those who have heard about the virus were aware of the vaccine compared to women from China (21%) and UAE (22%). It is interesting to note that 75% of our sample knew that HPV is associated with cervical cancer similar to their counterparts from UAE. In the current study sociodemographic data were not reflected on knowledge and attitude towards HPV in contradiction to a study from UAE, which showed an association of knowledge with age and the husband's level of education. Regarding the mode of transmission, only one in three recognized that HPV is a sexually transmitted disease and can be detected with Pap Smear in similarity to a study from South Africa in which only 2.2% were aware of the mode of transmission [11]. The knowledge regarding eligibility for vaccination is better than women from South Africa (21.6% versus 5.7%). The above results imply that the lack of knowledge is the lack of health education because the availability of HPV vaccine is only conveyed to a minority of women (5.4% to 21.6%). Further effort is needed by healthcare providers and physicians regarding the implementation of strategies to increase awareness about the virus. The cultural concerns reported as barriers to screening and vaccination and the poor knowledge of healthcare providers regarding cervical cancer prevention might be plausible explanations [12].

Regarding the attitude towards vaccination, nearly two-thirds were willing to take the vaccine and give it to their daughters supporting a previous finding published in Riyadh, Saudi Arabia who reported that 64.3% were willing to take the vaccine [13]. The current findings were similar to a study from Australia [14]. The current findings of a low cervical cancer screening are in line with a previous observation [15].

The study limitations were the relatively small sample size and being a one City survey. So, generalization to the whole Kingdom of Saudi Arabia cannot be insured.

5. Conclusion

Knowledge about HPV was suboptimal among Saudi Women in Tabuk City, Saudi Arabia, however, the attitude is encoring, intervention to increase the knowledge about HPV, its transmission, vaccine, and risks are highly needed.

Conflicts of interest: None to declare

Funds: Self-funded.

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