

The awareness of the HPV's association with cervical cancer and the HPV vaccine among Saudi females

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Abstract: Introduction: Cytological screening, the Papanicolaou smear (Pap smear) has been one of the most successful public health measures available for cancer screening and prevention. The aim of our study was to assess the knowledge and the attitude toward the cervical cancer screening (the Pap smear) among women in Saudi Arabia. **Methodology:** a cross-sectional study, self-administered questionnaires were sent out to school teachers, relative, friends between the period November to December 2011, a random sample of 1023 women most of them aged between 16 and 45 years old were recruited. **Result:** We found 37% of the population never heard about the Pap smear test, and of those who heard about the test; 36% knew through the media. The majority of the married population (95%) does not perform the Pap smear test regularly and most of them never had PAP smear done. The main reason for not having a Pap smear was the lack of awareness. **Conclusion:** There is a need to educate and promote awareness of cervical cancer in this population in a different ways including the media, medical educational campaigns, brochures...etc. [Abdulrahim Gari; Ahmed Asiri; Amr Mohammed; Fahad Al-Malki; Mohammad Melibari; Mohammed AlSheikh; Moayad Kalantan; Nader Al Qethami; Shaddy Futtiny; Sultan Al-Essi; Yasser Al Shomrany and Ziyad Alihiby. **The awareness of the HPV's association with cervical cancer and the HPV vaccine among Saudi females.** *Life Sci J* 2012;9(3):2538-2546]. (ISSN: 1097-8135). <http://www.lifesciencesite.com>. 369

Keywords: Human papillomavirus, HPV, Adult vaccination, Cervical cancer, HPV Vaccine

1. Introduction

Cervical cancer is one of the commonest cancer affecting women [9], it is considered the third most common cause of cancer related death among female population [10]. Over 500,000 new cases are diagnosed each year. Approximately 80 percent of cervical cancer cases occur in low-income countries where it is the most common form of cancer [14]. The association between cervical cancer and Human Papilloma virus (HPV) has been clearly documented [11]. Since most of the cases are attributed to HPV, prevention of this infection means the prevention of cervical cancer, which was already confirmed by the introduction of HPV vaccine [12]. Recently, the HPV vaccine in Saudi Arabia has been available but the awareness of its availability, importance and administration remains poor [13]. The human papilloma virus (HPV) vaccine prevents infection with certain strains of the virus associated with cervical cancer, genitalwarts and some less common cancers [15]. Two HPV vaccines are currently on the market: the bivalent and quadrivalent [15].

Both vaccines protect against the oncogenic strains (HPV-16 and HPV-18) that cause 70% of cervical cancers, 80% of anal cancers, 60% of vaginal cancers and 40% of vulvar cancers [15]. These HPV types also cause most HPV induced oral cancers and some other rare genital cancers [15]. The Quadrivalent vaccine also protects against (HPV-6 and HPV-11) that cause 90% of genital warts[15].

2. Methodology:

This is a cross-sectional study. One thousand and twenty three randomly chosen women were included in the study, excluding those who are involved in the medical field. Using self-administered questionnaires, that were sent out to school teachers, relative and friends.

The phase of "data collection" was between the first of November and the 7th of December.

Data analysis done by using the SPSS program in particular (chi square), statistical significance is considered if the p value is <0.05 .

3. Results:

One thousand and twenty three females in the western region where included in the study.

Almost half of our study population aged between 26-45 years which represented (50.9 %), those who aged between 16-25 years represented (38.8%) of the study population followed by those aged 45 years and older which represented (9.5%). The minority aged 15 years or less which represented only (0.8 %) of the study group. (Figure. 1).

Those who were married represented (62%) of the study population, while (38%) were single.(Figure. 2). Among the married women; 27.1% have been married for less than 5 years, 20.2% have been married for a period ranges between 6 to 10 years and 20.2% have been married for a period ranges between 11 to 15 years. Only 16.5% married for a period between 16 to 20 years and 21.4% were married for more than 20 years. (Table1). We found that there is no statistical significant relationship between "marital status " and " awareness of HPV vaccine" (P -value = 0.954).

Only 1.5% of the population are illiterate and 41.5% of the population were at the elementary to high school level. The university graduates represented 57% of the study population. (Graph.3).

We found that only 13.4% of study populations are smokers while 86.6% are nonsmokers. (Table. 2).

The majority of the population represented by 84.6% did not know about Human Papilloma Virus and only 15.4% did know about it. (Graph. 4). There is no statistical significant relationship between "educational background" and "awareness of the HPV vaccine " (P -value = .661).

Up on asking the women about their reproductive organs; only 34.8% of them knew the exact location of the cervix (Figure. 5). The majority did not know the association between the HPV and Cervical Cancer which is represented by 82.2% and only 17.8% of the women knew the association. (Graph.6).

among the study group; 5.8% have a family member diagnosed with cervical cancer, while 94.2% don't have a family member diagnosed with cervical cancer. (Table. 3). There is statistical significant relationship between " awareness of the vaccine " and "family history of cervical cancer" (P -value = 0.001).

Almost half of the women have no idea about the prevalence of cervical cancer in our community and they represented 56.1% while only 16.9% think that cervical cancer isn't prevalent, however 26% of the study group thinks it is prevalent. (Table. 4). Only 20.8% of the study group did know the existence of the HPV vaccine, of which 1% was illiterates, 43.8% have a general education and 55.3% have Bachelor degree or Higher. (Table. 9). Most of those knew about HPV vaccine through the Media (38%). (Table. 5). However only 1.4% of the study group received the vaccine. (Table. 6). Seventy six percent of the females who think that cervical cancer is prevalent in the Kingdom are willing to receive the vaccine. Among women with family history of cervical cancer; 37.3% know about the presence of HPV vaccine. (Table. 12). Most of the study group are willing to receive the vaccine (63.3%) while the reminder (36.7%) aren't willing to receive it. (Graph.8). Knowing the association between the HPV and cervical cancer did not change the acceptability of the vaccine (62.7% vs 66.9%) (Table.13). Women who believe that cervical cancer is common are willing to get the vaccine more than others. (P -value = 0.001), it was also applicable on women who knew the association between the HPV and cervical cancer.

There were different reasons not to receive the vaccine (Graph. 9), that included; Lack of knowledge (43.6%), fear of side effect (29.7%), lack of trust (11.9%), thinking it is not important (8.2%), costs (2.9%), other reasons (4%). About a quarter (24.3%) of our population have some hesitation to recommend the

vaccine to a family member, but still most of them do recommend the vaccine to the other (63.2%), however only 12.5% of them don't recommend it to others. (Graph. 10).

4. Discussion:

Cervical cancer is a preventable disease and the corner stone of prevention (primary prevention) is the HPV vaccine, however only 1.5% of the study population were vaccinated. This low percentage of vaccinated women is mostly due to low level of awareness about the presence of such a vaccine; we found that; only 20.8% of the study group has heard about it. Which can be attributed to low level of Knowledge about the virus itself, since only 15.4% of the population Knew about the virus. The same number was found by a study conducted by **Saitet al.** in study conducted in Jeddah –Saudi Arabia. They found only 9.8% of the population have heard about the vaccine [6]. A higher level of awareness was reported in a study conducted by **Mareket al.** in Hungary; they reported that, 35% of the population have heard about the vaccine [4]. **Ford et al.** conducted a study in Ohio-USA in 2011, the level of awareness of HPV infection and the vaccine among Hispanic and non-Hispanic women was high, it was 90% and 80% respectively, however; the HPV vaccination rates were low among this national population of young adult women.[7]. In 2007; **Jain et al.** conducted a study on the awareness of human papillomavirus (HPV) and HPV vaccine among women in the united states, he reported in his study the level of awareness of HPV was (84.3%) and (78.9%) of HPV vaccine. [8]

In our study; neither the marital status nor educational levels have any effect on the level of awareness. This point was not addressed in other studies. As expected a diagnosis of cervical cancer in a family member apparently will increase the level of awareness and this is common in most the cancers. **Durusoyet al.** Confirmed that in his study conducted in Turkey, genital cancer history in the family significantly increased the awareness [5]. The most common tools through which females in our study knew about the HPV vaccine was the newspapers (20.8%), however the minority heard about it through their physician (13.2%). **Marek et al.** found that the majority of his study population knew about the vaccine through school health and health professionals [4]. Lack of knowledge about reproductive anatomy might point to a problem in our educational curricula that needs more attention and this is never been addressed before in studies conducted in the developed world since they do not face such a problem. Most of the study population are willing to receive the vaccine (63%).

Table 1

| SINCE HOW LONG HAVE YOU BEEN MARRIED | | | | | |
|--------------------------------------|-------------------------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Less than 5 years | 140 | 13.7 | 21.7 | 21.7 |
| | Between (6 – 10) years | 130 | 12.7 | 20.2 | 41.9 |
| | Between (11 – 15) years | 130 | 12.7 | 20.2 | 62.1 |
| | Between (16 – 20) years | 106 | 10.4 | 16.5 | 78.6 |
| | Over 20 Years | 138 | 13.5 | 21.4 | 100.0 |
| | Total | 644 | 63.0 | 100.0 | |
| Missing | 6 | 379 | 37.0 | | |
| | Total | 1023 | 100.0 | | |

Table 2

| HAVE YOU EVER BEEN CONSIDERED AS A SMOKER IN YOUR LIFE (CIGARETTE, SHISHA, HUBLY BUBLY) | | | | | |
|--|-------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Yes | 135 | 13.2 | 13.4 | 13.4 |
| | No | 870 | 85.0 | 86.6 | 100.0 |
| | Total | 1005 | 98.2 | 100.0 | |
| Missing | 3 | 18 | 1.8 | | |
| | Total | 1023 | 100.0 | | |

Table 3

| DO YOU HAVE ANY OF YOUR FAMILY MEMBER WAS DIAGNOSED WITH A CERVICAL CANCER | | | | | |
|--|-------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Yes | 59 | 5.8 | 5.8 | 5.8 |
| | No | 955 | 93.4 | 94.2 | 100.0 |
| | Total | 1014 | 99.1 | 100.0 | |
| Missing | 3 | 9 | .9 | | |
| | Total | 1023 | 100.0 | | |

Table 4

| DO YOU THINK THAT CERVICAL CANCER IS WIDELY PREVALENT OVER THE KINGDOM | | | | | |
|--|----------------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Yes | 266 | 26.0 | 26.3 | 26.3 |
| | No | 173 | 16.9 | 17.1 | 43.3 |
| | I have no idea | 574 | 56.1 | 56.7 | 100.0 |
| | Total | 1013 | 99.0 | 100.0 | |
| Missing | 4 | 10 | 1.0 | | |
| | Total | 1023 | 100.0 | | |

Table 5

| IF YOU ANSWERED "YES", WHERE DID YOU HEAR ABOUT IT | | | | | |
|--|-------------------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Your Physician | 33 | 3.2 | 13.2 | 13.2 |
| | Through the Media | 95 | 9.3 | 38.0 | 51.2 |
| | Relative | 43 | 4.2 | 17.2 | 68.4 |
| | Papers | 52 | 5.1 | 20.8 | 89.2 |
| | Others | 27 | 2.6 | 10.8 | 100.0 |
| | Total | 250 | 24.4 | 100.0 | |
| Missing | 6 | 773 | 75.6 | | |
| Total | | 1023 | 100.0 | | |

Table 6

| HAVE YOU EVER BEEN VACCINATED BEFORE | | | | | |
|--------------------------------------|------------------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Yes | 14 | 1.4 | 1.5 | 1.5 |
| | No | 914 | 89.3 | 95.0 | 96.5 |
| | I don't remember | 34 | 3.3 | 3.5 | 100.0 |
| | Total | 962 | 94.0 | 100.0 | |
| Missing | 4 | 61 | 6.0 | | |
| Total | | 1023 | 100.0 | | |

Table 7

| IF YOU ANSWERED "YES" , WHICH TYPE OF VACCINE DID YOU TAKE ? | | | | | |
|--|------------------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Divalent | 7 | .7 | 5.5 | 5.5 |
| | Quadrivalent | 6 | .6 | 4.7 | 10.2 |
| | I don't remember | 115 | 11.2 | 89.8 | 100.0 |
| | Total | 128 | 12.5 | 100.0 | |
| Missing | | 895 | 87.5 | | |
| Total | | 1023 | 100.0 | | |

Table 8

| ARE YOU MARRIED (OR PREVIOUSLY MARRIED) * DO YOU KNOW THAT THERE IS A VACCINE AGAINST "HPV RELATED CERVICAL CANCER" CROSSTABULATION | | | | | |
|---|-----|--|---|-------|--------|
| | | | Do you know that there is a vaccine against "HPV related cervical cancer" | | Total |
| | | | Yes | No | |
| Are you married (or previously married) | Yes | Count | 128 | 489 | 617 |
| | | % within Are you married (or previously married) | 20.7% | 79.3% | 100.0% |
| | No | Count | 79 | 299 | 378 |
| | | % within Are you married (or previously married) | 20.9% | 79.1% | 100.0% |
| Total | | Count | 207 | 788 | 995 |
| | | % within Are you married (or previously married) | 20.8% | 79.2% | 100.0% |

Table 9

| EDUCATIONAL BACKGROUND * DO YOU KNOW THAT THERE IS A VACCINE AGAINST "HPV RELATED CERVICAL CANCER" CROSSTABULATION | | | | | |
|---|--|---|--|---------------|---------------|
| | | | Do you know that there is a vaccine against "HPV related cervical cancer" | | Total |
| | | | Yes | No | |
| Educational background | Illiterate | Count | 2 | 12 | 14 |
| | | % within Do you know that there is a vaccine against "HPV related cervical cancer" | 1.0% | 1.5% | 1.4% |
| | B)General Education (Elementary, Intermediate, or Secondary) | Count | 91 | 323 | 414 |
| | | % within Do you know that there is a vaccine against "HPV related cervical cancer" | 43.8% | 40.9% | 41.5% |
| | Bachelor degree or Higher | Count | 115 | 454 | 569 |
| | | % within Do you know that there is a vaccine against "HPV related cervical cancer" | 55.3% | 57.5% | 57.1% |
| Total | | Count | 208 | 789 | 997 |
| | | % within Do you know that there is a vaccine against "HPV related cervical cancer" | 100.0% | 100.0% | 100.0% |

Table 10

| DO YOU KNOW THAT HUMAN PAPILOMA VIRUS CAN CAUSE MORE THAN 99% OF CERVICAL CANCER? * DO YOU KNOW THAT THERE IS A VACCINE AGAINST "HPV RELATED CERVICAL CANCER" CROSSTABULATION | | | | | | |
|--|--------------|--|--|--------------|---------------|---------------|
| | | | Do you know that there is a vaccine against "HPV related cervical cancer" | | Total | |
| | | | Yes | No | | |
| Do you know that Human Papilloma Virus can cause more than 99% of cervical cancer? | Yes | Count | 76 | 100 | 176 | |
| | | % within Do you know that Human Papilloma Virus can cause more than 99% of cervical cancer? | 43.2% | 56.8% | 100.0% | |
| | No | Count | 131 | 694 | 825 | |
| | | % within Do you know that Human Papilloma Virus can cause more than 99% of cervical cancer? | 15.9% | 84.1% | 100.0% | |
| | Total | | Count | 207 | 794 | 1001 |
| | | | % within Do you know that Human Papilloma Virus can cause more than 99% of cervical cancer? | 20.7% | 79.3% | 100.0% |

Table 11

| DO YOU THINK THAT CERVICAL CANCER IS WIDELY PREVALENT OVER THE KINGDOM * DO YOU KNOW THAT THERE IS A VACCINE AGAINST "HPV RELATED CERVICAL CANCER" CROSSTABULATION | | | | | |
|---|---|---|---|--------|--------|
| | | | Do you know that there is a vaccine against "HPV related cervical cancer" | | Total |
| | | | Yes | No | |
| Do you think that Cervical cancer is widely prevalent over the Kingdom | Yes | Count | 90 | 174 | 264 |
| | | % within Do you think that Cervical cancer is widely prevalent over the Kingdom | 34.1% | 65.9% | 100.0% |
| | No | Count | 34 | 135 | 169 |
| | | % within Do you think that Cervical cancer is widely prevalent over the Kingdom | 20.1% | 79.9% | 100.0% |
| | I have no idea | Count | 82 | 490 | 572 |
| | | % within Do you think that Cervical cancer is widely prevalent over the Kingdom | 14.3% | 85.7% | 100.0% |
| Total | Count | 206 | 799 | 1005 | |
| | % within Do you think that Cervical cancer is widely prevalent over the Kingdom | 20.5% | 79.5% | 100.0% | |

Table12

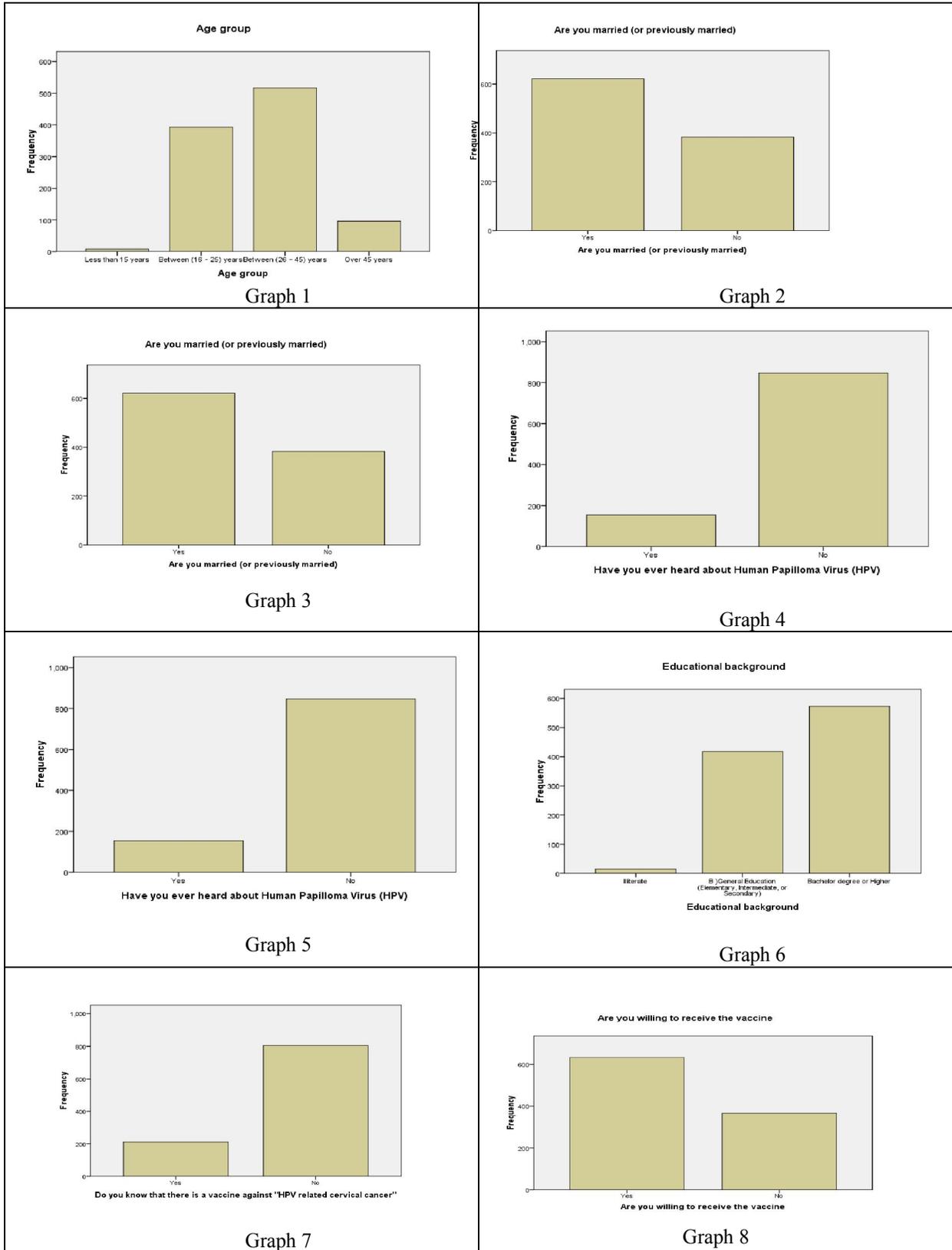
| DO YOU HAVE ANY OF YOUR FAMILY MEMBER WAS DIAGNOSED WITH A CERVICAL CANCER * DO YOU KNOW THAT THERE IS A VACCINE AGAINST "HPV RELATED CERVICAL CANCER" CROSSTABULATION | | | | | |
|---|---|---|---|--------|--------|
| | | | Do you know that there is a vaccine against "HPV related cervical cancer" | | Total |
| | | | Yes | No | |
| Do you have any of your family member was diagnosed with a Cervical Cancer | Yes | Count | 22 | 37 | 59 |
| | | % within Do you have any of your family member was diagnosed with a Cervical Cancer | 37.3% | 62.7% | 100.0% |
| | No | Count | 185 | 764 | 949 |
| | | % within Do you have any of your family member was diagnosed with a Cervical Cancer | 19.5% | 80.5% | 100.0% |
| Total | Count | 207 | 801 | 1008 | |
| | % within Do you have any of your family member was diagnosed with a Cervical Cancer | 20.5% | 79.5% | 100.0% | |

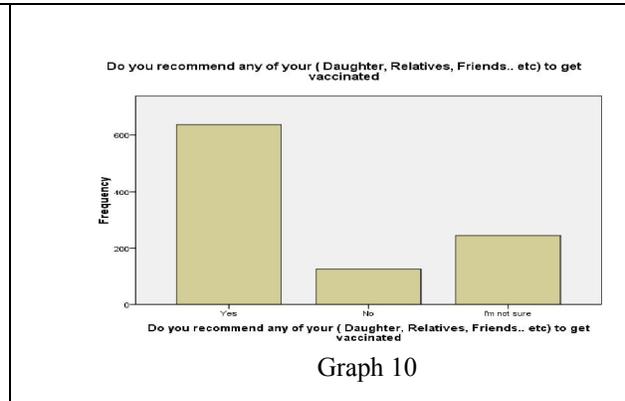
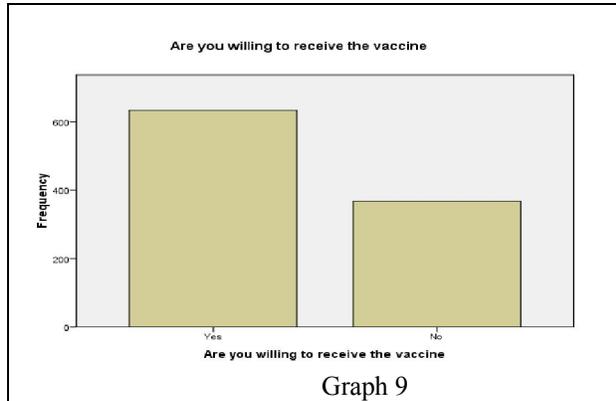
Table 13

| DO YOU THINK THAT CERVICAL CANCER IS WIDELY PREVALENT OVER THE KINGDOM * ARE YOU WILLING TO RECEIVE THE VACCINE CROSSTABULATION | | | | | |
|--|---|---|--|--------|--------|
| | | | Are you willing to receive the vaccine | | Total |
| | | | Yes | No | |
| Do you think that Cervical cancer is widely prevalent over the Kingdom | Yes | Count | 200 | 62 | 262 |
| | | % within Do you think that Cervical cancer is widely prevalent over the Kingdom | 76.3% | 23.7% | 100.0% |
| | No | Count | 106 | 61 | 167 |
| | | % within Do you think that Cervical cancer is widely prevalent over the Kingdom | 63.5% | 36.5% | 100.0% |
| | I have no idea | Count | 324 | 240 | 564 |
| | | % within Do you think that Cervical cancer is widely prevalent over the Kingdom | 57.4% | 42.6% | 100.0% |
| Total | Count | 630 | 363 | 993 | |
| | % within Do you think that Cervical cancer is widely prevalent over the Kingdom | 63.4% | 36.6% | 100.0% | |

Table 14

| DO YOU KNOW THAT HUMAN PAPILLOMA VIRUS CAN CAUSE MORE THAN 99% OF CERVICAL CANCER? * ARE YOU WILLING TO RECEIVE THE VACCINE CROSSTABULATION | | | | | |
|--|---|---|--|--------|--------|
| | | | Are you willing to receive the vaccine | | Total |
| | | | Yes | No | |
| Do you know that Human Papilloma Virus can cause more than 99% of cervical cancer? | Yes | Count | 117 | 58 | 175 |
| | | % within Do you know that Human Papilloma Virus can cause more than 99% of cervical cancer? | 66.9% | 33.1% | 100.0% |
| | No | Count | 510 | 303 | 813 |
| | | % within Do you know that Human Papilloma Virus can cause more than 99% of cervical cancer? | 62.7% | 37.3% | 100.0% |
| Total | Count | 627 | 361 | 988 | |
| | % within Do you know that Human Papilloma Virus can cause more than 99% of cervical cancer? | 63.5% | 36.5% | 100.0% | |





The more the awareness of the prevalence of cervical cancer, the more they are willing to receive the vaccine. The cost might be a major factor in the vaccination process; In Hungary Marek E et al. found that; if the vaccine was available free of charge, almost 80% of respondents would request it, but in case they had to pay for it, this number would significantly decrease[4]. The cost was not the main reason for low vaccination rate, only 3% did not take it because of the cost but the low vaccination rate was mainly because of the lack of knowledge followed by worries about the side effect.

Conclusion:

The level of awareness about HPV, its association with cervical cancer, and HPV vaccine in the kingdom is very low compared to the developed countries. Further researches exploring the HPV awareness and vaccination barriers across our population are needed. Educational campaign regarding HPV, its association with cervical cancer, and HPV vaccine should be established.

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