

**KNOWLEDGE AND ATTITUDE TOWARDS HUMAN PAPILLOMA VIRUS INFECTION
AMONG HEALTH CARE PROFESSIONALS IN MUSCAT, OMAN.****Prof. Mullaicharam Bhupathyraaj*, Mohammed Ashraf Moawad Taha**

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ABSTRACT

Human papillomavirus (HPV) is the commonest sexually transmitted virus worldwide, with first infection typically occurring soon after sexual debut. HPV-related diseases cause substantial morbidity and mortality globally. **Research Objectives:** The objective of this study is to determine the knowledge, and attitudes, towards human papilloma virus among health care professionals in Muscat, Oman which can be utilized to plan the education and awareness strategies for them. **Purpose:** In general, medical, Nursing and Pharmacy professionals are expected to have more awareness about diseases related to human papilloma virus. In level of education, people with higher degrees are expected to have more awareness about human papilloma virus vaccination also. **Conclusion:** Therefore, the survey analysis confirm that there is a significant need for the implementation of educational campaigns and programs directed towards women in the general population as well as healthcare workers as an attempt to improve awareness and enhance the attitude towards cervical screening tests and vaccination. This pilot study could be useful to address the priority of action to be taken to eradicate these diseases from Oman.

KEYWORDS: The human papillomavirus- *Infection among health care professionals in Muscat- Retrospective study.*

INTRODUCTION

The human papillomavirus (HPV) is one of the most common causes of sexually transmitted disease in both men and women around the world, especially in developing countries, where the prevalence of asymptomatic infection varies from 2 to 44%, depending on the population and studied region.^[1]

Most HPV infection is transient and some studies show that the majority of sexually active individuals are exposed to and acquire infection from this virus at some phase in their lives.^[2,3]

HPV infection is more prevalent in young adults, at the beginning of their sexual activity, with a subsequent decline in the prevalence rate with increasing age, likely as a result of development of an immune response against the virus and reduction of sexual activity.^[4,5]

Today, more than 150 different HPV types have been cataloged and about 40 can infect the Epithelial lining of the anogenital tract and other mucosal areas of the human body. Based on their association with cervical cancer and precursor lesions, HPVs can also be classified as high-risk (HR-HPV) and low-risk (LR-HPV) oncogenic types. LR-HPV types, such as HPV 6 and 11, can cause common genital warts or benign hyper

proliferative lesions with very limited tendency to malignant progression, while infection with HR-HPV types, highlighting HPV 16 and 18, is associated with the occurrence of pre-malignant and malignant cervical lesions.^[6,7,8] HR-HPV types are also associated with many penile, vulvar, anal, and head and neck carcinomas, and contribute to over 40% of oral cancers.^[9] The most common cause of mortality related to human papillomavirus (HPV) infection is cervical cancer. However, male HPV infection is also an important concern, both for the disease burden in men and for the risk of transmission to women. HPV is associated with a variety of cancers in men, including anal cancer and a subset of penile and oral cancers. The incidence of anal and oral cancers related to HPV is increasing in the general population and is growing even faster among individuals who are immunocompromised because of human immunodeficiency virus (HIV) infection. Penile HPV infection is very common among heterosexual men and remains high throughout a wide range of ages. Likewise, anal HPV infection and anal intraepithelial neoplasia are very common throughout a wide range of ages in both HIV-negative and HIV-positive men who have sex with men. Other HPV-related diseases of clinical importance in men include condylomata acuminata (genital warts) and recurrent respiratory papillomatosis. The quadrivalent HPV

vaccine has been shown to be highly efficacious in the prevention of genital warts in women and precancerous lesions of the cervix, vulva, and vagina. In addition, recent interim data have shown that the quadrivalent HPV vaccine is highly effective in reducing external genital lesions in young men. Although the protective efficacy of HPV vaccination in men has not yet been fully established—pending the outcome of public policy discussions and cost-efficacy studies—there may be a strong rationale for vaccinating boys, similar to girls, at an early age when they have had limited or no prior sexual activity.^[10] It is currently recognized that besides the significant impact of human papillomavirus (HPV) infection in females, HPV causes substantial disease in men as well. Genital warts are a common manifestation of male infection with HPV. Genital warts are highly infectious and approximately 65% of people who have sex with an infected partner will develop warts themselves. More than 90% of genital warts are caused by non-oncogenic HPV types 6 and 11. In addition, recurrent respiratory papillomatosis is a rare disease most often associated with HPV types 6 and 11. Several cancers of the anogenital tract and upper aero-digestive tract, and their precursor lesions in men are now understood to be caused by infection with sexually transmitted HPV. For example, there is increasing incidence of anal cancer in western countries; however, there are limited data on its primary cause, anal canal HPV infection. Genital HPV infection is very common in men with an ongoing international study estimating a prevalence of 65.2% in asymptomatic males aged 18–70 years. Lifetime number of sexual partners was the most significant risk factor for the acquisition of HPV infection ($P < 0.05$), and circumcision has been associated with reduced detection of HPV infection in men. HPV infections may be less likely to persist in men than in women. In men, the median time to clearance of any HPV infection was 5.9 months, with 75% of infections clearing within 12 months. More data are needed to better understand the natural history of HPV infection. Although the quadrivalent HPV vaccine has been shown to be effective and safe in men, low awareness of HPV in males may be a barrier to its use

for the prevention of HPV infection.^[11] In 2009, the United States approved quadrivalent HPV vaccine for males 9–26 years old, but data on vaccine uptake are lacking. We determined HPV vaccine uptake among adolescent males, as well as stage of adoption and vaccine acceptability to parents and their sons. A national sample of parents of adolescent males ages 11–17 years ($n=547$) and their sons ($n=421$) completed online surveys during August and September 2010. Analyses used multivariate linear regression. Few sons (2%) had received any doses of HPV vaccine, and most parents and sons were unaware the vaccine can be given to males. Parents with unvaccinated sons were moderately willing to get their sons free HPV vaccine (mean=3.37, SD=1.21, possible range 1–5). Parents were more willing to get their sons vaccinated if they perceived higher levels of HPV vaccine effectiveness ($\beta=0.20$) or if they anticipated higher regret about their sons not getting vaccinated and later developing an HPV infection ($\beta=0.32$). Vaccine acceptability was also modest among unvaccinated sons (mean=2.98, SD=1.13, possible range 1–5). Sons were more willing to get vaccinated if they perceived higher peer acceptance of HPV vaccine ($\beta=0.39$) or anticipated higher regret about not getting vaccinated and later developing an HPV infection ($\beta=0.22$). HPV vaccine uptake was nearly nonexistent a year after permissive national recommendations were first issued for males. Vaccine acceptability was moderate among both parents and sons. Efforts to increase vaccine uptake among adolescent males should consider the important role of peer acceptance and anticipated regret.^[12]

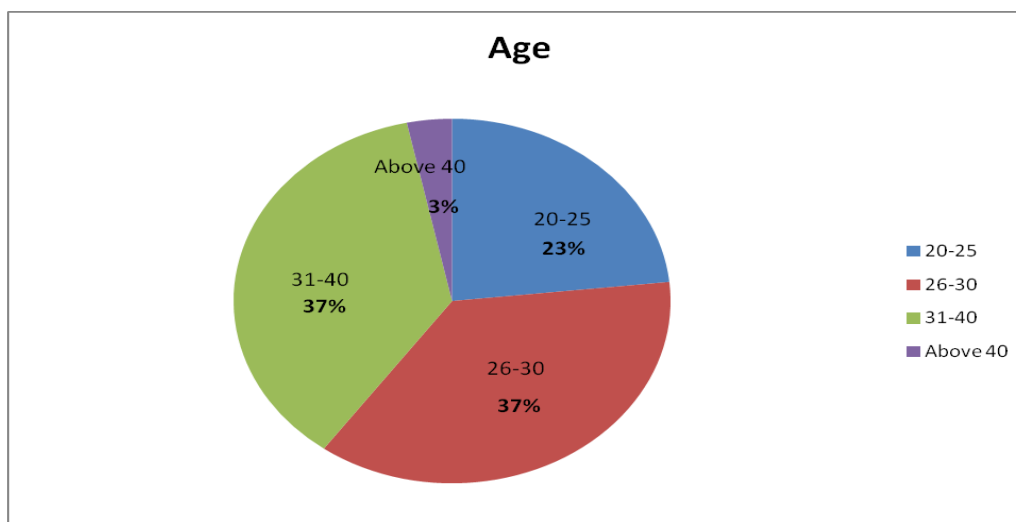
METHODOLOGY

A cross-sectional study will be conducted in 2018 in Muscat, Oman. The inclusion criteria for the study sample will be both male and female; age older than 18 years. 50 copies of a questionnaire will be distributed to the health care professionals.

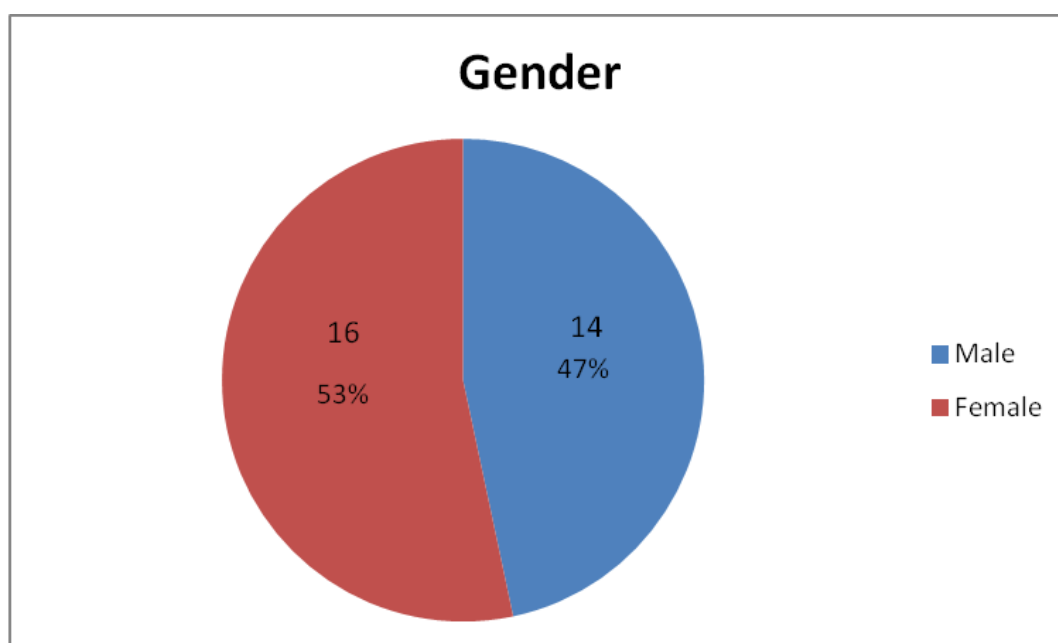
Data Analysis: Excel / R Program will be used to analyze the data.

RESULTS

Table-1 : Percentage distribution of age of participants		
Age	Count	Percentage
20-25	7	23.30%
26-30	11	36.70%
31-40	11	36.70%
Above 40	1	3.30%
Total	30	100%

**Table-2 : Percentage distribution of gender of participants**

	Number	Percentage
Male	14	47%
Female	16	53%
Total	30	100%

**Table-3: Percentage distribution of material Status of participants**

	Count	Percentage
Married	18	60%
Unmarried	12	40%
Total	30	100%

Marital Status

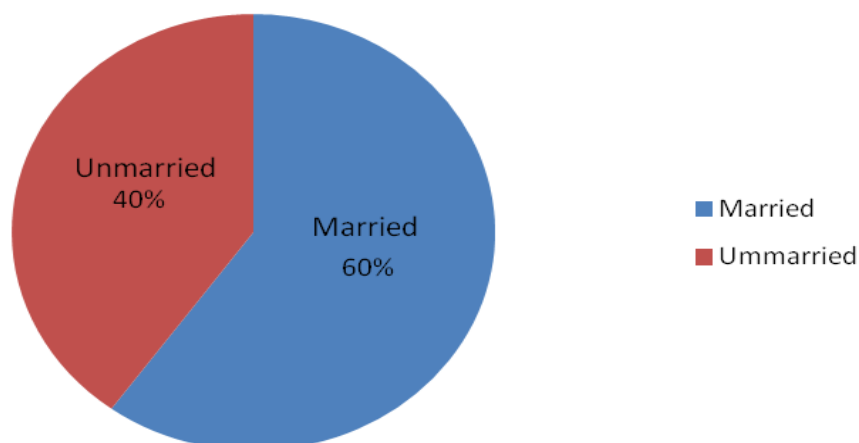


Table-4: Percentage distribution of Occupation of participants

	Number	Percentage
Physician	5	16.7%
Pharmacist	20	66.7%
Nurse	0	0%
Lab technician	5	16.70%
Dietitian	0	0%

Occupation

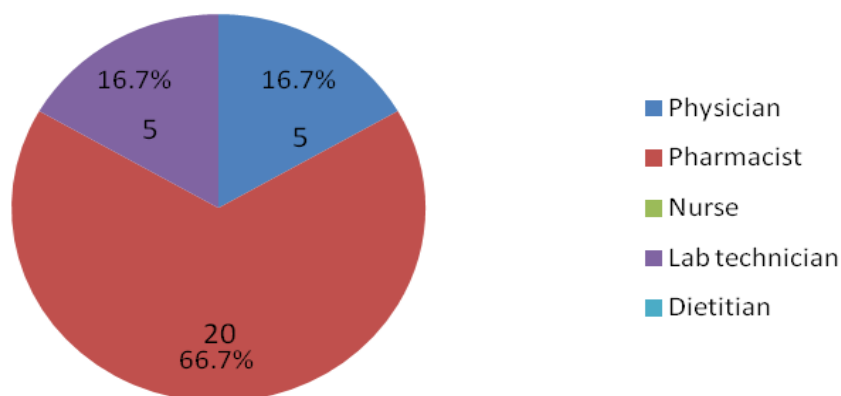
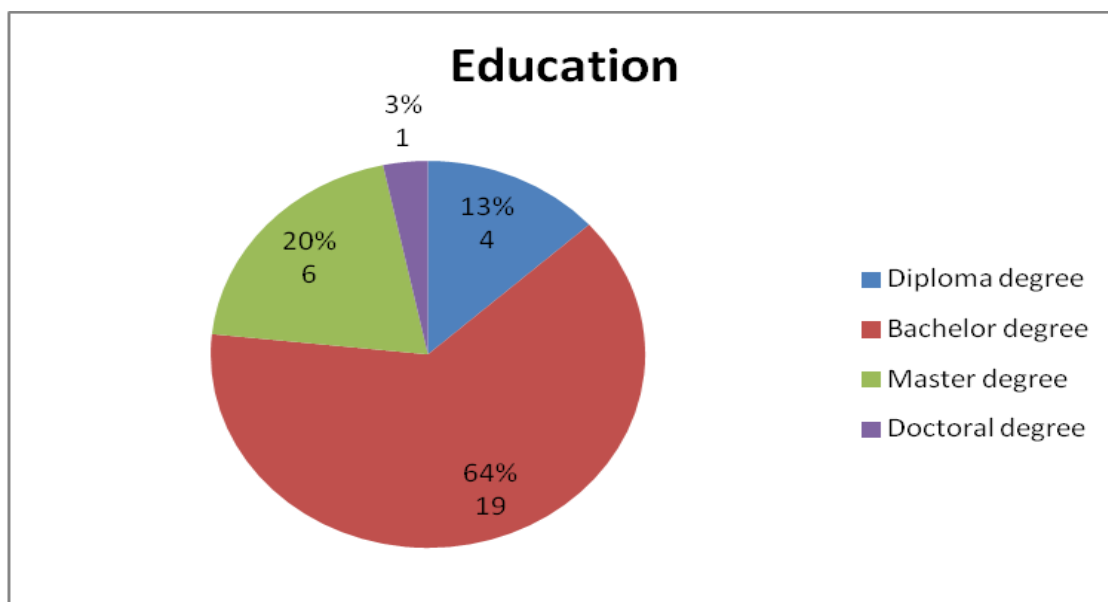
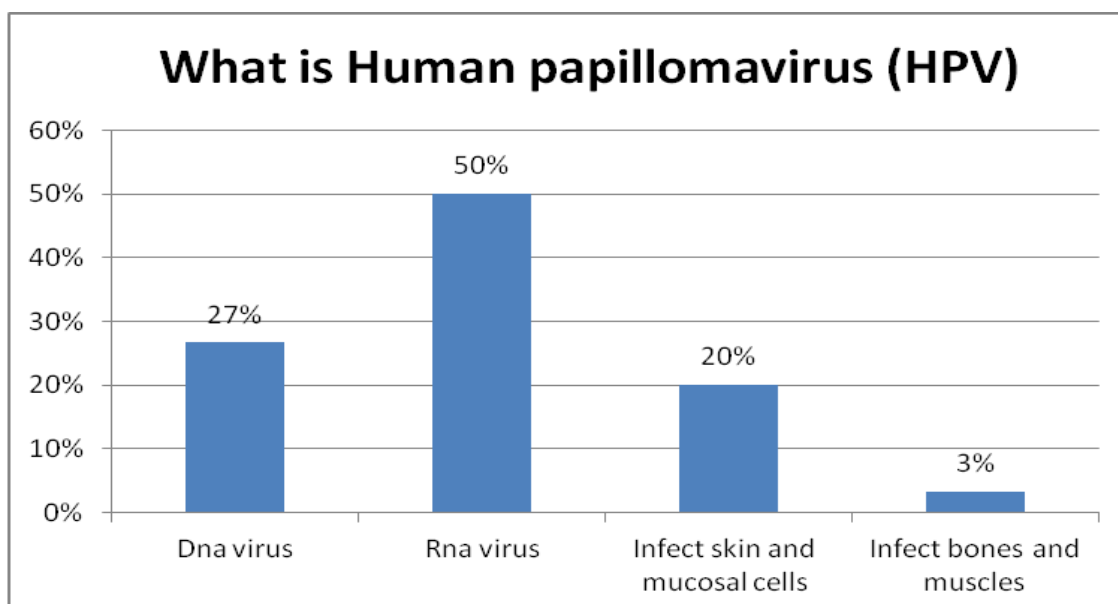


Table-5: Percentage distribution of Education level of participants

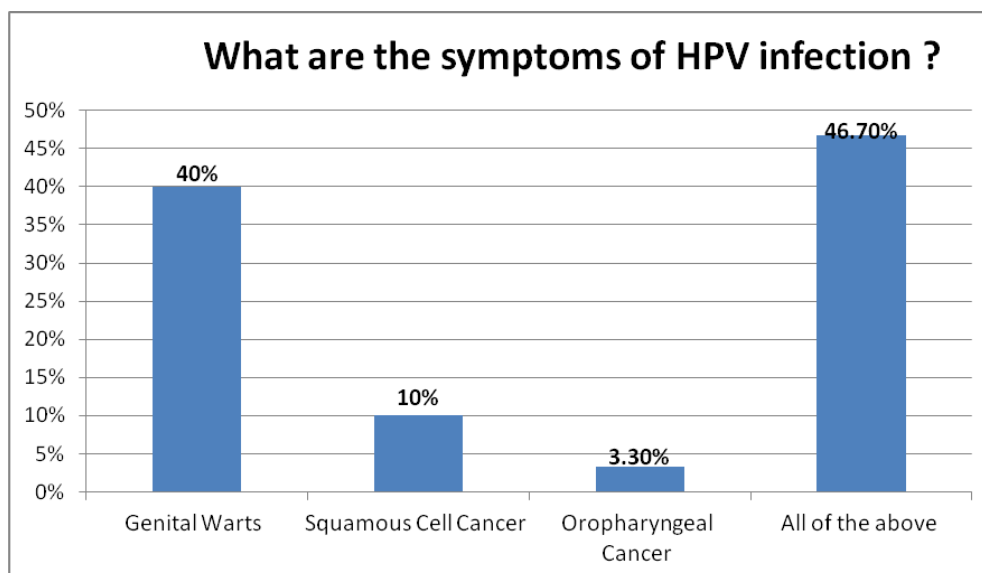
	Number	Percentage
Diploma degree	4	13%
Bachelor degree	19	63%
Master degree	6	20%
Doctoral degree	1	3%



Q6-Response - What is Human papillomavirus (HPV)		
	Number	Percentage
Dna virus	8	27%
Rna virus	15	50%
Infect skin and mucosal cells	6	20%
Infect bones and muscles	1	3%

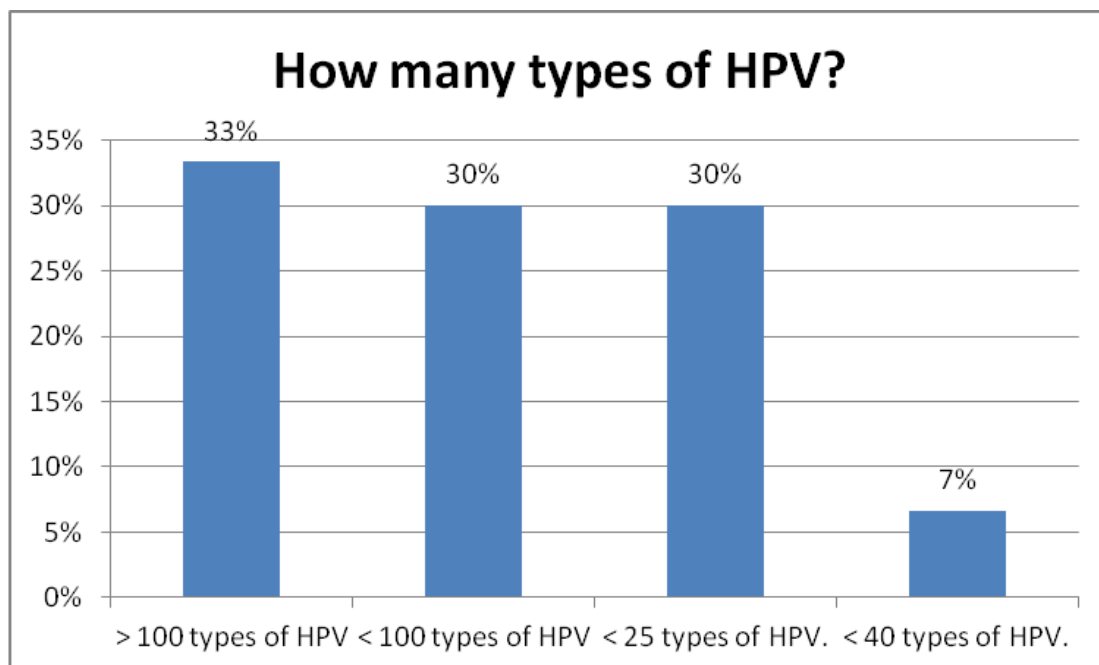


7- Response- What are the symptoms of HPV infection?		
	Count	Percentage
Genital Warts	12	40%
Squamous Cell Cancer	3	10%
Oropharyngeal Cancer	1	3.3%
All of the above	14	46.7%
Total	30	100%



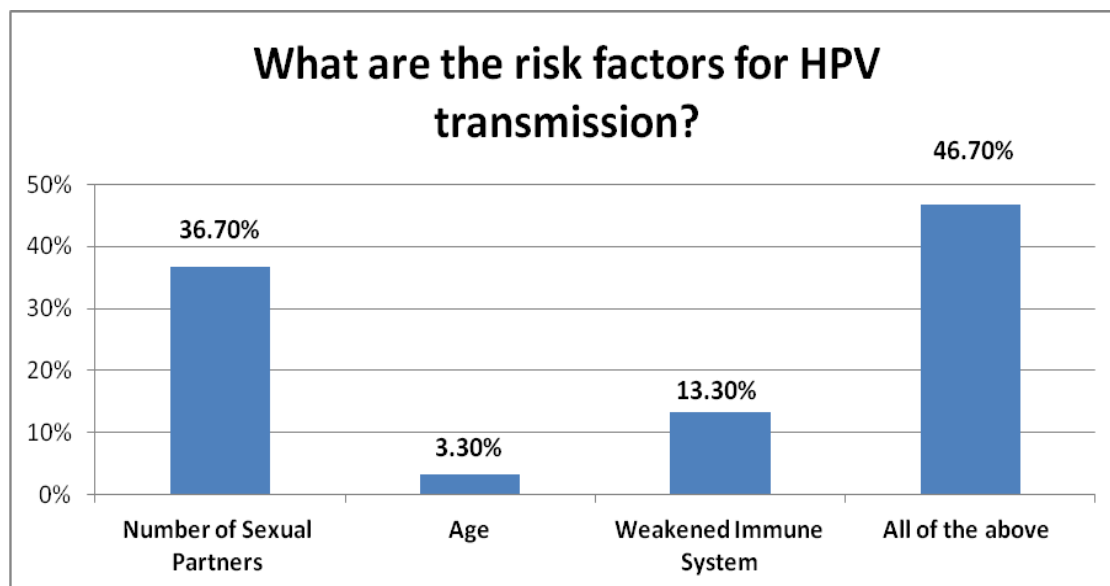
Q8-Response- How many types of HPV?		
	Number	Percentage
There are more than 100 types of HPV	10	33%
There are less than 100 types of HPV	9	50%
There are less than 25 types of HPV.	9	20%
There are less than 40 types of HPV.	2	3%

First of all, there are more than 100 types of HPV. 33% of the participants were correct but 67% of them were not.



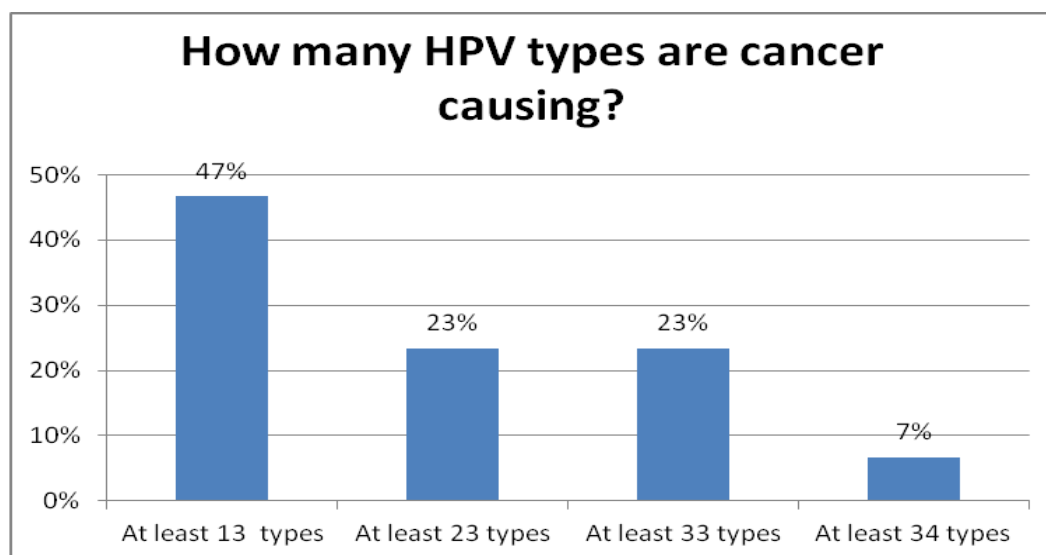
9- Response-What are the risk factors for HPV transmission?		
	Count	Percentage
Number of Sexual Partners	11	36.7%
Age	1	3.3%
Weakened Immune System	4	13.3%
All of the above	14	46.7%
Total	30	100%

Secondly, HPV can be transmitted by different risk factors for example number of sexual partners, age and weakened immune system. 47.7% of the participants answered correctly.



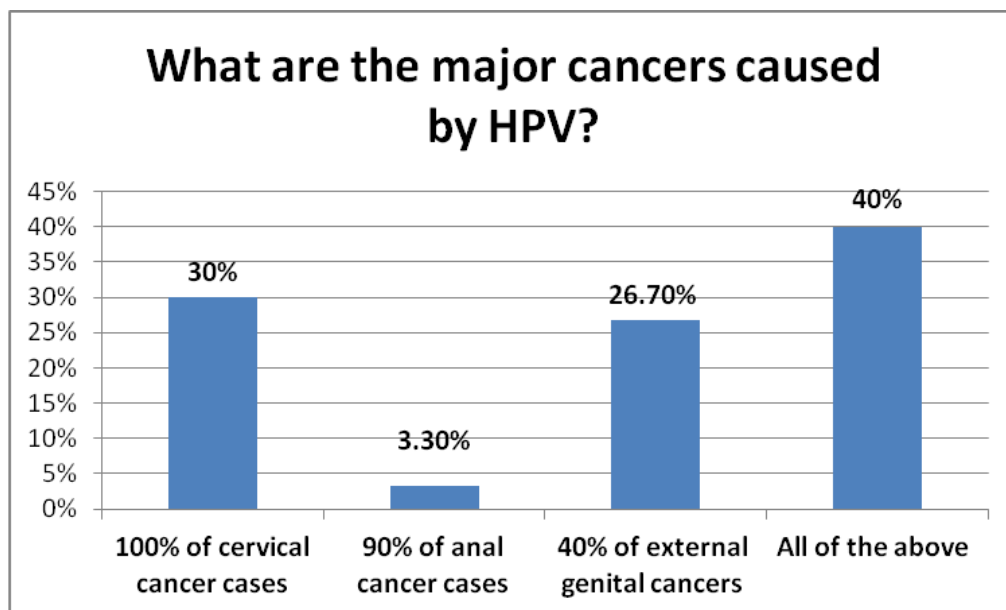
Q10-Response-How many HPV types are cancer causing?		
	Number	Percentage
At least 13 of these types are oncogenic	10	47%
At least 23 of these types are oncogenic	9	23%
At least 33 of these types are oncogenic	9	23%
At least 34 of these types are oncogenic	2	7%

Thirdly, at least 13 types of HPV are cancer causing we asked them how many types of HPV are carcinogenic but only 47% of health care profession are answered correctly.

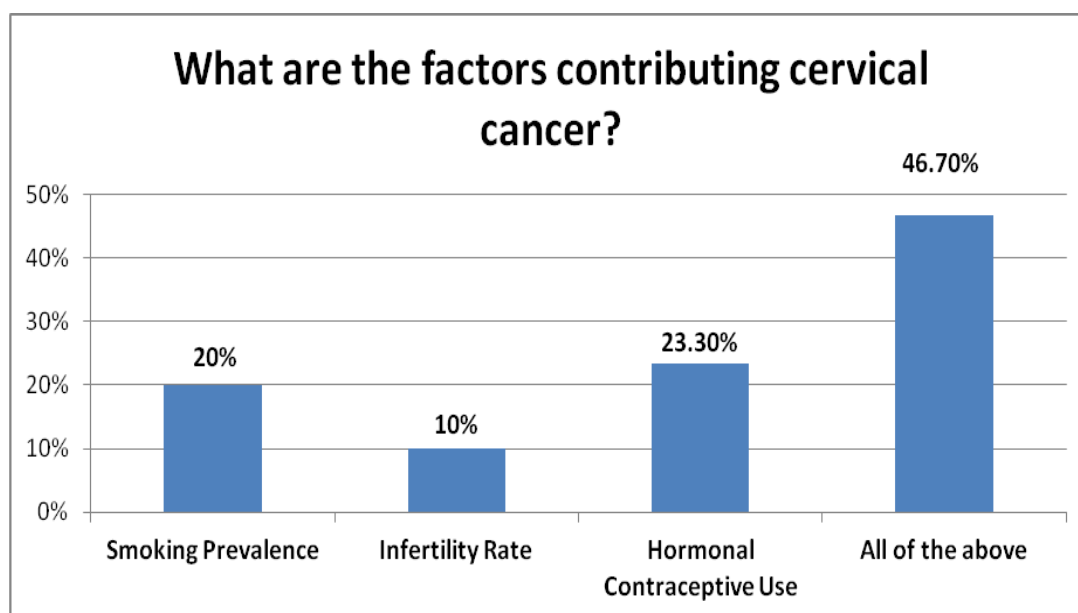


Q11- Response-What are the major cancers caused by HPV?		
	Count	Percentage
100% of cervical cancer cases	9	30%
90% of anal cancer cases	1	3.3%
40% of external genital cancers	8	26.7%
All of the above	12	40%
Total	30	100%

Fourthly, there are many cancer cases which can be caused by HPV for example 100% of cervical cancer cases, 90% of anal cancer cases and 40% of external genital cancers. 40% of them were answered correctly by selecting all major cancers mentioned in the question.



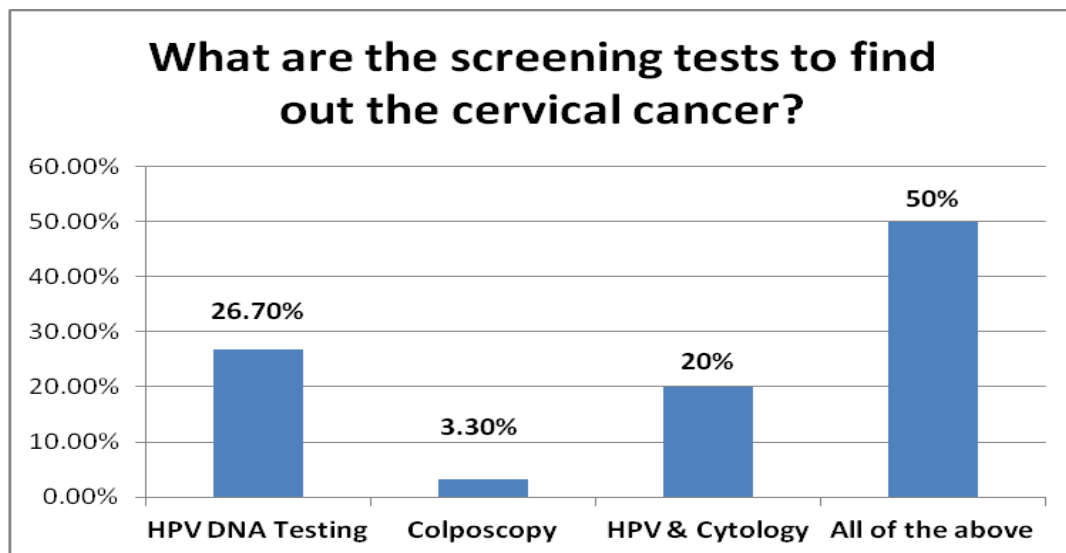
Q12- Response-What are the factors contributing cervical cancer?		
	Count	Percentage
Smoking Prevalence	6	20%
Infertility Rate	3	10%
Hormonal Contraceptive Use	7	23.3%
All of the above	14	46.7%
Total	30	100%



Fifthly, cervical cancer can be contributed by several factors such as Smoking prevalence 1%, Total fertility rate (live births per women) 2.9% and Hormonal contraception use 9.5%. 47% of them selected all the factors mentioned above and 23% of the participants selected hormonal contraceptives which is the major factor which can lead to cervical cancer.

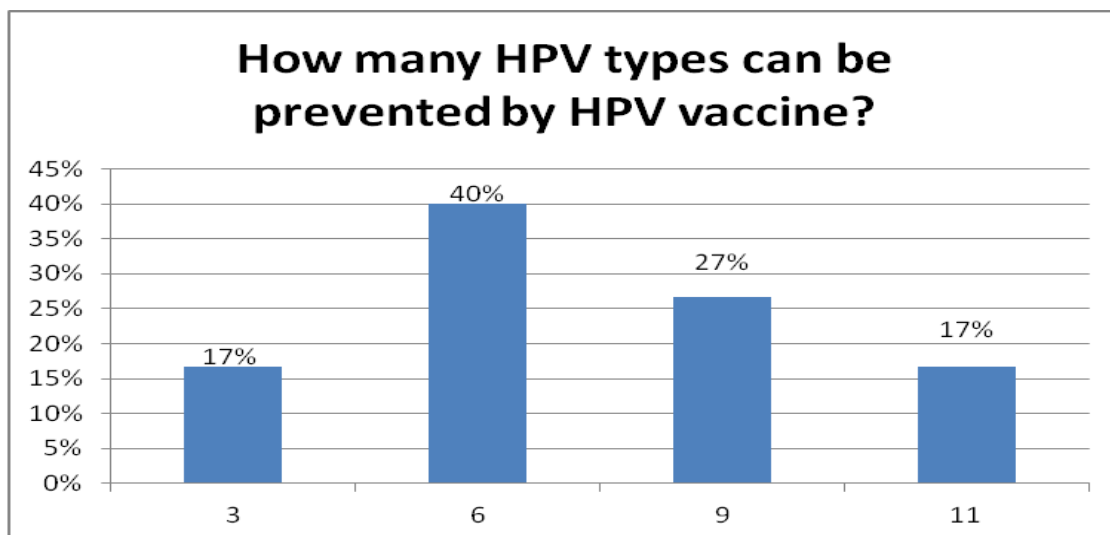
Q13- What are the screening tests to find out the cervical cancer?		
	Count	Percentage
HPV DNA Testing	8	26.7%
Colposcopy	1	3.3%
HPV & Cytology	6	20%
All of the above	15	50%
Total	30	100%

Then, there are screening tests to find out the cervical cancer such as HPV DNA Testing, Colposcopy and HPV & Cytology. We wanted to know if they know something about screening and 50% of the participants didn't select a specific screening which it can be available in Oman and 26.7% of them select HPV DNA Testing.



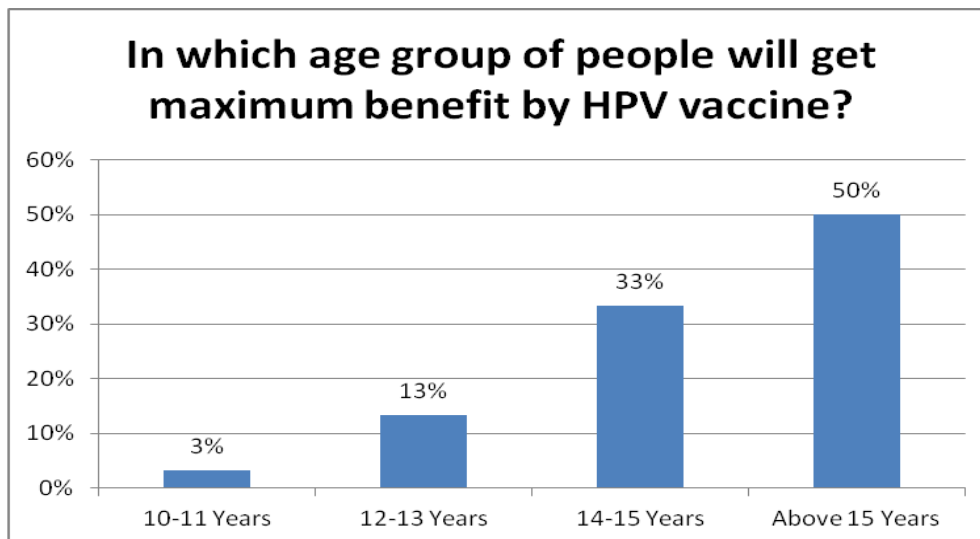
Q14-How many HPV types can be prevented by HPV vaccine?		
	Number	Percentage
3	5	17%
6	12	40%
9	8	27%
11	5	17%

And also, there are eleven HPV types can be prevented by taking HPV vaccine. And unfortunately only 17% of the participants answered this question correctly and 40% of them answered only six types.



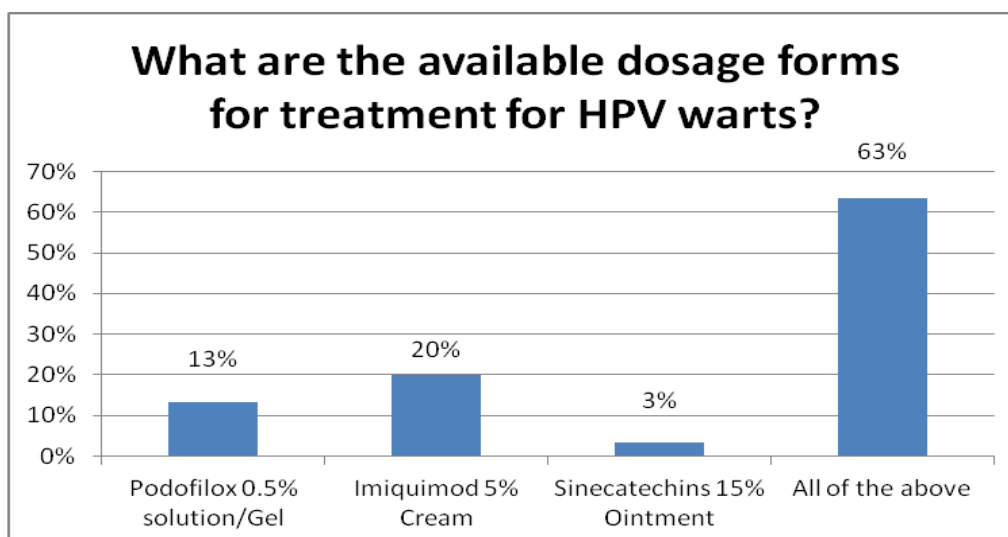
Q15-In which age group of people will get the maximum benefit by HPV vaccine?		
	Number	Percentage
10-11 Years	1	3%
12-13 Years	4	13%
14-15 Years	10	33%
Above 15 Years	15	50%

Also, the age group 12-13 years will get the maximum benefit by HPV vaccine. 13% of them answered correctly but 50 % of the participants answered above 15 years and as mentioned by HPV information Center -2017 “Oman is the 6th most frequent cancer among women between 15 and 44 years of age”, so getting vaccine between 12-13 years have to be common approach in the coming years.



Q16-What are the available dosage forms for treatment for HPV warts?		
	Number	Percentage
Podofilox 0.5% solution/Gel	4	13%
Imiquimod 5% Cream	6	20%
Sinecatechins 15% Ointment	1	3%
All of the above	19	63%

Finally, HPV warts is one of the significant symptoms caused by HPV and they have available different dosage form treatments for example Podofilox 0.5% solution/Gel, Imiquimod 5% Cream, and Sinecatechins 15% Ointment. 63% of the participants answered correctly.



DISCUSSION

- There are more than 100 types of HPV. 33% of the participants were correct but 67% of them were not.
- HPV can be transmitted by different risk factors for example number of sexual partners, age and weakened immune system. 47.7% of the participants answered correctly.
- At least 13 types of HPV are cancer causing we asked them how many types of HPV are carcinogenic but only 47% of health care profession are answered correctly.
- there are many cancer cases which can be caused by HPV for example 100% of cervical cancer cases, 90% of anal cancer cases and 40% of external genital cancers. 40% of them were answered correctly by selecting all major cancers mentioned in the question.
- Fifthly, cervical cancer can be contributed by several factors such as Smoking prevalence 1%, Total fertility rate (live births per women) 2.9% and Hormonal contraception use 9.5%. 47% of them selected all the factors mentioned above and 23% of the participants selected hormonal contraceptives which is the major factor which can lead to cervical cancer.
- Then, there are screening tests to find out the cervical cancer such as HPV DNA Testing, Colposcopy and HPV & Cytology. We wanted to know if they know something about screening and 50% of the participants didn't select a specific screening which it can be available in Oman and 26.7% of them select HPV DNA Testing.
- And also, there are eleven HPV types can be prevented by taking HPV vaccine. Only 17% of the participants answered this question correctly and 40% of them answered only six types.
- Also, the age group 12-13 years will get the maximum benefit by HPV vaccine. 13% of them answered correctly but 50 % of the participants answered above 15 years. As mentioned by HPV information Center -2017 "Oman is the 6th most frequent cancer among women between 15 and 44 years of age". So getting vaccine between 12-13 years has to be common approach in the coming years.
- Finally, HPV warts is one of the significant symptoms caused by HPV and they have available different dosage form treatments for example Podofilox 0.5% solution/Gel, Imiquimod 5% Cream, and Sinecatechins 15% Ointment. 63% of the participants answered correctly.

CONCLUSION

In developed countries like U.S.A and Australia, The HPV vaccine-A vaccine called Gardasil 9 has been developed that protects against nine HPV types which cause around 90% of cervical cancers in women (and the majority of other HPV-related cancers in women), 95% of all HPV-related cancers in men and 90% of genital

warts. Gardasil 9 provides fully vaccinated people with protection against nine types of HPV.

There is high incidence of cervical cancer in Oman compared to that of other developed countries. Therefore, the survey analysis confirm that there is a significant need for the implementation of educational campaigns and programs directed towards women in the general population as well as healthcare workers as an attempt to improve awareness and enhance the attitude towards cervical screening tests and vaccination. This pilot study could be useful to address the priority of action to be taken to eradicate these diseases from Oman.

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