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KNOWLEDGE, ATTITUDE, AND AWARENESS REGARDING HPV INFECTION AND VACCINATION AMONG FEMALE IT PROFESSIONALS OF A COASTAL CITY – A CROSS-SECTIONAL STUDY.

Community Medicine

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ABSTRACT

Aims: The aim of this study is to assess to assess knowledge, attitude, awareness of human papilloma virus (HPV) and HPV vaccination among the female IT professionals. **Materials And Methods:** A cross-sectional survey of women was conducted in Visakhapatnam to assess the awareness of cervical cancer and attitude of Papanicolaou (Pap) test and HPV vaccine. The sample size of the population was 171, and a pre-tested questionnaire was administered to them. **Results:** Majority of the participants (65.5%) were aware that cervical cancer can be prevented. As far as vaccination was concerned, 62.1% were familiar with the availability of CERVAVAC vaccine. However, very few participants (16.7%) had completed a full course of vaccination while (77.1%) have not initiated yet. **Conclusion:** The high awareness among females of IT sector about cervical cancer and acceptability of vaccine programs, if done free of cost, shows a positive trend. The only inhibition about HPV vaccine was primarily due to concerns about post vaccination complications. However, inclusion of HPV vaccine in Government-sponsored immunization program would go a long way in increasing the uptake of the vaccine.

KEYWORDS

Awareness, cervical cancer, CERVEVAC, HPV vaccine, Visakhapatnam

INTRODUCTION:

Cervical cancer ranks as the 2nd most prevalent cancers in India and accounts for nearly one-fourth of the world's cervical cancer deaths despite being largely preventable.

Current estimates indicate that every year approximately 1.25 lakh women are diagnosed with cervical cancer, and over 75 thousand die from the disease in India, 83 % of invasive cervical cancers are attributed to HPVs 16 or 18 in India, and 70% of cases worldwide.[1]

Lower-income countries have the highest burden with nearly 80% of cases of Cervical cancer and in low and middle-income countries, approximately 90% of deaths have occurred from Cervical Cancer

Cervical Cancer can be prevented and cured through a comprehensive approach comprising of prevention, early diagnosis, and application of various screening methods and treatment measures.[2]

It is estimated that HPV types 16 and 18 (HPV-16 and HPV-18) together contribute to approximately 70% of all invasive cervical cancer cases worldwide.

In addition to HPV infection, factors like age at the time of marriage, number of pregnancies genital hygiene, use of oral contraceptives, nutritional status, smoking, etc., are associated with the development of cervical cancer. Interventions ranging from prophylactic HPV vaccines to various screening approaches such as visual inspection with acetic acid or Lugol's iodine (VIA/VILI), Papanicolaou test (Pap test or Pap smear) and HPV DNA (Deoxyribose Nucleic Acid) testing are used for early detection and prevention of cervical cancer.[3]

The most promising intervention for preventing cervical cancer is vaccination against human papillomavirus (HPV). Recent advances in technology have led to introduction of HPV vaccine to prevent HPV infection, which will directly help in reducing the incidence of cervical, ano-genital cancers and genital warts. Vaccination is also recommended for boys as it is also implicated in penile, ano-rectal and oral cancer. Males also have a role in transmission of HPV infection to females.[4]

Visakhapatnam ITSEZ has a number of Information Technology (IT) companies and houses numerous female employees. The idea behind choosing them was that they come from an educated background and are more likely to be acquainted with the subject, at the same time have risk factors for cervical cancer.

Hence this study was undertaken with the objectives to assess knowledge, attitude, awareness of HPV and HPV vaccination among the female IT professionals.

MATERIALS AND METHODS:

A cross-sectional descriptive study

Study Period: The study was carried out from January to March 2023.

Study Population: Female IT professionals aged 18 years and above working at Visakhapatnam IT SEZ.

Sample Size:

Informed consent was obtained prior to participation in the study and women who haven't consented and/ or were unavailable on 2 successive follow ups were not included in the study.

Of the convenient sample, Snow ball technique was used for data collection via a self-administered google form.

Pre-designed, pre-tested questionnaire was used as study tool which was developed after taking inputs from experts of the field.

The questionnaire consisted of five sections

Socio demographics, knowledge regarding CC, regarding HPV vaccination, assessment of the knowledge was performed using a score-based method. The correct answer was scored "2" and incorrect or don't know was scored as "0". The scores obtained were categorized for further analysis. Practice of reproductive health & attitude towards HPV. Section 4 & 5 contained 11 closed questions with 'Yes' or 'No' options, attitude and practices about cervical cancer risk factors, screening, and prevention were assessed and the acceptability of HPV vaccine among females was also assessed.[5] Data was entered on excel sheet and was analysed using Statistical Package for Social Sciences (SPSS) ver.26 software.

The data collected was characterized by using descriptive statistics and expressed as percentages. Chi-square test was applied to test the association between the baseline characteristics and the score was obtained. In this study the level of significance (pvalues) was set at 0.05.

RESULTS:

A total of 171 women were included in the study. Women spanning from 21 to 40 years of age participated in this study. Majority, i.e., 51.5% belonged to 20–24 years of age and only 3.5% were above 34 years with mean age group 25.45 ± 4.21 SD. Monthly income of most of the participants 80.7% was between Rs. 25,000–50,000. Majority were single 84.8% and from non-life sciences 51.5% education background as shown in Table 1. Baseline characteristics like age, income and education background and knowledge scores were found to be strongly associated and statistically significant. Assessment of knowledge using questionnaire revealed that the majority of the employees were having knowledge about the prevention of CC, its

causative agent being virus, and major risk factors being multiple sexual partners 48 (28.1), infections 20 (11.7), early marriage 3 (1.8) and all 78 (45.6). The employees also acknowledged that the cervical cancer can be detected in its early stages 114 (66.7) (Table 2)

Table 1: Socio-demographics of the study participants

Questions		No. of subjects (n=171)
Age	20-24 25-29 30-34 >34	88 (51.5) 52 (30.4) 25 (14.6) 6 (3.5)
Income	25,000-50,000 51,000-75,000 76,000-1,00,000 >1,00,000	138 (80.7) 18 (10.5) 9 (5.3) 6 (3.5)
Educational background	Non-life sciences Life sciences	88 (51.5) 83 (48.5)
Marital status	Single Married	145 (84.8) 26 (15.2)
Scores	Poor Knowledge Good Knowledge	56 (32.7) 115 (67.3)

Baseline characteristics x Scores

Age	Scores			P value*
	Poor Knowledge	Good Knowledge	Total	0.000
20-24	24 (42.9)	64 (55.7)	88 (51.5)	
25-29	15 (26.8)	37 (32.2)	52 (30.4)	
30-34	17 (30.4)	8 (7)	25 (14.6)	
>34	0 (0)	6 (5.2)	6 (3.5)	
Total	56	115	171 (100)	
Income	Poor Knowledge	Good Knowledge	Total	
25,000 – 50,000	47 (83.9)	91 (79.1)	138 (80.7)	0.20
50,000 – 75,000	3 (5.4)	15 (13)	18 (10.5)	
76,000 – 1,00,000	6 (10.7)	3 (2.6)	9 (5.3)	
>1,00,000	0 (0)	6 (5.2)	6 (3.5)	
	56	115	171	
Education background	Poor Knowledge	Good Knowledge	Total	
Non life sciences	52 (92.9)	36 (31.3)	88 (51.5)	0.00
Life sciences	4 (7.1)	79 (68.7)	83 (48.5)	
	56	115	171	

***Significant at 95% C.I. p = 0.05**

Table 2: Knowledge of the IT Professionals regarding cervical cancer.Knowledge scores

Questions		No. of subjects (n=171)
Is cervical cancer preventable?	Yes No Maybe	112 (65.5) 9 (5.3) 50 (29.2)
Did your family have a history of cervical cancer?	Yes No	8 (4.7) 163 (95.3)
What is the etiology of cervical cancer?	Bacterial Viral Fungal Don't Know	10 (5.8) 112 (65.5) 3 (1.8) 46 (26.9)
Can cervical cancer be identified in the early stages?	Yes No Don't know	114 (66.7) 16 (9.4) 41 (24)
What are the risk factors for cervical cancer?	Multiple sexual partners Infections Early Marriage Early child birth/ multiple sexual partners/ infections Multiple sexual partners/ infections All	48 (28.1) 20 (11.7) 3 (1.8) 4 (2.3) 18 (10.5) 78 (45.6)

The mean score was 13.17 ± 2.90 with a minimum score of 5 and a maximum of 23. The scores were grouped into good knowledge (>= 14) and poor knowledge (<14). Highest number of respondents were found to be knowledgeable (>=14), i.e.,115 (67.3%).

This could be due to partial knowledge gained through the social media, Internet, print, film media, by word of mouth through friends, relatives, and first-hand information from people who suffered from cervical cancer, and finally infrequently due to guesswork

Awareness:

More than half of the women were aware of the availability of a vaccine against the disease 96 (56.1), among them 59 (62.1) were also cognizant with the fact of the indigenous vaccine 'CERVAVAC'. (Table 3)

Table 3: Awareness of the IT Professionals regarding HPV Vaccination.

Questions		No. of subjects (n=96)*
Do you know there is a vaccine against HPV and Cervical cancer? (n=171)	Yes No Don't know	96 (56.1) 29 (17) 46 (26.9)
Are vaccines available in India	Yes Maybe	92 (95.8) 4 (4.2)
Have you heard of the indigenous HPV vaccine "CERVAVAC"?	Yes No Don't know	59 (62.1) 26 (26.3) 11 (11.6)
Who can be vaccinated?	Boys and girls Only girls	70 (72.9) 26 (27.1)

***n=96 as only 96 participants answered yes to the question if there is a vaccine against HPV infection and cervical cancerPractice:**

Of the 96 participants who were conscious of the availability of a vaccine against HPV and cervical cancer 77.1% haven't taken the vaccine, while 27.08% were planning to get vaccinate and majority of them 40.63% presumed that they had no need of the vaccine.

Speaking of a regular gynaecological examination 70.8% have never underwent an annual check-up, as it is almost similar with Pap smear 90.6%

Attitude:

In spite of low uptake of vaccine, 87.7% believe that vaccination is beneficial against HPV and cervical cancer and 74.9% were willing to get vaccinated.

Major Hindrance and Influential factors towards vaccination:

More than one-third 37.43% perceived that they do not have risk of cervical cancer while 22.81% were apprehensive of the side effects. Cost 8.19% was of a concern as well. (Fig.1)

For more than half 51.46% most influential factor to get vaccinated was their self interest followed by 25.73% were likely to take up if the government provided the vaccine at free or subsidised price. Nearly 14.04% were planning to get vaccinated due to a positive family history. (Fig.2)

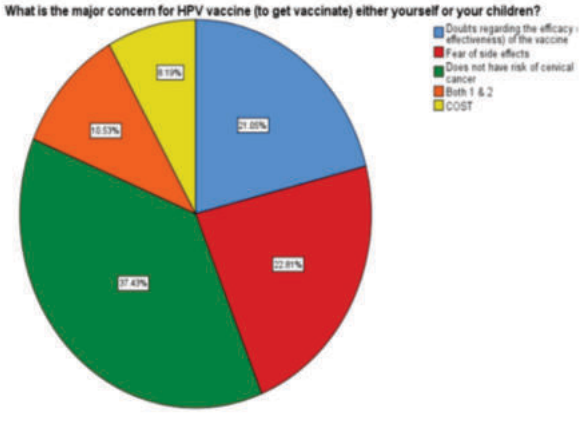

Fig 1: Major concerns as perceived to get vaccinated (n=171)

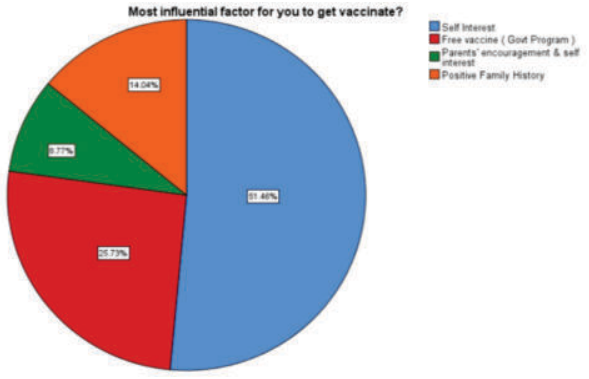

Fig 2: Major influential factor to get vaccinated (n=171)

DISCUSSION:

HPV vaccination alone or combined with screening have been documented as effective interventions in reducing the burden and mortality due to carcinoma cervix across various settings. Many studies conducted in India have documented the prevalence of high-risk HPV infections. i.e., HPV 16/18 to be ranging from about 30% in inflammatory lesions to more than 95% in cases of cervical cancer.[6-9] The knowledge, attitude, and practice scores obtained from this study are lower than previously ascertained levels among medical students in Bangalore, India.[10]

The mean age of the participants in our study (25.45 ± 4.21) is almost similar to that of study conducted among the medical students (19-23). The majority of respondents (112 (65.5%)) were aware that HPV infection could cause cervical cancer ranging similar to the results of a study conducted among female university student in malaysia.[11]

Evidence worldwide show that being woman, having a higher education, and having a high income are significant predictors of general HPV and HPV vaccine knowledge.[12] These studies have, however, found that young women (below 30 years) are more likely to be aware about the HPV vaccine. The finding is in line with in our study as reported younger age (21-24), low income (25,000 – 50,000) were a predictor for higher HPV knowledge.

Among the participants, sources of knowledge and information on HPV vaccine was found in 26.04%, 23.96%, 17.71%, 12.50%, 10.42% as social media, Newspapers, books and TV, Family and relatives and Friends and Colleagues respectively which is comparable to 41 (27.3%), 17 (11.3%), 45 (30%), 64 (42.7%), 6 (4%) as medical school teachings, friends, newspaper, books, internet and television from a study conducted among medical students. In a study conducted by Yam et al. [13] in Hong Kong on 420 medical and non-medical students, 84% of medical students agreed that vaccination was recommended to men when compared to 70 (72.9%) IT professionals in our study.

Majority 65.5.1% of the sample population believed that cervical cancer was a preventable disease, most of them were also abreast with the fact of availability of the indigenous HPV vaccine. However, when educated about vaccine against cervical cancer, most of them were interested to get vaccinate. The results are comparable to the high acceptance of HPV vaccine reported among parents in Mysore, India [14] and also to the actual vaccine coverage rates reported in a vaccine delivery pilot project in Andhra Pradesh and Gujarat.[15]

Gynaecologic examinations are important opportunities for cancer screening. This issue needs to be addressed to educate women and to make an informed choice in participating in cervical cancer screening. In our study about only 22.9% women were attending gynaecology clinics for their annual gynaecological examination and only 9.4% of women had Pap smear done in their life. This was much above than 2.6% as reported in a recent study in Pakistan.[16]

A hospital-based study from South India among medical undergraduate students, reported a 6.8 % uptake of HPV vaccination. The study stated that low uptake was due to lack of knowledge, as well as doubts about the vaccine's efficacy, fear of side effects, cost, and a lower perceived risk of carcinoma of cervix.[17] This is in agreement with the observations in the present study where major concerns for HPV uptake were lower perceived risk of carcinoma of cervix 37.43% followed by 22.81% fear of side effects and 8% cost among the women in our study.

CONCLUSION:

In conclusion, to the best of our knowledge, this is a first-of-its-kind cross sectional study among IT Professionals, conducted to study the Knowledge, awareness and uptake of HPV vaccine in this geographic region of India.

In spite of good knowledge levels majority of the women were hesitant to get vaccinated as they were apprehensive of the side effects, efficacy and cost factor. The government needs to step in and include the HPV vaccine in the National Immunization program to control the menace of this completely preventable disease. with the recently launched "CERVEVAC" would increase the vaccine uptake and improve the coverage thereby protecting the vulnerable population.

The study suggests that the overall awareness and knowledge about Cervical Cancer, HPV and HPV vaccination was high among Female IT Employees and associated with age, education and also Income. This study inferred that a vast majority of subjects were fairly aware of CC, but the knowledge of risk factors and prevention techniques was poor or less. As a breach in the knowledge regarding HPV infection and vaccination was apparent a more integrated teaching approach regarding HPV carcinogenesis, vaccination and CC is crucial. Therefore, the study also has attempted to educate and spread awareness about the vaccination and screening which has anticipated to have a positive impact. The present study however had limitations. The participants were selected from specific places such as corporate offices, and KPOs, hence the females were mostly educated and sample was biased. Thus, it is difficult to comment on the generalizability of the findings to the wider population.

Considering the small sample size and convenient sampling strategy used in this study, we look forward to undertaking a larger survey, to disseminate more knowledge and information regarding CC and HPV vaccination, which can help in many outgrowths.

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