

ORIGINAL RESEARCH

Awareness of HPV and acceptability of HPV vaccine among students & employee working in a tertiary care centre: A Cross-Sectional survey

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ABSTRACT

Background: Cervical cancer is the fourth most prevalent cancer in women and eighth most common cancer worldwide, with especially high incidence in developing countries. According to the recommendations of the World Health Organization, Human Papilloma Virus vaccines are effective prevention for cervical cancer caused by carcinogenic HPV infection. **Objective:** To assess knowledge & awareness among students & employee in a tertiary care centre about HPV infection and vaccination. **Methods:** A cross-sectional survey was targeted to conduct among 300+ health care professionals including medical, paramedical, nursing students, staff and employee among 18 to 45 years of age group. Subjects were gender neutral and participated voluntarily in a tertiary care centre, during the period of study for 3months. **Results:** We assessed knowledge regarding HPV infection/cervical cancer and HPV vaccine knowledge, awareness and vaccination status. The level of HPV knowledge was found to be low, but more than 80% of participants were ready to accept and recommend HPV vaccine. **Conclusion:** In India, where the disease burden is high, patient education for primary screening and HPV vaccination is critical, which can only be accomplished if healthcare providers are well-versed in all areas of cervical cancer prevention and management. The purpose of this study was to investigate the knowledge about HPV vaccines and willingness to accept or recommend HPV vaccination among medical staff, students, and employees as they constitute the most visible frontline personnel providing health education to patients and general population. So a validated questionnaire served as a useful tool in the primary prevention setting.

Keywords: Human Papillomavirus, Cervical cancer, HPV Vaccine, Questionnaire

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INTRODUCTION

- Cervical cancer is the fourth most prevalent cancer in women and the eighth most common cancer worldwide. Lower-income countries bear the greatest burden, with almost 80% of incidences of cervical cancer, and it is responsible for about 90% of fatalities in low and middle-income countries.¹
- In 2020, there were 604,100 new cases of cervical cancer discovered worldwide, and this illness was responsible for 341,831 fatalities, according to Globocan 2020. In India, cervical cancer accounted for 18.3% (123,907) of all new cases and 9.4% of all cancer cases in 2020.² As a result, over a lakh young women are being put through

severe emotional and physical hardship in order to prevent a disease that may be readily avoided with immunisation and routine screening. In women of reproductive age, it is the second most common type of cancer.

- One of the most frequent sexually transmitted infection is HPV. Although 80-90% of HPV infections are temporary and cleared by the body's immune response³, persistent replication of viral DNA can result in genital warts, abnormal Papanicolaou (Pap) tests, cervical dysplasia, cervical, vulvar, oropharyngeal, and penile cancer.⁴
- 70-80% of sexually active women will become infected with HPV at some point in their lives.

The peak prevalence of HPV infections is observed in young women in their twenties, although men are always at risk of contracting new infections.⁵ Human papillomavirus (HPV) is a tiny, non-enveloped DNA virus that infects skin or mucosal cells.

- Despite the fact that more than 140 types of HPV have been identified, only around 40 of them are sexually transmitted. Two high-risk HPV strains, HPV 16 and HPV 18, are responsible for more than 80% of cervical cancer cases in India.^{6,7}
- Genital warts are caused by two "low-risk" genotypes (HPV 6 and 11), a common benign disorder of the external genitalia that produces severe morbidity. Furthermore, a number of clinic-epidemiological risk factors, such as early marriage, multiple sexual partners, multiple pregnancies, poor genital cleanliness, smoking, and so on, are frequently linked to the development of cervical cancer.⁸
- Two vaccines PROTEIN SUBUNIT VACCINE, a quadrivalent (HPV 16, 18, 6 and 11) 'Gardasil' and a bivalent (HPV 19 and 18) 'Cervarix' have been introduced for vaccinating young teenage girls between the ages of 9-13 and/or 13-26 year young adults.⁹
- These two HPV vaccinations have been licenced by the US FDA (Food and Drug Administration) and are commercially accessible in India. Health care professionals play an important role in preventing HPV infection and promoting knowledge about HPV vaccinations. HCPs, including paramedics, are the most visible front-line personnel who provide health education to patients and the general population.¹⁰
- Cervavac — the first indigenously developed Quadrivalent Human Papillomavirus vaccine (qHPV) — against *cervical cancer*. The Drugs Controller General of India (DCGI) *Subject Expert Committee* on June 15, 2022 had approved the qHPV vaccine for cervical cancer patients above nine years to 26 years of age. The Serum Institute of India (SII) launched CERVAVAC, India's first indigenously developed quadrivalent human papillomavirus (qHPV) vaccine, on Tuesday, January 24, 2023, on the occasion of India's National Girl Child Day. January is also Cervical Cancer Awareness month. Until now, the HPV vaccines available in India were produced by foreign manufacturers at an approximate cost

of Rs 2,000 to Rs 3,500 per dose. Cervavac is likely to be significantly cheaper, slated to cost approximately Rs 200 to 400.¹¹

AIM & OBJECTIVES

- To assess knowledge & awareness among students & employees in a tertiary care centre about HPV infection & Vaccination

MATERIALS & METHODS

- This cross-sectional study was conducted among 304 participants including medical, paramedical, nursing students, staff and employee among 18 to 45 years of age group. Subjects were gender neutral and participated voluntarily in a tertiary care centre, during the period of July, 2022 to September 30, 2022.
- The study was approved by the Institutional Ethics Committee & consent was obtained from all the participants before the commencement of the study.
- Pre-designed, pre-tested *Google questionnaire* was used as study tool and information regarding profile of study participants, their knowledge regarding HPV infection, cervical cancer—risk factors, screening, and prevention were assessed. HPV vaccine awareness, knowledge, vaccination status, intention to receive & recommend HPV vaccine was also assessed.

STATISTICAL ANALYSIS

- The study population was characterized by using appropriate descriptive statistics and expressed as percentages. P values < 0.05 were considered to be statistically significant.
- The current status of knowledge, vaccination status and willingness to vaccinate were the primary outcome measures.

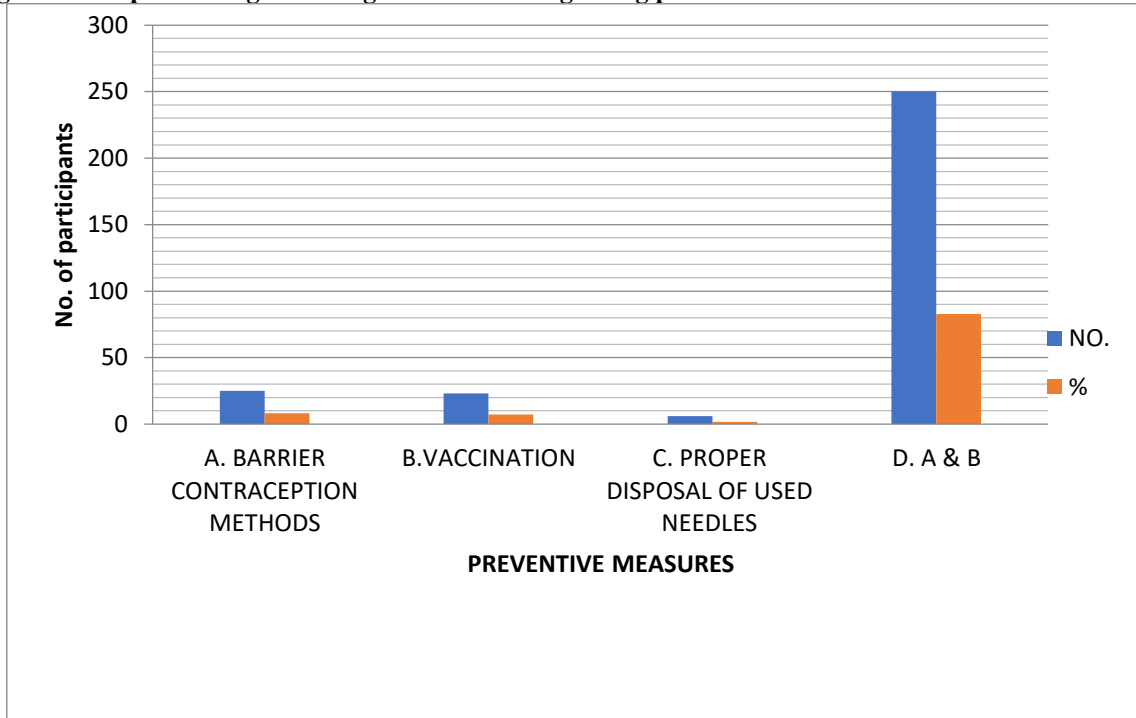
OBSERVATIONS & RESULTS

We assessed the knowledge regarding HPV and its vaccination under three major headings as follow :

A) Knowledge of study population regarding HPV infection

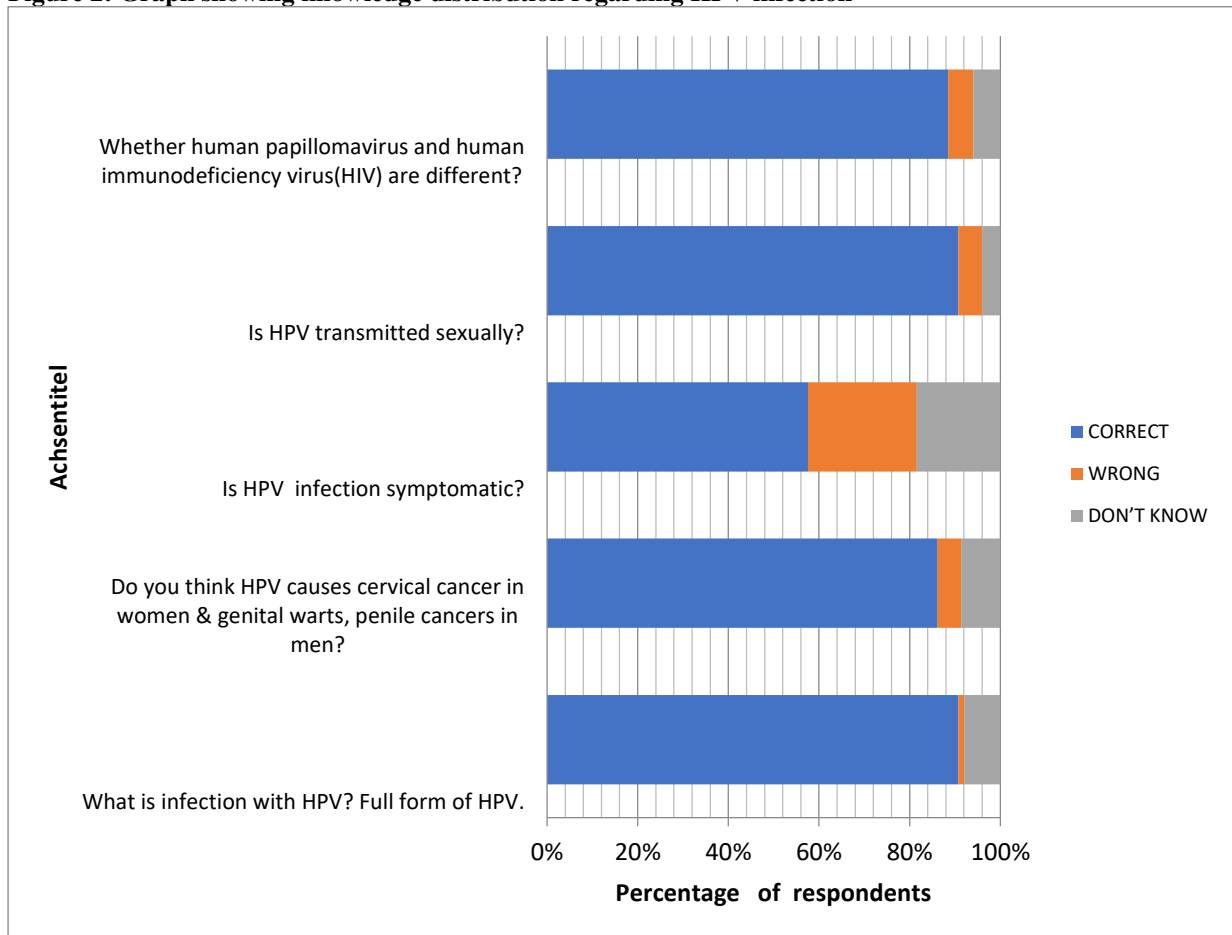
Assessment of knowledge using questionnaire revealed that the majority of the students were having knowledge about the prevention of Cervical Cancer (82.2%) as shown in Figure 1.

Figure 1: Graph showing knowledge distribution regarding preventive measures for Cervical Cancer



The causative agent being human papillomavirus for cervical cancer (93%), mode of transmission being sexual contact (90%) as shown in Figure 2.

Figure 2: Graph showing knowledge distribution regarding HPV infection



B) Knowledge of study population regarding screening and preventive measures of HPV infection/ Cervical cancer

The participants acknowledged that the cervical cancer can be detected using Paps smear (92%) , and 67% were aware of multiple screening methods (Figure 3).

Figure 3: Pie Chart showing knowledge regarding Cervical cancer screening methods

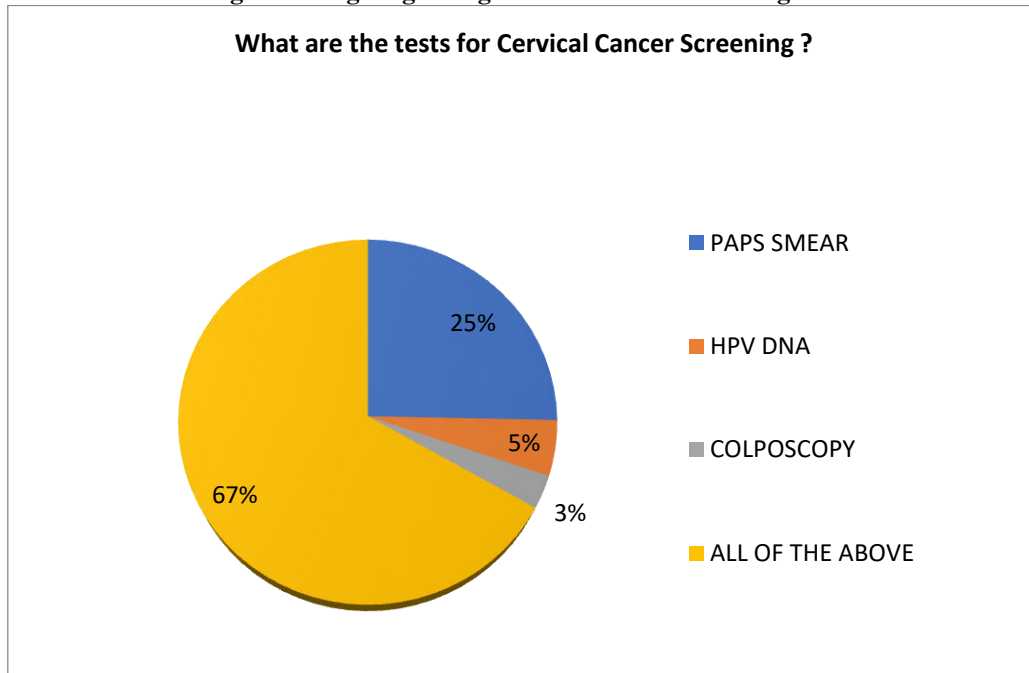
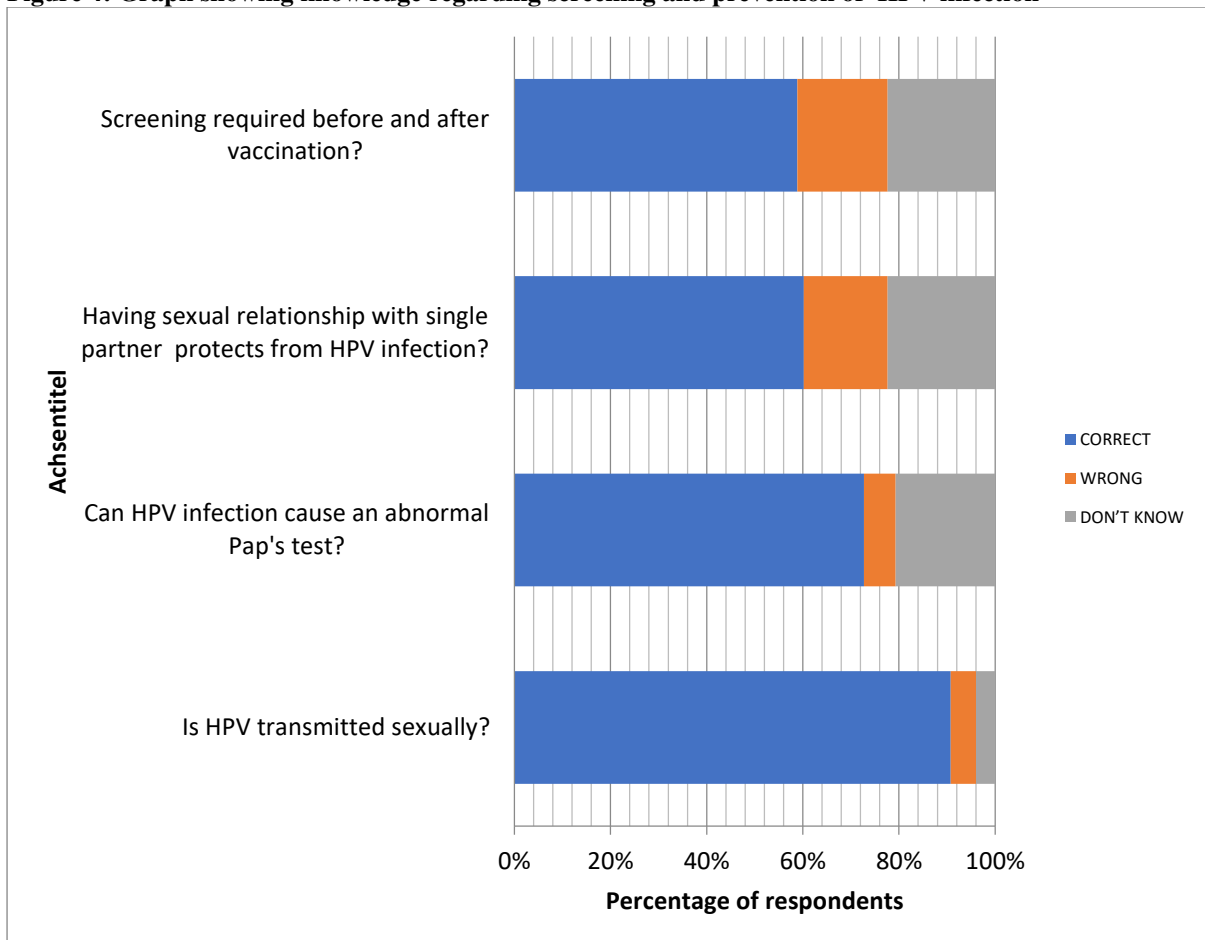


Figure 4: Graph showing knowledge regarding screening and prevention of HPV infection



C) Knowledge of study population regarding HPV vaccine

Figure 5: Graph showing knowledge regarding HPV Vaccine

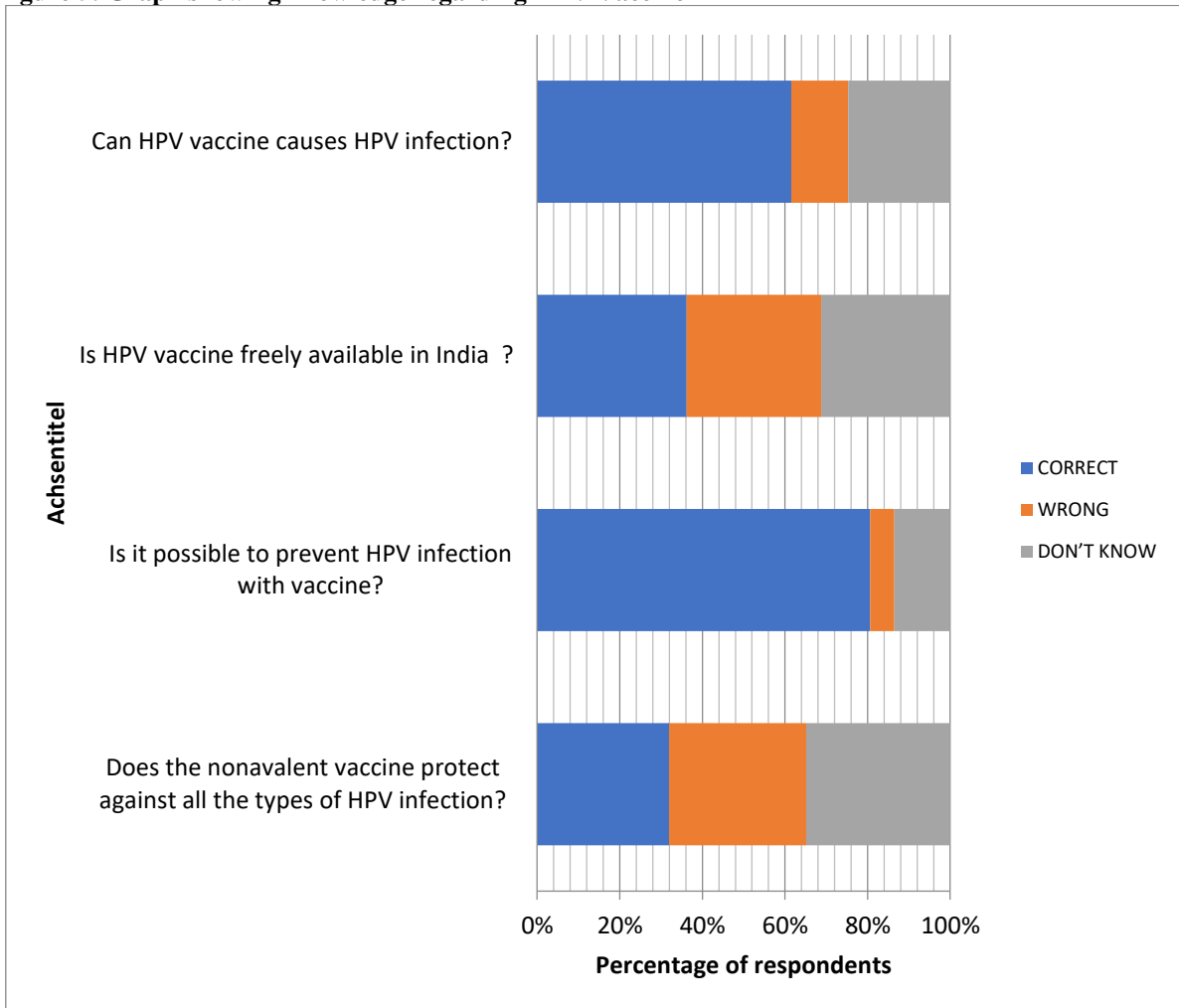
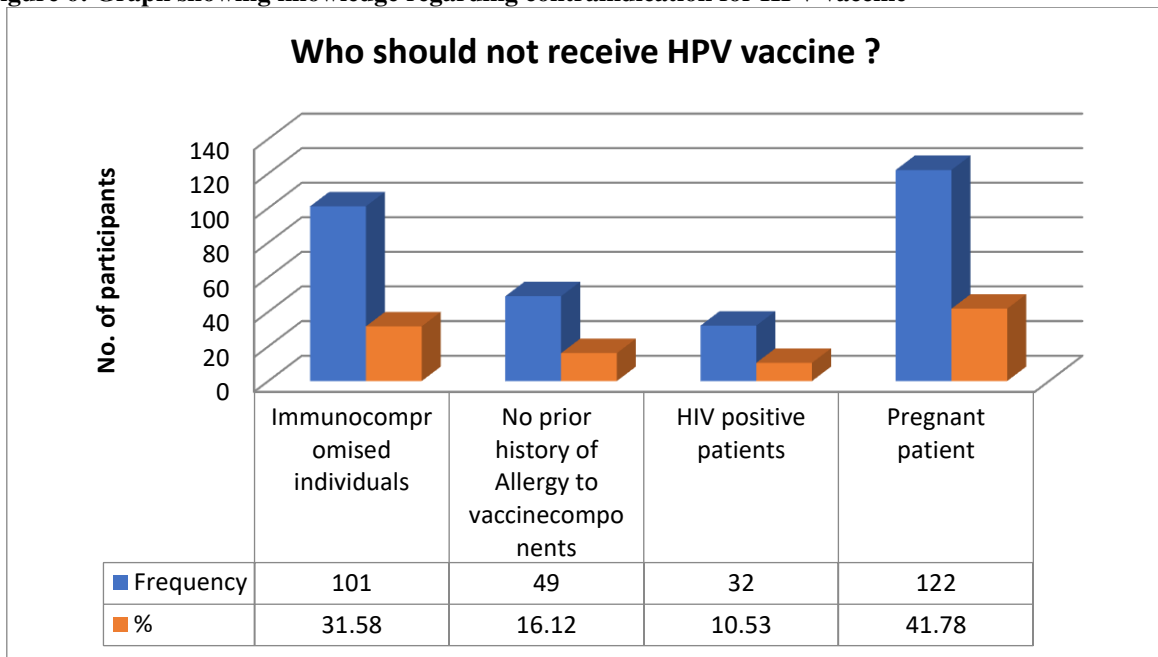
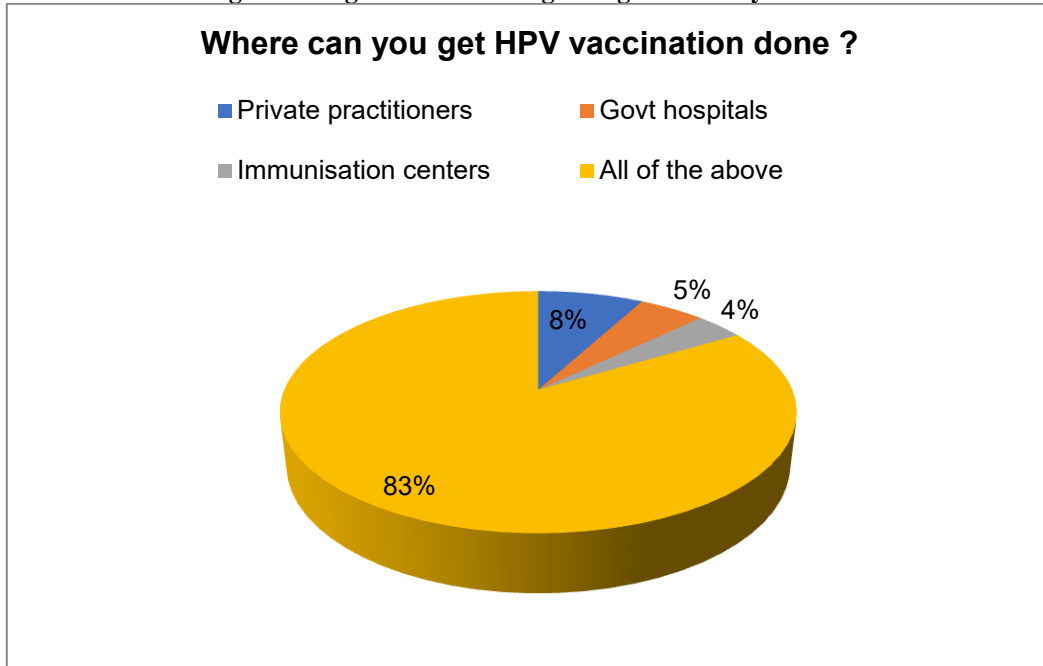


Figure 6: Graph showing knowledge regarding contraindication for HPV vaccine



Only 41.78% study participants were aware that HPV vaccine should not be given in pregnant patients.(Figure 6)

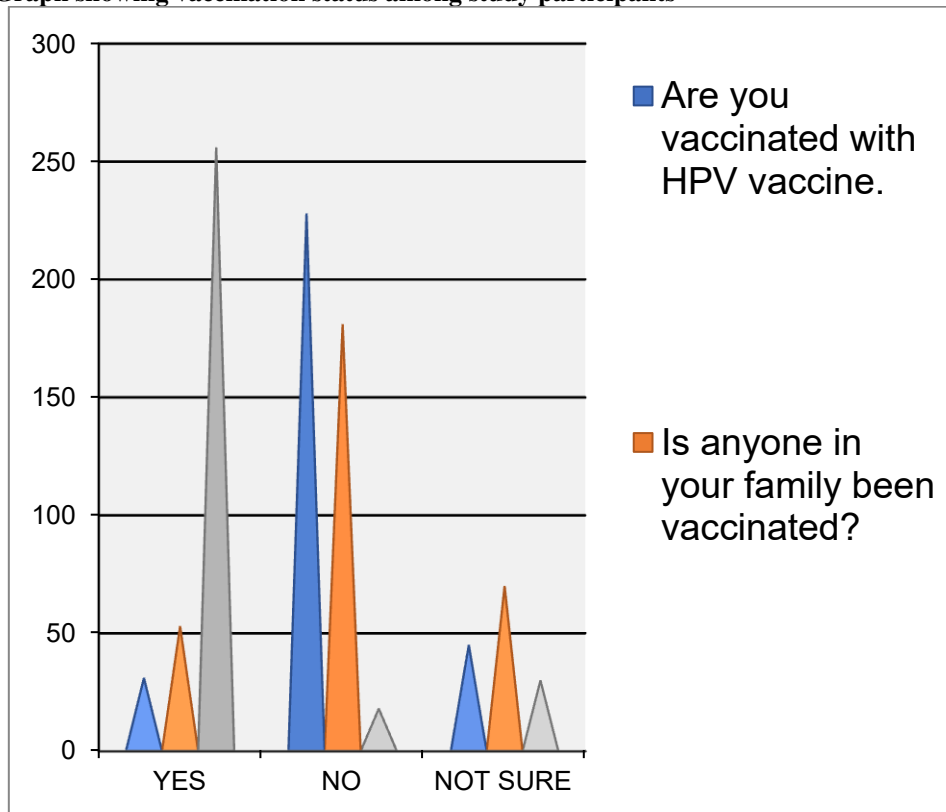
Figure 7: Pie chart showing knowledge distribution regarding availability of HPV vaccine



VACCINATION STATUS

In this study, only 10% found to be vaccinated & 82.22 % participants showed willingness for HPV vaccination (Figure 8).

Figure 8: Graph showing vaccination status among study participants



RESULTS

The study included participants with the mean age of 22.59 ± 2.82 years (18–40 years), females (54%) and males (46%).

The study results also indicated that females had more information regarding screening and preventive measures of HPV.

Out of the total sample, 71.22 % illustrated good knowledge regarding cervical cancer and HPV

vaccination. Majority (85%) were aware of the age groups who can receive HPV vaccine which is 9 to 45 years.

However, they had poor knowledge with respect to the vaccine available in India, & number of doses required.

DISCUSSION

Cancer is an invincible disease among which Cervical Cancer is the most common gynecological cancer affecting the women of age group between 15 and 44 years old. Researchers have found that HPV vaccines could be helpful in the prevention of certain cancers. But the knowledge about HPV, its association with Cervical Cancer and the preventable measures are low among the medical/paramedical/nursing students.

Thus, the current study was conducted to evaluate the overall knowledge and attitude regarding HPV and its vaccination among Medical/ paramedical/nursing students working in our centre.

In spite of the proven efficacy and potential for huge positive impact at the community level, the uptake of HPV vaccination is very low in many developing countries, including India. There are many reasons like, lower perceived risk of cervical cancer, non availability of vaccine, prohibitive cost (*Das et al., 2008*) etc.¹²

But lack of appropriate knowledge about role of HPV in causation of carcinoma cervix and HPV vaccine is one of the most important determining factors for poor uptake of vaccination. (*Barnack et al., 2010*).¹³

In our study results we found that females had more information regarding screening and preventive measures of HPV .

We also found that majority of the participants knew that HPV causes cancers in human like cervical cancer in women and genital warts, penile cancer in men (83%)

Similar to the study by *Kumar A, et al 2020* in which they found that among medical students majority of the students knew that HPV may cause cancer in humans (94%), leading to cervical cancer in females (84.5%).¹⁴

The results are similar to the study done by *Chawla P et al, 2016* in which 91% of the respondents were aware about the fact that HPV was the principal cause of cervical cancer.¹⁵

In our study we found that 80% agreed that HPV infection can be prevented with vaccination similar to the study by *Kumar A, et al 2020* where majority of the students (74.5%) considered vaccine to be safe and 71.5% students believed that the vaccine would be effective against cancer.¹⁴

In our study, around 82.22 % students showed willingness for HPV vaccination as compared to 88% in a study done by *Mehta et al.(2013)*.¹⁶

In our study, students of Medical students illustrated good knowledge regarding cervical cancer and HPV vaccination as compared to others

(paramedics/nursing). Similar findings were addressed in the study conducted by *Tripathy et al. (2015)*.¹⁷

The poor knowledge has reflected in poor uptake of vaccination, as only 10% have already received HPV vaccination. Similar to the study done by *K Swarnapriya, et al 2015* in which 6.8% already received vaccination.¹⁸ The reported reasons for the same were doubts regarding the efficacy of the vaccine , fear of side effects , prohibitive cost and lower perceived risk of Carcinoma cervix .

Female medical students had a significant knowledge score than the male students. Moreover, they also had very good knowledge regarding screening, preventive measures of HPV infection and were more willing to get vaccinated in future.

Similar findings were observed in the studies conducted by *Fu et al.(2014)*, *Boehner et al. (2003)* and *Blumenthal et al. (2012)* where female students have answered most of the questions correctly and showed a positivity towards HPV vaccination.^{19,20}

The present study was an initiative to evaluate the level of knowledge among medical/paramedical/nursing students about HPV infection and its related factors.

Knowledge among health care providers is even more important, as it may influence their intention to recommend the vaccine (*Riedesel et al., 2005*)²¹ and in turn can affect overall vaccine uptake in the community (*Daley et al., 2010*).²²

Prevention of the Cervical Cancer can be done through HPV vaccination and testing which is recommended for women of all age groups, but despite of the recommendations it has been notified that HPV vaccination rate and screening are very low. Therefore the study also has attempted to educate and spread awareness about the vaccination and screening which has anticipated to have a positive impact on the students.

Future studies can increase the impact by conducting a multi-centric study, including medical interns, post-graduates and nursing students across the country

CONCLUSION

As we observed in our study that there is a gap in understanding of HPV infection and vaccination, a more integrated teaching strategy about HPV carcinogenesis, vaccination, and cervical cancer is essential.

In India, where the disease burden is high, patient education for primary screening and HPV vaccination is critical, which can only be accomplished if healthcare providers are well-versed in all areas of cervical cancer prevention and management.

HPV education should be consistently integrated into college curriculum to raise medical students' understanding of HPV infection and vaccination.

Given the modest sample size and convenient sampling approach utilised in this study, we hope to conduct a larger survey in the future to share more

knowledge and information on Cervical Cancer and HPV vaccination, which can aid in many outgrowths.

DECLARATIONS

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Conflict of interest: None declared

Ethical approval: Done

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