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Original Research Paper

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KNOWLEDGE AND AWARENESS OF HUMAN PAPILLOMA VIRUS AND HUMAN PAPILLOMA VIRUS VACCINATION AMONG MEDICAL STUDENTS AT NAVODAYA MEDICAL COLLEGE RAICHUR KARNATAKA

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ABSTRACT

Background: Cervical cancer is the major health problem in India. It is the fourth most common cancer worldwide and the second most common among Indian women. Identification & prevention of pre-cancerous lesions helps to reduce incidence of carcinoma of cervix. **Aim:** The main aim of the study is to know the awareness & knowledge of HPV vaccine in prevention of cervical cancer among medical students. **Materials And Methods:** It is a cross-sectional questionnaire-based study was conducted among 600 medical students. The study included both male and female students studying from 2nd year to final year & Interns were enrolled and are requested to complete a questionnaire. **Results:** Among 600 medical students, 356 students (59.3%) were female and 244 (40.7%) were male. In terms of academic year, 25.7% are 2nd year, 29.2% are 3rd year, 28.3% are final year & 16.8% are Interns. The knowledge regarding HPV Vaccination was found to be poor 21.5% among medical students. **Conclusion:** The study aimed to evaluate the knowledge about HPV Virus & its Vaccination. Despite their medical background, many exhibited limited knowledge of the vaccine and low willingness to get vaccinated. The findings emphasize the importance of targeted educational strategies to increase awareness and promote HPV vaccination to prevent related health complications.

KEYWORDS : Cervical cancer, HPV Vaccination, Human papilloma Virus, Prevention, Awareness.

INTRODUCTION

Cervical cancer is the major health problem in India. It is the fourth most common cancer worldwide and the second most prevalent cancer among women in India,[1] contributing to 6–29% of all cancers in low -and -middle income countries.

India alone accounts for nearly one-quarter of the global cervical cancer burden, reporting over 1,32,000 new cases and around 70,000 deaths annually.[2]

Most cervical cancers can be prevented by HPV vaccination given before sexual activity, along with regular screening and treatment. HPV infection mainly affects women under 25 years.[3]

There are more than 200 HPV types, about 12 are high-risk namely types 16, 18, 31, 33, 35, 39, 45, 52, 56, 58 and 59. with types 16 and 18 being the most virulent.[4]

The three available vaccine are Bivalent, Quadrivalent, and Nona-valent are made up of recombinant DNA technology from the purified L1 protein that self assemble to form HPV type specific empty shells termed as virus-like particles (VLPs), None of the vaccines contains live biological products or viral DNA and therefore non infectious, they do not contain antibiotics or preservative agents. All three are highly effective against HPV types 16 &18, which cause around 70% of cervical cancer cases globally.[5]

In 2006, the FDA approved the HPV vaccine as a primary preventive measure for girls aged 9 to 15 years.

Female < 15 Years At The Time Of The First Dose

A 2-dose schedule (0, 6 months) is recommended. If the interval between doses is shorter than 5 months, then third dose should be given at least 6 months after the first dose.

Female > 15 Years At The Time Of The First Dose

A 3-dose schedule (0, 2, 6 months) is recommended (a 3-dose schedule remains necessary for Immunocompromised and/or HIV-infected).[6]

Aim & Objective:

This study aims to assess the knowledge and awareness of HPV infection and HPV vaccination among medical students at Navodaya Medical College. The findings will help identify gaps in understanding and inform future educational interventions to enhance vaccine uptake and prevent HPV-related diseases.

MATERIALS & METHODS

A cross-sectional questionnaire-based study was conducted among 600 medical students at Navodaya Medical College, Raichur. The study included both male and female students aged between 18-25 years studying in 2nd year to final year & Interns were enrolled , The students were explained about the the purpose of the study and its usefulness in preventing carcinoma of cervix & all were requested to complete a questionnaire & Data were entered in Microsoft Excel and analyzed using SPSS version 22.0 (IBM Corp, Armonk, NY, USA).

Ethical Clearance

Ethical clearance was obtained from the Institutional Ethics Committee at Navodaya Medical College, Raichur, Karnataka before the commencement of the study. Participation was voluntary, and informed consent was obtained from all respondents. Confidentiality was maintained throughout the study.

Statistical Analysis

Data were entered in Microsoft Excel and analyzed using SPSS version 22.0 (IBM Corp, Armonk, NY, USA). Descriptive statistics were used to present frequencies and percentages of categorical variables. Mean ± standard deviation (SD) was used for continuous variables such as age. Comparative analysis was conducted using the Chi-square test to examine associations between awareness levels and demographic factors like gender and academic year.

Method Of Collection Of Data

Study Site: Navodaya medical college hospital & research centre, Raichur. Karnataka
Study Design: Cross-sectional questionnaire-based study
Study Duration : 6 months (All those students who has taken 2 & 3 doses HPV Vaccination).
Sample Size: 600

Inclusion Criteria:

- Medical students studying in 2nd year to Final year and Interns enrolled in MBBS and aged between 18-25 years.
- Students Willing to participate in the study.

Exclusion Criteria:

- Students who have already participated in similar studies.
- Unwilling participants.

RESULTS

Table-1: Demographic Details Of Participants. (N=600)

Category of medical students	Variable	Frequency (n)=600	Percentage (%)
Gender	Male	244	40.7
	Female	356	59.3
Age (years)	19-21	446	52.1
	22-24	92	15.3
	27	2	0.3
Year of Study	MBBS Second Year	154	25.7
	MBBS Third Year	175	29.2
	MBBS Final Year	170	28.3
	Interns	101	16.8

A total of 600 medical students. Among them, 59.3% students were female & 40.7% were male. The age of the participants with highest representation is 19-21years 52.1%. 25.7% Students were 2nd year, 29.2% were 3rd year, 28.3% were final year, & 16.8% were Interns. **(Table-1)**

Table-2: Knowledge About HPV Virus

Questions	Options	Most Common Response (%)
Have you heard of Human Papilloma Virus?	Yes / No	Yes (99.2%)
How is HPV Transmitted?	Sexual Contact / Blood Transmission / Airborne Transmission / Skin to Skin Contact	Sexual Contact (79.7%)
Which Health Condition can HPV Cause?	Cervical Cancer & Genital warts / HIV-AIDs / Ovarian Cancer / Throat Cancer	Cervical Cancer & Genital warts (97%)
Which 2 HPV serotypes are responsible for most cervical cancer cases?	HPV 6 & 11 / HPV 16 & 18 / HPV 31 & 33 / HPV 45 & 52	HPV 16 & 18 (77%)
Who is at high risk for HPV-related complications?	Multiple sexual partners / Immunocompromised / Men who have sex with men / All of the above	All of the above (72.7%)

Out of 600 students 99.2% heard of the virus. Transmission routes were correctly identified by 79.7% as sexual contact. 97% correctly recognized that HPV can lead to cervical cancer or genital warts. 77% were aware that HPV types 16 &18 are responsible for most cervical cancer cases. Additionally, 72.7% correctly identified the high-risk groups for HPV-related complications.**(Table-2)**

Table-3: Knowledge Towards HPV Vaccination

Question	Options	Most Common Response (%)
Have you Received formal education on HPV & its Vaccine during studies?	Yes / No	Yes (78.5%)
Is there any effective vaccine available against HPV?	Yes / No / Not Sure	Yes (82.7%)
At what age HPV Vaccine is recommended?	At Birth / 9-14 Yrs / 18-25 Yrs / Any age >30	18-25 Yrs (48.7%)
How many doses of HPV Vaccination are recommended for full protection?	1 Dose / 2 Doses / 3 Doses	2 Doses (44.3%)/ 3 Doses (48.8%)
Have you received HPV Vaccination ?	Males/Females /Not taken vaccination	17(2.83%) / 64 (10.67%) / 519 (86.5%)
Do you recommend Vaccination for Men?	Yes / No	Yes(65%)

With respect to academic instruction, 78.5% of students received formal HPV education during undergraduate training. 82.7% knew effective vaccine is available. However, only 45.5% knew the recommended age (9–14 years), and 44.2% identified 2 -dose schedule & 48.8% identified 3 dose schedule. Only 17.2% have taken the vaccine and 51.6% had not taken it and 65% have recommended vaccination for Men. Knowledge towards the vaccine were generally positive. **(Table-3)**

Table 4: Attitude & Awareness Toward HPV Vaccination

Question	Options	Most Common Response (%)
Do you believe both male & female should receive HPV Vaccine?	Yes / No / Not Sure	Yes (77%)
How much percentage of cervical cancer cases can be prevented by the HPV vaccine?	50% / 70% / 90% / 100%	90% (41.7%)
What are the Serotypes of HPV where Gardasil 9 Vaccine protects against?	6,11,16,18,51,52,59, 66,68 / 6,11,16,18, 31, 33,45,52,56 / 6,11, 16,18	6,11,16,18,31,33,45,52,56 (49.2%)
What are the Serotypes of HPV where Cervivax vaccine protects against?	6,11 / 16,18 / 31,33 / 45,52	16,18 (64.2%)
HPV Vaccination is expensive?	Yes / No / Not Sure	Yes(60%)

77% believe both male & females should be vaccinated. Regarding vaccine's effectiveness in preventing cervical cancer 41.7% believed it prevents 90% of cervical cancers, 3.8% believed it was 100% effective & 22.7% were unsure .With regard to specific vaccines, 49.2% correctly identified that Gardasil 9 protects against 9 HPV serotypes while 64.2% correctly identified Cervivac as protecting against HPV types 16 &18 & 60% believed HPV vaccination is expensive.

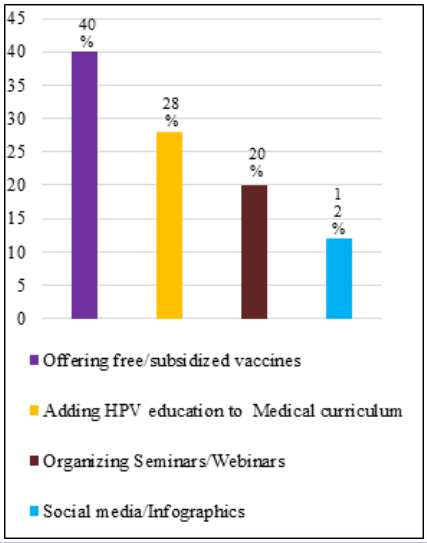

Figure-1: To Enhance HPV Vaccine Awareness in Medical Education

From Figure-1 Suggestions Included: Offering free or subsidized vaccines is 40%, Adding HPV education to the curriculum 28%, Organizing seminars/webinars is 20%, Social media is 12%.

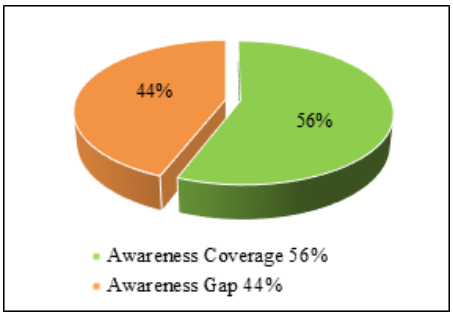

Figure -2 Academic curriculum

From Figure - 2 Only 56% of students felt the curriculum sufficiently. Covered HPV & its vaccination; 44% found it lacking.

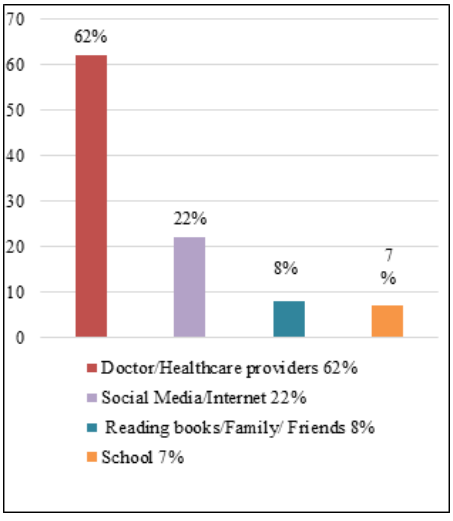

Figure- 3 Source of Information

From Figure - 3 Regarding the source of information, the majority of students **62%** reported that their main source of HPV-related knowledge was doctors or healthcare providers. Other sources included Internet/social media **22%**, Reading books/Family/Friends **8%,** School **7%.**

DISCUSSION

In the present study, Among 600 medical students, There is higher awareness of Viral etiology **99.2%** of cervical cancer but a slightly lower awareness of vaccine availability **82.7%** in comparison to the study conducted by **Challa et al. Tirupati**, of participants **89%** were aware of the viral etiology of cervical cancer & **90.5%** were aware of the availability of the HPV vaccine. The knowledge appears to be good.[7]

- In present study, total of **82.7%** participants were aware of the availability of the HPV vaccine, with **males 78.6%** & **females 86.2%** which is high in comparision to a study by **Pandey et al. Manipal** reported awareness was **65.7% males** & **83.1% female** medical students.[8]
- In the present study among all the participants only **10.67% female** & **2.83% male** participants had received complete vaccination which is low in comparison to study conducted by **Berenson et al. in U.S.** where **66.4%** female students & **14.7%** male students had received the vaccine.[9]
- **49.2%** of participants knew that Gardasil-9 protects against 9 HPV serotypes & **64.2%** identified that Cervivac provides protection against HPV types 16 & 18. These observations align with the findings of **Patel H et al.,** who highlighted poor recognition of vaccine-specific coverage among health science students globally.[10]
- In the present study about **65%** agreed that vaccination is recommended to men which is lower when compared to the study conducted by **Yam et al.,** Hongkong where **84%** recommended vaccination for Men.[11]
- In the present study **60%** believed that HPV vaccine is expensive which is slightly similar when compared to study conducted by **Kavitha et al. Karur 59%.**[12]

CONCLUSION

Citizens expect Government-funded, school-based programs, offering free/ subsided vaccines and inclusion of the HPV vaccine in India's national immunization program for easily identifying the early symptoms of the disease and to take preventive measures that could help reduce the cervical cancer burden in our society**.**

While such government initiatives are crucial their effectiveness also depends on the level of awareness & knowledge among future healthcare providers. The study is that there is good knowledge among medical students regarding cervical cancer & its prevention. But knowledge regarding HPV vaccine & availability of the vaccine was very low in spite of their high educational attainment. Vaccination status is poor among both males and females medical students. Willingness to get vaccinated in male students was very less compared to female students, Medical schools should modify their curricula to include teaching methods aimed at improving information regarding HPV vaccination. Thus widespread acceptance of HPV vaccines is likely to lend enormous health benefits by decreasing morbidity and mortality associated with cervical cancer. There is need to implement Mass media advertisements, Aggressive comprehensive health education programs, Group discussions, Interactive sessions, Target awareness campaigns, School & workplace based education programs, cost of vaccine to be reduced in line with public expectation & national interest.

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