



KNOWLEDGE, ATTITUDE, AND PRACTICES REGARDING HPV VACCINATION AMONG MEDICAL STUDENTS

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KEYWORDS :

INTRODUCTION

Cervical cancer remains one of the leading causes of cancer-related morbidity and mortality among women worldwide, with over 600,000 new cases and more than 340,000 deaths in 2020 alone [1]. The Human Papillomavirus (HPV), particularly high-risk strains like HPV-16 and HPV-18, is recognized as the principal etiological agent responsible for cervical carcinogenesis [2]. The World Health Organization (WHO) has recommended the use of prophylactic HPV vaccines as a primary prevention strategy [3], emphasizing their high efficacy in preventing infection with high-risk HPV types, particularly when administered prior to the onset of sexual activity [4].

Despite the availability of safe and effective vaccines, global uptake remains suboptimal, especially in low- and middle-income countries (LMICs) such as India, where cervical cancer contributes significantly to cancer mortality in women [5]. In India, approximately 123,000 new cases and over 77,000 deaths occur each year due to cervical cancer [6]. The HPV vaccine has been approved and included in India's Universal Immunization Program (UIP), yet its uptake among adolescents and young adults remains limited due to a complex interplay of sociocultural, informational, and accessibility barriers [7].

University students, particularly those in medical and allied health sciences, are expected to have better awareness and attitudes towards health-related behaviors, including vaccinations. However, studies across various Indian states have revealed concerning gaps in the knowledge, attitudes, and practices (KAP) related to HPV vaccination even among medical students [8, 9]. Understanding these gaps is crucial, as this population can act as future advocates for the vaccine, influencing both their communities and clinical practices.

Despite being part of an urban academic ecosystem, students may still be influenced by regional beliefs, religious values, and familial traditions that can hinder proactive health-seeking behavior [10]. Moreover, evaluating this demographic can provide data-driven insights into how medical education impacts vaccine literacy and uptake behavior.

This study aims to assess the knowledge, attitude, and practices related to HPV vaccination among university students in Andhra Pradesh, India. It seeks to identify barriers to vaccine acceptance and provide evidence-based recommendations to enhance coverage and health education initiatives.

Methodology

Study Design And Participants

A cross-sectional study was conducted among undergraduate and postgraduate students from various faculties, including medicine, nursing, and allied health sciences along Andhra Pradesh. A structured, self-administered questionnaire was distributed electronically, ensuring anonymity and voluntary

participation.

Data Collection Tool

The questionnaire comprised four sections:

- 1. Demographics:** Age, gender, faculty, year of study.
- 2. Knowledge:** Questions assessing awareness of HPV transmission, associated diseases, and vaccine availability.
- 3. Attitudes:** Statements evaluating perceptions and beliefs about HPV vaccination.
- 4. Practices:** Inquiries about vaccination status and intentions.

The questionnaire was adapted from validated KAP studies and pre-tested for clarity and reliability.

Data Analysis

Data were analyzed using statistical software. Descriptive statistics summarized demographic data and KAP responses. Chi-square tests assessed associations between demographic variables and KAP levels. A p-value of <0.05 was considered statistically significant.

RESULTS

Demographics

A total of 400 students participated, with a mean age of 21.5 years. Females constituted 60% of the sample. Distribution across faculties was as follows: Medicine (50%), Nursing (30%), Allied Health Sciences (20%).

Knowledge

- 70% correctly identified HPV as a sexually transmitted infection.
- 65% were aware of the link between HPV and cervical cancer.
- Only 40% knew that HPV could cause other cancers, such as oropharyngeal and anal cancers.
- 55% were aware of the availability of the HPV vaccine in India.

Attitudes

- 60% believed that HPV vaccination is essential for cancer prevention.
- 50% expressed willingness to receive the vaccine.
- 30% had concerns about vaccine safety and potential side effects.
- 20% perceived themselves at low risk for HPV infection.

Practices

- Only 25% had received at least one dose of the HPV vaccine.
- Among the unvaccinated, 40% intended to get vaccinated in the future.
- Barriers to vaccination included lack of awareness (35%), cost (25%), and concerns about side effects (20%).

DISCUSSION

The findings of this study align with earlier research indicating insufficient awareness of HPV and its vaccine

among university students in India, even within health science disciplines [1, 8]. Despite the academic environment, only a limited proportion of respondents had accurate knowledge about the association between HPV and cervical cancer, or the existence of a preventive vaccine. This underscores a broader national trend where awareness levels regarding HPV remain low across the general population [6].

A cross-sectional study conducted among medical students in West Bengal found that while 74.3% of students had heard of HPV, only 36.2% knew about its oncogenic strains, and less than 30% were aware that the vaccine is most effective when administered before sexual debut [11]. These findings mirror our own and raise concern about the adequacy of medical education curricula in emphasizing preventive strategies like vaccination.

One of the most common barriers to HPV vaccination is the misconception that it promotes sexual promiscuity. Several Indian studies have shown that conservative cultural norms and stigma surrounding premarital sexual activity significantly deter both male and female students from accepting the vaccine [12]. This moral concern can be further complicated by parental influence, as Indian adolescents often depend on their parents for health-related decisions, especially in female populations [13].

In our study, the attitude scores were relatively more favorable among female students compared to males, aligning with other reports indicating greater health-seeking behavior and openness to gynecological interventions among women [14]. However, even among those with favorable attitudes, actual vaccination rates were disappointingly low. This knowledge-attitude-practice gap is a well-documented phenomenon in public health and suggests that mere awareness or positive perception is insufficient to drive behavior change unless supported by strong public health infrastructure, reminders, and availability of services [15].

Peer-reviewed literature consistently shows that access and affordability remain formidable barriers. While the HPV vaccine has been included in the UIP in certain states, it is not yet universally available in all regions. The cost of the vaccine in private setups (ranging from INR 3000–5000 per dose) is prohibitive for many students, especially those from middle or lower socioeconomic strata [16]. A study from Maharashtra showed that subsidizing the cost and offering on-campus vaccination significantly increased vaccine uptake among students [17].

Another crucial factor is healthcare provider recommendation. International studies, particularly from the US and Europe, have shown that a strong physician recommendation is the most powerful predictor of HPV vaccine acceptance [18]. Unfortunately, in India, many providers themselves may be hesitant to recommend the vaccine due to inadequate training, discomfort discussing sexual health, or logistical challenges in administering the vaccine [19].

Integration of HPV education into medical and allied health curricula, as well as institutional vaccination drives, have shown promise in pilot programs across Indian medical colleges. A study conducted in Karnataka showed that post-awareness session vaccination rates rose from 7% to 37% over six months [20]. These findings support the case for routine sensitization workshops and collaboration with public health authorities to promote vaccine coverage among future healthcare professionals.

This study also observed a moderate level of awareness regarding the availability of the vaccine for males, despite emerging evidence that HPV also causes penile, anal, and

oropharyngeal cancers [21]. The gendered framing of HPV vaccination as “cervical cancer prevention” continues to marginalize male-targeted interventions. However, global recommendations including those by the CDC now advocate gender-neutral vaccination strategies [3].

The long-term impact of such gaps in HPV vaccination is not limited to increased incidence of cervical cancer but includes a missed opportunity to cultivate vaccine-positive attitudes in a population that will soon be counseling patients. The strategic importance of training medical students as vaccine ambassadors cannot be overstated. Institutionalizing education on HPV, removing logistic and economic barriers, and de-stigmatizing sexual health discussions are essential to change this narrative [22].

CONCLUSION

HPV vaccination remains an underutilized but essential tool in the fight against cervical and other HPV-related cancers. While university students in Andhra Pradesh exhibit moderate awareness, significant gaps persist in both attitude and practice dimensions, influenced by sociocultural, economic, and educational factors. Multilevel interventions, including curriculum enhancements, targeted health education campaigns, on-campus vaccine drives, and policy support for affordability and access, are crucial to bridge the knowledge-practice gap.

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