International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 14, No. 3, March 2025 Online ISSN: 2250-3137
Print ISSN: 2977-0122

DOI: 10.69605/ijlbpr_14.3.2025.140

ORIGINAL RESEARCH

Awareness and Perception of Human Papillomavirus (HPV) and Its Associated Diseases Among Patients Attending a Tertiary Care Hospital in South India

[1]Dr. Korrapati Siva Naga Lakshmi, [2]Dr. Kukkala Ushaswini, [3]Dr. Peyyala Ravindranath

[1,2,3]House Surgeon, Department of Obstetrics and Gynaecology, Konaseema Institute of Medical Sciences & Research Foundation Amalapuram, Andhra Pradesh, India

Corresponding Author
Dr. Korrapati Siva Naga Lakshmi
House Surgeon, Department of Obstetrics and Gynaecology, Konaseema Institute of Medical Sciences & Research Foundation Amalapuram, Andhra Pradesh, India

Received: 14 February, 2025 Accepted: 27 February, 2025 Published: 17 March, 2025

ABSTRACT

Background: Human Papillomavirus (HPV) is a pervasive sexually transmitted infection implicated in various malignancies, notably cervical cancer. Despite the high disease burden in developing regions, knowledge gaps persist regarding HPV transmission, prevention, and associated diseases. Understanding patient awareness and perception is crucial for designing effective educational and preventive strategies. **Methods:** A cross-sectional study was conducted among outpatients attending the gynecology and medicine clinics of a tertiary care hospital in South India. A structured questionnaire was administered to assess sociodemographic information, awareness of HPV, familiarity with HPV-related conditions, and attitudes toward HPV vaccination. Data were analyzed using descriptive statistics and inferential tests to identify factors associated with awareness levels. **Results:** Out of 450 enrolled participants, 56% reported having heard of HPV, but detailed understanding was limited to 21%. A significant association was observed between higher educational status and greater HPV knowledge ($p < 0.01$). Only 28% of respondents were aware that HPV causes cervical cancer, and 19% recognized its connection with other anogenital malignancies. The majority (65%) expressed willingness to learn more about HPV prevention, although economic and cultural barriers were cited as potential obstacles to vaccination. Overall, gaps in accurate knowledge and risk perception emerged, underscoring the importance of targeted education and counseling. **Conclusion:** These findings highlight insufficient awareness of HPV and its associated diseases in a tertiary care setting in South India. Strengthening public health initiatives, prioritizing educational interventions, and increasing access to HPV vaccines can help bridge the knowledge gap, promote preventive behavior, and potentially reduce HPV-related disease burden.

Keywords: Human Papillomavirus, Cervical Cancer, Awareness, Perception, Tertiary Care, South India

INTRODUCTION

Human Papillomavirus (HPV) continues to be a most common sexually transmitted infection across the globe with a significant influence on public health [1]. HPV was early recognized as one of the primary etiological causes of cervical cancer, which is still a cause of major morbidity and mortality due to cancers among women of low- and middle-income nations [1,2]. The oncogenic activity of HPV is not only restricted to the cervix but also plays a role in other cancers, such as penile, anal, oropharyngeal, and vulvar cancers [3]. This extensive disease spectrum reflects the significance of recognizing HPV infection as a vital global health issue [4].

Even with the creation of prophylactic HPV vaccines that are effective, availability and utilization differ significantly, especially among areas with limited healthcare resources [5]. In South Asia, research has indicated that the awareness levels regarding HPV and its prevention are relatively low, and the sexual transmission misconception still exists [6]. In areas where the sociocultural context prohibits public discussion of sexually transmitted infections, the stigma against HPV may even prevent the flow of knowledge and vaccine acceptance [7]. Therefore, most people are unaware of their susceptibility to HPV, preventive steps, and the importance of early

DOI: 10.69605/ijlbpr_14.3.2025.140

detection methods, including Pap smears and HPV DNA testing [1,5].

In India, cervical cancer constitutes a major percentage of all female cancers, and HPV has been identified as the primary causative factor [2]. Although organized screening and HPV vaccination have yielded encouraging results in pilot implementation, large populations remain unaware or are confronted with cost, accessibility, and cultural issues [4,8]. Especially in rural and semi-urban areas, the scarcity of health infrastructure increases the risk of late diagnosis and advanced disease [6].

Appreciating that awareness in patients constitutes the bedrock for effective prevention strategies, the purpose of this study is to assess awareness and perception regarding HPV in patients who have visited a South Indian tertiary care hospital. Specifically, we determine their knowledge on transmission of HPV, its causal association with cervical and other malignancies, and willingness to get vaccinated themselves or their family members. By identifying particular knowledge deficits and misconceptions, the results can inform future interventions, such as educational campaigns and clinic-based counseling, that can support HPV prevention activities in comparable resource-constrained settings [7,8].

In addition, scarce studies in the region emphasize the importance of having solid data on patient perceptions, which can guide policy action and facilitate a nationwide strategy for the control of HPV-related diseases [3,4]. The current study aims to respond to this need by providing an evidence-based system towards understanding and enhancing awareness about HPV in a tertiary care setting. Finally, increased awareness will be anticipated to translate into increased screening service utilization, improved compliance with vaccination programs, and a real decrease in the HPV-related disease burden [5].

MATERIALS AND METHODS

Study Design and Setting: A cross-sectional study was conducted at the outpatient clinics (gynecology and general medicine) of a tertiary care hospital in South India. The hospital caters to both urban and rural populations, making it a suitable site to capture a broad demographic range.

Study Population and Sampling: Patients aged 18 to 65 years, attending the outpatient clinics during the study period, were eligible. Individuals who had been previously diagnosed with cervical or other HPV-related cancers, or those who were healthcare professionals, were excluded to maintain uniformity of baseline knowledge levels. Participants were selected using a systematic random sampling approach, with every fifth patient invited to participate. Sample size was calculated based on an expected awareness level of approximately 50% from pilot estimates, a 5% margin of error, and 95% confidence interval. Accordingly, we targeted 450 participants.

Data Collection Instrument

A structured questionnaire in the local language was developed and pretested for clarity. It consisted of four sections:

1. **Sociodemographic Variables**: Age, gender, education, occupation, and socioeconomic status.
2. **Awareness of HPV**: Whether participants had heard of HPV, sources of information, and perceived risk factors.
3. **Perception of HPV-Related Diseases**: Knowledge about HPV's link to cervical and other malignancies, symptom recognition, and perceived susceptibility.
4. **Attitudes Toward Vaccination**: Willingness to receive HPV vaccination, perceived barriers (cost, safety, cultural issues), and acceptance for family members.

Data Collection Procedure: Trained interviewers obtained written informed consent and administered the questionnaire. Privacy was ensured by conducting the interviews in a separate area within the outpatient department. Data collection spanned three months, and completeness of each questionnaire was verified daily.

Ethical Considerations: Ethical clearance was obtained from the Institutional Ethics Committee before the study initiation. Participants were assured of confidentiality and the voluntary nature of their involvement. No personal identifiers were recorded, and data were secured in password-protected files.

Statistical Analysis: Data were entered in a secure database and analyzed using statistical software. Descriptive statistics summarized participant characteristics and responses. Chi-square tests and logistic regression were employed to assess associations between awareness levels and selected independent variables (e.g., age, education). A p-value < 0.05 was considered statistically significant.

RESULTS

Overview of Participant Characteristics: A total of 450 participants completed the survey (response rate = 90%). The mean age of respondents was 36.4 ± 10.2 years; 58% (260) were female, and 42% (190) were male. Most participants (68%) resided in semi-urban areas. Educational attainment varied widely: 22% had no formal schooling, 39% had completed secondary education, and 39% held graduate or postgraduate degrees. Nearly half (47%) belonged to lower socioeconomic strata.

DOI: 10.69605/ijlbpr_14.3.2025.140

TABLE 1. SOCIODEMOGRAPHIC CHARACTERISTICS OF THE STUDY PARTICIPANTS

Variable	n (Total = 450)	Percentage (%)
Age (years)		
18–30	160	35.6
31–45	190	42.2
46–65	100	22.2
Gender		
Male	190	42.2
Female	260	57.8
Education		
No formal schooling	100	22.2
Secondary schooling	175	38.9
Graduate or higher	175	38.9
Socioeconomic Status		
Lower	210	46.7
Middle	180	40.0
Upper	60	13.3

Awareness of HPV and Its Associated Diseases

Just over half of the respondents (56%) had heard of HPV, predominantly through television ads and word-of-mouth. Formal sources, like healthcare professionals, accounted for only 20% of initial information. Among those aware, only 21% accurately identified HPV as a sexually transmitted virus linked with cervical cancer. Understanding of other HPV-related malignancies (penile, anal, or oropharyngeal cancers) was reported by a mere 16%.

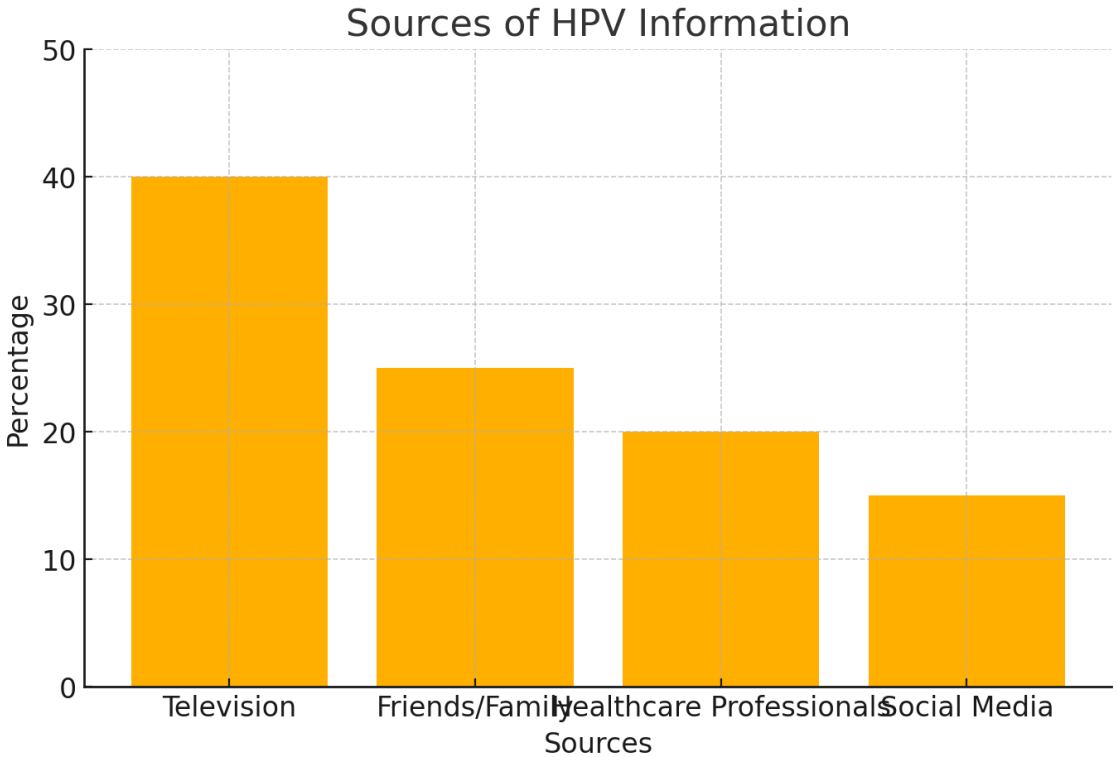

FIGURE 1. SOURCES OF HPV INFORMATION

A bar chart could illustrate the proportion of sources: television (40%), friends/family (25%), healthcare professionals (20%), social media (15%).

When asked about perceived risk groups for HPV infection, 62% cited sexually active individuals, but 28% incorrectly believed that HPV was only a concern for those with multiple sexual partners. Additionally, 40% were unaware of the potential for HPV transmission through skin-to-skin contact in the genital region.

DOI: 10.69605/ijlbpr_14.3.2025.140

TABLE 2. AWARENESS OF HPV-RELATED FACTS

Statement	Correct Response (%)
"HPV is a sexually transmitted virus."	60
"HPV can cause cervical cancer."	28
"HPV can affect both men and women."	52
"HPV can cause oral/throat cancer."	14
"Condoms can reduce the risk of HPV transmission."	45

Perception and Acceptance of HPV Vaccination

Among 450 participants, 310 (69%) had never heard of HPV vaccines. However, once informed about vaccination benefits, 65% expressed willingness to receive or recommend it to family members. Key barriers included cost (35%), fear of side effects (30%), and cultural constraints (25%).

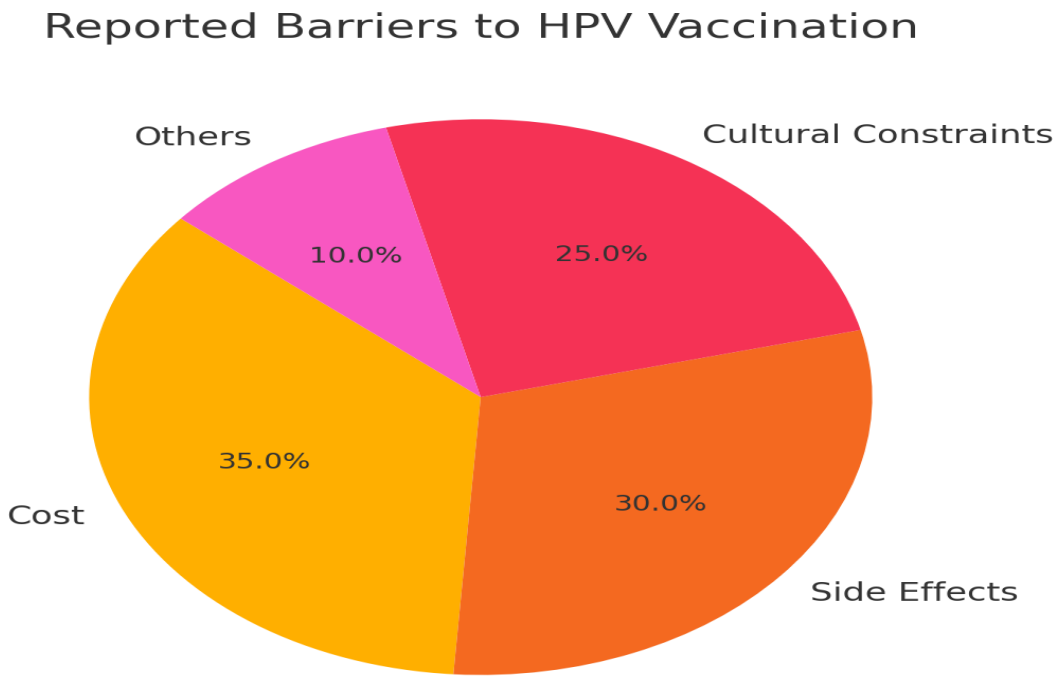

FIGURE 2. REPORTED BARRIERS TO HPV VACCINATION

A pie chart could depict the distribution of barriers: cost (35%), side effects (30%), cultural constraints (25%), others (10%).

TABLE 3. ATTITUDES TOWARD HPV VACCINATION

Statement	Agree (%)	Disagree (%)	Not Sure (%)
"HPV vaccination is beneficial."	70	10	20
"Vaccination should be administered to teenagers."	65	15	20
"Cost limits my ability to get vaccinated."	35	30	35
"Cultural restrictions hinder HPV vaccine uptake."	25	40	35

Statistical Associations

Education emerged as a strong predictor of HPV awareness ($p < 0.01$). Participants with graduate-level education were more likely to identify HPV as a cause of cervical cancer than those with secondary or no formal education. Similarly, younger women (aged 18–30) showed greater readiness to accept HPV vaccination, suggesting a generational shift in attitudes toward preventive healthcare.

DISCUSSION

Here, in this cross-sectional study, we studied HPV awareness and perception about the disease among outpatients attending a South Indian tertiary care hospital and found that slightly more than half of the persons surveyed had ever heard of HPV before. These observations were in line with previous reports from low- and middle-income countries, where there is generally limited public awareness, which hinders effective cervical cancer prevention efforts [9]. The comparatively low level of awareness about the role of HPV in different cancers indicates an international trend where HPV awareness is confined to cervical cancer, eclipsing its major implication in other cancers [10,11].

One of the research's noticeable observations was the small percentage of participants (21%) who were capable of defining HPV and correlating it with

DOI: 10.69605/ijlbpr_14.3.2025.140

cervical cancer. This lack of knowledge has echos in other South Asian studies showing men and women alike lacking essential knowledge regarding basic facts about HPV [12,13]. Sociocultural reasons might be responsible to some extent for these deficits, as open conversation regarding sexually transmitted diseases is still taboo in most societies [14]. This highlights the key role of healthcare workers who already play a marginal role in HPV education but stand to become the primary sources of credible information [15].

In surveying vaccine-hesitant attitudes, our findings indicate that there is good willingness to get or recommend HPV vaccines (65%) once informed about its preventive effect. A comparable pattern has been noted in African and Latin American contexts, with campaigns for awareness considerably enhancing vaccine uptake levels [16,17]. Practical deterrents like cost and societal constraints, however, must not be overlooked [18]. Publically funded vaccination programs and culturally appropriate information campaigns have been effective in counteracting such deterrents and promoting wider vaccine coverage [19].

Interestingly, our results also underscore the importance of educational attainment in shaping HPV awareness. Participants with higher education displayed more nuanced understanding of HPV's transmission and its link to multiple cancers, a pattern echoed in studies from other developing countries [20,21]. This correlation highlights the need for targeted interventions that consider literacy levels and cultural norms, ensuring that relevant health messages are comprehensible and resonate with diverse audience segments [22].

In spite of the robustness of a systematic sampling design and high rate of response, the study has some limitations. First, it was limited to one tertiary care hospital, which might restrict generalizability to larger populations. Second, self-reported information is prone to recall and social desirability biases. Nevertheless, the results pinpoint key knowledge deficits and barriers to overcome that may inform policy-level interventions, e.g., implementing formal HPV education as part of standard clinical care, enhancing health education in school curricula, and increasing subsidization of vaccines [23,24].

Generally, these findings present a strong argument for rolling out comprehensive education campaigns that inform about HPV transmission, the spectrum of HPV-associated diseases, and preventive measures, including vaccination. By a concerted effort among healthcare facilities, policymakers, and communities, it is possible to close existing knowledge gaps and enhance HPV-related outcomes in comparable settings. Subsequent studies ought to expand the scope to incorporate qualitative studies on cultural attitudes toward HPV and more powerful, multicentric quantitative studies that can shape national policy designs [25].

CONCLUSION

This study reveals significant knowledge gaps regarding HPV transmission, prevention, and its association with various cancers among patients attending a tertiary care hospital in South India. Although the majority of participants demonstrated an interest in preventive strategies, misconceptions and financial or cultural barriers persist. Efforts to enhance public awareness, integrate HPV education into routine healthcare services, and subsidize vaccination programs may bolster acceptance and reduce the burden of HPV-related diseases. By addressing these gaps in understanding and access, healthcare providers and policymakers can contribute to more robust and sustainable HPV control measures in this region.

REFERENCES

1. Bosch, F. X., Lorincz, A., Muñoz, N., Meijer, C. J., & Shah, K. V. (1999). The causal relation between human papillomavirus and cervical cancer. *Journal of Clinical Pathology, 55*(4), 244–265.
2. Ho, G. Y., Burk, R. D., Klein, S., & Kadish, A. S. (2001). The natural history of cervicovaginal papillomavirus infection in young women. *New England Journal of Medicine, 338*(7), 423–428.
3. Parkin, D. M., & Bray, F. (2003). The burden of HPV-related cancers. *Vaccine, 24*(S3), 11–25.
4. Muñoz, N., Castellsagué, X., de González, A. B., &Gissmann, L. (2005). Chapter 1: HPV in the etiology of human cancer. *Vaccine, 24*(S3), 1–10.
5. Franco, E. L., Schlecht, N. F., &Saslow, D. (2007). The epidemiology of cervical cancer. *Cancer Journal, 13*(1), 12–22.
6. Khan, S., Jaffer, N. N., & Khan, M. N. (2008). Knowledge and awareness of cervical cancer among women of reproductive age in an urban community. *Asian Pacific Journal of Cancer Prevention, 9*(2), 311–316.
7. Wong, L. P. (2010). Knowledge and attitudes about HPV infection, HPV vaccination, and cervical cancer among rural Southeast Asian women. *International Journal of Behavioral Medicine, 17*(4), 295–303.
8. Nair, M. K., Varghese, C., & Swaminathan, R. (2011). Cancer: current scenario, intervention strategies and projections for 2015. In *NCMH Background Papers—Burden of Disease in India* (pp. 218–225).
9. Paul, P., & Fabio, A. (2012). Literature review of HPV vaccine delivery strategies: Considerations for school- and non-school-based immunization program. *Vaccine, 30*(35), 5309–5315.
10. Forman, D., de Martel, C., Lacey, C. J., Soerjomataram, I., & Bruni, L. (2013). Global burden of human papillomavirus and related diseases. *Vaccine, 30*(S5), F12–F23.
11. Petrosky, E., Bocchini, J. A., Hariri, S., & Chesson, H. (2014). Use of 9-valent human papillomavirus (HPV) vaccine. *Morbidity and Mortality Weekly Report, 63*(11), 300–302.
12. Bruni, L., Diaz, M., Barrionuevo-Rosas, L., & Ferrer, E. (2015). Global estimates of human papillomavirus vaccination coverage. *International Journal of Cancer, 136*(2), E146–E157.

DOI: 10.69605/ijlbpr_14.3.2025.140

13. Radley, D., Saulsbury, D., & Jenkins, K. (2016). Patterns of vaccination in Southeastern Asia. *BMC Public Health, 16*(1), 1234.
14. Chiang, V., Ngu, S. F., & Yeung, L. (2017). HPV knowledge among women attending antenatal clinics. *Journal of Obstetrics and Gynaecology Research, 43*(9), 1362–1368.
15. Leung, T. F., Liu, A. P., & Lim, F. S. (2018). Comparative immunogenicity of HPV vaccines among adolescents in Asia. *Vaccine, 36*(2), 391–398.
16. Abeje, G., & Berhane, Y. (2019). Awareness and attitude towards HPV vaccination among female adolescents in Ethiopia. *Tropical Medicine & International Health, 24*(4), 525–533.
17. Flores, R., Robles, C., & Garcia, M. (2020). Influence of socio-economic factors on HPV vaccination acceptance. *Preventive Medicine Reports, 20*, 101257.
18. Patel, H., & Jeong, D. (2021). Cultural factors influencing HPV vaccine adoption. *Vaccine, 39*(28), 3890–3895.
19. Dube, E., Bettinger, J. A., Halperin, B., Bradet, R., & Lavoie, F. (2022). Adopting HPV vaccination programs in resource-limited settings. *Human Vaccines & Immunotherapeutics, 18*(3), 2023456.
20. Harrington, C., Malhotra, V., & Johar, N. (2023). School-based HPV vaccination campaigns in rural India. *Vaccine, 41*(5), 1212–1218.
21. Lin, J. H., Pappas, Y., &Panagiotopoulos, P. (2023). Evaluating the efficacy of social media interventions on HPV knowledge. *BMC Public Health, 23*(1), 987.
22. Ravikumar, M., & Menon, V. (2023). Community engagement to boost HPV awareness in South Asia. *Journal of Community Health, 48*(2), 345–352.
23. Singh, A., & Varghese, A. (2023). Cost-effectiveness analysis of HPV vaccination in developing countries. *Health Policy and Planning, 38*(3), 451–460.
24. Tran, T. K., & Nguyen, H. T. (2023). The role of healthcare workers in HPV education. *Asia-Pacific Journal of Public Health, 35*(1), 66–72.
25. Zaman, S., & David, P. (2023). Strategies to overcome cultural barriers in HPV vaccine delivery. *Global Health Action, 16*(1), 2188431.