RESEARCH PAPER

Knowledge, Attitudes, and Practices of Physicians in Kochi Regarding HPV Vaccine Prescription: A Cross-sectional Study

Dr Maneesha Mohan[1]*, Dr Mamta Chauhan[2], Dr Piyusha Majumdar[3], Dr Kajal Sitlani[4]

[1]Management Trainee, Narayana Health, Bangalore, India
[2]Professor, IIHMR University, Jaipur, IND
[3]Associate Professor, IIHMR University, Jaipur
[4]Assistant Professor, IIHMR, University, Jaipur

***Corresponding Author:** Dr Maneesha Mohan,
Management Trainee, Narayana Health, Bangalore, India
Email: manishamohanpanicker@gmail.com

Abstract:

Background: Cervical cancer is among the leading preventable cancers affecting women in India, with Human Papillomavirus (HPV) being its principal etiological agent. Despite the availability of effective HPV vaccines such as Gardasil and Cervavac, uptake remains low. Physicians play a crucial role in influencing vaccine acceptance through their knowledge, attitudes, and prescribing behaviours.

Objective: This study aimed to evaluate the knowledge, attitudes, and practices (KAP) of physicians in Kochi, Kerala regarding HPV vaccine prescription and identify key factors influencing their recommendation patterns.

Methods: A descriptive cross-sectional study was conducted among 120 physicians (gynaecologists, paediatricians, general practitioners, and physicians) in Kochi during April–May 2025. A structured 24-item questionnaire, validated through expert review and pilot testing, assessed participants' KAP related to HPV vaccination. Descriptive statistics and chi-square tests were applied using SPSS to explore associations between demographic variables and KAP scores.

Results: High levels of awareness were observed: 99.2% recognized HPV as a cause of cervical cancer, and 83.3% correctly identified the recommended vaccination age (9–14 years). While 80% reported having recommended the vaccine at least once, only 55% did so routinely. Attitudinally, 96.6% believed in the vaccine's effectiveness, yet practical barriers such as cost (90.8%) and cultural resistance (87.5%) were frequently cited. Significant associations were found between medical specialty and both knowledge and prescription behavior ($p < 0.05$).

Conclusion: Despite strong knowledge and positive attitudes, prescribing practices remain inconsistent, highlighting a need for systemic interventions such as Continuing Medical Education (CME), consultation prompts, and culturally sensitive patient education materials. Strengthening these elements may improve HPV vaccine uptake and contribute to cervical cancer prevention goals.

Keywords: HPV vaccine, KAP study, Physicians, Cervical cancer, Vaccine prescription, Kochi, Cervavac

How to cite this article: Mohan M, Chauhan M, Majumdar P, Sitlani K. Knowledge, Attitudes, and Practices of Physicians in Kochi Regarding HPV Vaccine Prescription: A Cross-sectional Study. Int J Drug Deliv Technol. 2026;16(24s): 931-936; DOI: 10.25258/ijddt.16.24s.109

1. Introduction

Cervical cancer is still one of the major causes of cancer deaths in women worldwide, especially in low- and middle-income settings (LMICs). In India, it is the second most frequent female cancer, with more than 120,000 new cases and close to 80,000 deaths each year [1]. Chronic infection with high-risk human papillomavirus (HPV), particularly types 16 and 18, is the major etiologic factor. Even though vaccines with very high efficacy like Gardasil, Cervarix, and more recently the home-grown Cervavac are available, HPV vaccination coverage in India is critically low [2,3]. At the global level, the World Health Organization (WHO) introduced the Global Strategy to Eliminate Cervical Cancer in 2020, aiming for 90% HPV vaccine coverage in girls by 15 years [4]. India is confronted with issues regarding vaccine affordability, cultural acceptance, and health professional engagement. Health professionals—particularly physicians—are pivotal in shaping vaccine choice. A number of studies have identified

physician recommendation as the most reliable predictor of vaccine acceptance [5,6].

Though research from Malaysia [7], Sri Lanka [8], and the Sub-Saharan African region [9] presents similar roadblocks in LMICs, the Indian scenario is compounded by regional differences and splintered immunization programs. As the recent introduction of Cervavac under the National Immunization Programme of India, it is crucial to understand the determinants of behavior among health workers to closing the last-mile gap.

Kochi, Kerala provides a fascinating vantage point for studying these behavioral dynamics. With a relatively developed health infrastructure, high literacy levels, and dynamic public-private healthcare systems, Kochi presents a perfect context to explore how physician knowledge, attitudes, and practices (KAP) shape HPV vaccine delivery. The current study will evaluate doctors' KAP in Kochi and determine major gaps and drivers in vaccine recommendation practices.

2. Methods

2.1 Design and Setting

Descriptive cross-sectional survey was performed among doctors in Kochi, Kerala. The research was conducted in gynaecologists, paediatricians, doctors, and general practitioners engaged in preventive care and immunization counseling.

2.2 Sample Size and Sampling Technique

Applying Cochran's formula with 90% confidence level and 5% margin of error, the optimal sample size was estimated as 267. Due to feasibility and response rate considerations, a sample size of 120 completed questionnaires was finalized through convenience sampling.

2.3 Instrument Design

A structured 24-item questionnaire was constructed, including demographic information (4 items), knowledge (9 items), attitude (7 items), and practice (4 items). The questionnaire was validated by expert review and pilot tested for reliability.

2.4 Data Collection and Analysis

Information was obtained through an online Google Form sent through professional networks. Responses were examined with SPSS Version 20. Descriptive statistics (percentages, frequencies) were employed in summarizing KAP variables. Chi-square tests were employed to measure associations between demographic variables and KAP outcomes. A p-value < 0.05 was assumed statistically significant.

2.5 Ethical Considerations

Institutional Ethics Committee clearance was received from IIHMR University. Informed digital consent was obtained from all the participants. Data confidentiality and anonymity were rigorously ensured.

3. Results

A total of 120 physicians participated in the study. Of these, 55.8% were female. The most represented specialties were gynaecology (40%) and paediatrics (31.7%), followed by general practice (28.3%). Most respondents were employed in private healthcare settings (68.3%) and had between 6 and 15 years of clinical experience (Table 1).

3.1 Knowledge

Participants demonstrated high knowledge levels: all respondents (100%) correctly identified HPV as the causative agent of cervical cancer, and 98.3% recognized it as a sexually transmitted infection. Additionally, 83.3% knew the recommended vaccination age group (9–14 years). Awareness of the indigenous vaccine Cervavac was reported by 69.2% (Figure 1).

3.2 Attitudes

Attitudinal indicators were also promising. A vast majority (96.6%) believed in the efficacy of the HPV vaccine. However, cost concerns (90.8%) and perceived cultural hesitancy (87.5%) were cited as substantial barriers. Furthermore, 95.8% of physicians indicated that they would recommend the vaccine if it were available free of cost (Figure 2).

3.3 Practice

While 80% of participants reported recommending the vaccine at least once, only 55% said they routinely discussed it during patient consultations. Frequency of prescription was significantly higher among gynaecologists (92%) and paediatricians (81%) compared to general practitioners (55%) (Figure 3).

3.4 Correlations

Chi-square analysis revealed a statistically significant association between medical specialty and both knowledge of national immunization guidelines and prescription behavior ($p < 0.05$). However, no significant association was found between gender and any of the KAP indicators.

4. Discussion

This research validates a high rate of knowledge and positive attitudes among Kochi physicians towards HPV vaccination, consistent with other

urban-based KAP research carried out in India. Chawla et al. [5] reported that though awareness was excellent among healthcare professionals in Delhi-NCR, routine recommendation rates were considerably lower. Likewise, Goruntla et al. [6] found that even a third of the doctors in Andhra Pradesh actively prescribed the vaccine despite understanding its preventive potential. These findings indicate an enduring gap between awareness and action.

One of the major findings in our research is the impact of speciality in medicine on promotion of vaccines. Gynaecologists and paediatricians were more inclined to bring up vaccine discussions and provide prescriptions, presumably because of greater contact with the adolescent group. Mandal et al. [7] also noted that junior clinicians and general doctors exhibited lower levels of vaccine involvement due to limited exposure, conflicting priorities, and absence of organised communication tools.

Attitudinal support, while virtually unanimous in our sample, was threatened by economic and sociocultural barriers. Cost issues continue to predominate. Inclusion of Cervavac into the national program offers a significant cost-savings opportunity, which is reinforced by recent pilot studies carried out by PATH and ICMR [10,11]. Resistance based on culture, usually because HPV is sexually associated, was most commonly cited by participants. This is in line with the findings from Abeysinghe et al. [8], where they meta-synthesized qualitative evidence in South Asia and found that sexually transmitted infection-related stigma hinders provider confidence as well as parental acceptance.

Another important finding is the minimal integration of HPV vaccine counselling into standard clinical discourse. Fewer than 60% of doctors had regularly discussed it with patients. This is problematic since provider recommendation is the most powerful independent predictor of whether or not a vaccine is being taken, as shown by Holman et al. [3] and again highlighted in a review across multiple countries by Gallagher et al. [12].

Behavioral science presents some avenues to fill this practice gap. The Health Belief Model and nudge theory suggest that minor environmental and systemic modifications—e.g., vaccine reminder prompts, visual patient education aids, or rewarded CME credits—can affect clinical behavior [13]. Furthermore, research in Kenya and Nigeria has documented that HPV vaccine education during well-adolescent visits increases uptake by 22–35% [14,15].

Rwanda's school-based delivery strategy, with more than 90% coverage, is a global gold standard. This was successful not only through structural delivery mechanisms but also through culturally adapted messaging and intersectoral collaboration between health and education ministries [9]. India's National Technical Advisory Group on Immunization (NTAGI) is also considering similar intersectoral approaches to roll out Cervavac at the national level [16].

Lastly, a multi-level approach involving active physician engagement, culturally appropriate community campaigns, electronic record linkage, and frontline mobilization of health workers will be needed to assist India in achieving WHO cervical cancer elimination targets by the year 2030.

References:

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide. CA Cancer J Clin. 2018;68(6):394–424.
2. World Health Organization. Human papillomavirus (HPV) and cervical cancer. WHO Fact Sheets. 2022. https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer
3. Holman DM, Benard V, Roland KB, Watson M, Liddon N, Stokley S. Barriers to HPV vaccination among US adolescents. JAMA Pediatr. 2014;168(1):76–82.
4. World Health Organization. Global strategy to accelerate the elimination of cervical cancer as a public health problem. Geneva: WHO; 2020.
5. Chawla P, Chawla A, Chaudhary S. Knowledge, attitude & practice on human papillomavirus vaccination: A cross-sectional study among healthcare providers. Indian J Med Res. 2016;144(5):741–749.
6. Goruntla N, Mallepalli PK, Nayakanti D, et al. Knowledge, attitude, and practice of HPV vaccination among healthcare

providers in India. J Family Med Prim Care. 2020;9(7):3431–3437.
7. Mandal S, Paul P, Roy R. HPV vaccine recommendation practices among young clinicians in India: A multi-institutional survey. Indian J Public Health. 2024;68(2):112–118.
8. Abeysinghe S, Jayathilake MM, Amarasinghe I, et al. Barriers and enablers for HPV vaccination in South Asia: A qualitative synthesis. BMC Public Health. 2021;21(1):1–11.
9. Binagwaho A, Wagner CM, Gatera M, Karema C, Nutt CT, Ngabo F. Achieving high coverage in Rwanda's national human papillomavirus vaccination programme. Bull World Health Organ. 2012;90(8):623–628.
10. PATH. Shaping cervical cancer prevention: HPV vaccine access and use in low- and middle-income countries. Seattle: PATH; 2021.
11. Indian Council of Medical Research. Cervavac rollout in India: Pilot implementation roadmap. New Delhi: ICMR; 2023.
12. Gallagher KE, LaMontagne DS, Watson-Jones D. Status of HPV vaccine introduction and barriers to country uptake. Vaccine. 2018;36(32 Pt A):4761–4767.
13. Thaler RH, Sunstein CR. Nudge: Improving decisions about health, wealth, and happiness. Penguin Books; 2009.
14. Mugo NR, Ngure K, Kiragu M, et al. HPV vaccine implementation in Kenya: Lessons from adolescent and provider surveys. Afr J Reprod Health. 2019;23(3):82–91.
15. Okeke SR, Ani C, Olufunlayo TF. Increasing HPV vaccination uptake through primary care integration in Nigeria: A field evaluation. J Public Health Afr. 2020;11(2):1397.
16. Ministry of Health and Family Welfare (MoHFW). National Technical Advisory Group on Immunization: HPV Vaccine Recommendations 2024. Government of India.

Table and Figure

Variable	Category	Frequency (%)
Gender	Male	53 (44.2%)
	Female	67 (55.8%)
Specialty	Gynaecology	48 (40.0%)
	Paediatrics	38 (31.7%)
	General Practice	34 (28.3%)
Type of Facility	Private	82 (68.3%)
	Public	38 (31.7%)
Years of Experience	<5 years	19 (15.8%)
	6–15 years	64 (53.3%)
	>15 years	37 (30.8%)

Table 1: Demographic Characteristics of Participants (n = 120)

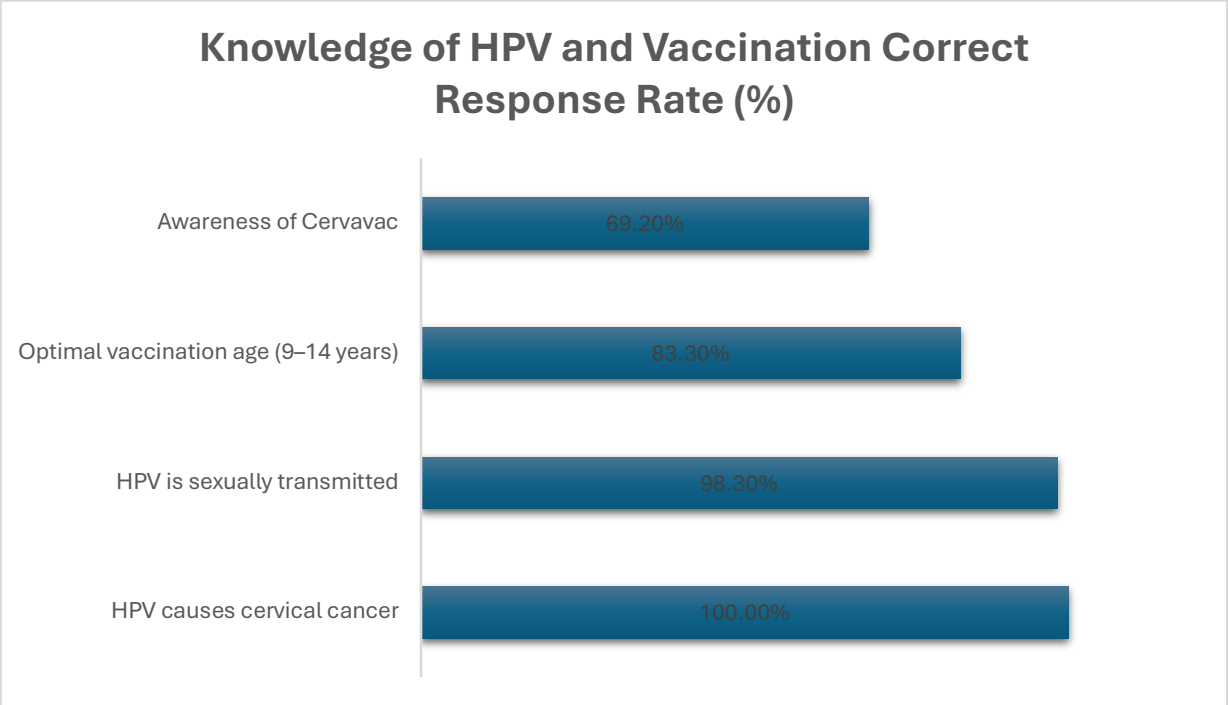

Figure 1: Knowledge of HPV and Vaccination

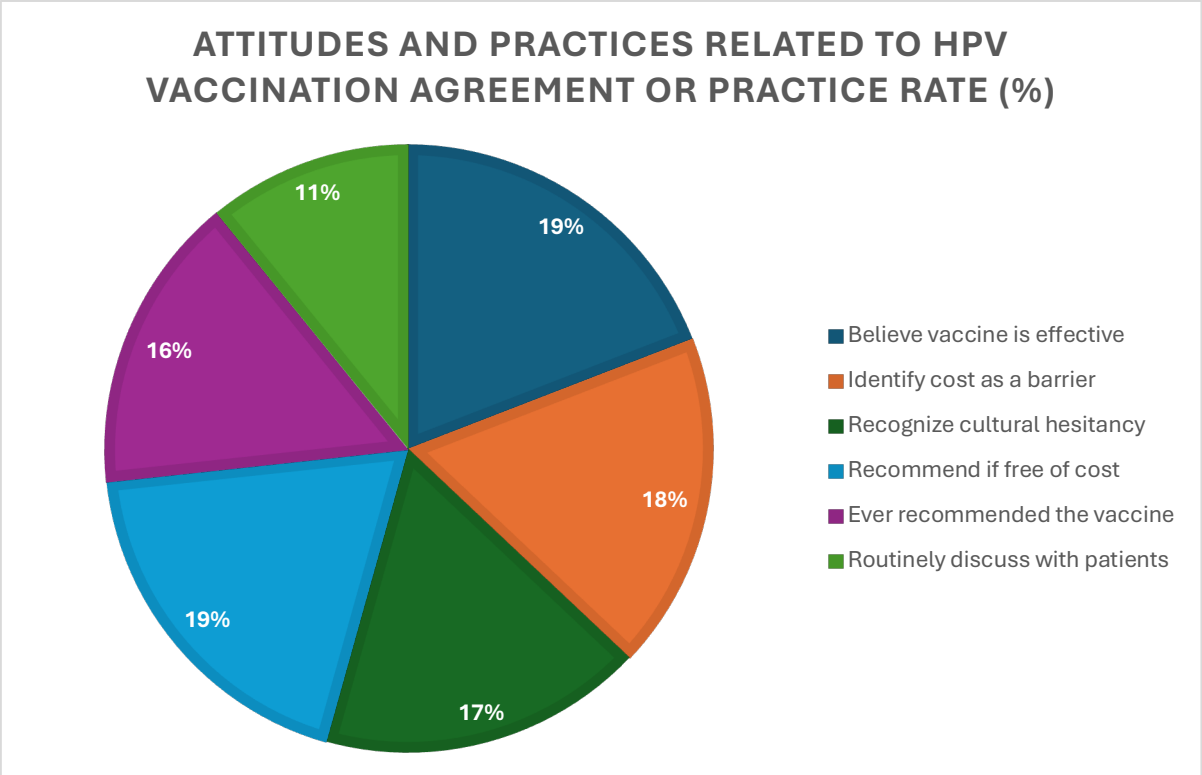

Figure 2: Attitudes and Practices Related to HPV Vaccination

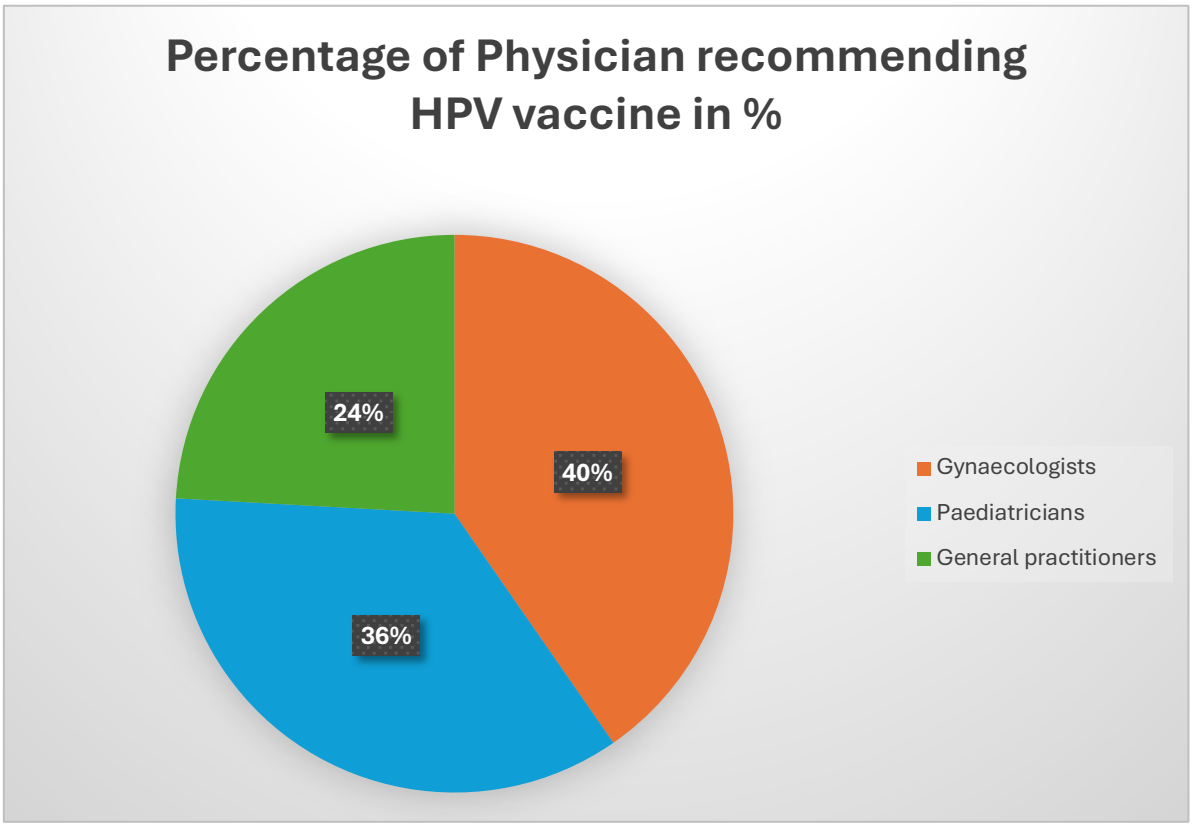

Figure 3. Percentage of Physician recommending HPV vaccine in %