KNOWLEDGE, ATTITUDE, AND PRACTICES REGARDING HPV VACCINATION AMONG MOTHERS OF ADOLESCENT GIRLS IN KANPUR NAGAR DISTRICT, UTTAR PRADESH, INDIA: A COMMUNITY-BASED CROSS-SECTIONAL STUDY

Abid Ali Ansari[1], Nadeem Ahmad[2], Abdul Mukeet Makki Ansari[3*], Rubeena Bano[4], Atul Kumar Singh[5], Anas Ahmad Khan[6]

[1]Assistant Professor, Department of Community Medicine, Rama Medical College Hospital and Research Centre, Kanpur.
[2]Associate Professor, Department of Family and Community Medicine and Medical Education College of Medicine, Taibah University, Madinah KSA.
[3*]Assistant Professor, Department of Community Medicine, GMC Azamgarh.
[4]Associate Professor, Department of Physiology, College of Medicine, Taibah University, Madinah KSA.
[5]Professor, Department of Community Medicine, Rama Medical College Hospital and Research Centre, Kanpur.
[6]Professor, Department of Community Medicine, Rama Medical College Hospital and Research Centre, Kanpur.

Corresponding Author: Abdul Mukeet Makki Ansari
Assistant Professor, Department of Community Medicine, GMC Azamgarh.
Email ID: abdulspm336@gmail.com
ORCID ID: 0000-0002-5613-4644

ABSTRACT

Background: Cervical cancer remains a leading gynaecological malignancy among Indian women, and maternal knowledge, attitude, and practice (KAP) strongly determine HPV vaccine uptake among adolescent daughters. Following the 2022 approval of the indigenous CERVAVAC vaccine and the phased national HPV vaccination rollout, contemporary, methodologically robust maternal KAP data from Tier-2 Indian districts remain scarce.
Objectives: To assess knowledge, attitude, and practice regarding HPV vaccination among mothers of adolescent girlsand to determine sociodemographic factors independently associated with knowledge, attitude andpractice.
Methods: A community-based cross-sectional study was conducted over one year (1 March 2024–28 February 2025) among 400 mothers of adolescent girls across urban, peri-urban, and rural areas of Kanpur Nagar district, selected through multistage stratified random sampling. Data were collected using a pre-tested, interviewer-administered KAP questionnaire. Descriptive statistics, Mann-Whitney U/Kruskal-Wallis tests, chi-square tests, and multivariable binary logistic regression were used; internal consistency was assessed with Cronbach's alpha.
Results: Mean knowledge, attitude, and practice scores were 11.6±3.9 (/22), 71.2±2.8 (/75), and 8.7±1.9 (/12) respectively. Good knowledge was seen in 23.5%, positive attitude in 99.8%, and satisfactory practice in 61.5% of mothers. Higher maternal education (AOR 12.65, 95% CI 5.83–27.43), upper socio-economic class (AOR 5.73, 95% CI 2.85–11.51), urban residence (AOR 5.20, 95% CI 2.39–11.32), and prior awareness of HPV (AOR 30.58, 95% CI 13.64–68.56) were independent predictors of good knowledge. No sociodemographic, knowledge, or attitude variable was independently associated with satisfactory practice.
Conclusion: Despite near-universal favourable attitude, knowledge remained modest and unevenly distributed across residence, education, and socio-economic strata, while practice was comparatively better but structurally disconnected from knowledge and attitude. Targeted, equity-focused information-education-communication strategies for peri-urban/rural and less-educated, lower-income mothers are needed to close the residual knowledge gap and consolidate the national HPV vaccination rollout.

Keywords: Hpv Vaccine, Cervical Cancer, Kap Study, Mothers, Adolescent Girls, Cervavac, India.

www.ajmrhs.com
eISSN: 2583-7761

Date of Received: 10-06-2026
Date Acceptance: 18-06-2026
Date of Publication: 17-07-2026

INTRODUCTION

Cervical cancer is the second most common gynaecological malignancy among Indian women, with an age-standardised incidence of approximately 22 per 100,000 per year — among the highest in South Asia — and is causally linked to high-risk Human Papillomavirus (HPV) types 16 and 18 in nearly three-fourths to four-fifths of

cases.[1] India alone contributes roughly a quarter of the global cervical cancer burden, with over a hundred thousand new cases and nearly eighty thousand deaths estimated in 2022. Despite the 2022 approval of India's indigenous quadrivalent vaccine CERVAVAC and the Government of India's phased national HPV vaccination programme targeting girls aged 9–14 years since 2023, actual vaccine uptake remains critically low, estimated at only around 2% nationally.[2]

Mothers are the principal decision-makers for their daughters' vaccination, and existing evidence consistently identifies maternal knowledge, attitude, and socio-economic circumstances as the strongest determinants of HPV vaccine acceptability.[3,4] However, validated, context-specific knowledge-attitude-practice (KAP) instruments targeting mothers of adolescent girls in India remain scarce.[5,6]

A structured review of published and unpublished HPV KAP literature undertaken prior to this study identified several important lacunae. Most notably, the influence of India's 2022 CERVAVAC introduction and the subsequent national rollout on maternal knowledge, attitude, and practice has been almost completely unexplored in peer-reviewed literature to date — despite this being the single most significant policy shift in the Indian HPV vaccination landscape in over a decade.[7] Equally, rural-urban disparities in maternal KAP remain markedly under-studied in Tier-2 and Tier-3 Indian districts and in states with an active vaccination rollout, with most existing Indian data confined to metropolitan settings.[8,9] Beyond these two lacunae, the broader literature also shows inconsistent knowledge-scoring thresholds across studies (precluding meta-analytic comparability), a binary rather than graded conceptualization of maternal attitude that overlooks the sizeable neutral/ambivalent group most amenable to counselling, and an absence of India-specific instruments validated using formal content- and construct-validity methods (content validity ratio/index, exploratory factor analysis).[10,11,12]

Against this background, the present study was conducted among mothers of adolescent girls in the urban, peri-urban, and rural areas of Kanpur Nagar district, Uttar Pradesh — a Tier-2 north Indian district currently implementing the national HPV vaccination programme — using a pre-tested, multi-domain KAP instrument. The primary objective was to assess knowledge, attitude, and practice regarding HPV vaccination among mothers of WHO-defined adolescent girls.[13] The secondary objective was to determine the sociodemographic, informational, and socio-cultural factors independently associated with good knowledge, positive attitude, and satisfactory practice, thereby generating contemporary, rollout-era evidence to help address the identified gaps in the Indian HPV-KAP literature.

MATERIALS AND METHODS

Study Design, Setting, and Period

A community-based, cross-sectional study was conducted among mothers of adolescent girls residing in the urban, peri-urban, and rural areas of Kanpur Nagar district, Uttar Pradesh, India, over a period of one year, from 1 March 2024 to 28 February 2025.

Study Population

The study population comprised biological or primary-caregiver mothers of adolescent girls aged 10–19 years, residing in the selected household for at least six months. Mothers unable to provide informed consent, not residing with their daughter, or without an adolescent daughter, were excluded.

Sample Size

The minimum required sample size was calculated using the single-population proportion formula, $n = Z^2p(1-p)/d^2$, assuming 95% confidence ($Z=1.96$), an expected good-knowledge proportion of 30% ($p=0.30$) from prior Indian literature,[8,9] and a 5% margin of error ($d=0.05$), yielding 323 participants; after a 10% non-response allowance, the target was rounded to 400. Accounting for the design effect of multistage sampling ($DEFF = 1 + (m-1)\rho = 1 + (27-1)\times 0.04 \approx 2.04$, m = average sampling-unit size, ρ = intra-unit correlation for KAP variables) would have required a design-adjusted sample of approximately 725; owing to field constraints, 400 mothers were recruited, widening the effective margin of error to about 6.7% (discussed under Limitations).

Sampling Strategy

A multistage stratified random sampling technique was used, proportionally allocating the 400-mother sample across three geographic strata — urban (60%, 240 mothers, 8 of 110 municipal wards), peri-urban (25%, 100 mothers, 4 wards), and rural (15%, 60 mothers, 3 of 5 community development blocks: Bithoor, **Kalyanpur,Chaubepur,**Maharajpur, **Shivrajpur)** — to address known rural-urban disparities in HPV knowledge and uptake.

Stage 1: Wards/villages were selected by simple random (lottery) sampling within each stratum; an adjacent village was substituted where an insufficient number of eligible households was found. Stage 2 (household selection): Within each sampling unit, households were selected by systematic random sampling. Based on the average number of eligible households per sampling unit (≈150 in urban wards, ≈125 in peri-urban wards, ≈120 in rural villages) and the required sample per sampling unit (30, 25, and 20 respectively), households were approached at a fixed sampling interval — every 5th eligible household in

urban/peri-urban wards and every 6th in rural villages — following a random start, until the sampling-unit quota was met. Stage 3 (participant selection): Where more than one eligible daughter was present, the youngest was selected as the reference, and her mother/primary caregiver was interviewed after informed consent. Non-responding or unavailable mothers were revisited once (within 48 hours) and, if still unavailable, replaced by the next eligible household in sequence.

Data Collection Tool

Data were collected using a pre-tested, pre-validated, interviewer-administered (bilingual Hindi/English) questionnaire, restricted in this analysis to Section A (sociodemographic profile), Section B (22-item knowledge scale on cervical cancer/HPV vaccination; correct=1, incorrect/'don't know'=0; maximum 22), Section C (15-item, 5-point Likert attitude scale, with the five hesitancy-related items[14] reverse-scored; maximum 75), and Section D (12-item practice scale spanning information-seeking, vaccination status, and future intention; standardised to a maximum of 12). A composite KAP score (maximum 109) was categorised as Satisfactory (≥70%)/Borderline (50–69%)/Poor (<50%). A fifth section on barriers/facilitators and vaccine hesitancy was part of the parent instrument but excluded a priori from this analysis. The tool had undergone expert content validation (CVR/CVI) and pilot testing (reliability, test-retest) prior to the survey. In the present dataset, internal consistency (Cronbach's α) was 0.67, 0.63, and 0.56 for the knowledge, attitude, and practice scales respectively, and the composite KAP score showed a weak, non-significant correlation with a single-item willingness-to-vaccinate criterion (Spearman's $\rho = -0.09$, $p=0.059$).

Statistical Analysis

Data were analysed using Python (version 3.11; pandas, SciPy, statsmodels). Continuous variables were summarised as mean ± SD and categorical variables as frequencies/percentages. The Shapiro-Wilk test indicated non-normal distribution of the knowledge, attitude, and practice scores; hence the Mann-Whitney U (two groups) and Kruskal-Wallis (≥three groups) tests were used for between-group score comparisons, and the chi-square test for categorical associations. Independent predictors of good knowledge and satisfactory practice were identified using multivariable binary logistic regression (enter method), reported as adjusted odds ratios (AOR) with 95% confidence intervals. Internal consistency was assessed using Cronbach's alpha, and criterion validity using Spearman's correlation between the composite KAP score and a single-item willingness-to-vaccinate criterion. A two-tailed $p<0.05$ was considered significant. The study followed institutional ethics committee clearance and informed consent procedures.

RESULTS

A total of 400 mothers of adolescent girls completed the interview. The mean age of respondent mothers was 34.1 ± 5.6 years, and the mean age of the reference daughter was 14.4 ± 2.9 years. Sociodemographic characteristics of participants and the distribution of their knowledge, attitude, practice, and composite KAP scores are jointly presented in Table 1.

Table 1 Sociodemographic Characteristics and Distribution of Knowledge, Attitude, and Practice Scores of Study Participants (N = 400)

Variable	Category	n	%
Sociodemographic Characteristics			
Area of residence	Urban	263	65.8
	Peri-urban	101	25.2
	Rural	36	9.0
Marital status	Married/cohabiting	362	90.5
	Widowed	23	5.8
	Divorced/separated	15	3.8
Maternal education	Illiterate	41	10.2
	Primary	79	19.8
	Middle	102	25.5
	Secondary	85	21.2
	Higher secondary	53	13.2
	Graduate and above	40	10.0
Household income (BG Prasad 2024)	Class I (highest)	32	8.0
	Class II	64	16.0
	Class III	115	28.7
	Class IV	118	29.5
	Class V (lowest)	71	17.8

Religion	Hindu	316	79.0
	Muslim	66	16.5
	Christian/Sikh/Other	18	4.5
Smartphone with internet access	Active use	185	46.2
	Limited use	134	33.5
	None	81	20.2
Heard of HPV/vaccine before interview	Yes	123	30.8
	No	277	69.2
Knowledge, Attitude, and Practice Domains			
Knowledge (/22); M ± SD = 11.58 ± 3.91	Good (15–22)	94	23.5
	Fair (9–14)	219	54.8
	Poor (0–8)	87	21.8
Attitude (/75); M ± SD = 71.24 ± 2.83	Positive (52–75)	399	99.8
	Neutral/Ambivalent (38–51)	1	0.3
	Negative (≤37)	0	0.0
Practice (/12); M ± SD = 8.71 ± 1.93	Satisfactory (9–12)	246	61.5
	Moderate (5–8)	144	36.0
	Unsatisfactory (0–4)	10	2.5
Composite KAP (%); M ± SD = 83.97 ± 4.58	Satisfactory (≥70%)	398	99.5
	Borderline (50–69%)	2	0.5
	Poor (<50%)	0	0.0

Note. BG Prasad = modified BG Prasad socio-economic classification, 2024 update. M = mean; SD = standard deviation.

Factors Associated with Knowledge and Practice (Bivariate Analysis)

Mean knowledge scores were significantly higher among urban mothers (12.32±3.79) than peri-urban/rural mothers (10.16±3.76; p<0.001), among mothers with high education (13.47±3.61) than low education (10.07±3.48; p<0.001), among upper socio-economic class (12.65±3.74) than lower class (10.39±3.77; p<0.001), and among mothers who had previously heard of HPV (14.54±3.54) than those who had not (10.27±3.31; p<0.001). Smartphone access and religion showed no significant association with knowledge score. Practice scores did not differ significantly by area, education, income, smartphone access, prior HPV awareness, or religion (all p>0.05) (Table 2).

Table 2 Bivariate Association of Selected Sociodemographic Factors with Knowledge and Practice Scores

Factor	Knowledge, M ± SD	p	Practice, M ± SD	p
Area: Urban	12.32 ± 3.79	<0.001	8.76 ± 1.91	0.522
Area: Peri-urban/Rural	10.16 ± 3.76		8.61 ± 1.99	
Education: High	13.47 ± 3.61	<0.001	8.69 ± 2.06	0.920
Education: Low	10.07 ± 3.48		8.73 ± 1.82	
Income: Upper class	12.65 ± 3.74	<0.001	8.83 ± 1.95	0.157
Income: Lower class	10.39 ± 3.77		8.58 ± 1.91	
Smartphone: Yes	11.61 ± 3.95	0.740	8.68 ± 1.93	0.591
Smartphone: No	11.48 ± 3.80		8.81 ± 1.96	
Heard of HPV before: Yes	14.54 ± 3.54	<0.001	8.88 ± 1.80	0.333
Heard of HPV before: No	10.27 ± 3.31		8.64 ± 1.99	
Religion: Hindu	11.59 ± 3.82	0.779	8.72 ± 1.93	0.982
Religion: Muslim/Other	11.55 ± 4.27		8.65 ± 1.97	

Note. M = mean; SD = standard deviation. p-values from Mann-Whitney U test (two-group comparisons).

Independent Predictors of Good Knowledge and Satisfactory Practice (Multivariable Analysis)

On multivariable binary logistic regression (Table 3, Figure 2), high maternal education (AOR 12.65, 95% CI 5.83–27.43, p<0.001), upper socio-economic class (AOR 5.73, 95% CI 2.85–11.51, p<0.001), urban residence (AOR 5.20, 95% CI 2.39–11.32, p<0.001), and prior awareness of HPV/the vaccine (AOR 30.58, 95% CI 13.64–68.56, p<0.001) were independent predictors of good knowledge; religion showed a borderline association (AOR 2.24, 95% CI 0.96–5.22,

p=0.063). Maternal age, smartphone access, and number of adolescent daughters were not independently associated with good knowledge. The model explained a substantial proportion of variance (pseudo $R^2 = 0.41$).

For satisfactory practice, the overall model was not statistically significant (pseudo $R^2 = 0.008$, likelihood-ratio p=0.946), and none of the sociodemographic variables, knowledge score, or attitude score independently predicted satisfactory practice. This indicates that, unlike knowledge — which was strongly patterned by residence, education, income, and prior awareness — practice was comparatively uniform across sociodemographic strata and structurally disconnected from what mothers knew or believed. Positive attitude was too uniformly distributed (99.8% of the sample) to permit meaningful multivariable modelling of this outcome.

Table 3 Multivariable Logistic Regression: Independent Predictors of Good Knowledge and Satisfactory Practice

Predictor	Good Knowledge AOR (95% CI)	p	Satisfactory Practice AOR (95% CI)	p
Maternal age (years)	0.97 (0.91–1.02)	0.236	0.98 (0.95–1.02)	0.379
Education: High vs Low	12.65 (5.83–27.43)	<0.001	1.15 (0.70–1.89)	0.591
Income: Upper vs Lower class	5.73 (2.85–11.51)	<0.001	1.36 (0.87–2.11)	0.178
Area: Urban vs Peri-urban/Rural	5.20 (2.39–11.32)	<0.001	1.11 (0.71–1.76)	0.644
Smartphone: Yes vs No	0.86 (0.40–1.86)	0.701	1.02 (0.61–1.69)	0.950
Heard of HPV before: Yes vs No	30.58 (13.64–68.56)	<0.001	1.47 (0.83–2.62)	0.191
Religion: Hindu vs Muslim/Other	2.24 (0.96–5.22)	0.063	0.90 (0.54–1.49)	0.678
No. of daughters	1.15 (0.72–1.85)	0.559	0.98 (0.72–1.32)	0.877
Knowledge score	—	—	0.96 (0.88–1.04)	0.340
Attitude score	—	—	1.01 (0.94–1.09)	0.727

Note. AOR = adjusted odds ratio; CI = confidence interval. Pseudo R^2 (Nagelkerke-equivalent, McFadden) = 0.41 for the knowledge model and 0.008 for the practice model.

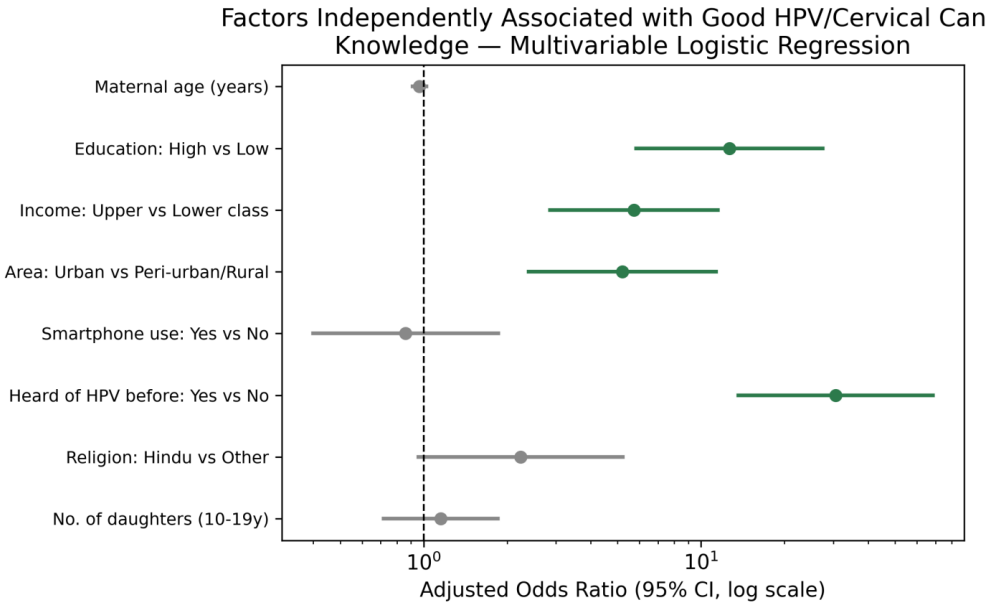

Figure . Forest plot of adjusted odds ratios (95% CI) for independent predictors of good HPV/cervical cancer knowledge.

DISCUSSION

This community-based study among 400 mothers of adolescent girls in Kanpur Nagar district found that fewer than a quarter had good knowledge, almost all expressed a positive attitude, and about three-fifths had satisfactory practice. The gap between near-

universal positive attitude and modest knowledge, together with the disconnect between knowledge/attitude and actual practice on multivariable analysis, mirrors the classic attitude-practice (intention-behaviour) gap documented in HPV vaccination literature from other Indian and South Asian settings, and suggests that favourable disposition alone does not guarantee either adequate knowledge or translation into vaccination-related action.

Urban residence, higher maternal education, upper socio-economic status, and prior awareness of HPV emerged as strong independent correlates of good knowledge, with prior awareness showing the largest effect size. This directly addresses the previously identified gap regarding rural-urban disparities in maternal HPV KAP in actively-rolling-out Indian states: in this sample, peri-urban and rural mothers had significantly poorer knowledge even after adjustment for education and income, indicating that urban-centric information dissemination — television, print media, and possibly greater exposure to health facility-based counselling — has not yet been matched by equivalent outreach in peri-urban and rural areas of this district.[15]

This study was conducted entirely within the post-CERVAVAC, post-national-rollout period (2024–2025), addressing a second key gap: contemporary, peer-reviewed evidence on maternal KAP in this specific policy context remains limited to date.[2,7] That fewer than a third of mothers had heard of HPV/the vaccine before interview, despite the rollout being underway, suggests that community-level awareness generation has lagged behind programme implementation — a pattern with direct implications for demand-generation strategies accompanying the national programme.

The absence of any significant predictor of satisfactory practice, and the non-significant overall practice model, is a notable finding: it implies that in this population, practice-related behaviour (information-seeking, vaccination status, future intention) is shaped by factors not captured within the knowledge-attitude-sociodemographic framework used here — plausibly service-availability, affordability, or interpersonal/family-decision factors.[16] This reinforces the previously identified gap regarding the unmeasured role of fathers, mothers-in-law, and other family or community decision-makers in vaccine-related practice, discussed further below.[2,16]

The below-threshold Cronbach's alpha values for all three sub-scales, together with the pronounced ceiling effect in the attitude domain and the non-significant criterion correlation with willingness to vaccinate, indicate that the instrument's psychometric performance in this specific Kanpur Nagar sample fell short of a priori expectations despite prior expert and pilot validation. This may reflect social-desirability bias on uniformly favourable attitude items, limited discrimination among already-favourable respondents, or population-specific response patterns, and reinforces the need for iterative, population-specific re-validation even after formal validation phases.[11,12]

Limitations

This study should be interpreted in light of several limitations. First, as previously identified in the literature, the questionnaire and analysis treated maternal attitude and practice as an independent construct and did not separately measure the influence of fathers, mothers-in-law, or religious/community leaders on the vaccination decision, even though household decision-making for adolescent girls in this setting is frequently shared or hierarchical; future studies should incorporate these actors as independent determinants.

Second, the cross-sectional design precludes causal inference between maternal KAP and actual future vaccine uptake. Third, all data were self-reported and may be subject to social desirability and recall bias, particularly for attitude and vaccination-status items, and plausibly contributed to the observed ceiling effect in the attitude domain; vaccination status was not verified against vaccination cards or the U-WIN digital registry. Fourth, the achieved sample of 400 fell short of the design-effect-adjusted optimal sample of approximately 725, widening the effective margin of error to roughly 6.7%, and sampling-unit-level correlation was not formally modelled using complex-samples methods in the present analysis. Fifth, internal consistency of all three sub-scales in this sample was below the conventionally acceptable threshold ($\alpha<0.70$), warranting cautious interpretation of borderline findings. Finally, the study was restricted to a single north Indian district, and findings may not be generalisable to other Tier-2/Tier-3 settings or states with different vaccination programme maturity.

CONCLUSION

Mothers of adolescent girls in Kanpur Nagar district demonstrated a near-universally favourable attitude towards HPV vaccination, and a majority had satisfactory practice, but fewer than a quarter had good knowledge — with pronounced gaps by residence, education, income, and prior awareness. Practice, in contrast, was not independently predicted by any sociodemographic factor, knowledge, or attitude, suggesting that structural or family-level determinants beyond the KAP framework used here drive vaccination-related behaviour. Equity-focused information-education-

communication strategies prioritising peri-urban/rural, less-educated, and lower-income mothers, alongside efforts to understand the non-cognitive determinants of practice, are needed to consolidate the national HPV vaccination rollout in this setting.

REFERENCES

1. Singh M, Jha RP, Shri N, Bhattacharyya K, Patel P, Dhamnetiya D. Secular trends in incidence and mortality of cervical cancer in India and its states, 1990–2019: data from the Global Burden of Disease 2019 Study. BMC Cancer. 2022;22(1):149.
2. Josten K, Rose Dhar R, Reshmi B, Natti Krishna V, Vennila J. Barriers to HPV vaccination among adolescent girls in India: a scoping review. Indian J Med Res. 2026;162(6):743–753.
3. Alene T, Atnafu A, Mekonnen ZA, Minyihun A. Acceptance of HPV vaccination and associated factors among parents of daughters in Gondar Town, Northwest Ethiopia. Cancer Manag Res. 2020;12:8519–8526.
4. Sinshaw MT, Berhe S, Ayele SG. Knowledge and attitude towards HPV vaccine among mothers with eligible daughters in Debre Markos Town, NW Ethiopia. Infect Drug Resist. 2022;15:781–793.
5. Gurbuz T, Serindag C, Onal ZE, et al. HPV vaccine recommendation among paediatricians: a KAP study of knowledge and beliefs in clinical practice. Niger J Clin Pract. 2025;28:1130–1138.
6. Chawla PC, Chawla A, Chaudhary S. Knowledge, attitude and practice on HPV vaccination: a cross-sectional study among healthcare providers. Indian J Med Res. 2016;144:741–749.
7. Bhattacharya S, Garg S. Empowering India's fight against cervical cancer: harnessing routine HPV immunisation. J Fam Med Prim Care. 2025;14(1):22–28.
8. Kumari S, Singh A, Sangal R, Sharma NR. KAP study on cervical cancer and HPV vaccine acceptability among adolescent girls of Eastern UP. Int J Reprod Contracept Obstet Gynecol. 2021;10:2031–2035.
9. Pal D, Sahoo B, Taywade M, Maji S. Evidence of knowledge, attitude, and practice regarding HPV vaccination at the community level in India: a systematic review and meta-analysis. Asian Pac J Cancer Prev. 2024;25:793–800.
10. Lawshe CH. A quantitative approach to content validity. Pers Psychol. 1975;28(4):563–575.
11. Lynn MR. Determination and quantification of content validity. Nurs Res. 1986;35(6):382–385.
12. Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recommendations. Res Nurs Health. 2006;29(5):489–497.
13. World Health Organization. Adolescent health. Geneva: WHO; 2023.
14. WHO SAGE Working Group on Vaccine Hesitancy. Report of the SAGE Working Group on Vaccine Hesitancy. Geneva: World Health Organization; 2014.
15. Krokidi E, Rao AP, Ambrosino E, Thomas PPM. The impact of health education interventions on HPV vaccination uptake, awareness, and acceptance among people under 30 years in India. Front Reprod Health. 2023;5:1151179.
16. Narayanan PP S, Murugan A, Ramakrishnan J, et al. Parental perspectives on perceived risk, self-efficacy, vaccine response efficacy, and willingness for adolescent HPV vaccination in Puducherry, South India. Int J Adolesc Med Health. 2025;37(5):359–369.

How to cite this article: Abid Ali Ansari, Nadeem Ahmad, Abdul Mukeet Makki Ansari, Rubeena Bano, Atul Kumar Singh, Anas Ahmad Khan, KNOWLEDGE, ATTITUDE, AND PRACTICES REGARDING HPV VACCINATION AMONG MOTHERS OF ADOLESCENT GIRLS IN KANPUR NAGAR DISTRICT, UTTAR PRADESH, INDIA: A COMMUNITY-BASED CROSS-SECTIONAL STUDY, Asian J. Med. Res. Health Sci., 2026; 4 (2):2292-2298.

Source of Support: Nil, Conflicts of Interest: None declared.