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Original Research Article

A cross-sectional study on knowledge, attitude, and practices regarding cervical cancer screening among women aged 21-45 years attending a tertiary care hospital in Southern India

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ABSTRACT

Background: Cervical cancer remains a leading yet preventable cause of cancer-related morbidity and mortality among women in India. Despite the availability of screening methods and human papillomavirus vaccination, utilisation remains low. Assessing gaps in knowledge, attitudes, and practices is essential to understand this discrepancy and to guide effective prevention strategies. This study assessed knowledge, attitudes, and practices related to cervical cancer screening and human papillomavirus vaccination among women aged 21-45 years.

Methods: A descriptive cross-sectional study was conducted among 250 women aged 21-45 years attending the outpatient department of a tertiary care hospital in Chennai. Data were collected using a structured questionnaire. Knowledge, attitude, and practice scores were categorized using predefined score-based criteria. Data were analysed using STATA version 11.0. Associations were assessed using the chi-square test, and relationships between knowledge, attitude, and practice were evaluated using Pearson's correlation coefficient. A p-value less than 0.05 was considered statistically significant.

Results: Based on composite scoring, 52.0% of participants demonstrated poor knowledge regarding cervical cancer and its prevention, and only 31.6% were aware of screening methods. Although 46.8% had heard of the human papillomavirus vaccine, vaccination uptake was low at 2.8%. In contrast, 69.6% exhibited a positive attitude toward cervical cancer screening, while actual uptake of cervical cancer screening and HPV vaccination remained low. Knowledge showed significant positive correlations with attitude and practice, and attitude with practice, with all p-values below 0.001.

Conclusions: Targeted counselling, opportunistic screening, and community education are essential to convert positive attitudes into preventive action.

Keywords: Cervical cancer, Cervical cancer screening, Cross-sectional study, Human papillomavirus vaccination, Knowledge, attitude and practice, Reproductive-age women

INTRODUCTION

Cervical cancer remains a major public health problem worldwide, despite being one of the most preventable malignancies affecting women. According to the World Health Organization (WHO), an estimated 660,000 new cases and more than 350,000 deaths were reported globally in 2022, with nearly 90% of this burden occurring in low- and middle-income countries (LMICs).¹ The

disproportionate impact in these settings reflects persistent inequalities in awareness, access to preventive services, and healthcare infrastructure. Persistent infection with oncogenic human papillomavirus (HPV), particularly high-risk types HPV-16 and HPV-18, is the primary etiological factor and accounts for the vast majority of cervical cancer cases.²

India contributes substantially to the global cervical cancer burden. According to GLOBOCAN estimates, India reports over 127,000 new cervical cancer cases and approximately 80,000 deaths annually, making it one of the leading causes of cancer-related mortality among Indian women.³ Cervical cancer is the second most common cancer among women aged 15-44 years.⁴ Despite the integration of cervical cancer screening into national public health programmes, population-level uptake remains alarmingly low. Data from the National Family Health Survey-5 (NFHS-5, 2019-21) show that fewer than 2% of Indian women aged 30-49 years have ever undergone cervical cancer screening.⁵

Cervical cancer prevention relies on two well-established strategies: primary prevention through HPV vaccination and secondary prevention through routine screening. HPV vaccination has demonstrated high efficacy in preventing HPV infection and precancerous cervical lesions, particularly when administered before sexual debut.⁶ Recent national initiatives, including the introduction of indigenous HPV vaccines, have the potential to improve affordability and support wider implementation of vaccination programmes in India.⁷ Screening methods such as the Papanicolaou (Pap) smear, visual inspection with acetic acid (VIA), and HPV DNA testing have been shown to significantly reduce cervical cancer incidence and mortality by enabling early detection and timely treatment.⁸ The WHO global strategy for cervical cancer elimination outlines the 90-70-90 targets, which aim to ensure that 90% of girls are fully vaccinated against HPV by 15 years of age, 70% of women are screened using a high-performance test at least twice by the ages of 35 and 45 years, and 90% of women diagnosed with cervical disease receive appropriate treatment and care.⁹

Several studies from India and other LMICs consistently demonstrate inadequate knowledge, misconceptions, sociocultural barriers, and limited access to services as key contributors to the poor uptake of cervical cancer screening and HPV vaccination.¹⁰⁻¹³ Importantly, many studies report a discordance between favourable attitudes toward screening and actual screening practices.¹¹⁻¹⁴ Understanding this gap between knowledge, attitude, and practice (KAP) is essential for translating awareness into sustained preventive behaviour.

Women aged 21-45 years represent a critical target group for cervical cancer prevention, as this period corresponds to increased risk of HPV exposure and overlaps with recommended timelines for initiation of cervical cancer screening.^{4,6} Studies have shown that women in this reproductive age group often face competing family and occupational responsibilities, which may reduce prioritization of preventive health services, including cancer screening.^{11,15} Despite the public health importance of this group, hospital-based data from Southern India examining KAP related to cervical cancer screening remain limited.

In this context, assessing the knowledge, attitudes, and practices related to cervical cancer screening among reproductive-age women is essential, as screening remains the cornerstone of secondary prevention and early detection.^{8,9} While HPV vaccination represents an important strategy for primary prevention, awareness and uptake remain limited in many low- and middle-income settings, including India.^{5,6} Accordingly, the present study was undertaken to assess the knowledge, attitudes, and practices regarding cervical cancer screening among women aged 21-45 years attending the outpatient department of a tertiary care hospital in Chennai, Tamil Nadu, with additional assessment of awareness and uptake of HPV vaccination as part of preventive care continuum.

METHODS

Study design and setting

A descriptive cross-sectional study was conducted among women attending the outpatient department (OPD) of Vijaya Hospital, Chennai, Tamil Nadu. Vijaya Hospital is a tertiary care centre catering predominantly to urban and semi-urban populations. The study was carried out over a one-month period from 16 September 2025 to 15 October 2025.

Study population and eligibility criteria

The study population comprised women aged 21-45 years attending the OPD during the study period. This age group was selected as it represents women in the reproductive and early middle-age period, during which the risk of human papillomavirus (HPV) exposure is higher and initiation of cervical cancer screening is recommended.

Inclusion criteria

Women aged 21-45 years attending the OPD who were willing to participate and provided written informed consent.

Exclusion criteria

Women with a prior diagnosis of cervical cancer, critically ill women unable to complete the questionnaire, and women unwilling to participate.

Sampling technique

A consecutive sampling technique was employed. All eligible women attending the OPD during the study period were approached consecutively and enrolled until the required sample size was achieved.

Sample size calculation

The sample size was calculated using the formula for estimation of a single population proportion:

$$n = (Z^2 \times p \times q)/d^2$$

where; $Z=1.96$ (95% confidence interval), $p=0.417$ (expected proportion of awareness regarding cervical cancer based on previous literature), $q = 1-p$, and $d = 0.07$ (absolute precision). The minimum calculated sample size was 191. After accounting for a 10% non-response rate, the required sample size increased to 211. To improve precision and allow meaningful subgroup analyses, the final sample size was increased to 250 participants.

Data collection tool and procedure

Data were collected using a structured, pre-tested Knowledge, Attitude, and Practice (KAP) questionnaire adapted from previously published literature and modified to suit the local context and study objectives. The questionnaire consisted of four sections: sociodemographic characteristics; knowledge related to cervical cancer, screening, and HPV vaccination; attitudes toward cervical cancer screening; and practices related to cervical cancer screening and HPV vaccination. The questionnaire was available in English and Tamil. Literate participants completed the questionnaire independently, while face-to-face interviews were conducted by the principal investigator and trained investigators for participants requiring assistance.

Validity and pilot testing

Face and content validity of the questionnaire were assessed by two senior obstetrics and gynaecology experts. A pilot study was conducted among 20 women to assess clarity, comprehension, and acceptability of the questionnaire. Minor linguistic modifications were made based on feedback. Data obtained from the pilot study were excluded from the final analysis.

Operational definitions and scoring

Knowledge

Knowledge regarding cervical cancer, screening, and HPV vaccination was assessed using 13 questionnaire items comprising both single-response and multiple-response questions. Single-response knowledge items (such as awareness of cervical cancer, awareness of screening methods, purpose of Pap smear, preventability of cervical cancer, awareness of HPV vaccination, age to initiate screening, and recommended screening interval) were scored as 1 for a correct response and 0 for incorrect or “not sure” responses.

Multiple-response knowledge items (such as risk factors, symptoms, screening methods known, and preventive measures) were scored using a predefined graded approach rather than option-wise summation. For each multiple-response item, selection of three or more correct options was awarded 2 points, selection of one or two correct options was awarded 1 point, and selection of “unsure” or

no correct options was awarded 0 points. The maximum score for each multiple-response item was capped at 2.

Based on this scoring scheme, the total knowledge score ranged from 0 to 15, with higher scores indicating better knowledge regarding cervical cancer and its prevention. Knowledge scores were categorized as low (<4), moderate (4-10), and high (11-15) for analysis.

Attitude

Attitude toward cervical cancer screening was assessed using five single-response items evaluating perceived seriousness of cervical cancer, importance of regular screening, willingness to undergo screening in the absence of symptoms, willingness to undergo screening if it prevents cancer, and encouragement of relatives or friends to undergo screening. Each favourable response was awarded one point, while unfavourable or “not sure” responses were scored as zero, yielding a total attitude score ranging from 0 to 5. Scores of 4–5 were categorized as positive attitude, a score of 3 as neutral attitude, and scores below 3 as negative attitude.

Practice

Practice was assessed based on three key preventive behaviours: history of cervical cancer screening, willingness to undergo screening in the future, and HPV vaccination status. Each affirmative response was assigned one point, yielding a total practice score ranging from 0 to 3. Participants with a score of 0 were classified as having inadequate practice, while those with a score of ≥ 1 were classified as having adequate practice. Questions related to place of screening, reasons for non-screening, number of vaccine doses, and reasons for non-vaccination were analysed descriptively and were not included in practice scoring.

Bias

Selection bias was minimised by enrolling consecutive eligible participants. Information bias was reduced through the use of a structured questionnaire, predefined scoring criteria, and standardised data collection procedures.

Statistical analysis

Data were entered into Microsoft Excel and analysed using STATA version 11.0. Categorical variables were summarised as frequencies and percentages. Associations between sociodemographic variables and levels of knowledge, attitude, and practice were assessed using the Chi-square test. Pearson’s correlation coefficient was used to assess the relationship between knowledge, attitude, and practice scores. A p-value <0.05 was considered statistically significant. Questionnaires with incomplete responses were excluded prior to analysis to ensure data completeness.

Ethical considerations

Ethical approval was obtained from the Institutional Ethics Committee of Vijaya Institute of Biomedical and Health Research. Written informed consent was obtained from all participants prior to enrolment. Participation was voluntary, and confidentiality and anonymity were strictly maintained.

RESULTS

Sociodemographic characteristics

A total of 250 women aged 21-45 years were included in the analysis. The majority of participants were married (86.4%) and had attained graduate or postgraduate education (67.6%). Most participants resided in urban areas (86.4%), with a smaller proportion from rural settings (13.6%).

Table 1: Sociodemographic characteristics of the study participants (n=250).

Variable	Category	N (%)
Age (years)	21-25	51 (20.4)
	26-30	73 (29.2)
	31-35	52 (20.8)
	36-40	28 (11.2)
	41-45	46 (18.4)
Educational status	Illiterate	3 (1.2)
	Primary school	4 (1.6)
	Middle school	26 (10.4)
	High school	28 (11.2)
	Intermediate/Diploma	8 (3.2)
	Graduate/Postgraduate	169 (67.6)
Marital status	Single	34 (13.6)
	Married	216 (86.4)
Place of residence	Urban	216 (86.4)
	Rural	34 (13.6)
Parity	None	94 (37.6)
	1-2	149 (59.6)
	≥3	7 (2.8)

Table 2: Distribution of responses to selected knowledge items on cervical cancer, screening, and HPV vaccination among participants (n = 250).

Knowledge item	Correct/appropriate, N (%)	Incorrect, N (%)	Not sure, N (%)
Heard of cervical cancer	132 (52.8)	118 (47.2)	-
Aware of cervical cancer screening methods	79 (31.6)	102 (40.8)	69 (27.6)
Purpose of Pap smear is early detection of cervical cancer	69 (27.6)	83 (33.2)	98 (39.2)
Cervical cancer is preventable	122 (48.8)	52 (20.8)	76 (30.4)
Correct age to initiate screening	43 (17.2)	121 (48.4)	86 (34.4)
Correct screening interval	47 (18.8)	96 (38.4)	107 (42.8)
Heard of HPV vaccine	117 (46.8)	133 (53.2)	—
HPV vaccine prevents cervical cancer	72 (28.8)	89 (35.6)	89 (35.6)

Note: Percentages are calculated using the total study population (n = 250) as the denominator

With respect to parity, the majority of women had one or two children (59.6%), while a substantial proportion were nulliparous (37.6%). Only a small minority (2.8%) had three or more children (Table 1).

Knowledge regarding cervical cancer and screening

Just over half of the participants (52.8%) reported having heard of cervical cancer. Awareness of cervical cancer screening methods was considerably lower, with only 31.6% indicating awareness of available screening tests. Knowledge regarding the purpose of the Pap smear was limited, as only 27.6% of participants identified its role in the early detection of cervical cancer.

Awareness regarding cervical cancer prevention was suboptimal, with fewer than half of the women (48.8%) recognising that cervical cancer is preventable. Knowledge of guideline-recommended screening practices was particularly poor; only 17.2% of participants correctly identified the recommended age to initiate cervical cancer screening (20-30 years), and 18.8% identified the appropriate screening interval (every 2-3 years).

Although nearly half of the participants (46.8%) had heard of the human papillomavirus (HPV) vaccine, understanding of its preventive role was limited, with only 28.8% recognising that HPV vaccination helps prevent cervical cancer. Across several knowledge items, a substantial proportion of participants selected “not sure” responses, indicating uncertainty and incomplete understanding regarding cervical cancer screening and prevention (Table 2).

Knowledge score distribution

Based on composite knowledge scoring, more than half of the participants demonstrated poor knowledge regarding cervical cancer and its prevention. Only a small proportion achieved good knowledge scores, reflecting substantial overall gaps in knowledge despite moderate levels of awareness for selected items (Table 3).

Table 3: Knowledge score classification* among participants (n=250).

Knowledge level	N (%)
Poor	130 (52.0)
Moderate	89 (35.6)
Good	31 (12.4)

*Knowledge scores were categorised as poor (<4), moderate (4-10), and good (11-15) based on predefined score-based criteria.

Attitudes toward cervical cancer screening

Overall, participants demonstrated largely favourable attitudes toward cervical cancer screening. A substantial majority perceived cervical cancer as a serious health

problem (83.2%) and considered regular screening to be important for women’s health (82.4%). With respect to screening behaviour, 63.6% of women agreed that screening should be undertaken even in the absence of symptoms.

Regarding intention, 72.4% of participants expressed willingness to undergo cervical cancer screening if it could prevent the disease. In addition, a high proportion of women (88.0%) reported that they would encourage female relatives or friends to undergo screening. However, a notable proportion of participants selected “not sure” responses across several attitude items, indicating the presence of uncertainty despite generally positive perceptions (Tables 4 & 5).

Table 4: Attitudes toward cervical cancer and cervical cancer screening among participants (n=250).

Attitude statement	Yes, N (%)	No, N (%)	Not sure, N (%)
Cervical cancer is a serious health problem	208(83.2)	6 (2.4)	36 (14.4)
Regular screening is important for women’s health	206(82.4)	10 (4.0)	34 (13.6)
Screening is necessary even without symptoms	159(63.6)	38 (15.2)	53 (21.2)
Willing to undergo screening if preventive	181 (72.4)	34 (13.6)	35 (14.0)
Would encourage others to undergo screening	220 (88.0)	11 (4.4)	19 (7.6)

Note: Percentages are calculated using the total study population (n = 250) as the denominator

Table 5: Attitude score classification* among participants (n = 250).

Attitude level	N (%)
Positive attitude	174 (69.6)
Neutral attitude	34 (13.6)
Negative attitude	42 (16.8)

*Attitude scores were categorised as positive (4-5), neutral (3), and negative (<3) based on cumulative responses to five attitude items.

Practices related to cervical cancer screening and HPV vaccination

Only 51 participants (20.4%) reported having ever undergone cervical cancer screening by any method (Pap smear, VIA, or HPV test), while the majority (79.6%) had never been screened. Among women who had undergone screening, most reported that the test was performed in a private healthcare facility (94.1%), with minimal utilisation of government hospitals (3.9%) or health camps (2.0%).

Despite the low uptake of cervical cancer screening, intention to undergo screening in the future was relatively high. A total of 174 participants (69.6%) expressed willingness to undergo screening, whereas 59 (23.6%) were uncertain and 17 (6.8%) were unwilling.

HPV vaccination uptake was extremely limited in the study population. Only seven participants (2.8%) reported having received the HPV vaccine, while 219 (87.6%) had not been vaccinated and 24 (9.6%) were unsure of their

vaccination status. Among vaccinated women, four (57.1%) reported completion of the recommended three-dose schedule, while the remainder had received one or two doses.

Composite practice classification

Preventive practice was assessed using a composite score incorporating three indicators: history of cervical cancer screening, willingness to undergo screening in the future, and history of HPV vaccination. Each affirmative response was awarded one point. Participants with a composite practice score of ≥1 were classified as having adequate practice, while those with a score of 0 were classified as having inadequate practice.

Based on this composite assessment, 182 participants (72.8%) were classified as having adequate practice, predominantly reflecting preventive intent driven by willingness to undergo screening, whereas 68 participants (27.2%) demonstrated inadequate practice, indicating the absence of screening behaviour, vaccination, or expressed intention toward screening (Table 6). These findings highlight a marked gap between favourable attitudes and expressed intent on one hand, and actual utilisation of cervical cancer screening and HPV vaccination services on the other.

Barriers to cervical cancer screening

Among women who had not undergone cervical cancer screening, the most frequently reported barriers were lack of awareness (47.2%) and the perception that screening

was unnecessary in the absence of symptoms (51.6%). Other reported barriers included fear or discomfort (7.2%), lack of time (4.4%), cost concerns (3.2%), and family restrictions (0.4%).

Table 6: Practice score classification among participants (n=250).

Practice level	N (%)
Adequate practice (score ≥1)	182 (72.8)
Inadequate practice (score = 0)	68 (27.2)

Barriers to HPV vaccination

The primary reasons for non-receipt of HPV vaccination were lack of awareness (59.6%) and the perception that vaccination was not necessary (26.0%). Fear of side effects was reported by 8.4% of participants, while cost (5.2%), limited availability (2.4%), and lack of time (1.2%) were less frequently cited barriers.

Association of knowledge, attitude, and practice with sociodemographic variables

Within this tertiary care-based study population, associations between sociodemographic variables and levels of knowledge, attitude, and practice related to cervical cancer screening were assessed using the chi-square test.

Knowledge level showed a statistically significant association with place of residence ($p = 0.020$)*. Women residing in rural areas were more likely to have poor knowledge scores, whereas women from urban areas more frequently demonstrated moderate or good knowledge levels (Table 7).

Table 8: Correlation between knowledge, attitude, and practice scores.

Variables compared	Correlation coefficient (r)*	P value	Interpretation
Knowledge vs Attitude	0.4695	<0.001	Moderate positive
Knowledge vs Practice	0.4248	<0.001	Moderate positive
Attitude vs Practice	0.4637	<0.001	Moderate positive

*Pearson’s correlation test applied.

Knowledge scores showed a moderate positive correlation with attitude scores ($r = 0.4695$, $p < 0.001$), indicating that participants with higher levels of knowledge regarding cervical cancer and its prevention were more likely to exhibit favourable attitudes toward cervical cancer screening.

Knowledge scores were also moderately and positively correlated with practice scores ($r = 0.4248$, $p < 0.001$), suggesting that better knowledge was associated with a higher likelihood of engaging in preventive practices such as cervical cancer screening and/or HPV vaccination.

Table 7: Association between knowledge level and place of residence (n=250).

Place of residence	Poor, N (%)	Moderate, N (%)	Good, N (%)
Rural (n=34)	25 (73.5)	8 (23.5)	1 (2.9)
Urban (n=216)	105 (48.6)	81 (37.5)	30 (13.9)
Total	130 (52.0)	89 (35.6)	31 (12.4)

*Chi-square test; $p = 0.020$

No statistically significant associations were observed between knowledge level and other sociodemographic variables, including age group ($p = 0.674$), educational status ($p = 0.286$), and marital status ($p = 0.526$).

Attitude scores did not show any statistically significant association with age group ($p = 0.230$), educational status ($p = 0.960$), marital status ($p = 0.717$), or place of residence ($p = 0.150$).

Similarly, practice scores did not demonstrate any statistically significant association with the assessed sociodemographic variables, including age group, educational status, marital status, parity, or place of residence (all $p > 0.05$).

Correlation between knowledge, attitude, and practice scores

Pearson’s correlation analysis demonstrated statistically significant positive correlations between all three components of the Knowledge-Attitude-Practice (KAP) framework (Table 8).

In addition, attitude scores demonstrated a moderate positive correlation with practice scores ($r = 0.4637$, $p < 0.001$), indicating that participants with more favourable attitudes were more likely to report preventive practices.

Overall, these findings indicate a consistent and statistically significant association between knowledge, attitudes, and practices related to cervical cancer screening and HPV vaccination within the study population. However, given the cross-sectional design, these correlations represent associations and do not imply causality.

DISCUSSION

The present study assessed the knowledge, attitudes, and practices (KAP) related to cervical cancer screening and human papillomavirus (HPV) vaccination among women aged 21-45 years attending a tertiary care hospital in Southern India. Although cervical cancer is largely preventable through organised screening and HPV vaccination, the study identified substantial gaps in knowledge and preventive practices occurring in the context of predominantly favourable attitudes toward screening. These findings highlight a persistent disconnect between awareness, perception, and actual utilisation of preventive services in this population.

Knowledge regarding cervical cancer and screening

In the present study, just over half of the participants had heard of cervical cancer, while awareness regarding cervical cancer screening methods, recommended age of initiation, and screening intervals was considerably lower. Knowledge of the purpose of the Pap smear and the preventive role of HPV vaccination was particularly limited. These findings are consistent with reports from several Indian studies conducted in Tamil Nadu, Puducherry, and other regions, which have demonstrated fragmented and incomplete knowledge regarding cervical cancer prevention despite reasonable access to healthcare facilities.¹²⁻¹⁴

Importantly, awareness appeared to be largely conceptual rather than operational, with many participants recognising cervical cancer as a disease but lacking clarity on when, how, and why screening should be undertaken. Poor recognition of HPV infection as a major risk factor and limited awareness of early warning symptoms further emphasize deficiencies in foundational knowledge. This pattern suggests that existing health education efforts may inadequately address practical screening guidelines, risk stratification, and the role of HPV vaccination, thereby limiting their effectiveness in translating awareness into preventive action.

Attitudes toward cervical cancer screening

Encouragingly, the majority of participants demonstrated favourable attitudes toward cervical cancer screening. Most women perceived cervical cancer as a serious health problem, expressed willingness to undergo screening, and reported that they would encourage female relatives or friends to be screened. Similar patterns of positive attitudes coexisting with inadequate screening uptake have been consistently reported across Indian KAP studies.¹¹⁻¹⁴

However, a substantial proportion of participants expressed uncertainty regarding the need for screening in asymptomatic women. This finding reflects a misconception of screening as a symptom-driven rather than preventive intervention, which may contribute to delayed or absent screening despite generally positive

perceptions. Such attitudinal ambivalence highlights the importance of targeted counselling that explicitly reinforces the preventive rationale for routine cervical cancer screening.

Practices related to cervical cancer screening and HPV vaccination

Despite favourable attitudes, actual preventive practices were markedly limited. Only one-fifth of participants reported having undergone cervical cancer screening, and HPV vaccination coverage was extremely low. These findings mirror observations from multiple Indian and South Asian studies that document a persistent gap between attitude and practice in cervical cancer prevention.¹⁰⁻¹⁵

Preventive practice in this study was assessed using a composite measure incorporating three indicators: prior cervical cancer screening, willingness to undergo screening in the future, and HPV vaccination status. Although a majority of women were classified as having “adequate practice,” this classification was predominantly driven by expressed willingness to undergo screening rather than by actual screening or vaccination uptake. This distinction is crucial, as it underscores that intent alone does not equate to effective preventive behaviour and may overestimate true service coverage.

The marked discrepancy between low screening uptake (20.4%) and vaccination coverage (2.8%), contrasted with higher willingness to screen, highlights a significant intention-action gap. Similar patterns have been reported in Indian KAP studies, where receptiveness to screening exists but conversion into action remains poor.¹¹⁻¹⁴ These findings suggest that while women may be open to preventive interventions, systematic counselling, provider recommendation, and facilitation of services are essential to translate intent into utilisation.

The most frequently reported barriers to screening were lack of awareness and the perception that screening is unnecessary in the absence of symptoms. Barriers to HPV vaccination were primarily related to lack of awareness, perceived lack of necessity, and fear of side effects. Structural barriers such as cost and access were reported less frequently, indicating that informational and perceptual factors may play a more dominant role than logistical constraints in this tertiary care setting.

Association between socio-demographic factors and KAP

Among the socio-demographic variables assessed, place of residence was the only factor significantly associated with knowledge level, with rural women demonstrating poorer knowledge scores compared to urban women. This finding aligns with existing Indian literature documenting persistent urban-rural disparities in health awareness and access to preventive information.¹¹⁻¹³

No significant associations were observed between socio-demographic variables and attitude or practice scores. This suggests that deficiencies in preventive practices are widespread across demographic groups, even within a tertiary care setting, and may reflect systemic gaps in preventive counselling rather than population-specific barriers.

Correlation between knowledge, attitude, and practice

The study demonstrated statistically significant moderate positive correlations between knowledge, attitude, and practice scores, supporting the theoretical framework underpinning KAP studies. Higher knowledge levels were associated with more favourable attitudes and better preventive practices. However, the modest strength of these correlations indicates that knowledge alone may not be sufficient to ensure screening uptake or vaccination and that behavioural change is likely influenced by additional factors such as healthcare provider engagement, perceived susceptibility, and health system facilitation.

Public health implications

The high prevalence of poor knowledge and limited awareness of guideline-based cervical cancer screening practices observed in this study indicates insufficient penetration of cervical cancer-related health education at the community level. Although willingness to undergo screening was relatively high, actual uptake of cervical cancer screening and HPV vaccination remained low, highlighting a critical intention-action gap.

These findings underscore the need for structured, repeated, and context-specific educational interventions that emphasize the preventive nature of screening, clearly explain eligibility criteria and screening intervals, and address misconceptions surrounding HPV vaccination. Healthcare encounters in outpatient and tertiary care settings represent important opportunities to translate favourable attitudes and expressed willingness into preventive action. Strengthening healthcare provider-initiated counselling, promoting opportunistic screening, and integrating cervical cancer education into primary care services, antenatal and postnatal counselling, and community-based outreach programmes may substantially improve uptake of screening and vaccination services.

A major strength of this study was the comprehensive evaluation of knowledge, attitudes, practices, perceived barriers, and their inter-relationships within a single analytical framework among women of reproductive age. The study also contributes region-specific data from a tertiary care setting in Southern India, where published evidence on cervical cancer KAP remains limited.

Nevertheless, certain limitations should be acknowledged. The single-centre design and predominantly urban study population may limit generalisability to rural populations or public healthcare settings. The cross-sectional nature of

the study precludes causal inference, and self-reported practices may be subject to recall or social desirability bias. Despite these limitations, the study provides valuable insights into prevailing gaps in cervical cancer prevention and identifies key targets for public health intervention.

CONCLUSION

This study demonstrates that although women aged 21–45 years attending a tertiary care hospital exhibited largely positive attitudes toward cervical cancer screening, substantial gaps persist in knowledge and preventive practices. Awareness regarding cervical cancer risk factors, early symptoms, recommended screening guidelines, and the preventive role of HPV vaccination was inadequate. Actual uptake of cervical cancer screening and HPV vaccination remained low, primarily due to lack of awareness and the misconception that screening is necessary only in the presence of symptoms.

The significant positive correlations observed between knowledge, attitude, and practice underscore the pivotal role of improving awareness in translating favourable perceptions into effective preventive behaviours. Strengthening targeted health education, integrating routine counselling into outpatient services, and promoting opportunistic cervical cancer screening and HPV vaccination are essential to bridge existing KAP gaps and enhance cervical cancer prevention efforts.

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REFERENCES

1. World Health Organization. Cervical cancer: key facts, 2023. Available at: <https://www.who.int/news-room/fact-sheets/detail/cervical-cancer>. Accessed 01 January 2026.
2. Bosch FX, Lorincz A, Muñoz N, Meijer CJLM, Shah KV. The causal relationship between human papillomavirus and cervical cancer. *J Clin Pathol.* 2002;55(4):244-65.
3. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2021;71(3):209-249.
4. Bhatla N, Berek JS, Cuello Fredes M, Denny L, Grenman S, Karunaratne K, et al. Cancer of the cervix

- uteri. *Int J Gynaecol Obstet.* 2018;143(Suppl 2):22-36.
5. International Institute for Population Sciences (IIPS), ICF. National Family Health Survey (NFHS-5), 2019-21: India. Mumbai: IIPS; 2021.
 6. Huh WK, Ault KA, Chelmow D, Davey DD, Goulart RA, Garcia FAR, et al. Use of primary high-risk human papillomavirus testing for cervical cancer screening: updated evidence and guidelines. *N Engl J Med.* 2017;376(11):1028-38.
 7. Indian Council of Medical Research-National Centre for Disease Informatics and Research (ICMR-NCDIR). Consensus document for the management of cervical cancer. Bengaluru: ICMR-NCDIR; 2021.
 8. Sankaranarayanan R, Budukh AM, Rajkumar R. Screening and prevention of cervical cancer in low-resource settings. *Int J Gynaecol Obstet.* 2015;131(Suppl 1):S26-S32.
 9. World Health Organization. Global strategy to accelerate the elimination of cervical cancer as a public health problem. *Lancet.* 2020;395(10224):1478-82.
 10. Taneja N, Chawla B, Awasthi AA, Shrivastav KD, Jaggi VK, Janardhanan R. Knowledge, attitude, and practice on cervical cancer and screening among women in India: a review. *Cancer Control.* 2021;28:1-7.
 11. Singh M, Bhatia V, Kumar A. Barriers to cervical cancer screening in India: a qualitative study. *Women Health.* 2019;59(4):442-54.
 12. Nelson SB, Viswanathan N, Jenifer NA, Prasanna B. A cross-sectional study on cervical cancer and its prevention among women aged 25-50 years in rural South Tamil Nadu. *Int J Community Med Public Health.* 2018;5(6):2536-41.
 13. Ghosh S, Mallya SD, Shetty RS, Pattanshetty SM, Pandey D, Kabekkodu SP, et al. Knowledge, attitude, and practices toward cervical cancer among tribal women in Southern India. *J Racial Ethn Health Disparities.* 2021;8(1):88-93.
 14. Kannan K, Rajini S, Sundari PP, Ramraj D, Nivethidha AN, Saranya RE. Knowledge of cervical cancer screening among women in rural areas. *J Pharm Res Int.* 2021;33(45B):474-81.
 15. Shrestha AD, Karki KB, Bhandari P, Aryal UR. Cervical cancer screening uptake in South Asia: a systematic review. *Cancer Epidemiol.* 2018;53:65-72.

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