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# Knowledge, Attitudes, And Practices (KAP) Regarding HPV Infection And Vaccination Among Women Aged ≥30 Years: A Cross-Sectional Study

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***ABSTRACT:***

***Introduction:*** *Human papillomavirus (HPV) is a common sexually transmitted infection and a leading cause of cervical cancer, particularly due to high-risk strains HPV-16 and HPV-18. Although HPV vaccination can significantly reduce the risk of cervical cancer, vaccine uptake among adult women remains low. Understanding the knowledge, attitudes, and practices (KAP) of women aged ≥30 years regarding HPV infection and vaccination is essential to improving public health interventions. Hence, we intend to assess the knowledge, attitudes, and practices related to HPV infection and vaccination among women aged 30 years and above.*

***Methodology:*** *A hospital-based cross-sectional study was conducted among 420 women aged ≥30 years using a structured questionnaire. Data were collected on socio-demographics, awareness of HPV and its vaccine, attitudes toward vaccination, and self-reported vaccination history. Descriptive statistics and chi-square tests were used to analyze associations.*

***Results:*** *The mean age of participants was 33.4 years. Urban residents comprised 60.2% of the sample, and 69.5% had at least undergraduate-level education. While 66.7% were aware that HPV causes cervical cancer, only 50.5% knew about high-risk strains. Most participants (78.2%) believed the HPV vaccine is important for women, but only 44.1% thought it should be given to men. Despite this, only 23.4% had completed the full HPV vaccine course. Higher education and previous screening history were significantly associated with vaccination uptake (p=0.02). Common concerns included side effects and doubts about continued screening needs post-vaccination.*

***Conclusion:*** *Although awareness and attitudes toward HPV vaccination were moderately positive, actual vaccination rates were low among women aged ≥30 years. Misconceptions and lack of access were key barriers. Targeted education, financial support, and proactive healthcare provider engagement are necessary to improve vaccine uptake in this population.*

***Keywords:*** *Human papillomavirus, Cervical cancer, adult women, Vaccine, Women's health; Preventive healthcare,*

## INTRODUCTION

Human papillomavirus (HPV) is one of the most common sexually transmitted infections in the world. More than 75% of sexually active people are infected with at least one type of HPV during their lifetime [1]. Some types of HPV, especially HPV-16 and HPV-18, can stay in the body and cause cancer. These high-risk types are responsible for over 99% of cervical cancer cases [2,3]. Cervical cancer is the fourth most common cancer in women worldwide and a major cause of death. Sadly, in India alone, around 2,30,000 women die from cervical cancer every year [4,5].

The HPV vaccine, first introduced in the mid-2000s, is a powerful tool to prevent infections caused by HPV and reduce the risk of cervical cancer. Most countries give the vaccine to girls aged 9 to 14, before they become sexually active. However, health experts now recommend that women up to age 45 can also take the vaccine,

especially if they may still be at risk of HPV[6]. Even with these guidelines, many adult women are not getting vaccinated. U.S. showed that only 6.5% of eligible adults had completed the full HPV vaccine series [7,8].
A major reason for low vaccination rates is lack of awareness. A study in rural Mysore, India, found that most adult women were willing to take the vaccine once they were informed about it[9]. In another study in Medina, Saudi Arabia, 37% of women knew HPV is spread through sexual contact, and even fewer knew the vaccine helps prevent cervical cancer [10].
It is important to understand what women over 30 know and think about HPV and its vaccine. Knowing their beliefs, attitudes, and behaviours can help health workers create better education and vaccination programs. This study was done to assess the knowledge, attitudes, and practices (KAP) related to HPV and its vaccine among women aged 30 and above.

## METHODOLOGY

**Study Design:** This was a hospital-based, cross-sectional study conducted in the Department of Microbiology. The study was carried out over a period of four months.
**Study Population:** The study included women aged 30 years and above who attended the OBG OPD for any reason during the study period.

**Sample Size and Sampling Method:** A total of 420 women were selected for the study using convenience sampling.

**Inclusion Criteria:**
- Women aged 30 years and above
- Attending the OBG OPD during the study period
- Willing to participate and provide written informed consent

**Exclusion Criteria:**
- Women already diagnosed with cervical cancer
- Women who were pregnant, to avoid bias related to vaccination advice during pregnancy
- Women with mental or cognitive impairment that could interfere with understanding and answering the questions

**Data Collection Procedure:**
Data were collected using a structured questionnaire that was administered either through self-completion or face-to-face interviews, depending on the literacy level of the participant. The questionnaire was divided into three sections:
1. **Socio-demographic information** – age, education, occupation, income, marital status, and area of residence
2. **Knowledge** – awareness of HPV, its link to cervical cancer, and knowledge of the HPV vaccine
3. **Attitudes and Practices** – beliefs about the vaccine, willingness to take it, vaccination history, and reasons for acceptance or refusal

Before starting the data collection, the participants were informed about the purpose of the study. Written informed consent was obtained from all participants. Privacy and confidentiality were maintained throughout the study.

**Ethical Considerations:**
The study was approved by the Institutional Ethics Committee ICE No: SSSMCRI: IEC: 930/ 2024.

**RESULTS:**
Among the 420 women aged ≥30 years who participated in the study, the mean age was 33.4 years (SD ± 2.8). A majority resided in urban areas (60.2%), while the rest were from suburban or rural regions (39.8%). Regarding marital status, 65.2% were married, 23.1% were single, and 11.7% were divorced or widowed. In terms of

education, 44% had completed undergraduate studies and 25.5% had postgraduate qualifications. A smaller proportion had only primary (9%) or secondary education (21.4%). Regarding occupational status, the majority were employed in either private or public sectors (45.5%), followed by homemakers (21.2%), self-employed individuals (13.6%), retired/unemployed (11.7%), and others including part-time or freelance workers (8.0%). (Table 2)

Only 50.5% of women correctly identified HPV-16 and 18 as high-risk strains causing cervical cancer. Awareness of available HPV vaccines was 59.6%, and 63.3% knew the required number of doses. However, only 47.8% correctly identified that Pap smear is still necessary post-vaccination. Overall knowledge scores were significantly associated with education ($p<0.001$) and prior health education exposure ($p<0.05$). Most participants (78.2%) believed HPV vaccination is essential for women, but only 44.1% agreed it should be given to men. Concerns about vaccine side effects were prevalent (36.3%). Around 70.6% would recommend the vaccine to family/friends, yet 31.5% feared it might encourage risky sexual behaviour. Only 23.4% had completed the full vaccination course, while 70.5% were not vaccinated nor planning to. Women with higher education and previous screening history were more likely to be vaccinated ($p=0.02$). Despite good attitude scores, vaccine uptake remained low.

**Table 1: Correlation of Knowledge, Attitudes, and Practices of HPV infection and Vaccination**

| Domain | Variable | Frequency (%) |
|---|---|---|
| Knowledge | Aware HPV causes cervical cancer | 66.7 |
| | Know HPV-16/18 are high-risk strains | 50.5 |
| | Know number of HPV vaccine doses | 63.3 |
| | Know vaccine doesn't eliminate Pap smear | 47.8 |
| Attitude | HPV vaccine is important for women | 78.2 |
| | HPV vaccine is important for men | 44.1 |
| | Concerned about side effects | 36.3 |
| | Would recommend to others | 70.6 |
| | Think it encourages risky behavior | 31.5 |
| Practice | Completed full HPV vaccination | 23.4 |
| | Currently undergoing vaccination | 3.8 |
| | Scheduled for vaccination (6 months) | 2.3 |
| | Not vaccinated/not scheduled | 70.5 |

**Table 2: Demographic Characteristics of Study Participants**

| Characteristic | Category | Frequency (n) / Percentage (%) |
|---|---|---|
| Age (Years) | 30–34 | 198 (47.1%) |
| | 35–39 | 116 (27.6%) |
| | ≥40 | 106 (25.2%) |
| Residence | Urban | 253 (60.2%) |
| | Suburban/Rural | 167 (39.8%) |
| Marital Status | Married | 274 (65.2%) |
| | Single | 97 (23.1%) |
| | Divorced/Widowed | 49 (11.7%) |
| Educational Qualification | Primary School or Below | 38 (9.0%) |
| | Secondary School | 90 (21.4%) |
| | Undergraduate Degree | 185 (44.0%) |
| | Postgraduate and Above | 107 (25.5%) |
| Occupation | Employed | 191 (45.5%) |
| | Homemaker | 89 (21.2%) |
| | Self-employed | 57 (13.6%) |

| | | |
|---|---|---|
| | Retired/Unemployed | 49 (11.7%) |
| | Others | 34 (8.0%) |

## DISCUSSION

This study investigated the knowledge, attitudes, and practices (KAP) related to HPV infection and vaccination among women aged 30 years and older. While a majority of respondents showed moderate knowledge and positive attitudes, vaccination rates remained strikingly low, indicating a gap between awareness and preventive action.

Although 66.7% of participants correctly recognized HPV as a cause of cervical cancer, only 50.5% could identify high-risk HPV types (16 and 18). This is consistent with findings from studies in South Asia and the Middle East, where general awareness of HPV ranged from 41% to 60%, but deeper knowledge about viral subtypes was substantially lower (20%–45%) [11,12]. Moreover, less than half of our participants knew that Pap smear screening remains essential post-vaccination, indicating a need for comprehensive education that not only introduces HPV vaccines but also contextualizes their limitations and the continued need for screening.

Education level showed a significant association with knowledge scores ($p < 0.001$), reinforcing patterns observed globally. For instance, in a multicenter study conducted in Ethiopia, university-educated women were significantly more likely to possess high HPV knowledge and demonstrate willingness to vaccinate themselves and others[13].

A majority (78.2%) believed HPV vaccination is important for women, which is promising and similar to the 75%–85% acceptance rate observed in recent studies among urban women in China and university students in Nigeria [14,15]. However, only 44.1% supported vaccination for men. This gender disparity has been reported elsewhere and suggests that public health messaging often fails to communicate the shared responsibility of HPV prevention across sexes [16].

Despite relatively high attitude scores, only 23.4% of respondents had completed the full HPV vaccination series. This is comparable to adult uptake rates in many low- and middle-income countries, where studies have reported coverage as low as 10% among eligible women aged 25 and above [17,18]. Even in the United States, adult vaccination rates in the 27–45 years age group range from only 6.5% to 15.8% [8].

Our findings support previous reports that vaccine uptake is strongly associated with education and prior health screening behaviours ($p = 0.02$). Similar conclusions were drawn from a meta-analysis in the Asia-Pacific region, which identified educational attainment, previous Pap smear testing, and provider recommendation as consistent predictors of adult vaccine uptake [10].

A significant proportion (70.5%) of participants had neither been vaccinated nor planned to receive the vaccine. This could be attributed to several intersecting barriers, including low risk perception, lack of clear guidance from healthcare providers, and financial constraints. Evidence suggests that cost and access remain major deterrents globally, especially in adult female populations outside the school-based vaccine framework [11].

## CONCLUSION:

This study found that many women aged 30 and above had some knowledge about HPV and believed the vaccine is important. However, fewer than one in four had actually received the full HPV vaccine. Women with higher education and previous screening were more likely to be vaccinated. There are still misunderstandings about HPV and the vaccine, and many women are worried about side effects or don't know they still need Pap smears after getting vaccinated. These gaps show the need for better education and easier access to the vaccine for adult women. Improving awareness, reducing costs, and encouraging doctors to talk to patients about HPV can help increase vaccination rates and protect more women from cervical cancer.

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**Conflict of interest**

The authors declare that there is no conflict of interest.

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