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Awareness of Pap Smear and HPV Vaccine Among Girls and Women Visiting OPD: A Cross-Sectional Study

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ABSTRACT

Cervical cancer is a major public health problem globally, largely preventable through regular Pap smear testing and Human Papillomavirus (HPV) vaccination. This study assesses the awareness of Pap smear and HPV vaccination among girls and women visiting the outpatient department (OPD) of a tertiary care hospital. This cross-sectional study involved 200 female participants aged 14-45 who visited the OPD. Data were collected through structured questionnaires addressing awareness and understanding of Pap smear tests and HPV vaccination. Descriptive statistics and chi-square tests were used for data analysis. The study found that 76.5% of participants had heard of Pap smear tests and 59% were aware of the HPV vaccine. However, a deeper understanding of the purpose of Pap smear and HPV vaccination was considerably lower, at 51% and 43.5% respectively. Awareness levels were significantly associated with educational level ($p < 0.001$), marital status ($p = 0.004$), economic status ($p < 0.001$) and urban/rural residence ($p = 0.012$). While a majority of participants are aware of Pap smear tests and HPV vaccines, there is a significant gap in comprehensive knowledge about their purposes and benefits, underscoring the need for enhanced educational interventions. The study highlights the influence of socio-demographic factors on health awareness and suggests targeting these factors in future public health campaigns.

INTRODUCTION

Cervical cancer remains a significant public health problem globally, especially in regions where screening programs are limited or non-existent. It is primarily caused by persistent infection with high-risk human papillomaviruses (HPV), which are also the target of preventive vaccines. The Papanicolaou test, commonly known as the Pap smear, has been a revolutionary method for early detection of precancerous and cancerous cells in the cervix. Despite its effectiveness, awareness and uptake of the Pap smear and HPV vaccines vary considerably across different populations^[1-3]. In developing countries, cervical cancer is one of the leading causes of cancer-related deaths among women, largely due to inadequate screening and vaccination coverage. Awareness programs have the potential to significantly reduce these numbers by educating women about the importance of early detection and prevention measures. Studies suggest that knowledge and attitudes towards these preventive measures can influence their adoption^[4,5]. The integration of HPV vaccination into national immunization programs has been shown to significantly decrease the incidence of cervical cancer precursors among young women. However, the success of such vaccination programs heavily relies on public awareness and acceptance, which in turn are influenced by socio-cultural factors, education and accessibility of healthcare services^[6,7].

Aims: To assess the awareness of Pap smear testing and HPV vaccination among girls and women aged 14 to 45 visiting the OPD of a tertiary care hospital.

Objectives:

- To quantify the level of knowledge about the Pap smear test and its importance in cervical cancer prevention among the study participants.
- To evaluate the awareness and uptake of the HPV vaccine among the participants and identify factors influencing vaccination rates.
- To identify demographic and socio-economic variables correlated with awareness levels of cervical cancer prevention methods.

MATERIALS AND METHODS

Source of Data: The data was collected from girls and women visiting the Outpatient Department (OPD) of a tertiary care hospital.

Study Design: A cross-sectional study design was used to evaluate the awareness levels regarding the Pap smear and HPV vaccine.

Study Location: The study was conducted at the Outpatient Department of OBGY, Parbhani Medical College and RP Hospital and Research institute Pedgaon District Parbhani.

Study Duration: Data collection occurred over a period of six months, from January 2023 to June 2023.

Sample Size: A total of 200 participants were included in the study.

Inclusion Criteria: Participants were girls and women aged between 14 and 45 years who visited the OPD during the study period.

Exclusion Criteria: Participants were excluded if they were below 14 or above 45 years of age, had a history of hysterectomy, or were currently pregnant.

Procedure and Methodology: Participants were approached in the waiting area of the OPD and were invited to participate in the study. After obtaining informed consent, a structured questionnaire was administered to collect data on their knowledge and attitudes towards the Pap smear and HPV vaccine.

Sample Processing: The collected data were anonymized and entered into a database for analysis.

Statistical Methods: Data were analyzed using descriptive statistics to summarize the demographic characteristics and awareness levels. Chi-square tests were used to explore the association between demographic factors and awareness levels. Logistic regression was conducted to identify predictors of awareness and uptake of Pap smears and HPV vaccination.

Data Collection: Data collection was facilitated by trained research assistants who ensured that the questionnaires were filled out accurately and completely. Each participant's confidentiality was maintained throughout the process.

RESULTS AND DISCUSSIONS

Table 1: Awareness of Pap Smear Testing and HPV Vaccination

Variables	n (%)	95% CI	P-value
Heard of Pap smear	153 (76.5%)	71.1-81.9%	<0.001
Heard of HPV vaccine	118 (59%)	52.2-65.8%	0.002
Understands purpose of Pap smear	102 (51%)	44.1-57.9%	0.015
Understands purpose of HPV vaccine	87 (43.5%)	36.6-50.4%	0.024

(Table 1) focuses on the general awareness of Pap smear testing and HPV vaccination. It shows that a majority, 76.5% of participants, have heard of the Pap smear, while 59% are aware of the HPV vaccine. The understanding of the purpose of these preventive measures is slightly lower, with 51% understanding the purpose of the Pap smear and 43.5% understanding that of the HPV vaccine. The statistical significance of these findings indicates strong evidence of awareness levels among the participants.

Table 2: Knowledge About Pap Smear and its Importance

Variables	n (%)	95% CI	P-value
Knows test frequency	136 (68%)	61.1-74.9%	0.001
Aware of risk factors	121 (60.5%)	53.6-67.4%	<0.001
Identifies symptoms needing Pap smear	93 (46.5%)	39.6-53.4%	0.030
Recognizes age to start testing	110 (55%)	48.1-61.9%	0.010

(Table 2) delves into specific knowledge about the Pap smear, including testing frequency, risk factors, symptoms necessitating a Pap smear and the recommended age to begin testing. A notable 68% of participants know the recommended frequency for Pap smear tests and 60.5% are aware of the risk factors associated with cervical cancer. <half, 46.5%, can identify symptoms that would require a Pap smear, while 55% know the correct age to start testing. These statistics suggest a moderate to high level of specific knowledge regarding the Pap smear among the study population.

Table 3: Awareness and Uptake of HPV Vaccine

Variables	n (%)	95% CI	P-value
Received HPV vaccine	72 (36%)	29.6-42.4%	<0.001
Knows vaccination schedule	81 (40.5%)	34.1-47.0%	0.005
Understands vaccine efficacy	67 (33.5%)	27.1-39.9%	0.008
Aware of vaccination age	95 (47.5%)	40.6-54.4%	0.002

(Table 3) evaluates the awareness and uptake of the HPV vaccine. It is observed that 36% of the participants have received the HPV vaccine and 40.5% are aware of the vaccination schedule. Additionally, 33.5% understand the efficacy of the vaccine and 47.5% know the recommended age for vaccination. These findings highlight varying degrees of vaccine-related knowledge and uptake among the participants, suggesting areas where further educational interventions could be beneficial.

Table 4: Correlation of Demographic and Socio-Economic Variables with Awareness

Variables	n (%)	95% CI	P-value
Education level	172 (86%)	80.1-91.9%	<0.001
Marital status	130 (65%)	58.2-71.8%	0.004
Economic status	150 (75%)	68.9-81.1%	<0.001
Urban/Rural residence	120 (60%)	53.2-66.8%	0.012

(Table 4) analyzes how demographic and socio-economic factors correlate with awareness levels of cervical cancer prevention methods. High awareness is linked with education level (86% awareness), while economic status and urban/rural residence also show significant correlations, with 75% and 60% awareness, respectively. Marital status shows a moderate correlation with a 65% awareness rate. These results underscore the influence of socio-economic and demographic variables on health awareness and highlight potential targets for focused health education and outreach programs.

(Table 1) reveals that a substantial proportion of participants (76.5%) have heard of the Pap smear and a smaller percentage (59%) are aware of the HPV

vaccine. This is relatively consistent with findings from other regions where awareness of Pap smear is generally higher than that of the HPV vaccine. For instance, a study in a developing country reported similar awareness levels of Pap smears but lower awareness of the HPV vaccine due to recent introduction and limited public health campaigns Arora^[8]. The comprehension of the purposes of these preventive measures (51% for Pap smear and 43.5% for HPV vaccine) is somewhat aligned with global trends where understanding often trails awareness, indicating the need for enhanced educational efforts Guo^[9]. **(Table 2)** illustrates moderate to high knowledge about the Pap smear, including test frequency and risk factors associated with cervical cancer. The recognition of symptoms requiring a Pap smear and the appropriate age to begin testing is lower, which mirrors the knowledge gaps identified in studies from both high and low-resource settings Shamaun^[10]. These gaps underscore the necessity for targeted education that not only raises awareness but also deepens understanding of why and when these tests should be undertaken. **(Table 3)** addresses the specific awareness and uptake related to the HPV vaccine. The uptake rate (36%) is comparable to some regional estimates but lower than in countries with established vaccine programs Sinha^[11] and Govardhan^[12]. Knowledge about the vaccination schedule and vaccine efficacy remains limited, suggesting potential areas where health communication could be significantly improved. This aligns with research suggesting that knowledge of vaccine efficacy is crucial for acceptance and uptake Issa^[13]. **(Table 4)** demonstrates strong correlations between demographic and socio-economic factors with awareness levels. Education level shows the highest correlation with awareness, which is consistent with literature asserting that higher educational attainment is significantly associated with better health knowledge and behaviors Kataria^[14]. Marital status, economic status and urban/rural residence also show significant associations with awareness levels, reflecting broader social determinants of health that influence access to information and healthcare services Ma'som^[15].

CONCLUSION

This cross-sectional study conducted at the outpatient department of a tertiary care hospital provides significant insights into the awareness levels of Pap smear testing and HPV vaccination among girls and women aged 14-45. The findings highlight a moderate to high level of awareness regarding Pap smear tests (76.5%) and a lower, yet significant, awareness of HPV vaccines (59%). Despite these positive indicators of initial awareness, the study reveals that comprehensive understanding of the purpose and

efficacy of these preventive measures is notably lower. Only 51% of participants understood the purpose of Pap smear testing and even fewer (43.5%) comprehended the purpose of the HPV vaccine. The knowledge gaps extend further into specifics, such as the recommended frequency of Pap smear tests and the essential aspects of the HPV vaccination schedule. Only 68% of the participants were aware of the test frequency for Pap smears and knowledge about HPV vaccination specifics was similarly limited. These findings suggest an urgent need for enhanced educational initiatives that not only raise awareness but also bolster comprehensive understanding and informed decision-making regarding cervical cancer prevention. Moreover, the study underscores the influence of socio-economic and demographic factors, including education level, marital status, economic status and urban/rural residence on the awareness levels. Education emerged as a significant predictor of higher awareness, demonstrating the crucial role of educational interventions in improving health literacy and proactive health behaviors. Given these findings, there is a clear imperative for health authorities and policymakers to design and implement targeted educational programs. These should focus not only on increasing coverage but also on ensuring that women fully understand the importance and benefits of regular Pap smear testing and HPV vaccination. Such efforts are vital in the fight against cervical cancer, significantly contributing to the reduction of incidence and mortality rates associated with the disease. This study contributes to the ongoing dialogue about women's health education and the critical role of public health campaigns in empowering women with the knowledge necessary to take proactive steps towards their health and well-being.

Limitations of Study:

- **Cross-Sectional Design:** As the study employed a cross-sectional design, it captures only a snapshot in time. Such a design inherently limits the ability to infer causality between the observed awareness and contributing factors or to observe changes in awareness over time.
- **Sampling Bias:** The participants were only those who visited the OPD of a single tertiary care hospital, which may not be representative of the broader population. This could limit the generalizability of the findings to other regions or different healthcare settings.
- **Self-Reported Data:** The data were collected based on participants' self-reports, which can be subject to recall bias and social desirability bias. Participants may overreport their awareness or understanding due to the desire to provide socially acceptable answers.

- **Limited Demographic and Socio-Economic Data:** The study might not have captured all relevant demographic and socio-economic factors that could influence awareness, such as detailed educational background, specific cultural influences, or detailed economic levels.
- **No Follow-up:** Without follow-up data, it is challenging to determine whether awareness leads to actual engagement with Pap smear testing and HPV vaccination, such as receiving the vaccine or following through with regular screenings.
- **Language and Cultural Barriers:** The study did not account for potential language or cultural barriers that might affect comprehension of the information provided about Pap smears and HPV vaccines, which can influence the accuracy of the responses.
- **Educational Interventions:** The study did not control for any recent educational interventions or public health campaigns that might have temporarily influenced awareness levels, which could skew the results if such interventions were conducted shortly before the study.

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