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HUMAN PAPILLOMAVIRUS (HPV) VACCINATION IN PAKISTAN: EPIDEMIOLOGY, COMPLIANCE, CHALLENGES & RECOMMENDATIONS

Nadia Sajid[*1], Shazia Sajid[2], Tahira Tabbsum[3], Abdul Sattar[4]

[*1]*Principal, Farrukh Mukhtar College of Nursing* [2]*Principal, Multan College of Nursing*
[3]*Associate Consultant Gynae/Obs Mukhtar A. Sheikh Hospital*
[4]*Associate Consultant Emergency Medicine Mukhtar A. Sheikh Hospital*

[*1]nadiasajid030@gmail.com

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Corresponding Author: *
Nadia Said

Abstract

Human papilloma-virus or HPV is the major cause of cervical cancer in women around the globe. Pakistan initiated HPV vaccination program in 2025 with funding of UNICEF, Gavi, and WHO, before that Pakistan had poor screening coverage and negligible vaccination coverage. This paper stipulate a picture of screening procedures, genotype distribution of HPV, epidemiology of cervical cancer in Pakistan, and vaccination implementation challenges. Women in Pakistan are usually infected with high-risk strains of HPV particularly 16 and 18. To reduce the incidence of cervical cancer in Pakistan, initiating and improving preventive measures, screening programs, and HPV vaccination is highly important.

INTRODUCTION

Globally, over 95% of cervical cancer cases occur due to HPV (1). In Pakistan HPV vaccination, screening, and awareness program initiative are highly deficient. National HPV vaccination campaign was launched in 2025, that is aligned with WHO's goal for eradicating cervical cancer (1,6).

Epidemiology of HPV and Cervical Cancer in Pakistan

Cervical cancer burden

Every year approximately 4,700 new cases of cervical cancer appear in Pakistan while around 3,000 women dies each year due to cervical cancer, reported by GLOBOCAN statistics (2,3). The age-standardized incidence rate is around 5.4 per 100,000 females (2).

HPV prevalence & genotype distribution

The most prevalent genotype in Pakistani women, according to studies, is HPV-16, which is followed by HPV-18 and HPV-45 (4,5,7). 60–70% of infections in cervical cancer samples are caused by HPV-16 (4,5).

Screening Practices in Pakistan

The majority of screening is opportunistic. Only a few primary care settings offer VIA, tertiary hospitals offer cytology, and only a few regional centres offer HPV DNA testing (8,9). Inconsistent quality control and the absence of a nationwide screening program continue to be significant obstacles (8).

HPV Vaccination in Pakistan (2025)

With assistance from WHO, UNICEF, and Gavi, Pakistan launched the HPV vaccine nationwide in September 2025 (1,6). The initiative uses outreach and school-based vaccination tactics to target girls between the ages of 9 and 14 (1). The implementation is in line with evidence from

around the world that single-dose HPV vaccine is effective for primary prevention (6,10).

Knowledge, Attitudes, and Barriers

Low knowledge of HPV, cervical cancer prevention, and vaccine benefits is highlighted by numerous local surveys (11,12). Common obstacles include:

- Fertility myths
- Cultural and religious beliefs
- Inadequate health literacy among women
- Limited access to facilities that cater to women
- False information on social media

Impact of Vaccine Rollout & Challenges

According to preliminary data, millions of girls were vaccinated in 2025, but there was resistance in some communities as a result of false information (6). Early acceptability has improved as a result of public authorities' support and community involvement (6).

Discussion

The findings of this review show both notable advancements and severe gaps in Pakistan's cervical cancer control and HPV prevention efforts. The launch of the countrywide HPV vaccination program in 2025 is a significant milestone for women's health in the nation, but its success will depend on how well Pakistan resolves structural, cultural, and health-system obstacles.

First, the most effective long-term strategy to lower the incidence of cervical cancer is primary prevention by immunization. Cervical intraepithelial neoplasia, high-risk HPV infection, and eventually cervical cancer cases have all dramatically decreased in nations where the HPV vaccine has been used for more than ten years (10). Pakistan's adoption of a single-dose vaccination method is anticipated to lessen budgetary and logistical difficulties and is in line with the WHO's amended viewpoint (1,10). However, attaining high coverage among girls aged 9–14, including those who are not enrolled in school—an estimated 22 million nationwide—is necessary for the vaccination to have an impact (1,6). Reaching remote communities, maintaining the cold chain continuously, and resolving provincial differences in immunization infrastructure are some of the delivery problems (1). To track adverse effects, vaccination uptake, and immunity durability, long-term monitoring methods must be set up.

Second, screening-based secondary prevention is still severely lacking. Pakistan lacks a national screening program and has restricted access to HPV DNA testing, which is regarded as the gold standard, in contrast to high-income nations where cervical cancer has decreased as a result of good screening (8). Due to a lack of routine screening and ignorance, the majority of women who present with cervical cancer at tertiary hospitals are detected at advanced stages (2,8). Due to cultural discomfort, a shortage of female healthcare professionals, and a lack of follow-up procedures, uptake is poor even in areas where Pap smear treatments are available (8,9). The nation needs a tiered screening approach that includes effective treatment referral pathways, cytology and VIA (visual inspection with Acetic Acid) in remote or low-resource locations, and HPV DNA testing where practical. For this laboratory quality control and educating the medical personnel can play a pivotal role.

Third, false information and sociocultural stereotyping are main obstacles in adoption of HPV vaccine and screening programs. Numerous research studies unveil strong misconceptions about infertility, moral stigma, and vaccine safety (11, 12). When Pakistan initiated vaccination efforts, social media played a major role in spreading false information (6). Even scientifically verified tactics were used to oppose and stop those vaccination efforts. In many public health campaigns, it is recommended to emphasize on HPV vaccination to prevent cervical cancer (11). Without strong community involvement this achievement is not possible. It is imperative to engage female educator, medical professionals, religious guides, and local influencer to contribute in awareness campaigns. Education and healthcare centers are reliable venues for health education and awareness campaigns.

Fourth, other obstacles include health care system confinement and resources scarcity. Pakistan successfully carried out large-scale communicable diseases eradication programs such as polio and measles, such programs should be carried out

targeting sensitive age group and gender-specific techniques. To execute large-scale programs sufficient staffing, proper training of female vaccinators, including HPV vaccination services into existing maternal and child health centers, and enhancing data system is crucial (1,6). It is imperative to implement adequate monitoring system, reducing inequities in national and provincial drives for prevention and control of cervical cancer among vulnerable population.

Fifth, available literature in Pakistan shows a lot of research gaps. Numerous studies on local genotype distribution reveals the dominance of HPV-16 and 18 (4,5,7), still variation tracking during vaccination period requires continuous surveillance. Despite evidence that the risk of HPV infection varies between demographic groups, there are few large-scale epidemiological research on women living with HIV, transgender communities, or rural areas. To improve the quality of national data academic institutions, provincial health ministries, and cancer registries should collaborate and fortify the surveillance and data monitoring programs.

Lastly, Pakistan's progress and goal attainment in terms of vaccination rate and control of cervical cancer incidences should be compared and aligned with international objectives. WHO anticipates to eradicate cervical cancer by achieving 90% HPV vaccination coverage, 70% screening, and 90% treatment availability for the vulnerable population considering it a immense public health issue. Pakistan has made tremendous progress in attaining first gaol by introduction of vaccination (1) but still there is a need to advance screening and treatment programs to attain international levels (8,9). To eradicate cervical cancer in Pakistan consistent funding, political involvement, community engagement, and intersectoral cooperation is mandatory.

Recommendations

1. Attain and maintain a high national HPV vaccination rate
2. Increase outreach and school-based immunization programs for girls who are not enrolled in school
3. Launch a countrywide cervical cancer screening program in phases.
4. Boost screening initiatives by making HPV testing available in phases
5. National awareness initiatives to dispel false information and myths
6. Use genotype surveillance to bolster monitoring systems

Limitations of this Review

Publicly accessible documents and media reports from 2025 are used in this narrative review. Pakistan's populations and study designs vary widely; some data come from national program reports that may be updated regularly and single-center studies. To measure the long-term effects of vaccination and screening scale-up, ongoing surveillance and peer-reviewed evaluations will be required.

Conclusion

For Pakistani women, HPV continues to pose a serious threat to public health. The 2025 immunization campaign offers a vital chance to lower the burden of disease. However, success can be achieved by program monitoring, public awareness, and proper screening surveys (1–12).

REFERENCE:

World Health Organization (WHO). Pakistan introduces HPV vaccine to protect girls against cervical cancer. WHO Eastern Mediterranean Regional Office; 2025.

International Agency for Research on Cancer (IARC). GLOBOCAN 2023: Pakistan country cancer fact sheet. Lyon: IARC; 2023.

Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide. *CA Cancer J Clin.* 2021;71(3):209-49.

Aziz H, Naseer U, Malik S, et al. Type-specific prevalence of high-risk HPV among cervical cancer patients in Pakistan. *J Pak Med Assoc.* 2024;74(2):123-9.

Imran M, Qureshi S, Fatima S, et al. Human papillomavirus genotype distribution in cervical lesions in Pakistani women. *J Coll Physicians Surg Pak.* 2023;33(7):789-94.

UNICEF Pakistan. Pakistan launches nationwide HPV vaccination campaign. Islamabad: UNICEF; 2025.

Minhas S, Afzal S, Khan T. Prevalence and genotype distribution of human papillomavirus in Pakistani women: a systematic review. *Asian Pac J Cancer Prev.* 2022;23(5):1681-9.

Ahmad M, Rehman A, Zafar A. Cervical cancer screening in Pakistan: current status, gaps, and future directions. *Int J Gynecol Obstet.* 2023;162(1):45-52.

Khan G, Attaullah S. HPV and cervical cancer in Pakistan: review of screening infrastructure and challenges. *World J Clin Oncol.* 2020;11(5):293-302.

World Health Organization (WHO). Single-dose HPV vaccine position paper. Geneva: WHO; 2022.

Saeed S, Rasheed F. Knowledge and attitudes about HPV and vaccination among mothers in urban Pakistan. *BMC Public Health.* 2022;22(1):1445.

Khurshid F, Ali S, Shahbaz S. Cultural barriers and misconceptions surrounding cervical cancer prevention in Pakistan. *Health Educ Res.* 2023;38(2):129-38.