

The Current Status of the HPV Vaccine Worldwide

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Abstract:

Vaccinations against the human papillomavirus (HPV) are a vital intervention in the prevention of genital warts and most cases of cervical cancer, but also other types of cancers caused by HPV. Despite the effectiveness of this vaccine, there are still differences in vaccination acceptability worldwide. This study looks at the many aspects that affect people's acceptance of the HPV vaccine, such as safety concerns, religious views, and cultural beliefs. The paper examines how these variables affect vaccination rates and suggests ways to deal with vaccine reluctance, drawing on case studies and previous research from various worldwide contexts. The key findings in the essay highlight persistent global disparities in HPV vaccination access, driven by factors such as socioeconomic inequalities, cultural barriers, and logistical challenges, alongside the importance of addressing vaccine hesitancy through culturally sensitive communication. Moreover, the necessity for open communication, the cessation of spreading false rumors that cause the vaccine's hesitation, and education and spreading awareness can help promote this vaccine. By addressing these barriers and fostering trust, efforts to increase HPV vaccination coverage can contribute to reducing the burden of sexual-related cancers and achieving equitable access to preventive healthcare worldwide.

Keywords: Human papillomavirus vaccine; Vaccination; Vaccine hesitancy; Cultural beliefs.

1. Introduction

Annually, around 11,500 new instances of cervical cancer are identified in the United States, resulting in 4,000 fatalities [1]. Additionally, an average of 52,000 men are diagnosed with prostate cancer each year, equating to 144 men every day. The most popular and reliable method of lowering the chance of developing genital warts, cervical, vaginal, penis, or anus cancer is to get vaccinated against the human papillomavirus (HPV). However, studies have indicated that not everyone opts for this preventive approach despite its proven efficiency. Due to restricted access to immunization programs, there are significant differences in the distribution and uptake of vaccines between high-income and low- and middle-income nations. Concerns about safety, religion, and culture all play a role in the acceptance rates of HPV vaccinations. Religious teachings and cultural views on sickness and sexual activity influence attitudes toward vaccination by causing reluctance in some cultures, worsened by rumors and false information. This study examines the challenges of administering HPV vaccinations, such as unequal access, vaccine reluctance, and the requirement for more effective advertising tactics. The objective of this study is to highlight the obstacles facing HPV vaccination initiatives

by looking at case studies from nations including India, China, Rwanda, Japan, and Korea, insights into cultural and religious impacts on vaccine acceptability, as well as offer solutions to this issue. It discusses the significance of all-encompassing education and awareness campaigns to debunk stereotypes, lessen stigma, and encourage fair access to preventative healthcare for everyone, irrespective of sex, geography, or cultural background. Reducing the worldwide burden of cervical cancer requires a complete understanding of the causes behind low vaccination rates. This research is significant because it has the potential to guide public health and policy initiatives targeted at raising HPV vaccination rates and lowering the incidence of genital cancers.

2. Global Disparities in HPV Vaccination

There is a global disparity of HPV vaccines between low- and middle-income countries and high-income countries because low- and middle-income countries are less accessible to HPV vaccines. Around 87 to 90% of deceased women from cervical cancer occurred in low or middle-income countries [2], which shows just how unequal HPV vaccines are distributed globally and how prominent the issue of global disparities is. Increasing vaccination rates

in low- or middle-income countries can contribute to a reduction in global cervical cancer and other HPV-related cancer incidence rates, thereby diminishing mortality rates worldwide and promoting overall health.

2.1 The Situation in low- or middle-income countries

India has taken steps to enhance the accessibility of HPV vaccination to its citizens by introducing a domestically manufactured version of the vaccine, known as the Quad-valent Cervavac vaccine. This vaccine was formally introduced on September 1st, 2022. It only costs 200 to 400 rupees per dose, which equals around 2-5 US dollars and 17-35 RMB [3]. This made HPV vaccines more affordable and accessible to a larger segment of the population, particularly for those living in rural and low-income areas in India. The incidence of cervical cancer is high, with more than 12400 cases and around 75,000 deaths annually. India hopes that the introduction of the new HPV vaccine will help reduce this devastating statistic.

In China, a report in 2021 showed that HPV vaccination rates for adolescents were lower than 3%, and for the whole population, they were lower than 6%, but a report in 2018 showed that 53.8% of people were aware of HPV vaccines [4]. Researchers tried to understand why there was such a big gap between the percentage of people who knew about the vaccine and the percentage of people who decided to take it, so they conducted a cross-sectional survey in the same year. The survey included two parts: basic information and standard scales. The results indicated a notable disparity between the groups that received the HPV vaccine and those that did not, in terms of their place of residence, ages, highest education levels, monthly per capita household income, self-efficacy, family health, and health literacy [4]. They believe these were the determinants of choosing whether to get vaccinated. People with a higher education level would be more educated on the importance of this vaccine so that they would promote it for their whole family. People who live in different regions or provinces in China would also have different opinions because some places are richer or poorer than others, and they may not be able to afford it.

In 2011, Rwanda achieved a high rate of 95% in the adoption of HPV vaccines. This was accomplished using a school-based strategy, where the vaccines were administered to pupils who had consented. A crucial reason for this act to be so successful is because 89% of the teachers supported it. Parents were more likely to trust the information and consent to their children receiving the vaccine if teachers, who are well-respected members of the community, supported the program. Furthermore, since one

of a teacher's responsibilities is to educate and increase awareness, it goes without saying that they are pivotal in eradicating any misunderstandings or anxieties people may have about the vaccine. In 2019, Kenya wanted to reach out to girls who were not only at school but also in the community, so they adopted a blended strategy for HPV vaccination, combining facility-based, school-based, and community approaches. Many challenges surface due to this progression, for example, determining the target population, disregarding the dissenting voices from the Catholic Church, which caused many religious people to refuse the vaccine, and also the COVID-19 pandemic regulations, which caused 40000 girls to miss out on the vaccine that year [5].

2.2 Strategies to Reduce Global Disparity

Progress toward allowing equal distribution of HPV vaccines cannot be made without global collaborations and the help of international organizations. In 2018, the World Health Organization issued an appeal for worldwide action. The objective was to achieve a vaccination rate of 90% for girls against HPV by the age of 15 by the year 2030. Additionally, the aim was to have 70% of eligible women undergo screening and ensure that 90% of identified women receive appropriate treatment and care. This information is sourced from reference [6]. Progress toward achieving the goal of reducing global disparity can only be made with international collaboration. The organization, Gavi, massively reduced the cost of vaccines, as vaccines, which once cost as much as \$100 but can now be obtained for only \$4.5 in public sections. In addition, it was declared that five manufacturers have pledged to enhance production and give priority to supplying HPV vaccines to countries eligible for Gavi, with the potential to vaccinate up to 84 million girls within the next five years [7].

UNICEF also made a contribution. Between 2013 and 2019, UNICEF procured a total of 30.9 million doses of the HPV vaccination to help girls. Another method includes implementing school-based vaccination programs, which can help reach many pre-teens and teens. Early precautions and education on this topic, before teens become sexually active, are very beneficial as they will significantly reduce the risk of them getting genital warts or cancers. Students and their families will find school-based vaccination approaches more manageable and accessible. The HPV vaccine can now be administered directly to school pupils, negating the need for extra medical appointments or trips to medical facilities. Students are more likely to participate in vaccination campaigns when transportation, time, and conflicting priorities are less of an obstacle. In

logistical planning, knowing the quantity of personnel and resources required will also be helpful by guaranteeing that all children, regardless of socioeconomic position or geographic location, have access to HPV vaccination; school-based vaccination programs further advance equity and inclusion. Through their outreach to students in various educational environments, such as underprivileged, rural, and urban, these initiatives reduce the gaps in vaccination rates and enhance the health outcomes for all teenagers. This aligns with public health goals of promoting health equity and reducing health disparities. The success of this is already shown in Rwanda's case study.

3. Vaccine hesitancy

There are differences in the cultural and religious sensitivity about sexually transmitted HPV depending on the age group. Young girls (9–12 years old), young women (13–26 years old), and adult women (27–45 years old) should all be given particular attention. It is difficult to communicate freely about sex and reproductive health in many Asian countries, including Malaysia, due to cultural taboos. This makes it challenging to discuss HPV preventive techniques. Cultural awareness is essential to ensure HPV vaccination initiatives are successfully conveyed and accepted within these age ranges. While highlighting the significance of HPV vaccination for preventing cervical cancer and other HPV-related illnesses, it is necessary to adapt messages and interventions to respect cultural norms and religious beliefs [8].

Parents of teenage females who are reluctant to vaccinate their children typically do so out of fear that the HPV vaccine will unintentionally promote early sexual behavior. Healthcare practitioners must effectively communicate in order to clarify misunderstandings and offer evidence of the vaccine's substantial advantages. Hesitancy among young adults is usually caused by social stigma, which prevents stigma from preventing open discussion about sexual health issues and leaves them ignorant of HPV and vaccination. Hesitancy is further compounded by cultural and religious standards regarding premarital sexual activity, which inculcates feelings emotions of shame or humiliation about seeking the vaccination. Adult women are especially reluctant to get tested for HPV because they fear that their spouses would interpret the results as evidence of adultery, infidelity, or promiscuity. The scarcity of reports on married adult women's perspectives perpetuates the stigma surrounding HPV vaccination. Moreover, household dynamics heavily influence healthcare decisions, including partner opinions and adherence to gender roles. Therefore, addressing vaccine hesitancy

necessitates culturally sensitive approaches that acknowledge and navigate societal norms while promoting the critical importance of HPV vaccination for overall health and well-being [8].

3.1 Culture Factors

Attitudes and ideas, particularly those concerning healthcare and immunizations, are greatly influenced by culture. Cultural variables like past traumas, religious convictions, and social conventions frequently cause reluctance to receive vaccinations. Because of historical injustices or medical experimentation, there may be a pervasive mistrust of the government or pharmaceutical companies in some communities. Communities' social norms can also affect vaccine hesitancy because people are susceptible to the opinions of peers, family, and community leaders. Cultural perceptions of illness, risk, and authority within various cultural groups can influence vaccine acceptance or resistance.

The Asian community's commitment to traditional values, cultural subtleties, and conservatism continues to have a substantial impact on prevention efforts and the pursuit of treatment.

Asian cultures have been distinguished from other parts of the world for many years by their deep-rooted traditional conservatism and social conventions. Adherence to these ancient beliefs persists in Asia, impacting attitudes toward preventive activities and healthcare-seeking habits. Talks on matters related to sex are frequently regarded as sensitive and taboo. These sensitivities pose challenges in accessing support and information on sexual and reproductive health, resulting in limited discussions within families and society. As a result, parents and children often lack opportunities for open and honest conversations about sexual health [8].

In June 2013, the Japanese government halted the issuance of proactive recommendations for HPV vaccines due to concerns raised by the media regarding promotional events associated with these vaccines. There is a common misconception that cervical cancer exclusively affects sexually promiscuous individuals, which leads people to assume that they are not at risk. Additionally, the negative reactions and stigma from others discourage individuals from taking preventive measures against cancer. Individuals also expressed apprehension regarding the safety and efficacy of the HPV vaccine. In September 2022, the Japanese institutions offering medical education courses received a notification from a ministry to provide state-wide classes on adverse medication reactions, which also covered the topic of the HPV vaccine. As a consequence, the majority of medical schools (80 out of 81), all dental

schools (29 in total), the majority of nursing schools (254 out of 299), and the majority of pharmacy schools (79 in total) in Japan endorsed the notion that the HPV vaccine is detrimental [9]. In a comparison between South and North Korea, it was found that there are no articles dealing with anogenital warts as the primary research subject in South Korean medical journals. In contrast, 4% of genital warts as the primary research topic appeared in North Korean medical journals [10]. Despite North Korea seemingly caring more about this issue than South Korea, there are no HPV vaccines in North Korea; the reason is unstated. In South Korea, the HPV vaccine coverage was 12% among adult women and around 10% among high school girls [8], which also shows a relatively low vaccination rate. The reason for this is a lack of knowledge on HPV infections and vaccines because sexually transmitted infections are a stigmatized topic, and spouses feel that if their women get the vaccine, it shows mistrust and unloyalty.

3.2 Religion Factors

Because different religious views can affect how people perceive vaccinations, religion has a significant global impact on attitudes toward immunizations. For example, due to dietary constraints, religious groups like Judaism and Islam may have reservations about some vaccine ingredients, including gelatine made from pig products. This influence extends to the acceptability of HPV vaccinations, as people's decisions on vaccine uptake may be influenced by opposing religious beliefs or interpretations. Religious leaders may have an impact on their followers' attitudes toward immunization and their readiness to receive the HPV vaccine. Public health initiatives need to comprehend the connection between religion and vaccine hesitancy in order to adequately address concerns and encourage vaccine adoption in varied religious communities. For Catholics, there are actually people supporting both sides. In Canada, Bishop Frederick Henry of Calgary and other Roman Catholic Bishops in Alberta were against HPV vaccines, and they prevented administering or promoting HPV vaccines in 10 religious schools in Canada [11]. However, the National Catholic Bioethics Center and the Catholic Medical Association also issued statements saying that it is morally acceptable to use HPV vaccines in appropriate situations [12]. Christian parents believe that their children do not need the HPV vaccines as they should be sexually pure in the first place, and if they do get infected, God will protect them. Some A study was conducted to examine the impact of the presentation of HPV vaccine information on vaccination rates among Christians, since they saw that the vaccination messaging lacked spiritual elements and were secular in nature. The

study assessed the efficacy of the Centers for Disease Control and Prevention (CDC) and Vaccine Information Statement (VIS) in promoting HPV vaccination, by comparing them with an intervention message that included scriptural references. The results indicated that parents who got the message with scripture expressed a greater inclination to vaccinate their children compared to those who received the CHC or VIS [13]. Therefore, it is important to tailor the promotion of HPV vaccines with religious messaging interventions to specifically target religious communities.

4. Promotion

To properly promote this vaccine, issues of sexism, particularly in the use of language and emphasis on "cervical cancer," need to be changed. It is important to note that this vaccine is efficient in preventing genital warts affecting both men and women; however, the overemphasis on the term "cervical cancer" creates a gendered discourse that overburdens women for screening and treatment, neglecting the protection of men, and fostering vaccine hesitancy by simplifying the risk perception to focus on cervical cancer primarily. This calls for the need for a more balanced representation to avoid perpetuating gender biases in the context of HPV prevention.

There is also confusion between HPV and HIV, along with the perception of HPV as sexually transmitted, which has fostered stereotypes linked to its immoral behavior. Medical advice often emphasizes the HPV vaccine's efficacy for sexually inexperienced women, creating the stereotype that only morally abstinent women qualify for vaccination. The associated stigma functions as social control, limiting women's access to proactive health protection and contributing to health inequality, especially among non-vaccinated individuals. Education and awareness initiatives are essential to dispel myths, reduce stigma, and ensure equitable access to preventive healthcare for all women.

5. Summary

Due to varying access to immunizations, there are still differences in HPV vaccination rates worldwide. These differences are most apparent in low- and middle-income countries, where the frequency of HPV-related illnesses like cervical cancer is higher. Initiatives like Rwanda's school-based immunization program and the development of locally made moderately priced vaccines like India's Quadrivalent Cervavac are two initiatives aimed at closing this disparity. However, issues remain, such as the COVID-19 outbreak exacerbating logistical difficulties, resistance from some religious communities, and finan-

cial inequality. The global partnership between Gavi and UNICEF has been instrumental in reducing the cost of vaccinations and expanding their availability to qualified nations. Social, religious, and cultural variables all have a role in vaccination hesitation, especially regarding HPV immunizations. Cultural taboos around talking about sexual health present obstacles to efforts to prevent HPV, calling for communication strategies that are sensitive to cultural differences. Parents of teenage girls may be reluctant due to misconceptions about the vaccine encouraging early sexual behavior as well as worries about societal stigma. Respecting cultural and religious views while highlighting the significance of HPV vaccination with evidence-based messaging is necessary to address vaccine reluctance. To promote equitable access to immunization services and overcome worldwide discrepancies in HPV vaccine uptake, international collaboration and customized approaches are needed. It's critical to overcome sexism and stigma surrounding the vaccine in order to promote HPV immunization properly. Cervical cancer is a significant focus of current messaging, which disproportionately places the onus of screening and treatment on women while ignoring men's protection against genital warts. This disparity may strengthen gender biases and vaccine aversion. Marketing campaigns ought to promote the vaccine's advantages to both sexes more equitably. Efforts to raise awareness and educate the public are essential to debunk misconceptions, lessen stigma, and guarantee that everyone, regardless of gender or sexual orientation, has fair access to preventative healthcare. In conclusion, more work and improvements have to be made to guarantee that everyone has access to life-saving HPV vaccinations, regardless of cultural or religious background, regardless of sex or wealth, hence exacerbating vaccine hesitancy and creating worldwide inequalities in vaccination coverage. More research, cooperation, advocacy work, and awareness are required. Top of Form Bottom of Form

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