INTERNATIONAL JOURNAL OF SOCIAL SCIENCES BULLETIN
ISSN: (E) 3007-1917 (P) 3007-1909
Volume 4, Issue 3, 2026

A QUALITATIVE EXPLORATION OF HPV VACCINE HESITANCY AMONG PARENTS IN KARACHI

Shahzad Ahmad[1], Anum Siddiqui[2], Laiba Talat[3], Muhammad Rehan[4], Emaan Ilyas[5], Mariam Sharif Masih[6], Cecilia Sheeshman[7], Syed Uzma Paiam Bukhari[*8]

[1,2,3,4,5,6,7]*GBSN Scholar, Indus University of Health Sciences Karachi, Pakistan*
[*8]*Ph.D. Scholar, Assistant Professor, Indus University of Health Sciences, Karachi, Pakistan*

[*8]uzmazmat@gmail.com

Corresponding Author: *
Syed Uzma Paiam Bukhari
DOI: http://doi.org/10.5281/zenodo.20022098

Received	Accepted	Published
28 January 2026	12 March 2026	25 March 2026

ABSTRACT

In Pakistan, refusal to take the Human Papillomavirus (HPV) vaccine remains a major public health concern, contributing to the continued prevalence of cervical cancer. This qualitative study, which focuses on parental perspectives, knowledge, and systemic challenges, seeks to understand the underlying causes of HPV vaccine hesitancy. Because parents make a significant portion of vaccination decisions for children in this age range, the study focused on parents with children aged 9 to 14.A qualitative exploratory research design was used to get in-depth insights into the participants' beliefs and experiences. Purposive sampling was utilized to enroll 12 individuals, and data collection was ongoing until saturation was reached. Semi-structured interviews were used to collect data, which allowed for flexibility while yet covering essential research areas such as HPV knowledge, vaccine awareness, perceived risks and benefits, cultural attitudes, and healthcare-related variables. All interviews were transcribed verbatim and examined thematically.The studies identified three significant themes. First, a lack of information and awareness emerged as a significant factor, with the majority of participants having a poor understanding of HPV infection, transmission, and the link to cervical cancer. Second, cultural and religious views had a substantial impact on vaccine adoption, as the association between HPV vaccination and sexual behavior created stigma, misinformation, and reluctance among parents. Third, hurdles to healthcare delivery, such as a lack of professional recommendations, high vaccine costs, limited accessibility, and the absence of a national vaccination program, exacerbated hesitation.The study suggests that HPV vaccine hesitancy in Pakistan is a complicated problem caused by knowledge shortages, societal issues, and structural barriers. To address these challenges, comprehensive measures are required, including public awareness campaigns, healthcare provider engagement, culturally responsive education, and policy-level interventions such as including the HPV vaccine into the national immunization program. These steps are critical to increasing vaccine uptake and lowering the burden of cervical cancer in Pakistan.

Keywords: *HPV Vaccine Hesitancy, Cervical Cancer, Parental Perception, Qualitative Research, Vaccine Awareness, Cultural Beliefs, Healthcare Barriers.*

INTRODUCTION

Cervical cancer is still a significant global public health issue, especially in Pakistan and other low- and middle-income countries (LMICs) (Reza et al., 2024). Over 604,000 new cases and roughly 341,000 fatalities globally were attributed to cervical cancer in 2020, with nearly 94% of these deaths taking place in settings with poor resources (Singh et al., 2022). With an estimated 6,166 new cases reported each year, cervical cancer is one of the most frequent malignancies affecting women in Pakistan and constitutes a considerable and preventable medical burden (Chughtai et al., 2023). The majority of occurrences of cervical cancer worldwide have been found to be caused by persistent infection with high-risk HPV strains, including HPV types 16 and 18 (Okunade, 2020). One of the best primary prevention methods for lowering the incidence of cervical cancer is preventive HPV vaccination (Viveros-Carreño et al., 2023). Particularly in environments with high vaccination rates, where significant drops in the incidence and mortality of cervical cancer have been noted, vaccines like Cervarix and Gardasil have proven to be highly effective in preventing HPV infection and subsequent cervical precancerous lesions (Markowitz & Schiller, 2021). Widespread HPV vaccination has the potential to dramatically lower the incidence of cervical cancer and associated fatalities, according to data from long-term multinational research (Hamid et al., 2025). As a result, many nations have integrated HPV vaccine into their national immunization programs, mainly aimed at teenage girls before to the start of sexual engagement. The World Health Organization's suggested reduced one- or two-dose vaccination schedules are also supported by recent data, providing a workable and realistic solution for resource-constrained environments like Pakistan (Ebrahimi et al., 2023).

Vaccine uptake in Pakistan is still startlingly low, despite substantial scientific evidence demonstrating the safety and efficacy of HPV vaccination (Noreen et al., 2025). Unlike many countries that have integrated HPV vaccination into routine immunization programs, Pakistan has not yet established a comprehensive national HPV vaccination program, leaving a large proportion of the population vulnerable to HPV-related disease (Jolem, 2023). Low vaccination coverage, restricted access to immunization facilities, and low public awareness of HPV and its link to cervical cancer are all often reported in research carried out throughout Pakistan (Saeed et al., 2021). The wider problem of vaccination hesitancy is reflected in this discrepancy between vaccine availability, public awareness, acceptance, and actual uptake. Vaccine hesitancy is a complex phenomenon defined as a delay in acceptance or refusal of vaccination despite the availability of vaccination services (Peretti-Watel et al., 2015; Salmon et al., 2015).

Due to the vaccine's associations with sexual health, teenage immunization, cultural sensitivities, and false information, HPV vaccine reluctance is very complicated (Jin & Han, 2025). Evidence from Pakistan and comparable regional contexts indicates that resistance to HPV vaccination is often shaped by misconceptions linking the vaccine with early sexual activity, infertility, or moral concerns. These misconceptions are further intensified by religious beliefs, fear of adverse effects, mistrust of healthcare systems, and inadequate communication from healthcare professionals (Noreen et al., 2025). Since parents and guardians usually make vaccination decisions for adolescents, parental attitudes play a central role in determining HPV vaccine acceptance (Radisic et al., 2017). Previous research has shown that low parental awareness and concerns about vaccine safety significantly reduce the likelihood of adolescent vaccination (Gowda et al., 2012). Conversely, evidence from Pakistan and other South Asian settings suggests that vaccine acceptance improves when parents receive accurate information and reassurance from trusted sources, including schools and healthcare providers. Parental engagement and school-based vaccination programs have therefore been recognized as effective strategies for improving HPV vaccine coverage in LMICs (Perman et al., 2017).

Healthcare-system factors also play a significant role in HPV vaccine hesitancy in Pakistan (Ali et al., 2022). The absence of a national immunization program, high vaccine costs,

inconsistent availability, and insufficient training of healthcare providers can weaken public trust and limit access to vaccination services (Larson et al., 2011). Awareness gaps among healthcare professionals, particularly among nursing and allied health personnel, may further reduce the effectiveness of vaccine promotion efforts (Aksu et al., 2025). Studies from South Asia indicate that a recommendation from a healthcare professional is one of the strongest predictors of HPV vaccine acceptance, highlighting the importance of provider education, effective communication, and health-system preparedness (Marfo, 2025). Given Pakistan's high cervical cancer burden, persistent vaccine hesitancy, and limited HPV vaccination infrastructure, there is an urgent need to explore the factors that influence public attitudes and decision-making regarding HPV vaccination (Su, 2025). Understanding these factors, including knowledge, beliefs, sociocultural norms, parental influence, and healthcare-system readiness, is essential for designing culturally appropriate and effective interventions (Fabry et al., 2024). Therefore, this study aims to investigate the underlying reasons for HPV vaccine hesitancy among the Pakistani population and to generate evidence that can inform future vaccination campaigns, public health strategies, and policy development (Knight et al., 2016).

Research Objective:
To identify the level of knowledge and awareness about HPV vaccine and their side effects among the population

Research Question :
What are the main factors contributing to HPV vaccine hesitancy among the population of Pakistan?

Problem statement:
Cervical cancer is still a major public health concern in Pakistan due to the human papilloma virus (HPV), but the HPV vaccine is not widely used. The general public's lack of knowledge and awareness regarding HPV and its vaccine is one of the main causes of this issue. According to research, a significant percentage of Pakistanis are ignorant of HPV infection, how it spreads, and how it is connected to cervical cancer. This has a direct impact on their willingness to accept vaccination (Ali et al., 2022).This information gap has been exacerbated by a lack of public health education campaigns, inadequate medical professional guidance, and the delayed implementation of HPV vaccination programs. Because of this, a large number of people do not believe that HPV vaccination is essential, which greatly contributes to vaccine hesitancy and low coverage rates.HPV vaccination reluctance in Pakistan is impacted by societal, religious, and institutional variables in addition to low awareness. Misconceptions about the safety of vaccines are common and inhibit acceptance. These include worries about side effects, infertility, and the idea that the immunization can encourage improper sexual activity (Malik et al., 2024).

Cultural taboos surrounding discussions of sexual health also limit open communication between parents, adolescents, and healthcare providers. Vaccine uptake is further hampered by mistrust of healthcare systems, a lack of strong recommendations from medical professionals, and obstacles including high vaccine costs and restricted accessibility, particularly in rural areas. Understanding these multifaceted factors is essential for developing targeted and culturally appropriate interventions aimed at reducing HPV vaccine hesitancy and improving public health outcomes in Pakistan.

2 Literature Review

At a Karachi outpatient clinic, 384 women between the ages of 15 and 50 participated in a cross-sectional survey to gauge their knowledge of cervical cancer and preventive methods. According to the survey, 61.2% of respondents knew about cervical cancer, but only 25.5% knew there was a prophylactic vaccine, and only 9.8% had been vaccinated against HPV. The participants' awareness and vaccination rates remained extremely low despite their relatively high levels of education (48% with a college degree), suggesting that the overall Pakistani population is probably much less knowledgeable about the HPV vaccine. To increase cervical cancer prevention efforts, the researchers found

that both comprehension and preventative practices were low, particularly among educated women. This suggests a significant gap in HPV vaccine awareness(Hirani et al., 2021). Despite the established effectiveness of HPV vaccines, awareness and adoption are still below ideal levels in many developing nations, according to data from regional and international research(Ver et al., 2021).Daily research shows that adult women, parents, and adolescents in Pakistan lack sufficient knowledge about cervical cancer, HPV infection, and the availability of HPV vaccines. International research identifies a problem. Although the HPV vaccine is effective, not enough individuals in developing countries know about it or get it. Pakistani studies constantly find the same thing. Many young people, parents, and women are unaware of cervical cancer, HPV, and the existence of a vaccine(Ali et al., 2022). Cervical cancer is still a serious public health issue, especially in low- and middle-income nations like Pakistan. Cervical cancer is mostly caused by the human papillomavirus (HPV), with varieties 16 and 18 accounting for the majority of cases globally. Cervical cancer continues to be a major global health concern. It particularly affects less developed nations like Pakistan. We are aware that the human papillomavirus is the primary culprit (Hamid et al., 2025). HPV 16 and 18 are the two kinds that cause the majority of infections globally. The HPV vaccine is a great defense, according to several studies (Branda et al., 2024). It's a powerful first step in preventing cancer. Vaccination would stop the ratio of events and significantly reduce the number of women who develop this cancer or die from it (Giuliano et al., 2015).Misconceptions concerning HPV vaccination, such as associating it with sexual activity, are a barrier to uptake, according to several studies (Malik et al., 2024). Adolescent vaccination decisions are heavily influenced by parental attitudes; a small number of studies indicate that low parental understanding and safety concerns lower immunization rates. Additionally, parents are the primary decision-makers in this situation(Fisher et al., 2024).

Research from Sindh using mixed and qualitative methods highlights how crucial it is to include parents of teenagers in the decision-making process when it comes to immunization programs. Teenage females have demonstrated a willingness to take the vaccination when the school provides the necessary information and parental agreement is obtained. conducted in Sindh. Pakistan uses surveys and interviews. It discovered something significant. Everyone must participate in an HPV vaccination program for it to be effective. This entails speaking with young people, their parents, and local authorities. The program ought to align with the values and way of life of the community. Additionally, the investigations discovered that schoolgirls are frequently open to receiving the vaccination. However, a few prerequisites must be met first. They require precise information about it. They want the school to offer it (Ali et al., 2022).Doctors and nurses must receive comprehensive training on it. Most significantly, the HPV vaccination ought to be incorporated into the nation's standard immunization schedule to provide protection (Waheed et al., 2023).Pakistan does not yet have a nationwide HPV vaccination program. Experts note that the terrible reason so few people are receiving it is because of this missing element. Low vaccine uptake in Pakistan has been attributed to the lack of a national HPV vaccination campaign (Noreen et al., 2025).

Although it may be prevented, cervical cancer is a significant global health issue. It is most severe in impoverished communities (Small Jr et al., 2017). In 2020, about 604,000 women found out they had it, and 341,000 died from it (Singh et al., 2022). Pakistan carries a heavy burden from this disease, with around 6,166 new cases every year.(Chughtai et al., 2023)We know the main cause is a virus called HPV, especially types 16 and 18 (Handisurya et al., 2009).There are effective vaccines to prevent it, such as Cervarix and Gardasil(Harper & DeMars, 2017). For a variety of reasons, not many people in Pakistan receive the vaccination. People simply don't know enough about it to start. Only 20% of women in Karachi had heard of it, and less than 10% had received the vaccination, according to one study (Hirani et al., 2021).

The health system frequently isn't prepared to provide it to everyone, especially in isolated areas, and the expense can be too costly(Galeshi et al.,

2023). Social barriers can stand in the way. False beliefs proliferate, such as the vaccine causing infertility. It also raises religious concerns for certain people (Kisa & Kisa, 2024). This type of uncertainty has already been observed with COVID-19 and polio vaccinations (Abbasi, 2022). This is what experts refer to as "vaccine hesitancy," which is refusing or postponing vaccinations that are available to you (Galagali et al., 2022).Poorer nations are far more affected by cervical cancer. It ranks as the fourth most prevalent cancer among women in Pakistan (Chughtai et al., 2023).As of right now, the recommended HPV vaccination regimens call for two doses spread over six to twelve months for individuals under the age of fifteen, and three doses spread over six months for those who are immunocompromised or older than fifteen (Meites, 2016).Because the antibody responses (geometric mean titres, or GMTs) after two doses of HPV vaccines given at least six months apart to adolescents aged 9–14 years were not inferior to three doses among 16–26 year old women in whom the efficacy of the vaccine was established, the World Health Organization (WHO) recommends a two-dose schedule for girls under the age of fifteen.(Organization, 2017). HPV vaccines appear to be safe and effective vaccines of significant importance for women's health, according to official statements from national and international agencies and expert immunization groups (WHO, CDC, FDA, PHAC, ATAGI, EMEA, STIKO, PEI, AFSSAPS, and others) as well as a review of the reports presented here. However, in order to identify and confirm any uncommon but possibly significant adverse events, it is imperative that ongoing and meticulous monitoring be carried out. currently that both HPV vaccinations are widely used, they need to be closely monitored (WHO currently advises their inclusion in national immunization programs where practical, sustainable, and a disease prevention priority)(Agorastos et al., 2009).

3 Methodology:

Research Design:

This study adopted a qualitative exploratory research design to investigate the factors contributing to Human Papillomavirus (HPV) vaccine hesitancy among parents in Pakistan. The study specifically focused on parents of children aged 9–14 years, as this age group is commonly targeted for HPV vaccination before possible exposure to the virus. A qualitative approach was considered suitable because the study aimed to explore participants' knowledge, perceptions, beliefs, concerns, and experiences in depth. This approach allowed the researcher to understand the social, cultural, religious, informational, and healthcare-related factors that influence parental decision-making regarding HPV vaccination.

Sampling Technique:

A purposive sampling technique was used to select participants who could provide relevant and meaningful information related to the research objectives. The study included 12 participants who were parents of children aged 9–14 years. Recruitment continued until data saturation was reached, meaning that no new information or themes emerged from the interviews. Parents of children outside the selected age range, individuals who did not meet the study criteria, and those who were unwilling to participate were excluded from the study.

Research Instrument:

Data were collected through semi-structured interviews. This method was selected because it provided flexibility for participants to express their views freely while allowing the researcher to cover important areas related to the study. The interview guide consisted of open-ended questions related to knowledge of HPV, awareness of the HPV vaccine, perceived benefits and side effects, cultural and religious beliefs, and healthcare-system barriers. Interviews were conducted in a private and comfortable setting to ensure confidentiality and encourage honest responses. With the consent of participants, interviews were audio-recorded and later transcribed verbatim for analysis.

Ethical Consideration:

Ethical guidelines were followed throughout the entire research process. Prior to data collection, participants were made aware of the study's goals, the nature of their involvement, and their freedom to leave the study at any moment without

repercussions. Prior to the interviews, each participant provided written informed consent. Participants' real names were substituted with codes to maintain anonymity and confidentiality. Participants' information was exclusively utilized for scholarly and research reasons. To preserve participant privacy, all audio recordings, transcripts, and associated information were safely kept.By guaranteeing credibility, dependability, confirmability, and transferability, the study's dependability and credibility were preserved. In-depth interviews, meticulous attention to participant responses, and precise transcription of the interview data were used to establish credibility. Every step of the study process, including participant selection, data collecting, transcription, coding, and theme creation, was meticulously documented to guarantee dependability. By reducing researcher bias and making sure that the results were based on participants' real responses, confirmability was attained. By clearly outlining the study environment, participants, and research methods, transferability was improved, enabling readers to determine whether the results would be applicable in comparable situations.

Data Analysis:

Thematic Analysis:

Thematic analysis was used to examine the gathered data. Following transcription, the transcripts were read multiple times to familiarize herself with the information. Important statements and repeated ideas were identified and coded. Similar codes were then grouped together to form categories. Major themes that represented the elements influencing parents' reluctance to get the HPV vaccine were identified from these categories. The study's primary topics included impediments to the healthcare system, cultural and religious views, and a lack of knowledge and awareness. These topics contributed to the explanation of how decisions regarding HPV vaccination were influenced by social values, religious concerns, parental comprehension, and healthcare-related difficulties.

Factors Contributing to HPV Vaccine Hesitancy

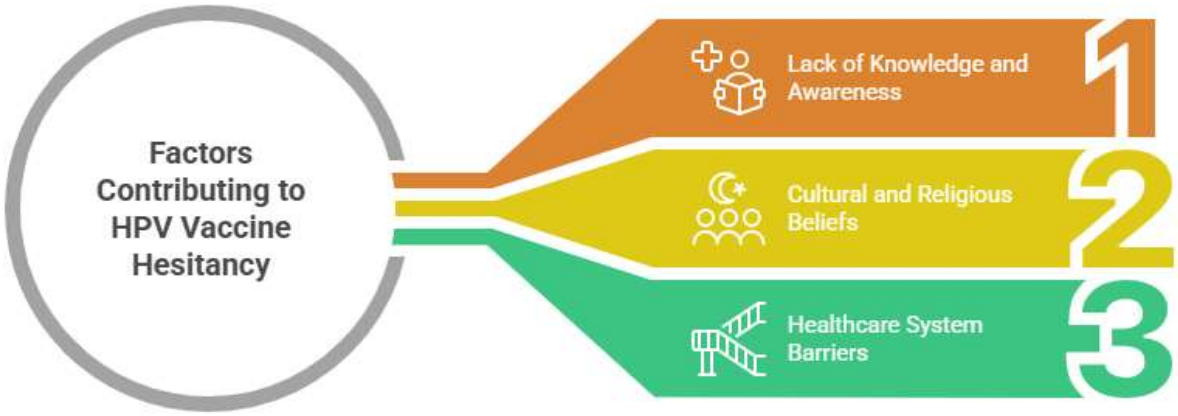

Fig 1: Graphical Representation of Themes

Theme 1: Lack of Knowledge and Awareness

One of the main factors driving Pakistani parents' reluctance to get the HPV vaccine is a lack of understanding and awareness. Many parents knew very little about the Human Papillomavirus infection, how it spreads, and how it is directly linked to cervical cancer. Their impression of risk was impacted by their lack of fundamental health understanding because HPV was not typically seen as a major or urgent health danger for their

children. Uncertainty and reluctance were exacerbated by a lack of knowledge about the HPV vaccine, including its intended use, suggested age range, advantages, dosage, and potential side effects. Inadequate public health education can hinder parents from making educated decisions about HPV vaccination in Pakistan, where conversations about sexual and reproductive health are frequently restricted (Hirani et al., 2021; PLOS One, 2025).

The study's conclusions revealed that while some participants had only partial or inaccurate knowledge about the HPV vaccine before to the interview, others had never heard of it. Some parents said they were unaware that HPV might cause cervical cancer, while others questioned why children between the ages of 9 and 14 should be vaccinated. Additionally, many expressed uncertainty regarding the vaccine's necessity, safety, and appropriateness for young children. According to their answers, a large number of them relied more on unofficial sources of information than medical experts, including social media, family members, and local viewpoints. This reliance on unofficial sources raised questions about the necessity of vaccination as well as misconceptions about the safety and adverse effects of vaccines.

P 1:I don't really understand why this vaccine is important because I had never heard of HPV before this interview.

P2: I am familiar with cervical cancer, but I was unaware that there is a vaccine to prevent it or that it is caused by a virus.

Previous studies that demonstrate Pakistan's poor level of HPV knowledge and immunization complement these findings. According to Hirani et al. (2021), there is a glaring lack of understanding regarding preventative health, even if some women were aware of cervical cancer and HPV vaccine. In a similar vein, current research on public health indicates that in order to successfully introduce the HPV vaccine in Pakistan, it is necessary to address knowledge gaps, false information, and vaccine hesitancy both before and during deployment (PLOS One, 2025). The World Health Organization has highlighted HPV vaccination as a crucial cervical cancer prevention tool, and when paired with successful awareness campaigns, its support for streamlined vaccination schedules may assist increase adoption (World Health Organization [WHO], 2025). The necessity for public education is further highlighted by Pakistan's recent introduction of the HPV vaccine, as parents' decision-making is still influenced by ignorance and false information (UNICEF Pakistan, 2025).

P4: I saw something on social media but I don't know if the vaccine is safe to use or who should take it.

P5: I don't have clear information about the number of doses and age; there is confusion.

In conclusion, parents' reluctance to get the HPV vaccine in this study was largely caused by a lack of understanding and awareness. When parents were unsure about the safety, benefits, and eligibility of the vaccine or did not comprehend the connection between HPV and cervical cancer, they were less likely to accept immunization. This subject emphasizes the necessity of organized awareness efforts run by public health agencies, schools, and medical professionals. Parents should receive clear, culturally relevant, and evidence-based education to increase their knowledge of HPV vaccination as a safe and efficient way to prevent cervical cancer (UNICEF Pakistan, 2025; WHO, 2025).

Theme 2: Cultural and Religious Beliefs

Parental reluctance to get the HPV vaccine in Pakistan was found to be significantly influenced by cultural and religious attitudes. Many parents saw the vaccine through a moral, cultural, and religious lens rather than just as a preventive health intervention because HPV is frequently linked to sexual transmission. For young teens in particular, this linkage made talking about HPV vaccination uncomfortable. Parents may be reluctant to accept a vaccine that they think is linked to sexual activity in conservative societal contexts where open communication about sexual and reproductive health is frequently restricted. Cultural sensitivity, stigma, and religious concerns consequently emerged as significant obstacles to the adoption of the HPV vaccine (Jamaludin et al., 2024; Abdulla et al., 2026).

According to the study's data, a number of parents were reluctant to discuss or authorize their children's vaccination because they associated the

HPV vaccine with sexual behavior. Concerns about early childhood vaccination encouraging early sexual behavior or sending an incorrect social message were voiced by several participants. Others questioned the vaccine's compatibility with their religious and cultural beliefs. These answers imply that parental reluctance was influenced by deeper societal views regarding morality, humility, and family values in addition to a lack of knowledge. The results also demonstrated that these worries prevented parents and medical professionals from communicating openly, which exacerbated misconceptions and reluctance to receive the vaccine.

P3: I'm concerned that administering this vaccine could promote early or inappropriate behavior in kids.

P4: I would need advice from a religious scholar because I am unsure if this vaccine is permitted in our religion.

Recent research demonstrates that misconceptions, cultural attitudes, and religious worries still affect conservative populations' adoption of the HPV vaccine. According to Jamaludin et al. (2024), religious practices, beliefs, and misconceptions frequently have an impact on the acceptability of the HPV vaccine in nations that are members of the Organization of Islamic Cooperation. According to Abdulla et al. (2026), cultural misconceptions can lower vaccine adoption, such as the idea that HPV vaccination might encourage promiscuity or go against moral principles. According to accounts from Pakistan's HPV vaccine rollout, some parents were resistant due to misinformation, stigma, and worries about social acceptability and fertility (Associated Press, 2025; Gavi, 2025). These results imply that increasing confidence in HPV vaccination requires culturally trusted voices, such as medical experts, community leaders, and religious scholars (Gavi, 2025).

P4: Talking about this vaccine with young children is uncomfortable because it is linked to sexual diseases.

P2: We avoid these vaccines because it is not acceptable in our culture to discuss such topics.

In conclusion, parents' reluctance to get the HPV vaccine was significantly influenced by their cultural and religious beliefs. When parents connected the vaccine to sexual behavior, worried that it may promote early sexual activity, or doubted its consistency with moral and religious beliefs, they were reluctant. This theme emphasizes the necessity of culturally relevant health education that emphasizes HPV vaccination as a preventative measure against cervical cancer rather than as a sexual behavior concern. To dispel myths while honoring regional values and beliefs, public health campaigns should include medical experts, educators, community leaders, and religious scholars (Abdulla et al., 2026; Jamaludin et al., 2024).

Theme 3: Healthcare System Barriers

Parents' reluctance to get the HPV vaccine in Pakistan was found to be significantly influenced by healthcare system constraints. Parental decision-making is influenced by information and cultural views, but the healthcare system plays an equally significant role in influencing vaccine adoption. When healthcare providers provide clear instructions, vaccines are reasonably priced, and services are readily accessible, parents are more likely to trust and accept vaccination. In this study, parents' reluctance was influenced by obstacles such few recommendations from healthcare providers, expensive vaccines, restricted accessibility, and inadequate integration of HPV vaccination into regular medical services. This topic should be read in terms of early rollout, uneven access, and implementation issues rather than the total lack of a national HPV program, as Pakistan has now begun introducing the vaccination (UNICEF Pakistan, 2025; WHO, 2025).

According to the study's results, many individuals had not gotten clear guidance about HPV vaccination from physicians, nurses, or other healthcare professionals. Parents stated that they felt less trusted and that immunization was not as important because medical personnel had not talked to them about the vaccine. Additionally, several participants said that low- and middle-class families had reduced access to the vaccine since it was costly and difficult to obtain through public healthcare facilities. Participants thought parents would be more inclined to embrace the HPV vaccine if it were part of regular immunization services and provided through reliable public health channels. These answers demonstrate that vaccine reluctance was influenced by

communication, organization, and delivery of immunization services in addition to personal convictions.

P1: I never thought about getting this vaccine because no medical professional has recommended it to me.

P3: We can't afford the vaccine for our kids because it's too costly.

Recent Pakistani public health reports corroborate these conclusions. Through the Federal Directorate for Immunization, in collaboration with Gavi, UNICEF, and WHO, Pakistan began its HPV vaccine program in September 2025 with the goal of preventing cervical cancer in teenage girls (UNICEF Pakistan, 2025). Additionally, WHO announced that 49,000 health workers were trained for Pakistan's first HPV vaccination campaign, emphasizing the significance of health-system capacity and provider readiness for effective vaccine administration (WHO, 2025). However, early campaign reports revealed that vaccine availability alone is insufficient without trusted communication and community engagement, as disinformation and parental reluctance caused anxiety and confusion (Gavi, 2025). According to the Associated Press (2025), despite the fact that millions of girls in Pakistan received vaccinations throughout the campaign, resistance persisted due to misinformation, including misleading claims regarding the safety of the vaccine and infertility.

P3: Access is a major problem because it is not readily available in nearby hospitals.

P4: More people would accept this vaccine if it were part of the government's regular immunization program.

In conclusion, parents' reluctance to get the HPV vaccine in this study was significantly influenced by healthcare-system hurdles. Parents' confidence in HPV vaccination was diminished by a lack of professional recommendation, restricted access, financial concerns, and poor public health communication. Even though Pakistan launched a nationwide program to introduce the HPV vaccine, more work is required to guarantee fair access, particularly for underprivileged and low-income groups. Reducing hesitancy and increasing vaccine uptake can be achieved by strengthening healthcare worker training, incorporating HPV vaccination into routine immunization services, offering the vaccine at no cost, and enhancing communication through reliable healthcare providers (Gavi, 2025; UNICEF Pakistan, 2025; WHO, 2025).

Conclusion:

This study found that a variety of knowledge-related, cultural, religious, and healthcare-system factors influence Pakistani parents' reluctance to get the HPV vaccine. The results demonstrated that a large number of parents lacked knowledge of HPV infection, its connection to cervical cancer, and the benefits of HPV vaccine. Parental willingness to vaccinate their children decreased as a result of this ignorance, which raised questions regarding the vaccine's necessity, safety, advantages, and negative effects.The study also discovered that parental opinions toward HPV vaccination were significantly influenced by cultural and religious beliefs. Some parents felt uneasy talking about the vaccine or thought it was unsuitable for young teenagers because HPV is linked to sexual transmission. Hesitancy and shame were exacerbated by false beliefs that the vaccine might promote early sexual behavior, result in infertility, or go against moral and religious principles.Low uptake of the HPV vaccine was also caused by obstacles in the healthcare system. Parents' faith in vaccination was diminished by a lack of clear public health information, high vaccine costs, restricted accessibility, and few recommendations from medical professionals. These results suggest that there are several interrelated barriers that influence parental decision-making rather than a single reason of HPV vaccine reluctance.Overall, the study emphasizes the necessity of culturally relevant awareness campaigns, healthcare professionals' active participation, school-based instruction, community involvement, and reasonably priced HPV vaccine. To boost HPV vaccine adoption and lower Pakistan's future cervical cancer burden, it is crucial to address misconceptions, enhance parental awareness, and bolster confidence in the healthcare system.

Recommendations

1. The public should be educated about HPV, cervical cancer, vaccine advantages, safety, and side effects through nationwide awareness programs.

2. Healthcare providers should receive training on how to counsel parents, dispel myths, and aggressively advocate for HPV vaccination.
3. To educate children in the appropriate age range about the HPV vaccine, school-based activities should be implemented.
4. To increase access, affordability, and public trust, HPV vaccination ought to be incorporated into Pakistan's regular immunization program.
5. To lessen stigma, dispel cultural misunderstandings, and encourage vaccine acceptance, community and religious leaders should become involved.
6. Government subsidies and collaborations with national and international health organizations should lower the cost of HPV vaccination.

REFERENCES

Abbasi, J. (2022). Widespread misinformation about infertility continues to create COVID-19 vaccine hesitancy. Jama, 327(11), 1013-1015.

Abdulla, M., Shah, S. M., Abosoudah, W., Bader, S., Shamsi, S. M. F., Aldiab, R., Alsafadi, B., Yaqinuddin, S. A., Hussain, S. S. M., Chishtee, L. M. F., Alghalyini, B., & Zaidi, A. R. Z. (2026). Breaking barriers: Unraveling the impact of cultural beliefs and misconceptions on HPV vaccination uptake: A narrative review. Frontiers in Public Health.

Abdulla, M., Shah, S. M., Abosoudah, W., Bader, S., Shamsi, S. M. F., Aldiab, R., Alsafadi, B., Yaqinuddin, S. A., Hussain, S. S. M., Chishtee, L. M. F., Alghalyini, B., & Zaidi, A. R. Z. (2026). Breaking barriers: Unraveling the impact of cultural beliefs and misconceptions on HPV vaccination uptake: The narrative review. Frontiers in Public Health.

Agorastos, T., Chatzigeorgiou, K., Brotherton, J., & Garland, S. (2009). Safety of human papillomavirus (HPV) vaccines.

Aksu, S. B., Özmen Sever, S., Gelmez Taş, B., Demir, İ., & Zeren Öztürk, G. (2025). Healthcare personnel on the frontline of immunization: Barriers to vaccination and the path to full coverage. Human Vaccines & Immunotherapeutics, 21(1), 2525618.

Ali, R. F., Arif Siddiqi, D., Mirza, A., Naz, N., Abdullah, S., Kembhavi, G., Tam, C. C., Offeddu, V., & Chandir, S. (2022). Adolescent girls' recommendations for the design of a human papillomavirus vaccination program in Sindh, Pakistan: A qualitative study. Human Vaccines & Immunotherapeutics, 18(5), 2045856.

Associated Press. (2025). Pakistan vaccinates 9 million girls against cervical cancer despite online backlash. Associated Press.

Branda, F., Pavia, G., Ciccozzi, A., Quirino, A., Marascio, N., Gigliotti, S., Matera, G., Romano, C., Locci, C., & Azzena, I. (2024). Human papillomavirus (HPV) vaccination: progress, challenges, and future directions in global immunization strategies. Vaccines, 12(11), 1293.

Chughtai, N., Perveen, K., Gillani, S. R., Abbas, A., Chunara, R., Manji, A. A., Karani, S., Noorali, A. A., Zakaria, M., & Shamsi, U. (2023). National cervical cancer burden estimation through systematic review and analysis of publicly available data in Pakistan. BMC Public Health, 23(1), 834.

Ebrahimi, N., Yousefi, Z., Khosravi, G., Malayeri, F. E., Golabi, M., Askarzadeh, M., Shams, M. H., Ghezelbash, B., & Eskandari, N. (2023). Human papillomavirus vaccination in low-and middle-income countries: progression, barriers, and future prospective. Frontiers in immunology, 14, 1150238.

Fabry, L., McDermott, S., & Wilford, B. (2024). Culturally competent care for diverse populations: A review of transcultural nursing education. Advanced emergency nursing journal, 46(3), 274-282.

Fisher, H., Denford, S., Audrey, S., Finn, A., Hajinur, H., Hickman, M., Mounier-Jack, S., Mohamed, A., Roderick, M., & Tucker, L. (2024). Information needs of ethnically diverse, vaccine-hesitant parents during decision-making about the HPV vaccine for their adolescent child: a qualitative study. BMC public health, 24(1), 91.

Galagali, P. M., Kinikar, A. A., & Kumar, V. S. (2022). Vaccine hesitancy: obstacles and challenges. Current pediatrics reports, 10(4), 241-248.

Galeshi, M., Shirafkan, H., Yazdani, S., & Motaghi, Z. (2023). Challenges and needs of HPV-positive women. INQUIRY: The Journal of Health Care Organization, Provision, and Financing, 60, 00469580221150094.

Gavi, the Vaccine Alliance. (2025). Despite a wave of misinformation, Pakistan's HPV introduction campaign covers ground. Gavi. ([Gavi][3])

Gavi, the Vaccine Alliance. (2025). Despite a wave of misinformation, Pakistan's HPV introduction campaign covers ground. Gavi. ([Gavi][3])

Giuliano, A. R., Kreimer, A. R., & de Sanjose, S. (2015). The beginning of the end: vaccine prevention of HPV-driven cancers. In (Vol. 107, pp. djv128): Oxford University Press US.

Gowda, C., Schaffer, S. E., Dombkowski, K. J., & Dempsey, A. F. (2012). Understanding attitudes toward adolescent vaccination and the decision-making dynamic among adolescents, parents and providers. BMC public health, 12(1), 509.

Hamid, M. K. I., Hasneen, S., Lima, A. K., Shawon, S. R., Shahriar, M., & Anjum, R. (2025). Cervical cancer trends, HPV vaccine utilization, and screening in low-and lower-middle-income countries: an updated review. Therapeutic advances in vaccines and immunotherapy, 13, 25151355251356646.

Handisurya, A., Schellenbacher, C., & Kirnbauer, R. (2009). Diseases caused by human papillomaviruses (HPV). JDDG: Journal der Deutschen Dermatologischen Gesellschaft, 7(5), 453-466.

Harper, D. M., & DeMars, L. R. (2017). HPV vaccines–a review of the first decade. Gynecologic oncology, 146(1), 196-204.

Hirani, S., Khan, S., & Akram, S. (2021). Knowledge, awareness, and practices of cervical cancer, its risk factors, screening, and prevention among women in Karachi, Pakistan. Journal details to be verified.

Hirani, S., Khan, S., & Akram, S. (2021). Knowledge, awareness, and practices of cervical cancer, its risk factors, screening, and prevention among women in Karachi, Pakistan. Cited in JPMA discussion of HPV awareness in Pakistan. ([jpma.org.pk][1])

Hirani, S., Khan, S., Akram, S., Virji, S. N., Shaikh, P. A., Naeem, E., Chaudhry, R. A., Khalid, A. B., Khan, J. U. D., & Qasim, M. S. (2021). Knowledge, awareness, and practices of cervical cancer, its risk factors, screening, and prevention among women in Karachi, Pakistan. European Journal of Cancer Prevention, 30(1), 97-102.

Jamaludin, T. S. S., et al. (2024). Religious beliefs and practices toward HPV vaccine acceptance in Organisation of Islamic Cooperation countries: A systematic review. PLOS One. ([PLOS][1])

Jamaludin, T. S. S., et al. (2024). Religious beliefs and practices toward HPV vaccine acceptance in Organisation of Islamic Cooperation countries: A systematic review. PLOS One.

Jin, J., & Han, Y. (2025). Understanding cultural perceptions of sexuality in China and their influence on human papillomavirus vaccine hesitancy. Frontiers in Public Health, 12, 1462722.

Jolem, M. (2023). Cervical Cancer Screening in Resource-Poor Settings of South Sudan: Access, Coverage, Associated Factors and Health System Interventions Texila American University].

Kisa, S., & Kisa, A. (2024). Religious beliefs and practices toward HPV vaccine acceptance in Islamic countries: A scoping review. PLoS One, 19(8), e0309597.

Knight, G. M., Dharan, N. J., Fox, G. J., Stennis, N., Zwerling, A., Khurana, R., & Dowdy, D. W. (2016). Bridging the gap between evidence and policy for infectious diseases: How models can aid public health decision-making. International journal of infectious diseases, 42, 17-23.

Larson, H. J., Cooper, L. Z., Eskola, J., Katz, S. L., & Ratzan, S. (2011). Addressing the vaccine confidence gap. The Lancet, 378(9790), 526-535.

Malik, S., Mock, K. O., Martillotti, R., Caravella, G., Zhou, X., Mbamelu, M., & Scarbrough, K. H. (2024). HPV Vaccines Among University Students: Understanding Barriers and Facilitators of Vaccine Uptake. Vaccines, 12(12), 1385.

Marfo, E. A. (2025). Human Papillomavirus (HPV) Vaccination in Ghana: Exploring Ways to Improve HPV Vaccination Practices and Inform Policy.

Markowitz, L. E., & Schiller, J. T. (2021). Human papillomavirus vaccines. The Journal of infectious diseases, 224(Supplement_4), S367-S378.

Meites, E. (2016). Use of a 2-dose schedule for human papillomavirus vaccination—updated recommendations of the Advisory Committee on Immunization Practices. MMWR. Morbidity and mortality weekly report, 65.

Noreen, K., Khalid, S. N., Javaid, M., & Khan, S. A. (2025). Public Health Implications of Introducing Human Papillomavirus (HPV) Vaccination in Pakistan: A protocol for a mixed-method study to explore community perceptions and health system preparedness. PLoS One, 20(5), e0323826.

Okunade, K. S. (2020). Human papillomavirus and cervical cancer. Journal of Obstetrics and Gynaecology, 40(5), 602-608.

Organization, W. H. (2017). Human papillomavirus vaccines: WHO position paper, May 2017–Recommendations. Vaccine, 35(43), 5753-5755.

Peretti-Watel, P., Larson, H. J., Ward, J. K., Schulz, W. S., & Verger, P. (2015). Vaccine hesitancy: clarifying a theoretical framework for an ambiguous notion. PLoS currents, 7, ecurrents. outbreaks. 6844c6880ff6849f6845b6273f6834c6891f6871b6847fc6289.

Perman, S., Turner, S., Ramsay, A. I., Baim-Lance, A., Utley, M., & Fulop, N. J. (2017). School-based vaccination programmes: a systematic review of the evidence on organisation and delivery in high income countries. BMC public health, 17(1), 252.

PLOS One. (2025). Public health implications of introducing Human Papillomavirus vaccination in Pakistan. PLOS One.

PLOS One. (2025). Public health implications of introducing Human Papillomavirus vaccination in Pakistan. PLOS One.

Radisic, G., Chapman, J., Flight, I., & Wilson, C. (2017). Factors associated with parents' attitudes to the HPV vaccination of their adolescent sons: a systematic review. Preventive medicine, 95, 26-37.

Reza, S., Anjum, R., Khandoker, R. Z., Khan, S. R., Islam, M. R., & Dewan, S. M. R. (2024). Public health concern-driven insights and response of low-and middle-income nations to the World health Organization call for cervical cancer risk eradication. Gynecologic oncology reports, 54, 101460.

Saeed, R., Hashmi, I., Shaikh, R. S., & Hashmi, S. M. I. (2021). Pakistan ranks third globally with the most unvaccinated children. Is the impact of parental perception and attitude on immunization an essential contributing factor to an unsuccessful vaccination coverage? Cureus, 13(11).

Salmon, D. A., Dudley, M. Z., Glanz, J. M., & Omer, S. B. (2015). Vaccine hesitancy: causes, consequences, and a call to action. Vaccine, 33, D66-D71.

Singh, D., Vignat, J., Lorenzoni, V., Eslahi, M., Ginsburg, O., Lauby-Secretan, B., Arbyn, M., Basu, P., Bray, F., & Vaccarella, S. (2022). The Cervical Cancer Burden in 2020 and Recent Trends in Incidence: A Baseline Assessment for Monitoring the Who Global Cervical Cancer Elimination Initiative. Available at SSRN 4188567.

Small Jr, W., Bacon, M. A., Bajaj, A., Chuang, L. T., Fisher, B. J., Harkenrider, M. M., Jhingran, A., Kitchener, H. C., Mileshkin, L. R., & Viswanathan, A. N. (2017). Cervical cancer: a global health crisis. Cancer, 123(13), 2404-2412.

Su, Z. (2025). Global HPV Vaccination Post-pandemic. In Cancer Challenges: Tumor Prevention, Prognosis, and Adverse Effects of Immunotherapy (pp. 163-178). Springer.

UNICEF Pakistan. (2025). Pakistan introduces HPV vaccine to protect girls from cervical cancer, joining 150 countries. UNICEF.

Ver, A. T., Notarte, K. I., Velasco, J. V., Buac, K. M., Nazareno III, J., Lozañes, J. A., Antonio, D., & Bacorro, W. (2021). A systematic review of the barriers to implementing human papillomavirus vaccination programs in low-and middle-income countries in the Asia-Pacific. Asia-Pacific Journal of Clinical Oncology, 17(6), 530-545.

Viveros-Carreño, D., Fernandes, A., & Pareja, R. (2023). Updates on cervical cancer prevention. International Journal of Gynecological Cancer, 33(3), 394-402.

Waheed, D.-E.-N., Bolio, A., Guillaume, D., Sidibe, A., Morgan, C., Karafillakis, E., Holloway, M., Van Damme, P., Limaye, R., & Vorsters, A. (2023). Planning, implementation, and sustaining high coverage of human papillomavirus (HPV) vaccination programs: What works in the context of low-resource countries? Frontiers in Public Health, 11, 1112981.

World Health Organization. (2025). WHO training 49,000 health workers for Pakistan's first HPV drive to protect 13 million girls from cervical cancer. WHO Eastern Mediterranean Regional Office.