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Social and Cultural Factors Shaping Public Attitudes towards HPV Vaccination in Azad Jammu and Kashmir

Sundas Fiaz Khawaja[1], Dr. Ahsan Tahir[2], Dr. Hamad Khan[3], Dr. Aneela Afzal[4]

1. Consultant, UNICEF, EPI Azad Jammu & Kashmir Muzaffarabad.
2. Lecturer, Department of Sociology, University of Azad Jammu & Kashmir, Muzaffarabad.
3. Lecturer, Department of Sociology, Abdul Wali Khan University Mardan.
4. Associate Professor, Department of Agri Extension, PMAS ARID Agriculture University Rawalpindi.

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Corresponding Author:
Sundas Fiaz Khawaja
Email: sundusfiaz@gmail.com

Abstract: *One of the most effective ways to prevent a human papillomavirus infection leading to cervical cancer disease is the use of the HPV vaccine. Though, the introduction of the vaccine remains at a very low level in a great number of conservative and poorly resourced areas. This study was undertaken to understand the knowledge, attitudes, and sociocultural factors that influence the acceptance of the HPV vaccine among adults in Azad Jammu and Kashmir. A quantitative cross, sectional study involving 200 respondents from different districts of Azad Jammu and Kashmir was conducted. The results pointed out that the participants had considerable gaps in their knowledge. Different statistical test has been applied for the scientific evaluation of the information Correlation analysis showed a very strong positive association between knowledge about HPV and attitudes toward acceptance of HPV vaccination, with Pearson correlation $r = 0.937$ and $p < 0.001$, indicating that higher knowledge was strongly linked to greater acceptance. The Pearson correlation values $r = 0.417$ and $p < 0.05$, confirming that socio cultural factors were having a significant positive relationship on the attitude acceptance of HPV vaccination. Chi square analysis additionally discovered a significant association between respondents' level of education and willingness to vaccinate against HPV, with $\chi^2 = 44.767$ and $p = 0.001$, demonstrating higher readiness for HPV vaccination among more educated individuals. A majority of respondents expressed disagreement regarding the safety and effectiveness of the HPV vaccine. The vaccination decision was found to be under influence such as the cultural values, religious beliefs and the family decision. A vast proportion of respondents agreed that absence of information decreases vaccine acceptance, indicating continuous communication gaps. In nutshell, the study confirms that low knowledge, negative perceptions of vaccine safety, strong sociocultural influences, and limited trust in formal health information systems collectively contribute to low HPV vaccine acceptance in Azad Jammu and Kashmir. The findings concluded the need for culturally suitable advocacy campaigns, reinforced healthcare provider communication, and community-based engagement to improve HPV vaccine confidence and uptake in the region.*

Introduction

Although vaccination against the human papillomavirus (HPV) prevents cervical cancer, acceptance and awareness of the vaccine vary greatly among populations. According to regional reviews, many Middle Eastern and South Asian settings continue to have low levels of knowledge about HPV and its vaccine. Only 41.7% of people in the Middle East were aware of the HPV vaccine, and 45.6% accepted it, according to a meta-analysis of 159 studies. Social norms and cultural beliefs were identified as obstacles to uptake. These include conservative views regarding adolescent vaccination and the taboo surrounding sexually transmitted infections (Gulle et al., 2024).

With the introduction of the human papillomavirus (HPV) vaccine in September 2025, Pakistan has reached a noteworthy public health milestone. With an WHO-approved vaccine that has been successfully implemented in 144 countries since 2006, this has been a long-awaited interposition for the prevention of cervical cancer. In 2022, 348,874 women worldwide vanished their lives to cervical cancer, and about 662,301 women received a diagnosis. 5008 women in Pakistan received a cervical cancer diagnosis, and 3197 of them died from the disease (Khalid *et al*., 2025).

In Azad Jammu and Kashmir, there is still a lack of community knowledge and attitudes regarding HPV vaccination, which is consistent with larger patterns in Pakistan where university students and medical professionals have low vaccine awareness. According to studies, only 16–47% of respondents in Pakistani regions are aware that the HPV vaccine is available, and uptake rates are even lower at 2-6% because of misunderstandings regarding target groups and efficacy. In order to inform public health strategies, these gaps underscore the necessity of focused assessments in underprivileged areas such as Azad Jammu and Kashmir (Atif *et al*., 2025).

Study Objectives

1. To assess community knowledge and attitudes toward HPV vaccination among people in Azad Jammu and Kashmir.
2. To examine social and cultural factors influencing public acceptance of HPV vaccination in Azad Jammu and Kashmir.

Literature Review

HPV vaccine hesitancy among parents of adolescent girls

HPV vaccine hesitancy among parents is widely reported across Asian countries. A common concern is the belief that vaccinating adolescent girls against a sexually transmitted infection may encourage early or premarital sexual activity. These apprehensions reflect intensely rooted social norms around sex and teen-age safety, mainly in traditional societies (Wong *et al*., 2020).

Knowledge gaps

Significant information gaps about HPV and HPV vaccination exist in Pakistan. Indication from university students in Punjab displays that 1/3 were having knowledge of HPV, while responsiveness of the vaccine was inadequate to 16%. Deprived knowledge is constantly branded as a main reason for low acceptance. Similar insufficiencies are recorded in Azad Kashmir, where women establish imperfect knowledge of cervical cancer, HPV infection, and anticipation procedures, demonstrating extensive regional gaps (Shaikh *et al*., 2019).

Attitude towards vaccination

A part from the lower coverage still attitude of the individuals was found positive from Pakistan. From the research it was analyzed that about 56-78% of the students and health professionals found positive attitude to suggest their children and patients for HPV Vaccination. Optimistic behaviors are regularly detected even among individuals with partial knowledge, recommending that targeted education could recover uptake, mostly in conservative areas such as Azad Jammu and Kashmir (Memon and Tariq,

2025).

Cultural and social influence

The HPV vaccine acceptance in Pakistan and South Asia is significantly affected by socio cultural factors. Main barriers comprise of stigma surrounding sexual health debates, religious fears, parental refusal, and high out of pocket costs. Extra challenges contain vaccine pricing, ethical apprehensions connected to premarital vaccination, and weak health system structure. The mis information can be beast addressed by community leaders and Lady Health Workers in building trust. In Muslim communities such as Azad Jammu and Kashmir, these aspects further strengthen hesitancy, increasing the necessity for culturally suitable mobilization strategies (Rajkhowa *et al*., 2025).

Regional relevance

There is limited evidence regarding HPV Vaccination from Azad Jammu and Kashmir remains but designates significant public health concerns. Researches recorded that the existence of high-risk HPV types and low cervical cancer screening coverage of around 11%. Misconceptions about HPV persist even among medical students. A local HPV vaccination campaign pointing girls aged 9 to 14years was started in 2025. Though, acceptance remains low due to disgrace, absence of continued national immunization programs, and incomplete community engagement. These results assist the need to inspect local knowledge, attitudes, and barriers to notify context specific strategies for refining HPV vaccination uptake in the region (Jasrotia *et al*., 2025).

Methodology

Quantitative cross sectional research design has been employed to explore the knowledge, attitude and social cultural factors effecting general population in accepting HPV vaccination. Research has been conducted in randomly selected districts of Azad Jammu and Kashmir and addressing adult community members of both genders. Representativeness has been assured by applying multistage random sampling technique in selecting the sample. By employing the sample random technique first districts from AJ&K were randomly selected then followed by the selection of communities and finally respondents been selected randomly from the community. The sample size is calculated using a standard quantitative formula with a 95 % confidence level and a 5 % margin of error.

Data were gathered using a structured questionnaire established from related literature and formerly validated HPV vaccination researches. The tool contains closed ended questions covering socio demographic characteristics, knowledge of HPV and HPV vaccination, attitudes toward HPV vaccination, and social and cultural factors affecting acceptance.

Result & Discussion

Table 1. Distribution of the respondents-based on Knowledge about HPV Vaccination.

Knowledge About HPV Vaccination	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I have heard about human papillomavirus	23 11.4%	26 12.9%	50 24.8%	76 37.6%	25 12.4%
HPV can cause cervical cancer	16 7.9%	23 11.4%	33 16.3%	84 41.6%	44 21.8%
HPV infection can be prevented through vaccination.	22 10.9%	26 12.9%	50 24.8%	75 37.1%	26 12.9%
HPV vaccination is available in Pakistan.	16 7.9%	23 11.4%	33 16.3%	84 41.6%	44 21.8%

HPV vaccination is recommended before marriage or early adulthood	56 27.7%	65 32.2%	48 23.8%	19 9.4%	12 5.9%

The responses specify low overall knowledge about HPV and HPV vaccination among respondents. Consciousness of human papillomavirus was low, as about half 50% of the respondents disagreed or strongly disagreed that they had heard about HPV, while only around one quarter reported agreement. More than 60% of respondents disagreed or strongly disagreed that HPV can cause cervical cancer, reflecting a critical gap in understanding disease risk. Alike patterns were detected for knowledge about prevention, as a great proportion disagreed that HPV infection can be prohibited through vaccination.

Over 60% of respondents reported disagreement or strong disagreement regarding the availability of HPV vaccination in the country, signifying incomplete exposure to information about access and services. Apart, perceptions about the recommended timing of vaccination were relatively better. Nearly 60% agreed or strongly agreed that HPV vaccination is recommended before marriage or early adulthood. This specifies partial awareness of vaccination timing despite poor knowledge of the virus, its health consequences, and preventive benefits.

Table 2. Distribution of the respondents-based on Attitudes toward HPV vaccination.

Attitudes toward HPV vaccination	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
HPV vaccination is safe	10 5.0%	18 8.9%	30 13.9%	124 61.4%	18 8.9%
HPV vaccination is effective in preventing disease	12 5.9%	20 9.9%	24 11.4%	80 39.6%	64 31.7%
I am willing to receive the HPV vaccine if available.	26 17.8%	53 26.9%	26 12.9%	67 33.2%	18 8.9%
I would recommend HPV vaccination to family members	26 12.9%	42 20.8%	43 21.3%	74 36.6%	15 7.4%

The results specify predominantly negative attitudes toward the safety and effectiveness of HPV vaccination. A large mainstream of respondents disagreed that the HPV vaccine is safe, with more than 60% expressing disagreement, while only a small proportion strongly agreed or agreed. Perceptions of vaccine effectiveness followed a similar pattern, where over 70% of respondents disagreed or strongly disagreed that the vaccine is effective in preventing disease. Majority about 45% showed responses as agreed or strongly agreed as compare to are reasonable proportion of disagreement. Approvals to family members were also inadequate, with over 40% reporting disagreement or strong disagreement. Overall, the results imitate low confidence in vaccine safety and effectiveness, which seems to unswervingly influence personal willingness and advocacy for HPV vaccination.

Table 3. Distribution of the respondents-based on Social and cultural factors influencing the acceptance of HPV

Social and cultural factors influencing acceptance	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Cultural values influence my decision about HPV vaccination	60 29.7%	88 43.6%	28 13.9%	20 9.9%	4 2.0%

Religious beliefs influence attitudes toward HPV vaccination.	48 23.8%	76 37.6%	24 11.9%	20 9.9%	32 15.8%
Family opinion affects my decision to accept HPV vaccination.	48 23.8%	72 35.6%	40 19.8%	24 11.9%	16 7.9%
Community leaders influence acceptance of HPV vaccination	40 19.8%	40 19.8%	47 23.6%	48 23.8%	24 11.9%
Social stigma related to HPV affects willingness to vaccinate	48 23.8%	64 31.7%	40 19.8%	28 13.9%	20 9.9%

Socio cultural factors are playing a key role in the acceptance of HPV Vaccination. The cultural values affected the majority as many of the respondents agreed that such values effect their decision about the acceptance of HPV vaccination 70% indicating agreement or strong agreement. More than 60% identifying the role of religion in shaping attitudes toward HPV vaccination. Family opinion seemed as additional noteworthy determinant, as a majority agreed that family views effect their decision to accept vaccination. The community leaders were found to be ineffective as only very few respondents agreed to the statement others responses were dispersed across agreement, neutrality, and disagreement. Social stigma related to HPV was documented as a relevant barrier, as more than half of the respondents agreed that social stigma affects willingness to vaccinate. These results climax the dominant role of close social structures and cultural norms in vaccination decision making.

Correlation Analysis and Testing of Hypothesis

Relationship between Knowledge about HPV and Attitude about the acceptance of HPV Vaccination

Table 5: Relationship between respondent's Knowledge about HPV and Attitude about the acceptance of HPV Vaccination

		acceptance of HPV Vaccination
Knowledge about HPV	Pearson Correlation	.937**
	N	200

*P<.01=, P<.001=**, P< .0001=***

The correlation analysis shows a strong and statistically significant association between knowledge about HPV and HPV vaccination and attitudes and acceptance of HPV vaccination among 200 respondents. The Pearson correlation coefficient is r = 0.937 with a p value less than 0.001. This indicates a very strong positive relationship. As knowledge scores increase, attitude and acceptance scores also increase. The association is statistically significant at the 0.01 level.

Overall, there is a highly significant and strong positive association between knowledge about HPV and acceptance of HPV vaccination. Higher knowledge is strongly linked with more positive attitudes and greater acceptance of the HPV vaccine in the study population.

Table 4: Relationship between Socio Cultural factors and Attitude about the acceptance of HPV Vaccination

		Attitude about the acceptance of HPV Vaccination
Socio Cultural factors	Pearson Correlation	.417**
	N	200

*P<.01=, P<.001=**, P< .0001=***

The correlation analysis assessed the relationship between acceptance of HPV vaccination, measured through attitude score, and socio cultural factors among 200 respondents.

The Pearson correlation coefficient between attitude score and socio cultural factors is r = 0.417 with a p value of 0.002. This indicates a positive relationship. The association is statistically significant at the 0.05 level. This result suggests that socio cultural factors are meaningfully associated with acceptance of HPV vaccination in the study population.

Chi Square Analysis

1. **There is an association between level of education of the respondent and their willingness to vaccinate**

Level of Significance: 0.05

Test Statistics: χ^2 test $\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{(o_{ij}-e_{ij})^2}{e_{ij}}$

Pearson Chi-Square Test

Variable	Chi-Square	d.f	P-value
Pearson Chi-Square	44.767	8	0.001*

In order to check the association between level of education and their willingness to vaccinate to HPV the Pearson Chi-square was derived (44.767) with P-Value = 0.001 is likely to be lower than the significance level (α =0.05) so the study rejected null hypothesis, i.e. There is no association between level of education of the respondents and their willingness to vaccinate among them and accepted alternative hypothesis is with the conclusion that there is an association between level of education of the respondents and their willingness to vaccinate. The proposition of the study was acknowledged as a significant association between respondents' level of education and the respondents and their willingness to vaccinate was reported in the study.

Conclusion

This study examined knowledge, attitudes, and sociocultural influences related to HPV vaccination among respondents from Azad Jammu and Kashmir. The results disclose substantial gaps that directly distress vaccine acceptance and uptake. Complete knowledge about HPV was too short. More than half of the respondents were uninformed of HPV, its connection to cervical cancer, the protective role of vaccination, and the accessibility of the vaccine in Pakistan. Consciousness was moderately better regarding the suggested timing of vaccination before marriage or early adulthood, representing partial but fragmented understanding.

The attitudes of the respondents were found to be negative and diverse towards the acceptance of HPV vaccination. Most of the respondents showed uncertainty about the safety and efficiency of the vaccine. Very low number of respondents were suggesting the vaccine to their family members while others were having low confidence and showing hesitation. It has been concluded from the findings that only positive intent is not enough for vaccination acceptance suitable knowledge and confidence is also critical to overcome the major hindrances.

Scio cultural factors are strongly influencing the decision about HPV vaccination. The vaccination decision is under the influence of various cultural values, religious beliefs and family views are amongst the highly influential aspects. The community leaders were found less influential or dependable for making a change in vaccination acceptance which need the engagement of community. The results depicts that the decision about vaccination is immensely effected by the social situation than by the

individual health in various circumstances.

In nutshell it was found that less knowledge, poor safety perceptions, strong socio-cultural factors and less trust in the formal health system were leading to poor acceptance of HPV vaccination in masses. In order to overcome these myths and accelerate the vaccination process, there is a need to remain focused, and make advocacy campaigns, enhanced communication between health care and the community based of the involvement of locals.

Recommendations

This research study concluded that by improving the targets and making it context specific can enhance the acceptance level of HPV vaccination in Azad Jammu & Kashmir.

Primarily, organized community-based advocacy interventions should be prioritized to address the critical information gaps highlighted in this research study. Messaging should emphasize on prevention and public health benefits rather than sexual behavior.

Additionally, healthcare workers should be equipped as reliable means of information. Health care workers need to be equipped to deal with safety fears, religious fallacies, and humiliation using evidence-based guidance.

Third, the design of interventions should be guided by education-based targeting. Differentiated strategies are necessary, as evidenced by the strong correlation between education level and vaccination willingness.

Fourth, answerable use of mass media should be leveraged. As media now a days is highly influential tool which directly shapes public attitudes therefore coordinated campaigns via television, radio and social media needs to disseminate accurate and consistent information.

Finally, HPV vaccination should be outlined as a routine public health intervention rather than an optional or sensitive service. The suggested recommendations are in align with the research findings so that reliable guidance can be provided for upcoming HPV policy discussions, consultations and HPV program planning in the related regions.

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