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Letter to the Editor
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Human Papillomavirus Vaccine in Pakistan: Misconceptions, Barriers, and Evidence-Based Safety

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Dear Editor,

The human papillomavirus (HPV) vaccine against cervical cancer has only recently been made available in Pakistan. The vaccine has proven to be safe and effective, but public acceptance in Pakistan is still low.

Several factors play a vital role in this limited acceptance. First, not many individuals in Pakistan are aware of its existence. Research indicates that Pakistani women know little about HPV and its vaccine.[1] In addition to ignorance, reluctance against the vaccine is also influenced by cultural and religious influences. A vaccine against a sexually transmitted illness may conflict with social standards because many people believe that cervical cancer primarily affects promiscuous women. Religious concerns are also raised by the idea that HPV vaccines may lead to infertility and encourage sexual promiscuity. Some people claim that the vaccine is a Western population-control tool designed to make their daughters sterile. Similar misconceptions and resistance to HPV vaccination have also been found in previous studies. Common misunderstandings included beliefs that the vaccine was forbidden by religion because it contained haram substances, caused diseases, or led to infertility. The HPV vaccine was considered unnecessary in some communities, especially for those who were believed to have had a moral upbringing; in extreme situations, it was even viewed as a secret form of birth control. There were also reports of religious skepticism regarding contemporary medicine and the notion that vaccination encouraged unrestrained or premarital sexual activity.[2]

Contrary to popular beliefs, the scientific evidence consistently demonstrates that HPV vaccines are extremely safe. No significant or unexpected effects of the vaccine have been found in clinical trials and large post-marketing studies. A meta-analysis by Santos et al. shows that the incidence of side effects is nearly the same for girls who receive a placebo or the HPV vaccine.[3] Moreover, no meaningful association has been found between HPV vaccination and the likelihood of conceiving.[4] There's also no link between vaccination and being sexually active.[5] The standard formulations of HPV vaccines (bivalent, quadrivalent, and 9-valent) do not contain gelatin or other prohibited substances derived from animals, according to international product data.[6] The comparison of misconceptions and scientific evidence against it is given in table 1.

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Table 1: Misconceptions v/s scientific evidence

Misconception	Scientific Evidence / Facts
1. HPV vaccine causes infertility or affects future pregnancy.	Research suggests that HPV vaccine does not decrease the likelihood of conceiving.[4]
2. HPV vaccine promotes promiscuity or early sexual activity.	Studies show no behavioral change following vaccination. Vaccinated adolescents are no more likely to engage in sexual activity compared to unvaccinated peers.[5]
3. The vaccine contains haram or non-halal ingredients.	The HPV vaccines (bivalent, quadrivalent, and 9-valent) contain no animal-derived gelatin or prohibited substances.[6]
4. HPV infection and cervical cancer are not common in Pakistan, so vaccination is unnecessary.	Cervical cancer is the third most common cancer in Pakistani women, and 2nd most common in women of reproductive age.[7]
5. HPV vaccine causes severe side effects or deaths.	Research claims that HPV vaccine is not linked with severe adverse side effects. Previous research shows that the likelihood of severe adverse effects was same in HPV vaccine and placebo group.[3]
7. The vaccine is new and untested.	HPV vaccines have been in use since 2006 and over 270 million doses have been administered globally.[8]
8. HPV vaccine is unnecessary if a girl is not sexually active.	HPV vaccine is more effective before exposure. The vaccine does not treat existing infections, but prevents new ones.[9]

Several steps can be taken to dispel these myths.

- Pakistani public health initiatives must prioritize culturally relevant education above vaccine distribution.
- Awareness campaigns should target parents, educators, and community leaders, particularly through the media and schools.
- Religious leaders should be engaged in awareness and advocacy campaigns because their support can greatly impact community attitudes and debunk myths about the HPV vaccine in contexts that are sensitive to cultural and religious differences.
- Public health initiatives should prioritize correcting misinformation and busting common myths regarding the HPV vaccine.

Conflicts of Interest:

None to declare

Ethical Consideration:

None to declare

Declaration of AI Use:

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