

Original Article

Understanding Hesitancy in HPV Vaccine Uptake among Young Adults : A Delphi Study

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Abstract

Background : Human Papillomavirus (HPV) vaccines play a crucial role in preventing HPV-related diseases, including cervical cancer. Despite proven efficacy, vaccine uptake among young adults remains suboptimal. This study employs the Delphi technique to explore factors contributing to hesitancy in HPV vaccine uptake among young adults. By engaging a panel of experts from diverse fields, we aim to identify key barriers and propose strategies to enhance vaccine acceptance. The panel proposed several strategies to increase HPV vaccine uptake like Educational Campaigns, Enhanced Healthcare Provider Training, Community Engagement, Policy Interventions, Peer-Led Initiatives.

Key words : Delphi Technique, Human Papillomavirus Vaccine, Vaccine Hesitancy, Health Policy, Health Administration.

Human Papillomavirus (HPV) is one of the most common sexually transmitted infections globally, with significant health implications including cervical, anal, oropharyngeal, and other genital cancers, as well as genital warts. The development of HPV vaccines marks a major advancement in public health, offering a safe and effective means to prevent HPV-related diseases. Despite the vaccine's availability and the compelling evidence supporting its efficacy, vaccination rates among young adults remain disappointingly low in many regions¹.

The significance of improving HPV vaccine uptake cannot be overstated. Higher vaccination rates can lead to substantial reductions in the incidence of HPV-related cancers, thereby decreasing healthcare costs and improving quality of life². Moreover, achieving high vaccination coverage is critical for herd immunity, which provides indirect protection to those who are unvaccinated or unable to mount an immune response.

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Editor's Comment :

- **Expert Consensus:** Delphi method gathers anonymous expert opinions to identify common themes on HPV vaccine hesitancy.
- **Key Hesitancy Factors:** Misinformation, safety concerns, cultural beliefs, and low awareness are major contributors.
- **Healthcare Providers' Role:** Clear communication and trusted recommendations from healthcare providers are crucial.
- **Demographic Influence:** Hesitancy varies by age, education, and socio-economic status, requiring tailored strategies.
- **Mitigation Strategies:** Public health campaigns, education, and community engagement help address hesitancy and build trust.

Understanding the reasons behind vaccine hesitancy among young adults is essential for public health professionals and policymakers. Vaccine hesitancy—a delay in acceptance or refusal of vaccines despite availability of vaccination services – is a complex phenomenon influenced by a myriad of factors including individual beliefs, social influences and systemic barriers. Addressing this hesitancy is crucial for the success of vaccination programs and the long-term control of HPV¹.

The Delphi technique, with its structured method of achieving consensus among experts, is particularly well-suited for exploring the multifaceted issue of vaccine hesitancy. This study employs the Delphi technique to gather insights from a diverse panel of experts, aiming to identify the key barriers to HPV vaccine uptake among young adults and to propose effective strategies to overcome these barriers.

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MATERIALS AND METHODS

The Delphi technique involves multiple rounds of surveys to gather insights from a panel of experts. This study included three rounds of surveys, each designed to refine the understanding of hesitancy factors and potential solutions.

(1) Panel Selection : Experts in public health, epidemiology, psychology, healthcare communication, and young adult health were selected. The panel comprised 20 participants, ensuring diverse perspectives.

(2) Round One : Open-ended questions were used to identify initial themes related to HPV vaccine hesitancy. Experts were asked to share their insights on the main reasons for low vaccine uptake and suggest strategies to address these issues.

(3) Round Two : Responses from Round One were analyzed to identify common themes. These themes were then presented to the panel in a structured questionnaire. Experts rated the importance of each factor and the feasibility of proposed strategies on a Likert scale.

(4) Round Three : The results from Round Two were shared with the panel for further refinement. Experts were asked to re-evaluate their ratings in light of the group's feedback to reach a consensus.

RESULTS

The Delphi process revealed several key factors contributing to HPV vaccine hesitancy among young adults (Table 1) :

(1) Lack of Awareness and Knowledge: Many young adults are unaware of the HPV vaccine and its benefits. Misconceptions about the vaccine, such as concerns about safety and side effects, are prevalent.

(2) Perceived Risk: Young adults often underestimate their risk of contracting HPV, believing it to be irrelevant to their personal health.

(3) Cultural and Social Influences: Cultural beliefs and social norms significantly influence vaccine acceptance. In some communities, discussing sexual health openly is taboo, leading to lower vaccine uptake.

(4) Healthcare Provider Recommendations: The role of healthcare providers is crucial. Lack of strong recommendations from providers contributes to hesitancy.

Table 1 — Responses from the panel of experts Participating in the Delphi study

Factors Influencing HPV Vaccine Hesitancy	Responses
Lack of Awareness and Knowledge	Many young adults are unaware of the HPV vaccine and its benefits. Misconceptions about the vaccine, such as concerns about safety and side effects are prevalent.
Perceived Risk	Young adults often underestimate their risk of contracting HPV, believing it to be irrelevant to their personal health.
Cultural and Social Influences	Cultural beliefs and social norms significantly influence vaccine acceptance. In some communities, discussing sexual health openly is taboo, leading to lower vaccine uptake.
Healthcare Provider Recommendations	The role of healthcare providers is crucial. Lack of strong recommendations from providers contributes to hesitancy.
Accessibility and Convenience	Barriers such as cost, availability and convenience of vaccination services affect uptake.
Peer Influence	Social circles and peer opinions play a significant role in shaping attitudes towards vaccination.

(5) Accessibility and Convenience: Barriers such as cost, availability, and convenience of vaccination services affect uptake.

(6) Peer Influence: Social circles and peer opinions play a significant role in shaping attitudes towards vaccination.

Based on these findings, the panel proposed several strategies to increase HPV vaccine uptake:

(1) Educational Campaigns: Targeted campaigns to raise awareness and educate young adults about the importance and safety of the HPV vaccine.

(2) Enhanced Healthcare Provider Training: Training for healthcare providers to effectively communicate the benefits of the vaccine and address concerns.

(3) Community Engagement: Involving community leaders and influencers to promote positive attitudes towards the vaccine.

(4) Policy Interventions: Policies to make the vaccine more accessible, such as school-based vaccination programs and subsidized vaccine costs.

(5) Peer-Led Initiatives: Encouraging peer-led

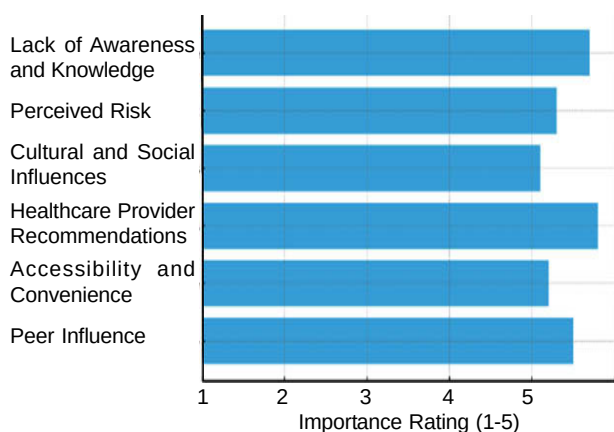


Fig 2 — Bar Chart depicting Key Factors Contributing to HPV Vaccine Hesitancy

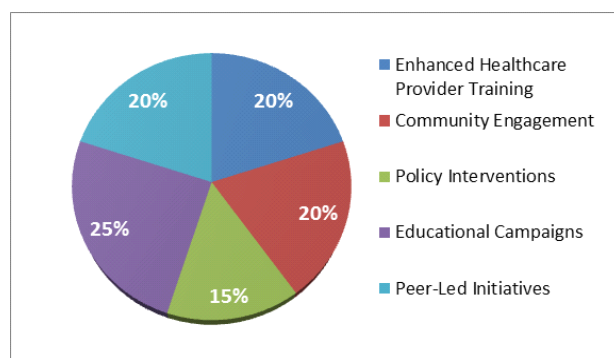


Fig 3 — Pie Chart of Proposed Strategies to Increase HPV Vaccine Uptake

discussions and testimonials to normalize the conversation around HPV vaccination.

Here are the graphical representations of the results from the Delphi study on HPV vaccine hesitancy among young adults:

Fig 2 bar chart displays the average importance rating for each identified factor contributing to vaccine hesitancy.

Fig 3 pie chart shows the distribution of the proposed strategies, highlighting the relative emphasis on each strategy.

Fig 4 flowchart outlines the steps involved in the Delphi study process.

These visualizations help in understanding the key factors and proposed strategies for addressing HPV vaccine hesitancy among young adults, providing a clear and concise overview of the study's findings.

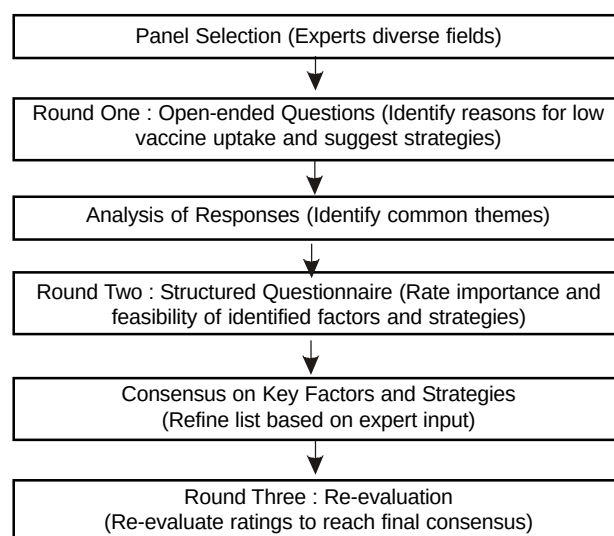


Fig 3 — Flowchart of Delphi Study Process

DISCUSSION

The Delphi study highlights the multifaceted nature of HPV vaccine hesitancy among young adults. Addressing this issue requires a comprehensive approach that includes education, healthcare provider involvement, and community engagement. Tailored interventions that consider cultural and social contexts are essential for improving vaccine acceptance.

HPV vaccine hesitancy poses a significant public health challenge worldwide, influencing vaccination rates and potentially impacting future cancer prevention efforts. The Delphi study discussed here sheds light on the multifaceted nature of HPV vaccine hesitancy among young adults, advocating for a comprehensive approach involving education, healthcare provider involvement, and community engagement. This discussion will compare insights from the Delphi study with findings from other global studies, highlighting common themes and regional variations in vaccine hesitancy.

Insights from the Delphi Study

The Delphi study emphasizes several critical points:

(1) Multifaceted Nature: It identifies diverse factors contributing to HPV vaccine hesitancy, including safety concerns, misinformation, and cultural beliefs. Understanding these factors is essential for designing targeted interventions.

(2) Comprehensive Approach: The study underscores the need for a multifaceted strategy that includes education to dispel myths, healthcare

provider engagement to build trust, and community involvement to address cultural concerns.

(3) Tailored Interventions: Recognizing cultural and social contexts, the study advocates for tailored interventions that resonate with different populations, enhancing vaccine acceptance.

Comparative Insights from Global Studies

Research conducted worldwide provides additional insights into HPV vaccine hesitancy:

United States: Studies have highlighted concerns over vaccine safety and efficacy among parents, influenced by misinformation spread through social media (Smith, *et al* 2020)³.

Europe: Research in various European countries shows differences in vaccine uptake rates influenced by healthcare system factors and varying levels of public trust in vaccines (Larson, *et al* 2018)⁴.

Asia-Pacific Region: Studies in this region often cite traditional beliefs and lack of awareness about HPV-related diseases as barriers to vaccination (Wong, *et al* 2019)⁵.

Africa and Latin America: Challenges in these regions include accessibility issues, healthcare infrastructure limitations, and cultural beliefs affecting vaccine acceptance (Pathak, *et al* 2021)⁶.

Common Themes and Regional Variations

While factors contributing to vaccine hesitancy may vary by region, several common themes emerge:

Safety Concerns: Misinformation about vaccine safety is prevalent across different regions.

Cultural Influences: Cultural beliefs and norms significantly impact vaccine acceptance.

Healthcare System Factors: Variations in healthcare infrastructure and accessibility affect vaccine uptake.

CONCLUSION

HPV vaccine hesitancy among young adults is a complex issue influenced by various factors. Through the Delphi technique, this study has identified key barriers and proposed strategies to enhance vaccine uptake. Implementing these recommendations can contribute to higher vaccination rates, ultimately reducing the burden of HPV-related diseases.

FUTURE RESEARCH

Further research should focus on evaluating the effectiveness of the proposed strategies in real-world settings. Longitudinal studies could also provide insights into the long-term impact of these interventions on vaccine uptake and HPV-related health outcomes. In conclusion, addressing HPV vaccine hesitancy requires a nuanced understanding of regional dynamics and tailored interventions that consider cultural, social and healthcare system contexts. The Delphi study's emphasis on a comprehensive approach aligns with findings from global research, highlighting the universal need for education, healthcare provider engagement, and community involvement to improve HPV vaccine acceptance. Future research should continue to explore regional differences and identify effective strategies to enhance vaccine confidence and uptake globally.

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