



COMPLIANCE WITH HPV VACCINATION MEDIA MESSAGES ON CERVICAL CANCER AMONG FEMALE STUDENTS IN UNN

¹OKEKE, Somtochukwu Victor
²IGBOKE, Ambrose O.
³NWIJE, Vivian Onyinyechi

^{1,3}Department of Mass Communication, University of Nigeria, Nsukka.

²Circular and POPs-Free Plastics in Africa

Corresponding Author: OKEKE, Somtochukwu Victor.

Abstract

This study examines compliance with Human Papillomavirus (HPV) vaccination media messages among female students of the University of Nigeria, Nsukka (UNN), with emphasis on awareness, exposure, comprehension, and behavioural response. Cervical cancer remains a major public-health concern in developing countries, with persistent HPV infection identified as the primary cause. Despite the proven effectiveness of HPV vaccines, uptake in Nigeria remains low, partly due to misinformation, cultural beliefs, and limited access to healthcare services. Guided by the Theory of Planned Behaviour, the research investigates how media communication influences vaccination decisions among university students. A survey design was adopted, using a stratified random sampling technique to select 390 female students from a population of 15,744. Data were collected through structured copies of questionnaire. Findings reveal moderate awareness and high exposure to HPV vaccination messages, predominantly through social media. However, comprehension levels were relatively low, with many respondents indicating limited understanding of vaccine benefits and risks. Compliance outcomes showed a significant intention–action gap: although a majority expressed willingness to follow media recommendations, only a small proportion had actually received the vaccine. The study concludes that media exposure alone is insufficient to ensure behavioural change without clear, culturally sensitive messaging and supportive structural conditions. It recommends multi-channel communication strategies, improved message clarity, on-campus vaccination initiatives, and financial subsidies to enhance vaccine uptake. Overall, the research highlights the need for integrated health-communication and service-delivery approaches to strengthen HPV vaccination compliance among young women in tertiary institutions.

Keywords: HPV, vaccine, social media, cervical cancer, UNN.

Introduction

Cervical cancer continues to pose a major health challenge for women around the world, especially in low and middle-income countries such as Nigeria. According to the Global Cancer Observatory, in 2020 there were about 604,000 new cervical cancer cases and more than 342,000 deaths globally, with a particularly heavy burden in developing countries (Mekuria et al., 2021). The main factor contributing to cervical cancer is the ongoing infection with high-risk strains of the Human Papillomavirus (HPV), which is a virus transmitted through sexual contact. HPV accounts for almost all instances of cervical cancer, rendering it one of the most preventable types of cancer through timely detection and vaccination.

A significant global health disparity is underscored by the stark contrast in cervical cancer outcomes between affluent and developing countries. According to Wilailak et al., (2021), in settings with

limited resources where the availability of preventive measures such as HPV screening and vaccination are significantly restricted, more than 85% of deaths from cervical cancer take place.

Cervical cancer is notably prevalent in Nigeria, where there is often an absence of adequate healthcare facilities. As reported by Nguyen et al. (2020), it is estimated that 53 million Nigerian women aged 15 years and older are at risk of developing cervical cancer. This statistic underscores the urgent necessity for comprehensive public health programmes. The World Health Organization (WHO) estimates that annually, around 14,550 women in Nigeria receive a diagnosis of cervical cancer, with approximately 9,649 succumbing to the illness (Nguyen et al., 2020). These concerning figures not only highlight the significant prevalence of HPV but also underscore the deficiencies in both prevention and treatment strategies. Research has demonstrated that HPV vaccines are highly effective in preventing infections caused by the HPV types most frequently linked to cervical cancer. The implementation and extensive utilization of the vaccine have resulted in a notable reduction in HPV-related diseases across various nations.

For instance, a research article featured in "The Lancet" indicated a 90% decrease in HPV infections among vaccinated groups in affluent nations (Brisson et al., 2020). Additionally, Palmroth, (2023) observed that nations with extensive HPV vaccination rates saw significant reductions in cervical cancer precursors, implying a potential future decline in cervical cancer rates.

In Nigeria, despite the proven efficacy of the HPV vaccine, vaccination rates remain low due to various challenges. These challenges encompass cultural beliefs, insufficient awareness and education about the vaccine, and widespread misinformation, all exacerbated by a poorly funded healthcare system. A significant factor limiting access to vaccines is socioeconomic challenges. Meshach et al. (2024) reported that only 15% of eligible girls in Nigeria received the vaccine. Notable disparities were identified between those who were vaccinated and those who were not. This low uptake rate highlights deeper issues related to public health communication and the accessibility of healthcare services.

The promotion of public health through mass media campaigns is crucial, particularly in relation to increasing vaccination rates (Kalantari et al., 2022). Messages highlighting the importance of the HPV vaccine and the prevention of cervical cancer are often disseminated via television, radio, and billboards. The objectives of these initiatives include public education, dispelling myths, and encouraging health-seeking behaviours. Nevertheless, various factors such as the medium used, the credibility of the source, and the design of the message can significantly influence the effectiveness of these campaigns. Young women in urban areas who had higher HPV vaccination rates were those exposed to well-planned and targeted media campaigns compared to those who were not (Salmon et al., 2023).

Female university students, especially those attending the University of Nigeria, Nsukka (UNN), constitute a vital demographic for HPV vaccination initiatives. Their responsiveness to media messages regarding HPV vaccination is shaped by several factors, including their awareness of cervical cancer risks, perceived advantages and safety of the vaccine, peer influence, and the accessibility of vaccination services. Misinformation, driven by cultural beliefs and social media, significantly affects vaccination behaviours. For instance, enduring myths suggesting that the HPV vaccine promotes promiscuity or leads to infertility have discouraged many young women from receiving the vaccine (Smith and Gorski, 2024). To enhance vaccination uptake, it is imperative to identify and rectify these myths. Research suggests that informing individuals about these misconceptions can substantially improve their acceptance of vaccines. Whitehead et al., (2023) demonstrated how effectively targeted educational efforts can counter false information and elevate vaccination rates.

Statement of the Problem

Cervical cancer continues to pose a significant threat to women, primarily due to the prevalence of high-risk HPV infections. Although the media have actively promoted vaccines such as Gardasil and Cervarix to combat these infections, cervical cancer remains a pressing issue. This situation underscores the challenges associated with achieving full compliance with vaccination protocols.

The general objective of this research is to examine how female students at the University of Nigeria, Nsukka (UNN) react to media communications regarding HPV vaccination. It will explore various communication obstacles, including misinformation, cultural prejudices, accessibility challenges, and vaccine skepticism, that could impede immunization initiatives. The study seeks to mitigate the risk of cervical cancer and enhance health outcomes for female students by increasing vaccination rates and refining public health communication strategies through a deeper understanding of these barriers.

Research Questions

1. What is the level of awareness among the audience regarding media messages about Human Papillomavirus (HPV)?
2. What is the exposure level of the audience to media messages on Human Papillomavirus (HPV) vaccination?
3. What is the comprehension level of the audience to media messages on Human Papillomavirus (HPV) vaccination?
4. What is the compliance level of the audience with media messages on Human Papillomavirus (HPV) vaccination?

Literature Review

Exposure to HPV vaccination media messages and comprehension of HPV media messages

A study by Wang and Zhang (2022) examined the extent of Chinese university students' exposure to HPV vaccination messages. Their findings showed that students were generally exposed to health information through social media and traditional media. Despite the abundant availability of information, students indicated that they encountered HPV-related media only infrequently. When such media were available, the messages were typically concise and often lacked comprehensive details regarding the significance of the vaccine. This study employed a combination of surveys and content analysis to assess the frequency and influence of HPV vaccination messages.

The results highlighted a significant deficiency in media exposure, revealing that students were not adequately engaged with targeted HPV vaccination communications. Wang and Zhang discovered that although social media have the potential to be instrumental in spreading health information, many students reported feeling inundated by the sheer volume of messages on these platforms, which adversely affected their engagement and retention of HPV vaccination information. They concluded that enhancing the frequency and relevance of media messages is essential for improving awareness and motivating action regarding HPV vaccination. The study recommended that healthcare authorities collaborate with universities and adopt more personalized strategies on social media to effectively convey the message to students.

In a study conducted by Gyakye (2021), the level of awareness regarding Human Papillomavirus (HPV) and its vaccine among university students in Ghana was evaluated. The findings indicated that while a majority of the students were familiar with HPV, a considerable number possessed a limited comprehension of its association with cervical cancer and the vaccine's preventive advantages. Despite a

high level of general health awareness, the research uncovered a deficiency in HPV-specific knowledge, largely attributed to the ambiguity and inconsistency of media messages. The study utilized a survey and in-depth interviews with students to investigate their awareness and understanding of HPV. It was found that although students frequently encountered general health information through traditional media channels such as television and radio, the coverage of HPV was minimal and often lacked the necessary depth to convey the full extent of the virus's implications. Additionally, the information disseminated through these media outlets was insufficiently detailed to rectify misconceptions, including the notion that only sexually active individuals should be concerned about HPV.

Gyakye concluded that media campaigns in Ghana must be more focused and comprehensive, employing clearer and more informative language while highlighting the link between HPV and cervical cancer. The study advocated for the development of educational programmes that deliver detailed, clear, and actionable information regarding the vaccine's role in preventing HPV-related cancers. Furthermore, the findings underscored the significance of utilizing digital platforms such as social media to engage younger audiences, as these platforms were already prevalent sources of health-related information among students.

A study conducted by Hernandez and Lee (2020) sought to assess the extent to which young adults in the United States comprehended media messages regarding the HPV vaccine. Utilizing a mix of surveys, interviews, and focus groups, the researchers found that although participants could remember fundamental information about the HPV vaccine, their grasp of its importance was frequently inadequate. In particular, numerous participants did not associate the HPV vaccine with its potential to prevent cervical cancer. The findings indicated that understanding varied considerably based on the individual's health literacy. Individuals with higher health literacy levels exhibited a more profound comprehension of the HPV vaccine's role in cancer prevention, whereas those with lower literacy faced challenges in fully understanding the vaccine's implications.

Additionally, Hernandez and Lee discovered that the media messages being conveyed were often overly simplistic and lacked depth, failing to highlight the specific advantages of the vaccine or the broader context of HPV-related cancers. Visual tools such as infographics and video clips were identified as more effective in aiding participants' understanding of the vaccine's significance, particularly when accompanied by clear and succinct explanations. The study underscored the necessity for media messages to be more focused and thorough, emphasizing health literacy and the use of easily understandable language. Furthermore, it was suggested that media campaigns should incorporate more engaging formats like videos or narratives, which have been proven to enhance comprehension among young adults.

Compliance with HPV vaccination messages

In their 2023 research, Khan and Ahmed investigated the connection between exposure to media messages regarding HPV vaccination and the actual adherence to vaccination among female students in Pakistan. The research utilized a mixed-methods strategy, incorporating surveys and interviews, to evaluate students' perceptions and behaviors concerning HPV vaccination. The results indicated that while a significant number of students demonstrated favorable attitudes toward the HPV vaccine following exposure to media messages, their actual vaccination compliance remained low. The study identified various obstacles to compliance, such as cultural beliefs, misinformation regarding vaccine safety, and insufficient access to vaccination services. Even though students were informed about the vaccine's advantages through media exposure, many were either unable or reluctant to receive the vaccination due to these challenges.

Theoretical framework

The theoretical foundation of this study is the Theory of Planned Behaviour (TPB) propounded by Icek Ajzen which explains how human actions are guided by intentions that arise from three major determinants: attitude toward the behaviour, subjective norms, and perceived behavioural control. This theory is particularly appropriate for examining compliance with HPV vaccination media messages among female students because vaccination is a deliberate health behaviour influenced by personal beliefs, social expectations, and perceived access or ability to act. By applying TPB, the study is able to explain not only awareness and perception but also the gap that often exists between intention and actual vaccination behaviour.

The first construct, attitude toward the behaviour, refers to an individual's positive or negative evaluation of performing a specific action. In the context of this research, it reflects how female students perceive the HPV vaccine in terms of safety, effectiveness, and personal benefit. Empirical reviews in the manuscript show that although students are exposed to health messages through social and traditional media, these messages are sometimes shallow or inconsistent, leading to limited understanding (Zhang, 2022; Hernandez & Lee, 2020). When comprehension is low, attitudes remain weak or uncertain. However, studies also indicate that detailed, visually engaging, and narrative-based media content can significantly improve understanding and foster favourable attitudes toward vaccination. Therefore, exposure and comprehension of HPV media messages are directly linked to attitude formation within the TPB framework.

The second construct, subjective norms, concerns the perceived social pressure to engage or not engage in a behaviour. Among university students, this includes the influence of peers, family members, lecturers, religious leaders, and online communities. The study highlights how cultural beliefs and misinformation such as myths about infertility or promiscuity negatively shape vaccination decisions. Even when students are knowledgeable about HPV, prevailing social opinions can discourage compliance. Meshach et al. (2024) and Smith & Gorski (2024) reveal that social and digital environments play a strong role in reinforcing or counteracting these beliefs. Thus, subjective norms help explain why awareness does not always translate into action, especially when societal approval is lacking.

The third construct, perceived behavioural control, refers to the individual's sense of ease or difficulty in performing the behaviour. In this study, it includes factors such as accessibility of vaccination centres, cost of the vaccine, confidence in navigating healthcare systems, and availability of credible information. Evidence from the empirical reviews (Khan & Ahmed, 2023) shows that many students who hold positive attitudes still fail to vaccinate due to structural and economic barriers. This demonstrates that intention alone is insufficient without the resources or opportunities to act. Perceived behavioural control therefore bridges the psychological and practical dimensions of health behaviour.

Within the TPB model, these three constructs collectively shape behavioural intention, which is the immediate predictor of actual behaviour. In the present study, behavioural intention represents the willingness of female students to receive the HPV vaccine after exposure to media messages. Actual compliance occurs only when intention is supported by favourable attitudes, supportive social norms, and adequate access or control. By integrating media exposure, comprehension, cultural beliefs, peer influence, and accessibility challenges, the TPB provides a comprehensive framework that aligns closely with the study's research questions and empirical evidence. This integration enhances the academic strength of the study and offers a holistic explanation of HPV vaccination compliance among female university students.

Methodology

The methodology details a systematic approach to investigating media messages' influence on HPV vaccination compliance among female students at the University of Nigeria, Nsukka (UNN). A survey

design was adopted to assess relationships between media exposure and vaccination behaviours. This cost-effective method suits large populations and captures direct/indirect media effects on health decisions. The population includes 15,744 female students at UNN. A sample of 385 was determined using the Australian sample size calculator then rounded up to 390 to ensure a sufficient sample size.

Stratified random sampling by faculty and academic level ensured representation and minimized bias. A structured questionnaire with closed- and open-ended questions measured awareness, attitudes, and compliance. Distribution occurred via electronic and paper formats, with follow-ups for high response rates. Validity was ensured through a statistician and pilot testing. A Cronbach’s alpha of 0.7 or higher was considered acceptable. The instrument was tested in a pilot study to ensure reliability and consistency in responses. Data analysis used frequencies and percentages.

Results

Awareness level of media messages on HPV and its vaccination?

Responses	Frequency	Percentage
Very high	129	33%
High	85	22%
Low	108	28%
Very Low	68	17%
Total	390	100%

Source: Field Survey, 2025.

Awareness is moderate, with substantial residual low awareness. A slim majority report high/very high awareness of HPV-vaccination media messages (55%: 33% very high; 22% high), but 45% remain low/very low (28% low; 17% very low). For an audience of female university students typically expected to have comparatively high health-information exposure, this distribution implies that message reach has not translated into uniformly high salience or retention within the population.

Exposure level of the audience to media messages on Human Papillomavirus (HPV) vaccination?

Where do you frequently encounter messages about HPV and its vaccination?		
Responses	Frequency	Percentage
Social media	194	50%
Television	93	24%
Radio	43	11%
Print media	19	5%
Billboards	16	4%
Friends/Family	25	6%
Total	390	100%

Type of HPV-related information the audience recalled seeing or hearing.		
General information about HPV	145	37%
Information about HPV transmission	72	18.4%
Information on HPV vaccination benefits	75	19.2%
Risks associated with HPV infection	44	11.2%

Prevention methods	54	14%
Total	390	100%

Source: Field Survey, 2025.

Exposure is concentrated in social media, with limited diversification of channels. Social media are the dominant exposure channel (50%), followed by television (24%) and radio (11%); print media (5%), billboards (4%), and friends/family (6%) contribute relatively little. This concentration suggests an information environment where message diffusion is likely shaped by platform algorithms, peers’ sharing practices, and variable source credibility, conditions that can amplify exposure while producing uneven comprehension and persuasion.

Recalled content is skewed toward generalities rather than actionable risk and prevention information. Respondents most often recall general HPV information (37%) and vaccination benefits (19.2%), while recall is lower for transmission (18.4%), prevention methods (14%), and risks of HPV infection (11.2%). This imbalance is consequential because messages emphasizing general facts and benefits without sustained attention to susceptibility, transmission pathways, and concrete prevention steps often leave audiences insufficiently equipped to translate awareness into personal decision-making.

Comprehension level of the audience to media messages on Human Papillomavirus (HPV) vaccination.

Rate your knowledge of the HPV vaccine and its benefits through media messages.		
Responses	Frequency	Percentage
Very High Level	55	14%
High Level	109	28%
Low Level	123	32%
Very Low Level	103	26%
Total	390	100%
Clarity of media messages on HPV vaccination?		
Very High Level	105	27%
High Level	99	25%
Low Level	134	34.3%
Very Low Level	52	13.3%
Total	390	100%
Ease of understanding of media messages on HPV vaccine and its benefits.		
Very easy	110	28%
Easy	117	30%
Difficult	113	29%
Very difficult	50	13%
Total	390	100%

Source: Field Survey, 2025.

Comprehension signals a “visibility–understanding” gap. Self-rated knowledge from media messages is weak relative to exposure. Only 42% rate their knowledge as high/very high (28% high; 14% very high), whereas 58% rate it low/very low (32% low; 26% very low). This pattern supports an interpretation of high exposure but limited learning yield, a classic gap between message contact and cognitive processing.

Message clarity and ease are modest, with a large minority struggling. Clarity is rated high/very high by 52% (27% very high; 25% high), but low/very low by 47.6% (34.3% low; 13.3% very low). Ease of understanding is easy/very easy for 58% and difficult/very difficult for 42%. The combined implication is that message design may be insufficiently tailored to variation in health literacy, prior knowledge, and culturally grounded concerns, especially important in HPV contexts where stigma and misinformation can distort interpretation. These findings collectively suggest that exposure does not guarantee comprehension

Compliance level of the audience with media messages on Human Papillomavirus (HPV) vaccination.

Have you taken the HPV vaccine after seeing media messages about it?		
Responses	Frequency	Percentage
Yes	92	24%
No	185	47%
Undecided	115	29%
Total	390	100%
If you have not taken the HPV vaccine, what are the main reasons? (Select all that apply)		
Lack of information	62	16%
Fear of side effects	77	20%
Cost of vaccination	69	18%
Difficulty accessing vaccination services	84	21%
Do not believe I am at risk.	98	25%
Total	390	100%
How likely are you to follow the recommendations in media messages on HPV vaccination?		
Very likely	135	35%
Likely	93	24%
Unlikely	109	28%
Very unlikely	53	13%
Total	390	100%

Source: Field Survey, 2025.

Compliance outcomes show a pronounced “intention–action” and “exposure–uptake” disconnect. Vaccination uptake is low relative to both exposure and stated willingness. Only 24% report taking the HPV vaccine after encountering media messages; 47% have not, and 29% are undecided. Yet 59% report they are likely/very likely to follow recommendations (35% very likely; 24% likely). This divergence is relevant because it indicates that downstream barriers: informational, motivational, and structural, likely intervene between receptivity and behaviour.

Barrier profile suggests both demand-side and supply-side constraints. Among reasons for non-vaccination, the most frequently selected is low perceived risk (“do not believe I am at risk,” 25%), followed by difficulty accessing services (21%), fear of side effects (20%), cost (18%), and lack of information (16%). Interpreted together, the table implies a dual problem:

1. Demand-side: Perceived invulnerability and safety concerns reduce willingness to convert intention into action.
2. Supply-side: Access and cost impede uptake even when motivation exists.

Discussion of Findings

The study reveals moderate awareness and high social media exposure to HPV vaccination messages among female students at the University of Nigeria, Nsukka (UNN), yet comprehension and compliance remain low. These findings highlight critical gaps in public health communication that hinder effective behaviour change.

Awareness of HPV vaccination media messages was moderate, with 55% of respondents rating it as high or very high, while 45% reported low or very low levels. Exposure primarily occurred via social media (50%) similar to Wang & Zhang (2022) where exposure primarily occurred via social media but dissimilar to the same study where exposure also primarily occurred via traditional media. This is followed by television (24%) and radio (11%), but recalled content focused on general HPV information (37%) rather than risks (11.2%) or prevention (14%).

Comprehension was suboptimal, with only 42% rating their knowledge as high or very high, and 58% indicating low levels. This corroborates the study of Gyakye (2021) where findings indicated that while a majority of the students were familiar with HPV, a considerable number possessed a limited comprehension of its association with cervical cancer and the vaccine's preventive advantages. Message clarity and ease of understanding were similarly mixed, at 52% positive versus 47.6% negative. This finding also corroborates with the study of Hernandez & Lee (2020) where understanding varied considerably based on the individual's health literacy as individuals with higher health literacy levels exhibited a more profound comprehension of the HPV vaccine's role in cancer prevention, whereas those with lower literacy faced challenges in fully understanding the vaccine's implications.

Compliance was strikingly low, with just 24% vaccinated post-exposure, 47% not vaccinated, and 29% undecided, despite 59% expressing likelihood to follow recommendations. This echoes the study of Khan and Ahmed (2023) where a significant number of students demonstrated favorable attitudes toward the HPV vaccine following exposure to media messages. However, their actual vaccination compliance remained low due to various obstacles such as cultural beliefs, misinformation regarding vaccine safety, and insufficient access to vaccination services. Major barriers included low perceived risk (25%), access difficulties (21%), fear of side effects (20%), cost (18%), and lack of information (16%). These results address the study's research questions, confirming uneven progression from awareness to action among this key demographic.

Interpretation via TPB

The findings align closely with Ajzen's Theory of Planned Behaviour (TPB), which posits that attitudes, subjective norms, and perceived behavioural control shape intentions and actions. Moderate awareness and exposure suggest initial attitude formation towards HPV vaccination, but shallow message content, skewed to general facts, limits positive evaluations of vaccine safety and efficacy, as echoed in empirical studies like Wang and Zhang (2022), where infrequent, superficial media failed to build strong attitudes.

Subjective norms emerge as a key inhibitor, with cultural myths (e.g., infertility or promiscuity) reinforced via social media, mirroring Smith and Gorski (2024). Despite social media dominance in exposure, peer and family influences (only 6% direct source) likely amplify misinformation, weakening social approval for vaccination, consistent with Meshach et al. (2024). Perceived behavioural control is most constrained, as access issues, cost, and side-effect fears dominate barriers, akin to Khan and Ahmed (2023), where positive attitudes did not translate to uptake due to structural hurdles. The intention-action gap (59%) likely to comply yet only 24% vaccinated exemplifies TPB's emphasis on control as the bridge to behaviour. Unlike high-income contexts (e.g., Brisson et al., 2020, showing 90% infection reduction post-vaccination), Nigeria's low uptake (15% nationally per Meshach et al., 2024) underscores contextual

moderators like resource scarcity. Empirically, low risk perception echoes Nguyen et al. (2020) on Nigeria's 14,550 annual cases, urging message redesign for susceptibility cues.

Conclusion and Recommendations

This study set out to examine compliance with Human Papillomavirus (HPV) vaccination media messages among female students of the University of Nigeria, Nsukka, with particular focus on awareness, exposure, comprehension, and behavioural response. The findings reveal a complex communication-behaviour gap in which moderate awareness and high exposure to media messages do not automatically translate into high levels of vaccine uptake. While a significant proportion of respondents reported encountering HPV-related information especially through social media platforms, this exposure did not consistently yield deep understanding or decisive compliance with vaccination recommendations.

Awareness levels, although slightly above average, were not sufficiently universal to support effective public-health mobilization. Nearly half of the respondents still reported low or very low awareness of HPV vaccination messages, suggesting that message penetration remains uneven even within a university environment typically associated with higher literacy and information access. Exposure patterns further demonstrate a heavy reliance on social media, which, although effective for reach, often produces fragmented or algorithm-filtered information streams. This concentration of exposure on a single communication channel limits message diversity and increases susceptibility to misinformation, selective interpretation, and message fatigue.

Comprehension outcomes indicate that visibility does not equate to understanding. A majority of respondents rated their knowledge of HPV vaccination as low despite repeated encounters with related media content. The clarity and ease-of-understanding ratings similarly revealed that a substantial minority struggled to interpret the messages presented. This suggests that existing media messages emphasize message circulation more than message design, overlooking differences in health literacy, cultural framing, and cognitive processing styles. As a result, students may remember hearing about HPV vaccination without internalizing the practical implications for personal health behaviour.

Compliance data present the most critical insight of the study. Only about one-quarter of respondents reported receiving the HPV vaccine after media exposure, while nearly half had not been vaccinated and a considerable proportion remained undecided. This outcome highlights a pronounced intention-action gap. Many respondents expressed willingness or likelihood to follow media recommendations, yet this intention was undermined by psychological, social, and structural barriers. The dominant obstacles (low perceived personal risk, fear of side effects, cost of vaccination, and limited access to services) demonstrate that both demand-side and supply-side constraints are at play. In essence, favourable attitudes alone are insufficient when supportive infrastructure and credible reassurance mechanisms are lacking.

The findings reinforce the explanatory strength of the Icek Ajzen's Theory of Planned Behaviour, which posits that behaviour is shaped by attitudes, subjective norms, and perceived behavioural control. Within this framework, moderate awareness contributes to tentative positive attitudes, but misinformation and cultural myths weaken subjective norms, while cost and accessibility issues reduce perceived control. The interaction of these factors ultimately constrains behavioural execution despite expressed willingness. The study therefore concludes that HPV vaccination compliance among female university students is not primarily a problem of message absence but rather a problem of message depth, credibility, contextual alignment, and systemic support.

Overall, the research demonstrates that effective health communication must move beyond simple dissemination toward integrated strategies that combine persuasive messaging, social endorsement, and

practical facilitation of health services. Without such multidimensional approaches, media campaigns risk generating awareness without action, thereby limiting their public-health impact. The implications extend beyond the study population, reflecting broader challenges in preventive health communication within developing contexts where structural inequalities and cultural perceptions significantly mediate behavioural outcomes. The study recommends the following:

1. **Adopt Multi-Channel Communication Strategies:** Public-health authorities and media planners should diversify communication channels beyond social media to include radio, television, campus publications, community outreach, and interpersonal communication. A balanced mix of traditional and digital platforms will increase message reach, reduce algorithmic bias, and ensure that information is reinforced across multiple touchpoints. Cross-platform consistency also strengthens message recall and credibility.
2. **Enhance Message Depth and Clarity:** HPV vaccination media messages should move from general awareness slogans to detailed, actionable content. Messages should explicitly explain transmission pathways, susceptibility risks, vaccine safety profiles, and long-term benefits. The use of infographics, short educational videos, and narrative storytelling can improve comprehension, particularly among individuals with lower health literacy. Simplified language combined with visual aids will increase cognitive retention and behavioural motivation.
3. **Address Cultural Myths and Social Norms Directly:** Communication strategies must actively counter misinformation relating to infertility, promiscuity, or moral stigma. Collaborating with respected opinion leaders (lecturers, healthcare professionals, religious figures, and student influencers) can help reshape subjective norms and legitimize vaccination behaviour. Peer-to-peer advocacy programmes within university settings can also foster positive social pressure and normalize vaccine uptake.
4. **Integrate On-Campus Vaccination Services:** Universities should partner with healthcare providers to establish periodic on-campus vaccination clinics. Accessibility reduces logistical barriers and increases perceived behavioural control. When vaccination opportunities are visibly available within the academic environment, students are more likely to convert intention into action. Convenient scheduling and mobile clinics can further enhance participation rates.
5. **Subsidize or Reduce Vaccine Costs:** Financial constraints emerged as a notable barrier to compliance. Government agencies, non-governmental organizations, and private health partners should explore subsidy schemes, insurance coverage expansion, or donor-funded initiatives to reduce or eliminate out-of-pocket costs for students. Economic accessibility is critical for equitable health outcomes and sustainable uptake.
6. **Strengthen Health Literacy Programmes:** Universities should embed preventive-health education into orientation programmes, general studies curricula, and student-health workshops. Continuous education fosters long-term behavioural awareness rather than episodic message exposure. Health-literacy initiatives should emphasize critical evaluation of online information to counter misinformation spread through social media.

In conclusion, improving HPV vaccination compliance among female university students demands a holistic approach that blends persuasive communication, cultural sensitivity, economic accessibility, and institutional support. When awareness, understanding, and opportunity converge, the likelihood of meaningful behavioural change increases substantially, ultimately contributing to the long-term reduction of cervical-cancer risk and the strengthening of preventive health culture within academic communities and beyond.

References

Ajzen, I. (2020). The theory of planned behaviour: Frequently asked questions. *Human Behaviour and Emerging Technologies*, 2(4), 314–324. <https://doi.org/10.1002/hbe2.195>

- Brisson, M., Kim, J. J., Canfell, K., Drolet, M., Gingras, G., Burger, E. A., Martin, D., Simms, K., Benard, E., Boily, M., Sy, S., Catherine Regan, C., Keane, A., Caruana, M., Nguyen, D. T. N., Smith, M. A., Laprise, J., Mark Jit, M., Alary, M., Bray F., Fidarova, E., Elsheikh F., Bloem, P. J. N., Broutet, N., and Hutubessy, R. (2020). Impact of HPV vaccination and cervical screening on cervical cancer elimination: a comparative modelling analysis in 78 low-income and lower-middle-income countries. *The Lancet*, 395(10224), 575-590. [https://doi.org/10.1016/S0140-6736\(20\)30068-4](https://doi.org/10.1016/S0140-6736(20)30068-4)
- Gyakye, A. (2021). HPV and its vaccine awareness among university students in Ghana. *Journal of Public Health Education*, 34(2), 158-165.
- Hernandez, J., and Lee, S. (2020). Comprehension of media messages on HPV vaccination among young adults in the United States. *Journal of Health Communication*, 25(3), 232-249.
- Kalantari, N., Borisch, B., and Lomazzi, M. (2022). Vaccination—a step closer to universal health coverage. *Journal of Public Health*, 30(3), 649-653.
- Khan, F., and Ahmed, Z. (2023). Compliance with HPV vaccination media messages among female students in Pakistan. *Vaccine Research Journal*, 31(2), 45-58.
- Mekuria, M., Edosa, K., Endashaw, M., Bala, E. T., Chaka, E. E., Deriba, B. S., and Tesfa, B. (2021). Prevalence of cervical cancer and associated factors among women who attended the cervical cancer screening centre at Gahandi Memorial Hospital, Ethiopia. *Cancer informatics*, 20, 11769351211068431.
- Meshach, O. I., Braimah, S. G., David, U. O., Omokaro, E. J., Ehis, E. G., Stephen, A. E., Cyril, U., Enobakhare, E., Odafen, M., & Akhaine, P. J. (2024). Knowledge and Attitude of Mothers towards Human Papilloma Virus Vaccine Uptake in Nigeria. *Journal of Education, Society and Behavioural Science*, 37(2), 1-17. <https://doi.org/10.9734/jesbs/2024/v37i21303>
- Nguyen, N. Y., Okeke, E., Anglemeyer, A., and Brock, T. (2020). Identifying perceived barriers to human papillomavirus vaccination as a preventative strategy for cervical cancer in Nigeria. *Annals of Global Health*, 86(1).
- Palmroth, J. (2023). *Natural history of multiple human papillomavirus infections pre-and post-vaccination* (Doctoral dissertation, Itä-Suomenyliopisto).
- Salmon, D. A., Dudley, M. Z., Brewer, J., Shaw, J., Schuh, H. B., Proveaux, T. M., ... and Orton, P. Z. (2023). LetsTalkShots: personalized vaccine risk communication. *Frontiers in Public Health*, 11, 1195751.
- Smith, T. C., and Gorski, D. H. (2024). Infertility: A common target of antivaccine misinformation campaigns. *Vaccine*, 42(4), 924-929.
- Wang, L., and Zhang, Y. (2022). Exposure to media messages on HPV vaccination among Chinese university students. *Health Communication Research*, 45(1), 56-73.
- Whitehead, H. S., French, C. E., Caldwell, D. M., Letley, L., and Mounier-Jack, S. (2023). A systematic review of communication interventions for countering vaccine misinformation. *Vaccine*, 41(5), 1018-1034.
- Wilailak, S., Kengsakul, M., and Kehoe, S. (2021). Worldwide initiatives to eliminate cervical cancer. *International Journal of Gynecology and Obstetrics*, 155, 102-106.