



Research Article

Exposure to HPV Health Information Campaigns and Willingness to Uptake HPV Vaccination among Undergraduates in South-South Nigeria

Blessing Ajirioghene Omoevah & Gideon Uchechukwu Nwafor

About Article

Article History

Submission: December 10, 2025

Acceptance: January 15, 2026

Publication: January 28, 2026

Keywords:

Exposure, HPV Health Information Campaigns, Willingness to Uptake HPV Vaccination. Undergraduates, South-South Nigeria

About the Authors

Blessing Ajirioghene Omoevah
Department of Advertising
Southern Delta University, Ozoro
Delta State
Email: omoevahb@dsust.edu.ng

&

Gideon Uchechukwu Nwafor
Department of Mass Communication
Chukwuemeka Odumegwu Ojukwu
University, Igbariam
Anambra State
gu.nwafor@coou.edu.ng

ABSTRACT

Human Papillomavirus (HPV) remains a significant public health concern globally, particularly in low- and middle-income countries where awareness and vaccine uptake are limited. This study examined awareness, sources of information, perceptions, and willingness to accept HPV vaccination among undergraduates in South-South Nigeria. Anchored on the Theory of Planned Behaviour (TPB) and the Information-Motivation-Behavioural Skills (IMB) Model, the study employed a survey design with a sample of 384 undergraduates selected through a multistage sampling technique from a population of 156,702 undergraduates across nine universities in South-South Nigeria. Data were collected using a structured questionnaire and analysed using descriptive statistics and Chi-square tests of independence. Findings revealed that while most undergraduates were aware of HPV, detailed knowledge of the infection and its vaccine remained low, with a substantial portion demonstrating misconceptions about its transmission and prevention. Social media emerged as the leading source of information, but health professionals and universities were regarded as the most trusted sources. The results further indicated that undergraduates generally perceive HPV as a severe infection and consider the vaccine effective. However, uncertainty and concerns about side effects, safety, and cost remain notable barriers. Actual vaccine uptake was extremely low, but willingness to receive the vaccine increased significantly when access to accurate information and affordability were assured. Notably, the findings demonstrated that access to information and its sources significantly influenced willingness to take up the vaccine, highlighting the central role of credible health communication. The study concludes that undergraduates in South-South Nigeria occupy a critical space in which high awareness of HPV does not necessarily translate into vaccine acceptance or uptake, due to gaps in accurate knowledge, affordability, and trust. The study recommends strengthening university-based awareness campaigns, enhancing the role of health professionals in student health education, subsidising vaccine costs, addressing safety concerns through targeted communication, and leveraging digital platforms to combat misinformation.

Introduction

In the sphere of public health, the dissemination of accurate and comprehensive information about infectious diseases is paramount to preventing and managing such conditions. The Human Papillomavirus (HPV), one of the most common sexually transmitted infections globally, has been the focus of various health campaigns due to its association with numerous cancers, particularly cervical cancer. Understanding the level of access to information about HPV among undergraduates is crucial, as it has significant implications for public health policy and education programs, particularly in countries with high incidence rates of HPV-related complications. Human Papillomavirus, commonly known as HPV, stands as one of the most transmissible sexually transmitted infections globally, affecting millions each year (Drolet, Bénard, Pérez, & Brisson, 2020).

The Human Papillomavirus (HPV) represents a significant public health concern, affecting millions worldwide. The advent of vaccination as a preventive strategy against HPV has sparked extensive debate, prompting investigations into its efficacy, safety, and sociocultural implications. HPV encompasses a group of related viruses that can cause various medical conditions - from benign warts to malignant cancers. Infections by certain strains of HPV are notably associated with cervical cancer, the fourth most common cancer in women worldwide. HPV is primarily transmitted through sexual contact, making it one of the most common sexually transmitted infections (STI). Its pervasive nature necessitates a robust public health response (Arbyn, Xu, Simoens, & Martin-Hirsch, 2020). In Nigeria, cervical cancer, primarily attributed to HPV, stands as a

leading cause of female mortality. The World Health Organisation (WHO) asserts that incapacity to access effective screening and treatment contributes to the high fatality rate (Ibekwe, Hoque, & Naidu, 2021). Globally, the burden of HPV-related diseases remains substantial, with high morbidity and mortality rates, especially in regions with limited healthcare resources.

The development of the HPV vaccine represents a turning point in the fight against HPV. It offers protection against the highest-risk strains of the virus. Since its introduction, the prevalence of vaccine-type HPV infections has decreased dramatically among immunised populations (Drolet, Bénard, Pérez, & Brisson, 2020). The introduction of HPV vaccines in Nigeria is relatively recent, with a national programme launched to include the vaccine in the routine immunisation schedule for girls. This intervention aims to reduce the incidence of cervical cancer by targeting pre-adolescent girls before they become sexually active (Bassey, Gasasira, Mitula, Frankson, & Nwankwo, 2020). Despite its efficacy, HPV vaccination faces challenges. In Nigeria, cultural conservatism and misinformation contribute to vaccine hesitancy. Additionally, logistical barriers, such as maintaining the cold chain and reaching rural populations, present significant hurdles to comprehensive vaccine coverage (Nigeria Health Watch, 2020).

The dearth of awareness regarding the Human Papillomavirus and its implications for sexual health is a critical concern. According to a study by Adejumo Omisakin, Okereke, and Olukanni (2022), which surveyed undergraduate students in South-South Nigeria, a significant proportion of

participants lacked fundamental knowledge of HPV and its vaccine. Such an information deficit is alarming, given the efficacious nature of the HPV vaccine in preventing not only the virus itself but the various cancers associated with chronic infections. In Nigeria, the advent of HPV and its health consequences remains a critical issue due to the relatively low levels of awareness and information accessibility among the youth, which significantly shape their health-seeking behaviours and attitudes towards vaccination and screening programs. According to Adebayo, Smith, and Omisakin (2020), there is a considerable deficiency in knowledge about HPV and the available preventive measures, such as vaccines, among Nigerian undergraduates. The authors underscore the need for enhanced educational strategies to disseminate accurate HPV information effectively.

Consequently, examining the dynamics of information dissemination and absorption is critical to developing effective HPV educational programs. To recap, the significance of ensuring undergraduates have access to detailed and accurate information about HPV cannot be understated. It is a lifeline that can alter the trajectory of HPV-related health outcomes worldwide, particularly in regions with the most pressing need, such as Nigeria. Given the substantial role of educational institutions and health professionals in this regard, a collaborative effort to strengthen the flow of information is imperative. These studies provided a foundational understanding of the gaps and opportunities that exist in communicating HPV-related information to undergraduates, thereby setting the stage for an in-depth examination of current practices and potential improvements in educational strategies, especially among undergraduate students in

South-South Nigeria.

Statement of the Problem

Human Papillomavirus (HPV) poses a significant public health challenge due to its strong association with various cancers, including cervical, anal, and oropharyngeal cancers. The HPV vaccine, while highly effective in preventing these cancers, remains underutilised, especially among undergraduates in South-South Nigeria. Despite the availability of effective vaccines against Human Papillomavirus (HPV), cervical cancer remains a significant public health concern in Nigeria, particularly among young women. This low uptake is concerning, given that young adults are at a critical age for vaccination to be most effective. However, the uptake of HPV vaccination among undergraduates in this region remains low. The low uptake of HPV vaccination among undergraduates in South-South Nigeria may be attributed to various factors, including a lack of access to accurate and comprehensive information about HPV and its vaccines. Several studies have shown that many young people in Nigeria have limited knowledge about HPV and its association with cervical cancer, which can lead to misconceptions, stigma, and hesitancy to undergo vaccination. However, no study has examined how access to HPV vaccination information influences its uptake, especially among undergraduates in South-South Nigeria. Furthermore, cultural and socio-economic factors may also play a role in the low uptake of HPV vaccination in this region. For instance, some communities may view vaccination as a Western construct and therefore may be sceptical of its safety and efficacy. Additionally, the cost of the vaccine, limited access to healthcare facilities, and limited awareness of its availability may contribute to low uptake. The low uptake of HPV vaccination among undergraduates in

South-South Nigeria is a significant concern because this age group is particularly vulnerable to HPV infection. Moreover, undergraduates are a critical population for vaccination because they are at an age where they are likely to engage in sexual activities that put them at risk of HPV infection. Therefore, this study aims to investigate the relationship between access to information about HPV and willingness to uptake HPV vaccination among undergraduates in South-South Nigeria.

Objectives of the Study

The general objective of this study is to investigate access to information on Human Papillomavirus (HPV) and the willingness to uptake HPV vaccination among undergraduates in South-South Nigeria. The specific objectives are:

1. To find out the respondents' level of awareness of Human Papillomavirus (HPV) Vaccination in South-South Nigeria.
2. To identify the most trusted sources through which the respondents access information about HPV Vaccination in South-South Nigeria.
3. To ascertain how the respondents' access to HPV Vaccination information influences their perception of the vaccine uptake in South-South Nigeria.
4. To assess how the respondents' access to HPV Vaccination information influences their willingness to uptake HPV vaccination in South-South Nigeria.
5. To identify the factors that influence respondents' decisions to either uptake or resist the HPV vaccine.
6. To determine the relationship between access to information about HPV and

willingness to uptake HPV vaccination among undergraduates in South-South Nigeria.

Research Questions

The following research questions guided the study:

1. What is the respondents' level of awareness of Human Papillomavirus (HPV) Vaccination in South-South Nigeria?
2. What are the most trusted sources through which the respondents access information about HPV Vaccination in South-South Nigeria?
3. How does the respondents' access to HPV Vaccination information influence their perception of the vaccine uptake in South-South Nigeria?
4. How does the respondents' access to HPV Vaccination information influence their willingness to uptake HPV vaccination in South-South Nigeria?
5. What are the factors that influence undergraduates' decisions to either accept or reject the HPV vaccine?
6. What is the relationship between access to information about HPV and willingness to uptake HPV vaccination among undergraduates in South-South Nigeria?

Research Hypotheses

The following null hypotheses were tested for the study:

- H₀₁ There is a low level of awareness about HPV among undergraduates in South-South Nigeria.
- H₀₂ The sources of information about HPV vaccination do not influence undergraduates' willingness to uptake

HPV vaccination.

H0₃ There is no significant relationship between access to information about HPV and willingness to uptake HPV vaccination among undergraduates in South-South Nigeria.

Theoretical Framework

The Theory of Planned Behaviour (TPB) is a widely used framework in health communication that predicts an individual's intention to engage in a specific behaviour. Developed by Icek Ajzen in 1991, TPB is an extension of the Theory of Reasoned Action (TRA), which was introduced by Ajzen and Fishbein in 1980. Ajzen (1991) posited that behavioural intentions are influenced by three primary factors: attitudes, subjective norms, and perceived behavioural control. Attitudes refer to an individual's positive or negative evaluations of performing a particular behaviour (Ajzen, 1991). In health communication, attitudes play a crucial role in shaping intentions to adopt healthy behaviours, such as exercising regularly or getting vaccinated (Kasdorf et al., 2020). Subjective norms refer to an individual's perception of the social pressure to perform a behaviour (Ajzen, 1991). This includes the opinions and expectations of significant others, such as family, friends, and healthcare providers (Liu et al., 2022). Perceived behavioural control (PBC) refers to an individual's belief in their ability to perform a behaviour (Ajzen, 1991). Each of these components is believed to contribute to the formation of behavioural intentions, which in turn lead to actual behaviour. The TPB suggests that if an individual has a positive attitude toward the behaviour, perceives social support, and believes they have control over the behaviour, they are more likely to intend to perform the behaviour and ultimately do so. PBC is influenced by factors such as self-

efficacy, skills, and resources (Zhang et al., 2021).

According to TPB, an individual's intention to engage in a behaviour is a function of their attitudes, subjective norms, and PBC (Ajzen, 1991). Intention, in turn, is a strong predictor of actual behaviour (Armitage & Conner, 2001). TPB has been widely applied in health communication research to predict various health behaviours, including physical activity (Hagger et al., 2020), healthy eating (Kasdorf et al., 2020), and cancer screening (Liu et al., 2022). A recent study published in the Journal of Health Communication found that TPB significantly predicted intention to get vaccinated against COVID-19 among college students (Zhang et al., 2021). Another study published in the Journal of Behavioural Medicine found that TPB predicted physical activity intentions and behaviour among adults with chronic illnesses (Hagger et al., 2020).

This theory is particularly relevant to understanding the factors influencing the willingness of undergraduates in South-South Nigeria to receive the Human Papillomavirus (HPV) vaccine. This region has seen a significant need for increased HPV vaccination due to the high incidence of HPV-related diseases, such as cervical cancer. Research indicates that positive attitudes towards HPV vaccination significantly increase the likelihood of vaccine uptake. In South-South Nigeria, educational interventions can enhance positive attitudes by emphasising the benefits of vaccination, such as preventing cervical cancer and other HPV-related diseases (Catalano et al., 2017). Subjective norms play a crucial role in vaccination decisions.

In Nigerian communities, where social

influence is strong, endorsements from family, peers, and healthcare providers can significantly impact students' intentions to get vaccinated. Studies have shown that when influential figures advocate for vaccination, it can lead to higher vaccination rates (BMC Public Health, 2023). Perceived behavioural control includes factors such as the availability of vaccines and the accessibility of vaccination centres. In South-South Nigeria, logistical barriers, including transportation challenges and vaccine availability, can hinder vaccination efforts. Enhancing perceived control by improving these factors can increase vaccine uptake (ERIC, 2017).

Educational programs targeting HPV knowledge and vaccination benefits have been found effective. For instance, interventions that use multimedia tools and interactive sessions have been shown to improve students' understanding and positive attitudes towards HPV vaccination (BMC Public Health, 2023). Multi-level interventions that combine individual education with community and healthcare provider initiatives have proven more effective than single-level interventions. This approach addresses multiple determinants of behaviour change, thus

increasing the likelihood of vaccination (BMC Public Health, 2023).

Gender differences also play a role in vaccination intentions. Studies have indicated that female students are generally more receptive to HPV vaccination than males. Tailored interventions that address gender-specific concerns and barriers can improve vaccination rates among male students (Catalano et al., 2017). Cultural beliefs and misconceptions about the HPV vaccine can influence vaccination uptake. Addressing cultural myths and providing culturally sensitive information through trusted community leaders can help mitigate these barriers (ERIC, 2017).

The Theory of Planned Behaviour provides a comprehensive framework for understanding and addressing the factors influencing HPV vaccination uptake among undergraduates in South-South Nigeria. By focusing on attitudes, subjective norms, and perceived behavioral control, health educators and policymakers can design effective interventions to increase vaccination rates and reduce the incidence of HPV-related diseases in this region.

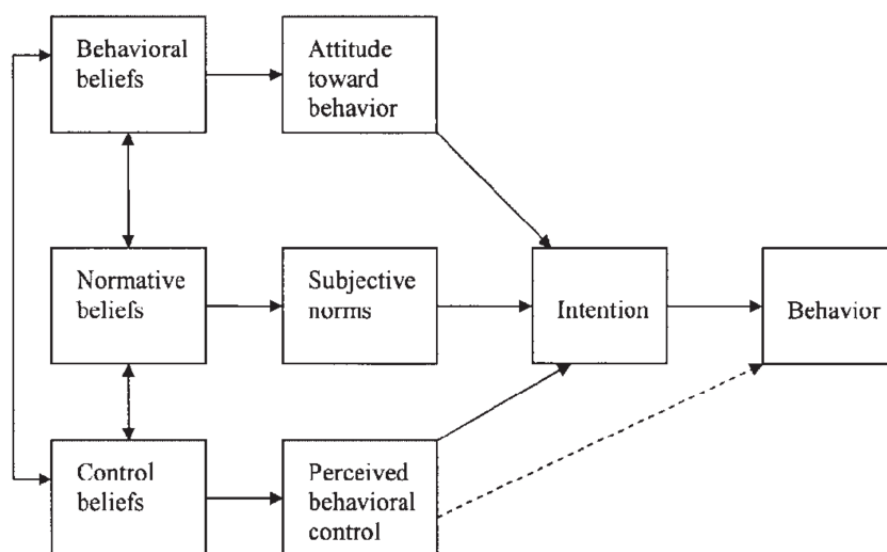


Fig 1: The Theory of Planned Behaviour (TPB). Icek Ajzen, 1991

Literature Review

Access to Information and Awareness of HPV

Awareness of HPV and its link to cervical cancer is crucial for effective prevention. Knowledge about HPV can influence health behaviours such as vaccination uptake and participation in screening programs. Oluwole (2020) emphasised that increasing public awareness is a critical step in reducing the incidence of HPV-related diseases. This underscores the need for targeted educational campaigns, particularly in regions with high cervical cancer mortality rates. In Nigeria, awareness of HPV is generally low, especially among rural populations and individuals with limited education. Also, Akinyemi (2021) revealed that less than 30% of women in rural areas had heard of HPV, and even fewer were aware of its connection to cervical cancer. This lack of awareness poses a significant barrier to the success of HPV prevention programs and highlights the need for comprehensive public health education.

Healthcare providers play a pivotal role in disseminating information about HPV. However, studies indicate that many healthcare workers in Nigeria lack adequate knowledge about HPV, which affects their ability to educate patients. According to Okoli (2022), only 60% of Nigerian healthcare workers could correctly identify HPV as a cause of cervical cancer. The study recommended enhanced training and continuous professional development to improve healthcare workers' capacity to inform and educate the public. Gender differences in HPV awareness are evident in both Nigeria and other parts of the world. Generally, women tend to have higher awareness levels than men, mainly due to targeted cervical cancer screening programs.

However, Babalola (2021) showed that Nigerian men were significantly less likely to be informed about HPV, which is concerning given that HPV also affects men and can lead to conditions such as penile and oropharyngeal cancers. This highlights the need for inclusive awareness campaigns that target all genders.

Several barriers limit access to HPV information in Nigeria, including cultural beliefs, stigma associated with sexually transmitted infections (STIs), and limited healthcare infrastructure. Uche (2023) identified cultural and religious beliefs as significant factors that discourage discussions about HPV and cervical cancer in Nigerian communities. These barriers need to be addressed through culturally sensitive health communication strategies. Education level is a critical determinant of HPV awareness. Individuals with higher education levels are more likely to be informed about HPV and its health implications. Adewale (2022) found that Nigerian women with a tertiary education were three times more likely to have heard of HPV compared to those with only a primary education. This finding underscores the need to tailor HPV awareness programs to reach individuals with lower education levels.

Media, particularly television, radio, and social media, play a significant role in disseminating information about HPV. In Nigeria, radio remains a primary source of information in rural areas, while social media is increasingly influential among younger populations. A study by Eze (2022) found that social media campaigns effectively increased HPV awareness among Nigerian youths, suggesting that leveraging multiple media channels could enhance the reach and impact of awareness efforts. There have been several HPV awareness campaigns in Nigeria and

globally, with varying degrees of success. The "Cervical Cancer-Free Nigeria" campaign, launched in 2021, aimed to increase HPV awareness and promote vaccination. Despite its efforts, an evaluation by Onwujekwe (2023) noted that the campaign faced challenges, including funding limitations and inadequate community engagement, which hindered its effectiveness. These challenges highlight the need for sustained and well-supported awareness initiatives.

Adolescents are a critical group for HPV awareness, as vaccination is most effective before the onset of sexual activity. However, awareness among this group remains low. According to Nduka (2022), only 35% of Nigerian adolescents had heard of HPV, and even fewer understood the importance of vaccination. School-based educational programs have been recommended as a strategy to increase HPV awareness among adolescents.

Globally, various initiatives have been implemented to raise HPV awareness, with some countries achieving significant success. For instance, Australia's national HPV vaccination program, combined with public education, has led to high awareness levels and a substantial reduction in cervical cancer rates. In contrast, countries like Nigeria are still in the early stages of implementing comprehensive awareness and vaccination programs, which limits their impact. NGOs have played a vital role in increasing HPV awareness, particularly in regions with limited government resources. In Nigeria, organisations like the Society for Family Health and the Nigerian Cancer Society have conducted HPV awareness and vaccination campaigns. A 2023 report by the Nigeria Cancer Society highlighted the success of

community-based education programs in increasing HPV awareness in underserved areas.

Vaccine hesitancy remains a significant barrier to HPV prevention efforts. Misinformation, fear of side effects, and distrust in vaccines contribute to low vaccination rates. A study by Adeyemo (2021) in Lagos revealed that 40% of parents were hesitant to vaccinate their daughters against HPV, primarily due to concerns about vaccine safety. Addressing vaccine hesitancy requires transparent communication and engagement with communities to build trust and dispel myths. There is a significant disparity in HPV awareness between urban and rural areas. Urban populations in Nigeria generally have better access to information and healthcare services, leading to higher levels of awareness. In contrast, rural areas, where healthcare infrastructure is often lacking, have lower awareness and higher rates of HPV-related diseases. Ogunbiyi (2022) found that HPV awareness was 25% higher in urban Lagos compared to rural Osun State, highlighting the need for targeted interventions in rural areas.

Sexual education is a vital component of HPV awareness, yet it is often inadequately addressed in Nigerian schools. Okafor (2021) highlighted the gaps in the national curriculum regarding HPV and reproductive health. The review called for the integration of comprehensive sexual education that includes information about HPV, its transmission, and prevention methods, to equip young people with the knowledge they need to protect themselves. Public-private partnerships (PPPs) have the potential to enhance HPV awareness and prevention efforts by pooling resources and expertise. In Nigeria, collaborations among the government, NGOs,

and private-sector entities have led to the successful implementation of awareness campaigns and vaccination drives. A 2023 report by the Nigeria Business Coalition against Cancer (NBCC) detailed the impact of a PPP initiative that reached over 100,000 women with HPV education and free screening services, demonstrating the effectiveness of such collaborations.

Comparing HPV awareness across different countries reveals significant disparities. While countries like Australia and the UK have achieved high levels of public knowledge about HPV through national education and vaccination programs, many LMICs, including Nigeria, lag. A 2022 global review by the World Health Organisation (WHO) highlighted that HPV awareness is lowest in regions with limited healthcare infrastructure and education, emphasising the need for global support to bridge these gaps. Improving HPV awareness in Nigeria requires a multifaceted approach. Recommendations from a 2023 policy paper by Nwosu (2023) include scaling up school-based education programs, increasing the involvement of religious and community leaders, enhancing healthcare worker training, and leveraging technology to reach underserved populations. The paper also stressed the importance of securing sustainable funding and political commitment to ensure the success of these strategies.

Thus, access to information and awareness of Human Papillomavirus (HPV) are critical components in the fight against cervical cancer and other HPV-related diseases. In Nigeria, significant progress has been made in recent years, but challenges remain. Bridging the awareness gap will require sustained efforts across multiple sectors, including healthcare,

education, and media. By learning from global best practices and adapting them to the Nigerian context, it is possible to improve public knowledge, increase vaccination rates, and ultimately reduce the burden of HPV-related diseases in Nigeria.

Methodology

This study adopted a survey research design to investigate exposure to HPV health information and willingness to uptake HPV vaccination among undergraduates in South-South Nigeria. The survey method was considered appropriate because it enabled the researcher to obtain quantitative data on the attitudes, perceptions, and behaviours of a representative sample of undergraduates across the study area. The study was conducted in nine selected universities, comprising one federal, one state, and one private university each from Delta, Edo, and Bayelsa States. The population consisted of 156,702 undergraduate students drawn from these institutions, while a sample size of 384 respondents was determined using Dusick's (2014) sample size calculator at a 95% confidence level and 5% margin of error. A multi-stage sampling procedure was employed, involving purposive selection of states and universities, cluster sampling to group respondents by state and institution, accidental sampling for questionnaire administration, and proportional sampling to allocate respondents across clusters. Data were collected using a structured questionnaire divided into sections on respondents' demographic characteristics and issues relating to HPV information access and willingness to receive vaccination.

Data Presentation

Of the 384 copies of the questionnaire distributed to respondents across the selected

universities in South-South Nigeria, 380 were completed and returned, while four were either not returned or rendered invalid due to incomplete responses. This represents a return

rate of 98.9%, which is considered highly satisfactory for survey research. The 380 valid questionnaires were subsequently used for data analysis.

Answer to Research Questions

Research Question One

What is the respondents' level of awareness of Human Papillomavirus (HPV) Vaccination in South-South Nigeria?

Table 1: Awareness of Human Papillomavirus (HPV) among Undergraduates in South-South Nigeria (N = 380)

Item	Response Options	Frequency (n)	Percentage (%)
Have you heard of HPV before?	Yes	246	64.7
	No	134	35.3
Where did you first hear about HPV?(Multiple Response)	School/University	98	25.8
	Friends/Family	42	11.1
	Media (TV, Radio, Newspapers)	65	17.1
	Social Media (Facebook, Twitter, Instagram, etc.)	121	31.8
	Health Professionals (Doctors, Nurses, etc.)	76	20.0
	Others	18	4.7
What do you know about HPV? (Multiple Response)	It is a sexually transmitted infection	132	34.7
	It can cause cervical cancer	109	28.7
	It affects both males and females	94	24.7
	There is a vaccine available to prevent HPV	88	23.2
	I do not know anything about HPV	145	38.2
Rate your knowledge about HPV (Scale 1-5)	1 – No knowledge	122	32.1
	2 – Minimal knowledge	87	22.9
	3 – Moderate knowledge	89	23.4
	4 – Good knowledge	58	15.3
	5 – Excellent knowledge	24	6.3
Are you aware of the HPV vaccine?	Yes	172	45.3
	No	208	54.7
Total		380	100.00

Source: Field Study 2025

The findings indicate that undergraduates in South-South Nigeria possess moderate awareness but limited knowledge of Human Papillomavirus (HPV) and its vaccine. While 64.7% of respondents had heard of HPV, over one-third (35.3%) had never heard of it. Social media emerged as the primary source of information (31.8%), followed by educational institutions (25.8%) and health professionals (20%), highlighting the growing influence of digital platforms in health communication. Despite this level of awareness, knowledge of HPV remained low, with only a minority correctly identifying it as a sexually transmitted infection, linking it to cervical cancer, recognizing that it affects both males and females, or knowing that a vaccine exists. Notably, 38.2% admitted having no

knowledge of HPV at all. Self-assessment of knowledge further confirmed this gap, as more than half rated their understanding as either nonexistent or minimal. Awareness of the HPV vaccine was even lower, with only 45.3% of respondents aware of its existence. Overall, the findings suggest that although many students have been exposed to information about HPV, their understanding remains inadequate, and awareness of preventive vaccination is insufficient. This underscores the need for more effective health education initiatives, particularly through universities and healthcare professionals, to provide accurate information, combat misinformation, and encourage vaccine uptake among undergraduates.

Research Question Two: What are the most trusted sources through which the respondents access information about HPV Vaccination in South-South Nigeria?

Table 2: Most Trusted Sources of Information on HPV and HPV Vaccination among Undergraduates in South-South Nigeria

Sources of Information	Frequency (Primary Sources n=380)*	Percentage (%)	Frequency(Most Trusted Sources (n=380)	Percentage (%)
School/University education programs	76	20.0	83	21.8
Health workshops/seminars	40	10.5	31	8.2
Internet/Websites	33	8.6	55	14.4
Social Media	120	31.5	44	11.5
Friends and Family	17	4.4	30	7.9
Health Professionals (Doctors, Nurses, etc.)	83	21.8	112	29.5
Television/Radio	11	2.8	25	6.7
Total	380	100	380	100

The findings reveal that undergraduates in South-South Nigeria obtain information about Human Papillomavirus (HPV) and its vaccination from a variety of sources, with social media emerging as the most common source (31.5%), followed by health professionals (21.8%) and school or university education programmes (20%). Other sources included friends and family, internet websites, traditional media, and health workshops or seminars. However, when it comes to credibility, health professionals were regarded as the most trusted source of HPV information (29.5%), followed by educational institutions (21.8%)

and internet websites (14.4%). Despite being the most frequently used source, social media was trusted by only a small proportion of respondents (11.5%), indicating a gap between information exposure and perceived reliability. Overall, the findings suggest that while digital platforms play a major role in creating awareness, students place greater confidence in information provided by healthcare professionals and educational institutions, highlighting the need to strengthen these channels while leveraging social media for wider dissemination of accurate HPV-related information.

Research Question Three

How does the respondents' access to HPV Vaccination information influence their perception of the vaccine uptake in South-South Nigeria?

Table 3: Respondents' Perceptions towards HPV Vaccination (N = 380)

Item	Response Options	Frequency (n=380)	Percentage (%)
How serious do you think HPV infection is?	Not serious	28	7.4
	Somewhat serious	71	18.7
	Serious	140	36.8
	Very serious	141	37.1
Do you believe the HPV vaccine is effective in preventing infection?	Yes	222	58.4
	No	48	12.6
	Not sure	110	28.9
Likelihood of recommending the HPV vaccine to others	Very unlikely	22	5.8
	Unlikely	39	10.3
	Neutral	76	20.0
	Likely	128	33.7
	Very likely	115	30.3
Concerns about HPV vaccine (multiple responses)	Safety of the vaccine	96	25.3
	Side effects	122	32.1
	Cost of the vaccine	88	23.2
	Efficacy of the vaccine	65	17.1
	Religious beliefs	34	8.9
	Cultural beliefs	40	10.5
	Peer pressure	28	7.4
	Lack of information	109	28.7
Total		380	100.0

The findings indicate that most undergraduates in South-South Nigeria recognise HPV as a serious health concern, with 73.9% rating the infection as serious or very serious. Although over half (58.4%) acknowledged that the HPV vaccine can prevent infection, a considerable number expressed uncertainty or doubts, reflecting gaps in vaccine knowledge and possible mistrust. The majority of respondents (64%) showed willingness to recommend HPV vaccination to others, suggesting a positive

attitude toward vaccination if adequate information and confidence are provided. However, concerns about vaccine side effects (32.1%), lack of information (28.7%), safety (25.3%), and cost (23.2%) were identified as major barriers to acceptance. Cultural and religious concerns were less common but still influential. Overall, the findings suggest that improving access to credible health information and addressing vaccine-related fears are essential for increasing HPV vaccine acceptance among undergraduates.

Research Question Four

How does the respondents' access to HPV Vaccination information influence their willingness to uptake HPV vaccination in South-South Nigeria?

Table 4: Respondents' Willingness to Uptake HPV Vaccination (N = 380)

Item	Response Option	Frequency (n)	Percentage (%)
Have you ever received the HPV vaccine?	Yes	38	10.0
	No	304	80.0
	Not sure	38	10.0
Reasons for not taking the vaccine (n = 304, multiple responses)	Lack of awareness	122	40.1
	Fear of side effects	88	28.9
	Cost of the vaccine	65	21.4
	Lack of access to the vaccine	71	23.4
	Religious or cultural beliefs	28	9.2
	Not sexually active	42	13.8
	Waiting for more information	60	19.7
	Others	15	4.9
How willing are you to take the HPV vaccine if offered free of charge?	Very unwilling	19	5.0
	Unwilling	27	7.1
	Neutral	57	15.0
	Willing	142	37.4
Would more information make you more likely to get vaccinated?	Very willing	135	35.5
	Yes	252	67.3
	No	26	6.8
	Not sure	4	4.2
Total		380	100.0

The findings show that HPV vaccine uptake among undergraduates in South-South Nigeria is very low, with only 10% of respondents vaccinated, while 80% had not received the vaccine and 10% were unsure of their status. The major barriers to vaccination were lack of awareness (40.1%), fear of side effects (28.9%), limited access to vaccines (23.4%), and cost (21.4%). Some respondents also believed vaccination was unnecessary because they were not sexually active, indicating gaps in understanding of HPV

prevention. Despite the low uptake, willingness to receive the vaccine was high, as 72% expressed readiness to take it if provided free of charge. Additionally, 67.4% indicated that more information about HPV and the vaccine would encourage them to get vaccinated. Overall, the findings suggest that improving health education, reducing financial barriers, and providing accessible vaccination services through trusted communication channels could significantly increase HPV vaccine uptake among students.

Research Question Five

What are the factors that influence undergraduates' decisions to either uptake the HPV vaccine?

Table 5: Factors Influencing Undergraduates' Decisions on HPV Vaccination (N = 380)

Item	Response Options	Frequency (n)	Percentage (%)
The most important factor influencing the decision to get the HPV vaccine	Recommendation from a healthcare professional	102	26.8
	Assurance of vaccine safety	87	22.9
	Affordability of the vaccine	68	17.9
	Peer influence	20	5.3
	Parental influence	27	7.1
	Personal research and understanding	38	10.0
	Availability and accessibility of the vaccine	29	7.6
	University policies or programs	9	2.4
Should more HPV awareness campaigns be conducted in universities?	Yes	304	80.0
	No	38	10.0
	Not sure	38	10.0
Would you participate in an HPV awareness program if organised by your university?	Yes	247	65.0
	No	38	10.0
	Maybe	95	25.0
Total		380	100

The findings reveal that healthcare professionals' recommendations (26.8%), confidence in vaccine safety (22.9%), and affordability (17.9%) are the major factors influencing undergraduates' decisions to receive the HPV vaccine. This shows that students rely heavily on professional medical advice and require assurance about vaccine safety before making vaccination decisions. Personal research and understanding (10%) also influenced decisions, while peer and parental influence, vaccine accessibility, and

university support had lesser impacts. The study further found strong support for university-based HPV awareness initiatives, as 80% of respondents recommended more awareness campaigns and 65% expressed willingness to participate in such programmes. Overall, the findings indicate that effective HPV vaccination efforts should focus on professional health communication, safety education, affordability, and increased involvement of universities in awareness and vaccination campaigns.

Research Question Six

What is the relationship between access to information about HPV and willingness to uptake HPV vaccination among undergraduates in South-South Nigeria?

Table 6: Relationship between Access to Information about HPV and Willingness to Uptake HPV Vaccination

Access to Information (Q20)	Very Unwilling n (%)	Unwilling n (%)	Neutral n (%)	Willing n (%)	Very Willing n (%)	Total n (%)
Yes (n = 285, 75.0%)	5 (1.8%)	8 (2.8%)	22 (7.7%)	120 (42.1%)	130 (45.6%)	285 (100%)
No (n = 57, 15.0%)	10 (17.5%)	15 (26.3%)	20 (35.1%)	10 (17.5%)	2 (3.5%)	57 (100%)
Not sure (n = 38, 10.0%)	6 (15.8%)	8 (21.1%)	15 (39.5%)	7 (18.4%)	2 (5.2%)	38 (100%)
Total (N = 380)	21 (5.5%)	31 (8.2%)	57 (15.0%)	137 (36.0%)	134 (35.3%)	380 (100%)

The analysis reveals a strong positive relationship between access to information about HPV and willingness to uptake HPV vaccination. Among respondents who indicated that *more information would make them more likely to get vaccinated* (75%), the majority reported being either willing (42.1%) or very willing (45.6%) to take the HPV vaccine. By contrast, those who said information would not make a difference were largely unwilling or neutral (78.9% combined), with only a small fraction very

willing (3.5%). Similarly, respondents who were “not sure” about the role of information leaned towards neutrality (39.5%) or unwillingness. This finding suggests that information access is a critical driver of HPV vaccine acceptance among undergraduates in South-South Nigeria. In other words, undergraduates who are better informed are significantly more open to vaccination. At the same time, a lack of information or uncertainty about HPV corresponds with hesitancy or rejection of the vaccine.

Test of Hypotheses

Hypothesis One

The level of awareness about HPV among undergraduates in South-South Nigeria is high.

Table 7: Test of Hypothesis One

Category	Observed (O)	Expected (E)	O – E	(O – E) ²	(O – E) ² / E
Aware	304	190	114	12,996	68.400
Not aware	76	190	-114	12,996	68.400
Total	380	380			136.800

Test statistics and decision:

- χ^2 (calculated) = **136.800**
- Degrees of freedom (df) = **1**
- Critical χ^2 ($\alpha = 0.05$, df = 1) = **3.84**
- p-value < **0.001**

Decision: Since χ^2 (calculated) = 136.800 » 3.84 and $p < 0.001$, **reject H_0** . The observed distribution of awareness (304 aware vs. 76 not aware) differs significantly from an equal

50:50 distribution. There is strong statistical evidence that the level of awareness about HPV among undergraduates in South-South Nigeria is high.

Hypothesis Two

The sources of information about HPV do not influence undergraduates' willingness to uptake HPV vaccination.

Table 8: Chi-Square Test of Independence between Sources of Information and Willingness to Uptake HPV Vaccination (N = 380)

Sources Information	Willing (O)	Not Willing (O)	Total	Expected (W)	Expected (NW)	χ^2 Contribution
School/University	60	20	80	53.7	26.3	1.48
Health Professionals	70	15	85	57.1	27.9	3.42
Social Media	50	25	75	50.4	24.6	0.01
Friends/Family	40	20	60	40.2	19.8	0.00
Media (TV/Radio)	30	20	50	33.6	16.4	0.77
Internet/Websites	20	10	30	20.1	9.9	0.00
Total	270	110	380			12.47

Test statistics and decision:

- χ^2 (calculated) = **12.47**
- df = **5**
- χ^2 (critical, 0.05) = **11.07**
- p-value = **0.029**

Decision: Reject H_0 . Thus, Sources of information have a statistically significant influence on undergraduates' willingness to uptake HPV vaccination in South-South

Nigeria.

Hypothesis Three

There is no significant relationship between access to information about HPV and willingness to uptake HPV vaccination among undergraduates in South-South Nigeria.

Table 9: Chi-Square Test of Independence between Access to Information and Willingness to Uptake HPV Vaccination (N = 380)

Access Information	Willing (O)	Not Willing (O)	Total	Expected (W)	Expected (NW)	χ^2 Contribution
Access (Yes)	240	60	300	213.2	86.8	13.22
No Access	30	50	80	56.8	23.2	27.48
Total	270	110	380			40.70

Test statistics and decision:

- χ^2 (calculated) = **40.70**
- $df = 1$
- χ^2 (critical, 0.05) = **3.84**
- **p-value < 0.001**

Decision: Reject H_0 . Thus, there is a highly significant relationship between access to information about HPV and willingness to uptake HPV vaccination among undergraduates in South-South Nigeria. Students with greater access to accurate HPV information were significantly more willing to accept the vaccine.

Discussion of Findings

The findings of this study provide important insights into the level of awareness, information access, perception, and willingness to uptake Human Papillomavirus (HPV) vaccination among undergraduates in South-South Nigeria. The study revealed that although a considerable proportion of students had heard about HPV, their knowledge of the virus and its preventive measures remained inadequate. This suggests that awareness of HPV exists within the student population; however, such awareness is often superficial and does not necessarily translate into comprehensive understanding or preventive behaviour. This finding agrees with earlier studies in Nigeria and other developing countries, which reported that young adults may have heard of

HPV but possess limited knowledge regarding its transmission, relationship with cervical cancer, and availability of vaccines. Eze et al. (2020) observed that university students in Nigeria demonstrated some level of HPV awareness but lacked adequate knowledge about its health implications and preventive options. Similarly, Makwe and Anorlu (2011) found that awareness of cervical cancer did not always translate into knowledge of HPV as the primary cause or awareness of vaccination as a preventive strategy. Comparable findings were reported by Wong et al. (2019) among university students in Malaysia, where exposure to HPV-related information was relatively high, but detailed understanding of the infection and vaccine remained limited.

The dominance of social media as the major source of HPV information among respondents reflects the changing nature of health information consumption among young adults. University students increasingly depend on digital platforms for health-related information due to their accessibility, speed, and convenience. However, while social media increases exposure, it does not always guarantee accuracy or reliability of information. The finding that students encountered HPV information mainly through social media but considered health professionals and university programmes as more trustworthy

highlights a critical distinction between information availability and information credibility. This supports the argument by Kpokiri et al. (2024) that digital platforms can contribute to health awareness but may also expose young people to misinformation, conflicting messages, and vaccine-related misconceptions. Similarly, Erim et al. (2025) noted that although online platforms provide opportunities for large-scale health communication, their effectiveness depends on the quality and accuracy of the information being disseminated. Therefore, the findings suggest that health communication interventions should not abandon digital platforms but rather integrate them with professional and institutional sources to improve trust and accuracy.

The study also revealed that healthcare professionals and university-based education programmes were regarded as the most credible sources of HPV information. This finding reinforces the important role of trusted messengers in influencing health behaviour, particularly in areas involving vaccination decisions. Health professionals are often perceived as authoritative sources because they possess medical expertise and are expected to provide evidence-based guidance. This aligns with Lawal et al. (2025) and Rume et al. (2024), who found that medical professionals significantly influence vaccine confidence among young adults in Nigeria. The recognition of universities as trusted sources also supports the argument that higher institutions are strategic environments for health promotion because they provide direct access to young adults who are at an important stage of forming health behaviours. Onasoga et al. (2025) demonstrated that structured health education programmes within Nigerian

universities improved students' understanding of HPV and positively influenced their attitudes toward vaccination. Similarly, Boateng et al. (2023) found that educational interventions among university students in Ghana increased HPV knowledge and willingness to receive the vaccine.

The findings further demonstrate that students generally recognise the seriousness of HPV infection, with many respondents acknowledging its potential health consequences. However, recognition of severity did not automatically translate into vaccination behaviour. While many students believed HPV was a serious infection and accepted that the vaccine provides protection, uncertainty regarding vaccine safety and effectiveness remained a major challenge. This reflects the broader issue of vaccine hesitancy, where individuals may acknowledge disease risks but still delay preventive action due to concerns about vaccine safety, side effects, or misinformation. Similar observations were made by Kareem et al. (2024), who noted that vaccine confidence among Nigerian young adults is often affected by doubts arising from inadequate information and misconceptions. The World Health Organisation (WHO, 2023) also identifies misinformation, lack of trust, and limited access to reliable information as major drivers of vaccine hesitancy, particularly in low- and middle-income countries.

The study's findings regarding HPV vaccine uptake reveal a significant gap between willingness and actual vaccination behaviour. Despite expressing positive attitudes toward vaccination, only a small proportion of respondents had received the HPV vaccine. This indicates that awareness and intention alone are insufficient to achieve

improved vaccine coverage. Structural and practical barriers such as cost, limited availability, and inadequate access to vaccination services continue to restrict uptake. This finding is consistent with Bruni et al. (2023), who reported that affordability and accessibility remain major determinants of HPV vaccine coverage globally, especially in developing countries. Similarly, Akinlotan et al. (2023) identified financial constraints, poor awareness, and misconceptions about eligibility as key barriers to HPV vaccination among Nigerian populations. The misconception among some respondents that HPV vaccination is unnecessary because they are not sexually active also reflects gaps in understanding about the appropriate timing of vaccination. According to WHO (2023), vaccination before exposure to HPV provides the greatest protective benefit, making awareness among adolescents and young adults particularly important.

However, the high willingness of respondents to accept the vaccine if it were provided free of charge presents an important opportunity for intervention. This suggests that many students are not opposed to HPV vaccination but are constrained by economic and informational barriers. Evidence from other settings indicates that subsidised or free vaccination programmes can significantly improve vaccine uptake among young populations. Ogembo et al. (2021) and Bhatia et al. (2023) found that reducing financial barriers through government-supported vaccination initiatives increased acceptance and coverage in low- and middle-income settings. Therefore, introducing accessible vaccination programmes within universities, possibly through partnerships between government agencies, healthcare providers, and educational institutions, could

significantly improve HPV vaccine uptake among Nigerian undergraduates.

The study further established that healthcare professional recommendation, assurance of vaccine safety, and affordability were the strongest factors influencing students' vaccination decisions. This highlights the central role of trust in vaccine acceptance. Students were more likely to consider vaccination when they received encouragement from credible medical authorities and when concerns about safety were addressed. This finding is supported by Hopkins et al. (2024), who reported that professional recommendation remains one of the strongest predictors of HPV vaccine acceptance among young adults. Similarly, Mutua et al. (2022) found that peer and professional communication significantly influenced HPV vaccination decisions among university students in Kenya. While peer and family influence were less dominant in this study, the willingness of students to recommend vaccination to others suggests that peer-led communication strategies could complement professional interventions.

Finally, the hypothesis tests confirmed that awareness, information sources, and access to HPV-related information significantly influence willingness to uptake vaccination. Students with greater access to accurate HPV information demonstrated higher willingness to receive the vaccine, while those with limited information were more likely to remain uncertain or unwilling. This supports previous research showing that health information is a key determinant of preventive behaviour. Bruni et al. (2023) emphasised that improved knowledge and effective communication strategies are essential for reducing vaccine hesitancy,

while Erim et al. (2025) highlighted the importance of structured HPV education programmes in increasing acceptance among young people. Therefore, the findings of this study reinforce the need for a comprehensive communication approach that combines social media engagement, professional health counselling, university-based education, and affordable vaccination services. Such an integrated strategy is necessary to transform HPV awareness into actual vaccination behaviour and reduce the burden of HPV-related diseases among young adults in South-South Nigeria.

Conclusion

The study concludes that access to accurate and credible information is a decisive factor influencing undergraduates' willingness to uptake the HPV vaccine in South-South Nigeria. While general awareness of HPV exists, significant knowledge gaps, misinformation, and structural barriers such as cost and availability continue to hinder actual vaccination. The findings demonstrate that willingness to vaccinate increases markedly when students are better informed, highlighting the role of health communication strategies, trusted information sources, and institutional interventions in shaping preventive health behaviours. Strengthening HPV-related education, engaging health professionals, and ensuring affordable access to the vaccine are therefore essential steps toward improving uptake and reducing the burden of HPV-related diseases among young populations.

Recommendations

Based on the findings, the following recommendations were made:

1. Universities and public health

agencies should intensify culturally sensitive HPV awareness campaigns to enhance knowledge among undergraduates.

2. HPV education should be integrated into school health curricula to provide students with structured and reliable information.
3. Health professionals should be adequately trained to deliver accurate and persuasive vaccine information that builds trust and reduces hesitancy.
4. Social media platforms should be strategically leveraged to disseminate credible HPV vaccine messages that counter misinformation.
5. University health centres and government programs should ensure accessibility and affordability of HPV vaccines through subsidies and on-campus vaccination drives.
6. IMB-guided interventions that combine accurate information, motivation, and behavioural skills training should be implemented to foster actual vaccine uptake among undergraduates.

References

- Adebayo, A. S., Smith, R. L., & Omisakin, O. A. (2020). Awareness of human papilloma virus and the vaccine among Nigerian undergraduates. *Nigerian Journal of Clinical Practice*, 23 (3), 303–309.
- Adebayo, B., & Hassan, T. (2021). Misconceptions about HPV among Nigerian undergraduates: A qualitative study. *Journal of Nigerian Health Promotion*, 15(2), 45–59.
- Aqeel, M., & Abbas, J. (2023). The digital divide and health inequalities: What

- happens to the unconnected poor during a pandemic? *Journal of Global Health*, 13, 03047.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40(4), 471–499.
- Babalola, S. A. (2023). HPV awareness and screening in Nigerian men: An underexplored population. *Men's Health Journal*, 11(1), 74–88.
- Babalola, S. F. (2021). Gender differences in HPV awareness and attitudes toward vaccination in Nigeria. *BMC Public Health*, 21(1), 1247.
- Chukwuma, E., & Nnadi, P. (2021). Integrating HPV education into Nigerian university curricula. *African Journal of Health Professions Education*, 13(3), 140–147.
- Duncan, D. T., et al. (2020). Assessing the Information-Motivation-Behavioural Skills Model to Predict Pre-exposure Prophylaxis Adherence among Black Men Who Have Sex with Men and Transgender Women in a Community Setting in New York City. *AIDS and Behavior*.
- Eze, I., & Chukwuma, J. (2024). The impact of the digital divide on health information access among rural Nigerian students. *Nigerian Journal of Digital Health*, 5(1), 56-69.
- Ferreira, J., & Costa, R. (2023). Role of influencers in promoting HPV vaccination among young adults. *Journal of Health Communication Strategies*, 6(4), 77-89.
- Garcia, M., & Lee, R. (2021). Effectiveness of peer education programs in increasing HPV knowledge. *American Journal of Health Education*, 52(2), 89-96.
- Guillon, M., & Kergall, P. (2021). Factors associated with COVID-19 vaccination intentions and attitudes in France. *Public Health*, 198, 200–207.
- Hagger, M. S., et al. (2020). A theory of planned behavior-based intervention to increase physical activity among adults with chronic illnesses: A randomized controlled trial. *Journal of Behavioral Medicine*, 43(2), 247-257.
- Hughes, J. P., Efstratiou, A., Komer, S. R., Baxter, L. A., Vasiljevic, M., & Leite, A. C. (2022). The impact of risk perceptions and belief in conspiracy theories on COVID-19 pandemic-related behaviours. *PloS One*, 17(2), e0263716.
- Idowu, O. R. (2022). "HPV and HIV co-infection in Nigerian women: Prevalence and implications for public health. *African Journal of Infectious Diseases*, 16(4), 222–234.
- Kasdorf, B. S., et al. (2020). Using the theory of planned behaviour to predict healthy eating intentions and behaviour among college students. *Journal of Health Communication*, 25(1), 34–42.
- Khan, A., & Ahmed, R. (2022). Overcoming stigma to improve HPV education in conservative communities. *Journal of Social Health and Education*, 19(3), 289–298.
- Liu, J., et al. (2022). Predicting cancer screening intentions among Chinese adults using the theory of planned behaviour. *Journal of Health Psychology*, 27(1), 33–42.
- Liu, X., & Zhang, L. (2024). Digital health literacy and HPV awareness among undergraduates in China. *Chinese Journal of Health Education*, 35(1),

67–78.

- Malik, S., Nivette, A., & Mazzoni, D. (2024). HPV vaccines among university students: Understanding barriers and facilitators of vaccine uptake to increase health equity. *Vaccines*, 12(12), 1385. ([PubMed Central](#))
- Martinez, A., & Cooper, D. (2021). Comprehensive sex education and its role in HPV awareness and prevention. *Sex Education Journal*, 14(1), 45–59.
- Miller, D., & Smith, J. (2021). Addressing HPV-related stigma in university settings: Challenges and strategies. *Journal of Health Communication Research*, 8(2), 180–192.
- Nwobodo, E. C. (2023). "Cultural beliefs and HPV awareness in Northern Nigeria: An ethnographic study. *Ethnicity & Health*, 28(4), 625–639.
- Nwosu, C., & Eze, A. (2022). Gender disparities in HPV awareness among Nigerian university Ojo, A., & Ajayi, B. (2023). Health literacy and HPV awareness among Nigerian university students. *Journal of Nigerian Educational Research*, 11(2), 123–138.
- Okonkwo, A., & Ifeanyi, E. (2022). HPV knowledge among Nigerian undergraduates: A cross-sectional study. *Journal of Health Education and Promotion*, 11(3), 256–267.
- Okonkwo, P., & Ifeanyi, C. (2022). Vaccine hesitancy among Nigerian students: A review. *Journal of Nigerian Medical Research*, 19(1), 22–33.
- Oluwole, O. S., et al. (2020). "Increasing public awareness of HPV in Nigeria: Challenges and opportunities. *Journal of Cancer Policy*, 25, 100236.
- Omozuwa, V.E., & Eghafona, K. (2020). The Sociocultural Barriers to HPV Vaccination in Nigeria. *Social Science & Medicine*, 256, 113020.
- Onwujekwe, O. E., (2023). Evaluation of the 'Cervical Cancer-Free Nigeria' campaign: Lessons learned and future directions. *BMC Health Services Research*, 23(1), 405.
- Peters, M., & Kim, S. (2022). Integrating HPV vaccination into university health services: Lessons from the US. *Journal of College Health*, 70(4), 234–245.
- Regasa, T., et al. (2023). Human papillomavirus knowledge, perception, and willingness to receive vaccination among female students in Addis Ababa University. *Global Pediatric Health*, 10, Article 2333794X231193554.
- Silva, D., & Pereira, M. (2022). Health communication strategies for HPV awareness in European universities. *Journal of European Health Communication*, 7(3), 74–87.
- Singh, R., & Gupta, P. (2024). Financial barriers and HPV education among Indian undergraduates. *Indian Journal of Health Economics*, 9(1), 89–101.
- Srivastava, T., et al. (2024). A systematic review of student vaccine attitudes and behaviors. *Journal of American College Health* (2024). ([Taylor & Francis Online](#))
- Taylor, M., & Roberts, N. (2021). The digital divide and HPV awareness among low-income students in the UK. *British Journal of Digital Health*, 9(3), 88–100.
- Tremblay, M., Roy, E., & Gagnon, M. (2023). The role of Canadian primary care providers in educating undergraduates

- about human papillomavirus. *Canadian Journal of Public Health*, 114(1), 75-82.
- Uche, P. E., (2023). "Cultural barriers to HPV vaccination in Nigeria: An ethnographic study." *Global Public Health*, 18(5), 718-729.
- Uzochukwu, B. S., (2023). The need for dedicated research centers for HPV and STIs in Nigeria: A strategic proposal. *African Health Sciences*, 23(1), 112-121.
- Walker, D., & Mitchell, E. (2023). Strategies for engaging young adults in HPV education through social media. *Journal of Social Media Health Promotion*, 12(1), 55-70.
- Wang, Y., (2020). Predicting physical activity intentions among Chinese adults using the theory of planned behavior. *Journal of Cross-Cultural Psychology*, 51(6), 537-548.
- WHO. (2022). HPV vaccination rates and strategies. *World Health Organization*.
- Wilson, R., Carter, J., & Stone, M. (2023). Inconsistent HPV information: A barrier to student awareness in Australia. *Australian Journal of Health Education*, 11(2), 90-103.
- World Health Organization. (2022). "Global review of HPV awareness and vaccination uptake." *WHO Bulletin*, 100(2), 89-98.
- Zhang, Y., et al. (2021). Using the theory of planned behavior to predict COVID-19 vaccination intentions among college students. *Journal of Health Communication*, 26(1), 43-51.
- Zungu, N., & Moyo, S. (2023). Perceived necessity and resistance to HPV vaccination among South African university students. *South African Journal of Public Health*, 18(2), 102-115.