

AWARENESS OF HUMAN PAPILOMA VIRUS VACCINE AMONG ADOLESCENT GIRLS AT JUNIOR SECONDARY SCHOOLS IN IZZI, EBONYI STATE, NIGERIA

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Article History	Abstract
Received: 11 June 2025 Accepted: 02 August 2025 Published: 06 November 2025	Human Papillomavirus (HPV) is a major public health concern, particularly due to its association with cervical cancer and other HPV-related diseases. This study examined the level of awareness of the HPV vaccine among adolescent girls in Junior secondary schools in Izzi Local Government Area of Ebonyi State. The study involved adolescent students (9 – 19 years old) in Junior secondary schools in Izzi Local Government Area of Ebonyi State. A cross-sectional descriptive survey research design was applied for the study with a sample size of 376 students. A stratified random sampling technique was applied to select the sample for the study. The data was analyzed using IBM statistical package for the Social Sciences (SPSS) version 27 and MS Excel 2021. The findings reveal a significant lack of awareness, with 68.5% of students demonstrating poor awareness of HPV and its vaccine. Schools were identified as the primary source of HPV information (55.4%), while healthcare professionals played a minimal role (5%). Level of awareness was moderate (32.9%). Logistic regression analysis indicated that older students and those from rural areas had higher awareness of HPV. The study conclude that there is a significant gap in awareness of HPV among students, emphasizing the need for targeted interventions. The study recommends integrating HPV-related information into school curricula, conducting a targeted outreach program, and utilizing social media, public health messaging, and collaboration with community leaders to increase awareness of HPV vaccination.
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Introduction

Human papillomavirus (HPV) is a common sexually transmitted infection which can affect the skin, genital area and throat. Human Papillomavirus (HPV) is a major public health concern, particularly due to its association with cervical cancer and other HPV-related diseases. Almost all sexually active people will be infected at some point in their lives, usually without symptoms. In most cases the immune system clears HPV from the body. Persistent infection with high-risk HPV can cause abnormal cells to develop, which go on to become cancer. Persistent HPV infection of the cervix (the lower part of the uterus or womb, which opens into the vagina – also called the birth canal) if left untreated, causes 95% of cervical cancers. Typically, it takes 15–20 years for abnormal cells to become cancer, but in women with weakened immune systems, such as untreated HIV, this process can be faster and take 5–10 years (Agida et al., 2015). Risk factors for cancer progression include the grade of oncogenicity of the HPV type, immune status, the presence of other sexually transmitted infections, number of births, young age at first pregnancy, hormonal contraceptive use, and smoking (Stelzle et al,2020).

In Nigeria, only very few and limited studies have assessed the knowledge of in-school young persons on HPV and HPV vaccines. Therefore, it will be of huge public health benefit if the prevalence and predictors of knowledge of young people in Nigeria on HPV and HPV vaccine are known, as such information will go a long way in helping the Nigerian government and other relevant stakeholders on how to develop, promote, and implement public health policies/ programs that will mitigate the community spread of the virus among them and also encourage their uptake of HPV vaccine. Cervical cancer is a major health problem globally, especially in sub- Saharan Africa, Nigeria inclusive. One of the preventive measures is the vaccination of teenagers against oncogenic human papilloma virus (Agida et al., 2015). Globally, cervical cancer is the fourth most common cancer in women, with around 660,000 new cases in 2022. In the same year, about 94% of the 350 000 deaths caused by cervical cancer occurred in low- and middle-income countries. The highest rates of cervical cancer incidence and mortality are in sub- Saharan Africa (SSA), Central America and South- East Asia (CDC,2022). Regional differences in the cervical cancer burden are related to inequalities in

access to vaccination, screening and treatment services, risk factors including HIV prevalence, and social and economic determinants such as sex, gender biases and poverty. Cervical cancer disproportionately affects younger women, and as a result, 20% of children who lose their mother to cancer do so due to cervical cancer (WHO,2024) Cervical cancer is one of the leading killers of women. It claims the life of one woman every two minutes – in 2020 cervical cancer killed 342,000 women, 90% of whom lived in low- and middle-income countries (WHO,2023). These figures are doubly tragic because the majority were caused by a common infection that is now preventable. A vaccine against this virus has been available for nearly two decades, yet coverage worldwide remains low. Coupled with programmes for screening and treatment of pre-cancer, it has the potential to finally eliminate cervical cancer worldwide (WHO,2024). The HPV vaccine is the most effective way of preventing cervical cancer. The World Health Organization recommends that the vaccine is given to girls between the age of nine and 14 (CDC, 2022). The main aim of this work is to investigate the level of awareness of Human Papiloma Virus vaccine among adolescent girls in junior secondary schools in Izzi LGA. While, the objectives of this project are to ascertain the level of awareness of Human Papiloma Virus Vaccine among Junior secondary school girls in Izzi LGA, Ebonyi State.

Hypothesis

H01: There is no significant association between sociodemographic factors (age, religion, location, academic status) and the level of awareness of HPV and HPV vaccines among Adolescent Girls in Junior Secondary Schools in Izzi LGA, Ebonyi State.

Research Methodology

The design of this study was a cross-sectional descriptive survey research design. The population of study comprised of all female adolescents from JSS1 to JSS3 in the junior secondary schools in Izzi LGA, Ebonyi State which amount to 6400 students as gotten from the central register of Izzi L.G.A Education Authority. Sample size determination for cross sectional studies was used for this research. Therefore, the sample size for this study was 376 subjects. Purposive sampling technique, which is a non-probability sampling method was used for the selection of the female adolescent students across the secondary schools from Junior Secondary

School (JSS) 1 to 3 from ages 9 to 19 years. A questionnaire was developed by the researcher for the study. It was administered directly to the respondents by the researcher. The questionnaire went through face and content validation by the supervisor, a data analyst and a senior professional colleague who are well grounded in research and data analysis. There was a pilot study using 4 selected schools in Abakaliki Local Government Area to test the reliability of the questionnaire. The reliability of the instrument was also determined with test-re-test, and internal consistency of 0.87 was obtained. Data was collected using Researcher-administered questionnaire after obtaining ethical approval and necessary permission from the school authority and L.G.A. Education Authority. Data that was generated from the study was sorted and analysed using IBM statistical package for the Social Sciences (SPSS) version 27 and MS Excel 2021. Descriptive statistical method such as percentage distribution and charts were used for the analysis. Data was presented in figures, frequency tables and percentages. Hypotheses was tested using Chi square test at $P \leq 0.05$.

Results

This chapter presents the results of the data analysis along with their interpretations. A total of three hundred and seventy-six (376) questionnaires were shared, all were returned, and three hundred and sixty-eight (368) was properly filled and fit for analysis. As a result, the response rate was 97.9%. The findings are presented using tables and charts where relevant.

Table 1: Socio-demographic characteristics of the students(n= 368)

Variable	Frequency	Percentage
Age (years)		
09-11	46	12.5
12 - 14	283	76.9
15 & above	39	10.6
Grade/class		
JSS1	86	23.4
JSS2	201	54.6
JSS3	81	22
Religion		
Christianity	347	94.3
Islam	16	4.3
Traditional Religion	5	1.4
Parent/guardian Occupation		
Professional (e.g. doctor, teacher)	90	24.5
Business/Trade	133	36.1

Civil servant	82	22.3
Farmer	47	12.8
Others (Doctor, police, etc)	16	4.3
Location		
Urban	164	44.6
Semi-Urban	83	22.6
Rural	121	32.9
Parent's Education Status		
None	33	
FSLC	52	14.1
SSCE	155	42.1
OND	28	7.6
B. Degree	100	27.2

The sociodemographic characteristics of the students are shown in Table 1. The majority of students (76.9%) are aged 12-14 years, with fewer students in the 9-11 years (12.5%) and 15 years and above (10.6%) categories. Most students (54.6%) are in JSS2, followed by 23.4% in JSS1 and 22% in JSS3. Christianity is the dominant religion, with 94.3% of students identifying as Christians, while 4.3% are Muslims and 1.4% practice Traditional Religion. In terms of parental occupations, 36.1% are involved in business or trade, 24.5% are professionals, 22.3% are civil servants, 12.8% are farmers, and 4.3% work in other fields like law enforcement and medicine. Geographically, 44.6% of students live in urban areas, 32.9% in rural areas, and 22.6% in semi-urban areas. Regarding parents' education levels, 42.1% have SSCE qualifications, 27.2% hold a Bachelor's degree, 14.1% completed FSLC, 9% have no formal education, and 7.6% possess an OND.

Table 2: Awareness of HPV and HPV Vaccine among the Students (n = 368).

Awareness items	Frequency	Percentage
Awareness of the Human Papillomavirus (HPV)		
Yes	121	32.9
No	247	67.1
Sources of information about HPV.	0	0
School	67	55.4
Parents/Guardians	24	19.8
Television/Radio	20	16.5
Social media	3	2.5
Health Professional	6	5
Others (Facebook)	2	1.6
Knowledge about HPV.		

It is a virus	39	32.2
It causes warts	3	2.5
It can cause cervical cancer	21	17.4
I don't Know	61	50.4
Mode of transmission of HPV.	Multiple Response	
Through sexual contact	33	10.7
From mother to baby	13	10.7
Sharing personal item (e.g, towels)	9	7.4
I don't know	87	71.9
Groups affected by HPV		
Only women	33	32.9
Both men and women	88	
Awareness of the HPV vaccine.		
Yes	81	66.9
No	40	33.1
Sources of information about the HPV Vaccine		
School	41	45.6
Parents/Guardians	3	3.3
Friends	1	1.1
Television/Radio	13	14.4
Social media	7	7.8
Health professionals	21	23.3
Others (please specify)	84	93.3

The awareness of Human Papillomavirus (HPV) and its vaccine among students as shown in Table 2 reveals that 121 (32.9%) are aware of HPV, while 247 (67.1%) are not. Among those informed, the primary source of information is school, accounting for 67 (55.4%), followed by parents/guardians at 24 (19.8%), television/radio at 20 (16.5%), health professionals at 6 (5%), social media at 3 (2.5%), and others, such as Facebook, at 2 (1.6%). Regarding knowledge, 39 (32.2%) correctly identify HPV as a virus, 21 (17.4%) recognize its link to cervical cancer, 3 (2.5%) associate it with warts, while 61 (50.4%) do not know what it is. When asked about transmission, 87 (71.9%) are unsure, whereas 13 (10.7%) believe it spreads through sexual contact, 13 (10.7%) think it transfers from mother to baby, and 9 (7.4%) suspect sharing personal items as a mode of transmission. Concerning affected groups, 88 (72.7%) understand that both men and women can be infected, while 33 (27.3%) believe only women are affected. Awareness of the HPV vaccine is reported by 81 (66.9%), while 40 (33.1%) are unaware. The main

sources of vaccine information include schools at 41 (45.6%), health professionals at 21 (23.3%), television/radio at 13 (14.4%), social media at 7 (7.8%), parents/guardians at 3 (3.3%), friends at 1 (1.1%), and others at 84 (93.3%).

Table 3: Level of awareness of HPV and HPV Vaccine among the Students (n=368)

S/N	Items	
1	Poor Awareness	68.5%
2	High Awareness	31.5%

The result in figure 4.1 shows the level of awareness of HPV and HPV Vaccine among the students. The level of awareness of HPV and the HPV vaccine among students was graded by adding all the component measures of awareness and scoring the correct answers '1' and the wrong '0'. At the end the result was summed and revealed that 252 students (68.5%) had poor awareness (scoring below 50%), while 116 students (31.5%) demonstrated high awareness (scoring 50% or higher).

Table 4: Associations between socio-demographic variables and level of awareness of HPV and HPV Vaccine among the Students (n = 368)

Characteristics	Level of Awareness		Total n(%) n=368	χ^2	P-Value
	Poor n(%) n=252	Good n (%) n=116			
Age (Years)					
09-11	45(17.9)	1(0.9)	46(12.5)	24.453	<0.001
12-14	187(74.2)	96(82.8)	283(76.9)		
15 & above	20(7.94)	19(16.4)	39(10.6)		
Grade/Class					
JSS1	83(32.9)	3(2.6)	86(23.4)	48.036	<0.001
JSS2	111(44)	90(77.6)	201(54.6)		
JSS3	58(23)	23(19.8)	81(22)		
Religion					
Christianity	245(97.2)	102(87.9)	347(94.3)	16.122	<0.001
Islam	7(2.8)	9(7.8)	16(4.3)		
Traditional Religion	0(0)	5(4.3)	5(1.4)		
Parent/guardian Occupation					
Professional (e.g, 4)	64(25.4)	26(22.4)	90(24.5)	3.157	0.532

doctor, teacher)					
Business/ Trade	90(35. 7)	43(37. 1)	133(3 6.1)		
Civil servant	60(23. 8)	22(19)	82(22. 3)		
Farmer	28(11. 1)	19(16. 4)	47(12. 8)		
Others (Doctor, police, etc)	10(4)	6(5.2)	16(4.3)		
Location					
Urban	114(4 5.2)	50(43. 1)	164(4 4.6)	5.95 0	0.05 1
Semi-urban	64(25. 4)	19(16. 4)	83(22. 6)		
Rural	74(29. 4)	47(40. 5)	121(3 2.9)		
Parent' Education Status					
None	31(12. 3)	2(1.7)	33(9)	22.3 48	<0.0 01
FSLC	28(11. 1)	24(20. 7)	52(14. 1)		
SSCE	96(38. 1(59(50. 9)	155(4 2.1)		
OND	19(7.5)	9(7.8)	28(7.6)		
B. Degree	78(31)	22(19)	100(2 7.2)		

Table 5: Logistics regression of the associations between socio-demographic variables and level of knowledge of HPV and HPV Vaccine among the Students (n = 368)

Characteristics	aOR	P-value	95% C.I [lower- Upper]
Age (Years)			
09-11	1		
12-14	13.869	0.016	1.633 to 117.785
15 & above	32.377	0.003	3.283 to 319.343
Grade/Class			
JSS1	1		
JSS2	43.349	0	12.124 to 154.992
JSS3	12.788	0	3.376 to 48.439
Parent/guardian Occupation			
Professional (e.g, doctor, teacher)	1		
Business/Trade	11.933	0.005	2.097 to 67.906

Civil servant	4.641	0.062	0.925 ton23.282
Farmer	4.302	0.114	0.706 to 26.233
Others (Doctor, police, etc)	2.635	0.245	0.514 to 13.521
Location			
Urban	1		
Semi-urban	0.601	0.217	0.268 to 1.348
Rural	1.466	0.242	0.773 to 2.78
Parent' Education Status			
None	1		
FSLC	8.4	0.02	1.395 to 50.569
SSCE	3.456	0.143	0.657 to 18.181
OND	3.427	0.195	0.533 to 22.038
B. Degree	1.853	0.48	0.335 to 10.244

The association between socio-demographic variables and the level of awareness of HPV and the HPV vaccine among students revealed significant differences as shown in Table 4.5. Age showed a strong association with awareness ($\chi^2 = 24.453$, $p < 0.001$), as students aged 12-14 years had the highest proportion of good awareness (82.8%), followed by those aged 15 and above (16.4%), while only 0.9% of students aged 9-11 had good awareness. Similarly, grade level significantly influenced awareness ($\chi^2 = 48.036$, $p < 0.001$), with JSS2 students having the highest level of good awareness (77.6%), whereas JSS1 students had the lowest (2.6%).

Religion was also a significant factor ($\chi^2 = 16.122$, $p < 0.001$), as Christianity was predominant among students with poor awareness (97.2%), while those practicing traditional religion (4.3%) had only good awareness. Parental education level significantly impacted awareness ($\chi^2 = 22.348$, $p < 0.001$), with students whose parents had no formal education showing the highest percentage of poor awareness (12.3%), whereas those whose parents had SSCE (50.9%) or FSLC (20.7%) exhibited better awareness. Interestingly, students with parents holding a Bachelor's degree had a higher proportion of poor awareness (31%) compared to good awareness (19%).

Location showed a borderline significance ($\chi^2 = 5.950$, $p = 0.051$), with students from rural areas having higher good awareness (40.5%) than those

in urban (43.1%) or semi-urban areas (16.4%). However, parental occupation did not significantly influence awareness ($\chi^2 = 3.157$, $p = 0.532$), indicating that the type of profession had minimal impact on students' knowledge of HPV and its vaccine.

The logistic regression analysis of the associations between socio-demographic variables and the level of knowledge of HPV and the HPV vaccine among students revealed significant predictors. Age was a strong determinant of knowledge, with students aged 12-14 years being 13.87 times more likely to have good knowledge compared to those aged 9-11 (aOR = 13.869, $p = 0.016$, 95% CI: 1.633 – 117.785). Similarly, students aged 15 and above were 32.38 times more likely to have good knowledge than those aged 9-11 (aOR = 32.377, $p = 0.003$, 95% CI: 3.283 – 319.343). Grade level was also a key factor, with JSS2 students being 43.35 times more likely to have good knowledge than JSS1 students (aOR = 43.349, $p < 0.001$, 95% CI: 12.124 – 154.992), while JSS3 students were 12.79 times more likely to have good knowledge compared to JSS1 students (aOR = 12.788, $p < 0.001$, 95% CI: 3.376 – 48.439).

Moreso, parental occupation significantly influenced knowledge, particularly for students whose parents were in business or trade, as they were 11.93 times more likely to have good knowledge compared to those with professional parents (aOR = 11.933, $p = 0.005$, 95% CI: 2.097 – 67.906). However, students whose parents were civil servants (aOR = 4.641, $p = 0.062$), farmers (aOR = 4.302, $p = 0.114$), or in other occupations (aOR = 2.635, $p = 0.245$) were not significantly more or less likely to have good knowledge compared to those with professional parents. Location did not significantly predict knowledge, as students from semi-urban areas were less likely to have good knowledge than those from urban areas (aOR = 0.601, $p = 0.217$), while rural students were 1.47 times more likely to have good knowledge than urban students (aOR = 1.466, $p = 0.242$), though both results were not statistically significant.

Finally, parental education status played a role, with students whose parents had an FSLC being 8.4 times more likely to have good knowledge than those whose parents had no formal education (aOR = 8.4, $p = 0.020$, 95% CI: 1.395 – 50.569). However, students whose parents had SSCE (aOR = 3.456, $p = 0.143$), OND (aOR = 3.427, $p = 0.195$), or a Bachelor's degree (aOR = 1.853, $p = 0.480$) were not

significantly more or less likely to have good knowledge than those whose parents had no formal education.

Discussion

The study found that HPV awareness among students was generally low, with significant gaps in knowledge about the vaccine and its transmission. Many students were unaware of the mode of transmission, and only a small percentage knew that the HPV vaccine existed. This lack of awareness is concerning, as it may contribute to low vaccine uptake and preventable HPV-related diseases. The findings align with previous research showing poor HPV knowledge, particularly among men. Studies have indicated that many people, especially men, are unaware of the HPV vaccine, making them less likely to seek information from healthcare providers. This highlights the need for targeted awareness campaigns to address these gaps. Interestingly, while awareness levels were higher in the studied population compared to some Middle Eastern countries, there is still considerable room for improvement. Schools were identified as the main source of HPV information, followed by parents and media. However, health professionals played a minimal role in providing information, which contrasts with findings from high-income countries where healthcare providers are the primary source of such information. The study also identified that age and parental occupation were significant factors in HPV awareness. Older students had higher levels of awareness, which aligns with research from Ghana and Malaysia, where older students demonstrated better knowledge. Additionally, students whose parents worked in business or trade showed higher awareness compared to those with professional parents, indicating that parental occupation may influence knowledge acquisition. Interestingly, the study found no significant difference in HPV awareness based on location, with students from urban, semi-urban, and rural areas having similar levels of awareness. This contrasts with findings from Ethiopia, where rural students exhibited lower levels of knowledge, suggesting that regional factors may influence awareness levels.

Limitations of the Study

The study was limited by financial resources, restricting the scope of data collection and analysis. Furthermore, the respondents were hesitant to provide complete or honest data due to concerns about confidentiality, fear of judgment, or potential

repercussions for reporting discrepancies in practices.

Conclusion

This study highlights a significant gap in awareness of the HPV vaccine among students, emphasizing the need for targeted interventions. The findings indicate that a majority of students have poor awareness of HPV and its vaccine, with schools being the primary source of information and healthcare professionals playing a minimal role in awareness dissemination. Age and parental occupation significantly influence awareness with older students and those whose parents are engaged in business or trade demonstrating better awareness and a more positive outlook toward HPV vaccination.

Recommendations:

To improve HPV vaccine awareness and uptake, the following recommendations should be implemented:

- Integrate HPV-related information into school curricula to ensure students receive accurate and consistent knowledge about the virus and its vaccine.
- Conduct targeted outreach programs to educate both students and parents, addressing misconceptions and emphasizing the benefits of HPV vaccination.
- Encourage healthcare providers to actively participate in school outreach programs and community engagement to provide credible, science-based information.

Conflict of interest:

The authors declare no conflict of interest.

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