

# Healthcare Workers' Knowledge, Perception, and Willingness to Accept HPV Vaccination for Their Children: Implications for Advocacy

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## Abstract

**Background:** Human papillomavirus (HPV) vaccination is a key strategy for preventing cervical cancer and other HPV-related malignancies. With the recent introduction of HPV vaccine into Nigeria's routine immunization programme, healthcare workers play a critical role in influencing uptake through advocacy and recommendation. This study assessed healthcare workers' knowledge, perception, and willingness to vaccinate their children against HPV, and examined predictors of vaccine advocacy. **Methods:** A descriptive cross-sectional analytical study was conducted among 255 healthcare workers at Benue State University Teaching Hospital, Makurdi, Nigeria, between April 2025 and February 2026. Data were collected using a structured self-administered questionnaire assessing sociodemographic characteristics, knowledge (HPV-KQ), perception (adapted HPV Attitudes and Beliefs Scale), willingness to vaccinate one's child, and advocacy practices. Descriptive statistics, chi-square tests, and multivariable logistic regression were performed using SPSS version 27. Statistical significance was set at  $p < 0.05$ . **Results:** The mean age of respondents was  $36.4 \pm 9.9$  years, and 69.0% were female. Good knowledge of HPV and vaccination was observed in 78.0% of participants, while 87.1% demonstrated positive perception. Overall, 82.7% were willing to vaccinate their child against HPV, and 55.3% reported routine engagement in vaccination advocacy. Perception was strongly associated with willingness ( $\chi^2 = 30.411$ ,  $p < 0.001$ ). After adjustment, positive perception remained the only independent predictor of willingness (AOR = 6.12, 95% CI: 2.54–14.71,  $p < 0.001$ ). Willingness to vaccinate one's child independently predicted engagement in advocacy (AOR = 3.32, 95% CI: 1.59–6.92,  $p = 0.001$ ). Knowledge was not independently associated with willingness or advocacy. **Conclusion:** Although healthcare workers demonstrated good knowledge and high willingness to accept HPV vaccination for their children, perception emerged as the strongest determinant of vaccine acceptance and advocacy. Interventions aimed at strengthening healthcare workers' confidence and attitudes toward HPV vaccination may enhance advocacy efforts and improve vaccine uptake in Nigeria.

**Keywords:** Human papillomavirus- HPV vaccine- healthcare workers- vaccine perception- willingness- advocacy- Nigeria

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## Introduction

Sexually transmitted infections (STIs) have a profound impact on sexual and reproductive health worldwide [1]. More than 1 million curable STIs are acquired every day, with one of the commonest causative organisms

being Human Papilloma Virus (HPV) [1]. Although most HPV infections are transient, persistent infection with oncogenic types can lead to precancerous lesions and cancer [2]. Many HPV serotypes can infect the

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anogenital area, but HPV 16 and HPV 18 are responsible for approximately 50% of high-grade cervical dysplasias and 70% of cervical cancer cases [1, 2].

Cervical cancer is the fourth most common cancer in women worldwide and the second most common female cancer in women aged 15-44 years old worldwide [3]. In 2022, approximately 660,000 new cases and around 350,000 deaths were attributed to cervical cancer globally. It is the second most common cancer in Nigeria and among the female population in the country; it is the most common cancer. In 2022, Nigeria reported 13,676 new cases of cervical cancer and 7,093 deaths [4].

Cervical cancer though deadly, is largely preventable through HPV vaccination, screening, and early treatment [5]. In October 2024, the human papillomavirus (HPV) vaccine was introduced into the routine immunization system in Nigeria. Girls aged 9–14 years are recommended to receive a single dose of the HPV vaccine, which has been shown to be highly effective in preventing infection with HPV types 16 and 18, the strains responsible for the majority of cervical cancer cases [6]. Given the substantial burden of HPV-related diseases, vaccination at this age provides a critical opportunity for primary prevention before exposure to the virus. However, despite the availability and proven effectiveness of the vaccine, its uptake remains inadequate in many settings [6].

Globally, vaccine hesitancy remains a major driver of suboptimal vaccination uptake and coverage. It has been defined as the delay in acceptance or refusal of vaccination despite the availability of vaccination services [7]. Among the factors contributing to hesitancy, inadequate knowledge and misconceptions are consistently reported and may be addressed through sustained public education and awareness campaigns aimed at improving parental confidence in vaccines [8]. This is particularly important among healthcare workers, whose knowledge and attitudes strongly influence vaccine acceptance among parents.

Evidence indicates that healthcare professionals, who are expected to encourage immunization, may also experience reluctance or encounter barriers that hinder their advocacy efforts. Nguyen et al. found that Nigerian nurses, doctors, pharmacists, and other healthcare workers face major challenges to becoming vaccinated, such as lacking sufficient knowledge about vaccines, concerns about vaccine availability, and the cost [9]. A systematic review by Bakare et al. reviewed seventy-three studies related to healthcare workers' confidence in HPV vaccination and their recommendation practices. It identified safety concerns, doubts about efficacy, cost, parental resistance, and structural challenges within the health system as significant barriers to recommendations [10]. Fernandes et al. also found that healthcare personnel with higher levels of knowledge and more positive attitudes were much more likely to recommend the HPV vaccine to patients, and this reiterates the link between personal confidence and professional advocacy [11]. Negative attitudes or poor acceptability among healthcare workers may be a sign of underlying knowledge deficiencies or misconceptions, therefore undermining their effectiveness as vaccine advocacy. Health worker's

willingness to vaccinate their children could serve as a pragmatic measure of their confidence in the vaccine and their preparedness to engage in much-needed advocacy for it to others. Hence, the study is aimed to evaluate the knowledge, perceptions, and willingness of healthcare professionals at Benue State University Teaching Hospital, Makurdi, Nigeria, to accept HPV vaccination for their children.

## Materials and Methods

### *Study Design and Setting*

This study was a descriptive cross-sectional analytical study conducted among healthcare workers practicing in Benue State University Teaching Hospital, Makurdi, Nigeria from 1<sup>st</sup> April 2025 to 28<sup>th</sup> February 2026. The hospital is a 360-bed capacity tertiary health care institution which serves as a referral centre for primary and secondary care hospitals within Benue, and neighbouring states. It was selected for this study because, as a tertiary centre with a diverse workforce comprising multiple healthcare professional cadres, it provides a suitable setting for assessing knowledge, perception, and practices among healthcare workers. The institution has approximately 2,000 healthcare workers across various professional cadres. Makurdi is the state capital and has a population of about 405,500 people projected from the 2006 national population census figures [12].

### *Study Population*

The study population comprised healthcare workers (doctors, nurses and midwives, pharmacists, and other allied healthcare professionals) practicing in the selected facilities at the time of data collection. Eligible participants were those who consented to participate in the study. Healthcare workers who were unavailable during the study period or who returned incomplete questionnaires were excluded from the final analysis.

### *Sample Size Determination*

The sample size was calculated using the Kish-Leslie formula for cross-sectional studies [13].

$$n = (Z^2 Pq) / d^2$$

Where n is the desired sample size and Z is the standard normal deviation usually set at 1.96, which corresponds to the 95% confidence interval and 0.05 degree of accuracy (d). The proportion (P) of women who accepted HPV vaccination for their teenage daughters was 81.8% from a study in Lagos [14]. To compensate for non-response, 10% was assumed as the attrition factor. Therefore, the minimum sample size was 255 participants.

### *Sampling method*

The hospital personnel unit provided a list of the medical personnel in each department. Then a multistage sampling technique to stratify the health workers into different departments or cadre. Followed by proportional allocation to determine the actual number of respondents

to be sampled in each cadre i.e. number of respondents in each dept / total clinical staff x sample size. Then convenience sampling was used such that eligible participants were recruited consecutively until the calculated number in each department was reached.

#### Data Collection

Data were collected using a structured, self-administered questionnaire which consisted of four sections. Prior to the main study, the questionnaire was pre-tested among a small group of staff in a health facility with similar characteristics to the study setting. Sociodemographic characteristics, such as age, sex, profession, years of professional experience, and previous training on HPV vaccination were assessed in the first section.

The second section assessed knowledge of HPV and HPV vaccination. Seven questions adapted from the HPV Knowledge Questionnaire (HPV-KQ) [15] was used to evaluate participants' understanding of the cause of cervical cancer, mode of HPV transmission, recommended age for vaccination, vaccination eligibility for boys, diseases prevented by the vaccine, number of doses required for full protection, and whether HPV vaccination is part of the routine immunization programme. Each correct response was scored 1, while incorrect or "don't know" responses were scored 0, giving a total score range of 0–7. Participants who scored  $\geq 4$  were adjudged to have good knowledge, while those who scored  $\leq 3$  were classified as having poor knowledge.

The third section assessed perception toward HPV vaccination using a five-point Likert-scale ranging from strongly disagree (1) to strongly agree (5). These items evaluated perceptions regarding vaccine safety, effectiveness, concerns about promoting early sexual activity, trust in information provided by health authorities, and belief in recommending the vaccine to patients. These were adapted from the HPV Attitudes and Beliefs Scale (HABS), a psychometrically-tested scale of HPV attitude and beliefs among parents [16]. For positively framed items, responses of "agree" and "strongly agree" were considered positive, while reverse was applied for negatively framed statements. Participants with three or more positive responses were classified as having a positive perception, while those with less than three positive responses as having a negative perception. The fourth section assessed willingness to vaccinate one's child, routine counselling practice (used as a proxy for engagement in HPV advocacy). Perceived barriers and suggested interventions were also assessed.

#### Data Analysis

Data were entered, cleaned, and analyzed using the Statistical Package for Social Sciences (SPSS) version 27 (IBM Corp., Armonk, NY, USA). Descriptive statistics was used to summarize categorical variables using frequencies and percentages. Bivariate analysis was performed using chi-square tests to examine associations between independent variables and outcome variables, including knowledge level, perception level, willingness to vaccinate, and engagement in advocacy. Variables that

were significant at the bivariate level or were considered clinically relevant were entered into multivariable logistic regression models to identify independent predictors. Adjusted odds ratios (AORs) with 95% confidence intervals were reported. Statistical significance was defined as  $p < 0.05$ .

#### Ethical Considerations

Ethical approval was obtained from the Health Research Ethics Committee of Benue State University Teaching Hospital prior to the commencement of the study (Reference No: BSUTH/MKD/HREC/2025/117, approved on 10th March 2025). Participation was voluntary, and informed consent was obtained from all participants. Confidentiality and anonymity were maintained throughout the study. No identifying information was collected, and data were used for research purposes only.

## Results

A total of 255 healthcare workers participated in the study. The mean age of respondents was  $36.4 \pm 9.9$  years. The largest proportion were aged 30–39 years (31.4%), followed by those younger than 30 years (27.8%) and those aged 40–49 years (27.1%), while 13.7% were aged 50 years and above (Table 1). Most participants were female (69.0%). Nurses and midwives constituted the majority (62.7%), followed by doctors (19.6%), other healthcare professionals (12.5%), and pharmacists (5.1%).

Regarding years of professional experience, 36.5%

Table 1. Sociodemographic Characteristics of Healthcare Workers (N = 255)

Variable/Category	n	%
Age (Years)	Mean = 36.4	SD = 9.9
<30	71	27.8
30–39	80	31.4
40–49	69	27.1
$\geq 50$	35	13.7
Sex		
Male	79	31
Female	176	69
Profession		
Doctor	50	19.6
Nurse/Midwife	160	62.7
Pharmacist	13	5.1
Other	32	12.5
Years of Experience		
$\leq 5$ years	93	36.5
6–10 years	62	24.3
11–15 years	39	15.3
>15 years	61	23.9
Received Training on HPV Vaccination		
Yes	85	33.3
No	170	66.7

Table 2. Willingness, Practices, Perceived Barriers and Suggested Interventions Regarding HPV Vaccination Among Healthcare Workers (N = 255)

Variable/Category	n	%
Willingness to vaccinate own child against HPV		
Yes	211	82.7
No	23	9
Unsure	21	8.2
Routinely Engaged in Vaccination Advocacy		
Yes	141	55.3
No	114	44.7
Perceived Barriers to HPV Vaccine Uptake		
Lack of awareness	205	80.4
Limited vaccine accessibility	74	29
Misinformation	71	27.8
Religious/cultural resistance	38	14.9
Others	6	2.4
Suggested Interventions to Improve HPV Vaccine Acceptance		
Training Programs	165	64.7
Community Engagement	128	50.2
Research to address concerns	62	24.3
Policy enforcement	56	22
Others	6	2.4

HPV = Human Papilloma Virus

had five years or less experience, 24.3% had 6–10 years, 15.3% had 11–15 years, and 23.9% had more than 15 years of experience. Only one-third (33.3%) reported having received formal training on HPV vaccination.

As shown in Figure 1, the majority of respondents demonstrated good knowledge of HPV infection and vaccination, with 199 (78.0%) classified as having good knowledge ( $\geq 4$  correct responses), while 56 (22.0%) had poor knowledge. Similarly, most healthcare workers had a positive perception toward HPV vaccination; 222 (87.1%) were classified as having positive perception, while 33 (12.9%) had negative perception.

With respect to willingness and practice (Table 2), 211 (82.7%) respondents were willing to vaccinate their own child against HPV, while 23 (9.0%) were unwilling and 21 (8.2%) were unsure. Over half (55.3%) reported engaging in routine vaccination advocacy. The most commonly barrier participants perceived against HPV vaccine uptake was lack of awareness (80.4%), followed by vaccine inaccessibility (29.0%), misinformation (27.8%), and religious or cultural resistance (14.9%). The most frequently suggested intervention to improve HPV vaccine uptake was organizing more training programs (64.7%), followed by community engagement (50.2%), conducting research to address identified concerns (24.3%), and policy enforcement (22.0%).

Table 3 shows that age of participants was significantly associated with willingness to vaccinate their child ( $p = 0.005$ ). Healthcare workers aged below 30 years had the highest willingness rate (90.1%), whereas those aged 50 years and above had the lowest willingness (62.9%) and the highest refusal rate (25.7%). Years of experience

were also significantly associated with willingness ( $p < 0.001$ ). Respondents with five years or less experience had the highest willingness (91.4%), while those with more than 15 years' experience had lower willingness (73.8%) and higher refusal rates (19.7%). Sex, profession, and receipt of formal HPV vaccination training were not significantly associated with willingness ( $p > 0.05$ ). The knowledge level was not significantly associated with willingness to vaccinate ( $p = 0.633$ ). In contrast, perception level was strongly associated with willingness ( $\chi^2 = 30.411$ ,  $p < 0.001$ ). Healthcare workers who had positive perception were significantly more willing to vaccinate their child (87.4%) compared to those who had a negative perception (51.5%).

Multivariable logistic regression analysis (Table 4) showed that after adjusting for age and years of experience, perception level remained the only independent

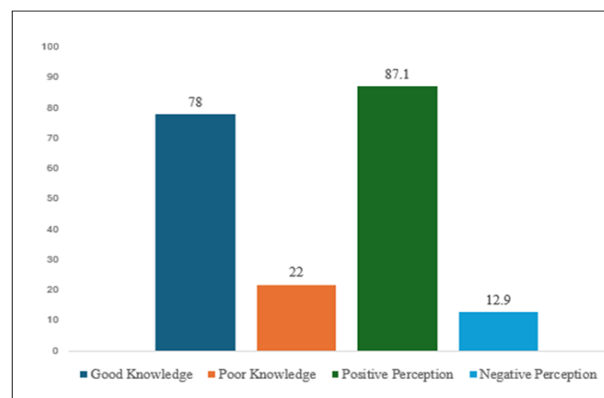


Figure 1. Knowledge and Perception HPV Vaccination Among Healthcare Workers (N = 255)

Table 3. Association Between Sociodemographic Characteristics, and Knowledge, Perception and Willingness to Vaccinate Child Against HPV Among Healthcare Workers (N = 255)

Variable / Category	Willingness to Vaccinate Child Against HPV Among Healthcare Workers			$\chi^2$	p-value
	No n (%)	Yes n (%)	Unsure n (%)		
Age (Years)					
< 30	1 (1.4)	64 (90.1)	6 (8.5)	18.805	0.005*
30–39	6 (7.5)	67 (83.8)	7 (8.8)		
40–49	7 (10.1)	58 (84.1)	4 (5.8)		
≥ 50	9 (25.7)	22 (62.9)	4 (11.4)		
Sex					
Male	3 (3.8)	71 (89.9)	5 (6.3)	4.669	0.097
Female	20 (11.4)	140 (79.5)	16 (9.1)		
Profession					
Doctor	2 (4.0)	42 (84.0)	6 (12.0)	6.949	0.326
Nurse/Midwife	19 (11.9)	129 (80.6)	12 (7.5)		
Pharmacist	0 (0.0)	13 (100.0)	0 (0.0)		
Other	2 (6.3)	27 (84.4)	3 (9.4)		
Years of Experience					
≤ 5	1 (1.1)	85 (91.4)	7 (7.5)	26.943	<0.001*
6–10	8 (12.9)	52 (83.9)	2 (3.2)		
11–15	2 (5.1)	29 (74.4)	8 (20.5)		
> 15	12 (19.7)	45 (73.8)	4 (6.6)		
Received Training on HPV Vaccination					
Yes	4 (4.7)	77 (90.6)	4 (4.7)	5.507	0.064
No	19 (11.2)	134 (78.8)	17 (10.0)		
Knowledge Level					
Good	17 (8.5)	167 (83.9)	15 (7.5)	0.915	0.633
Poor	6 (10.7)	44 (78.6)	6 (10.7)		
Perception Level					
Positive	17 (7.7)	194 (87.4)	11 (5.0)	30.411	<0.001*
Negative	6 (18.2)	17 (51.5)	10 (30.3)		

\*Statistically significant at  $p < 0.05$ ; HPV = Human Papilloma Virus;  $\chi^2$  = Chi Square

predictor of willingness to vaccinate. Healthcare workers with positive perception were over six times more likely to vaccinate their child compared to those with negative perception (AOR = 6.12, 95% CI: 2.54–14.71,  $p < 0.001$ ). Age and years of experience were not independently associated with willingness after adjustment ( $p > 0.05$ ). On the other hand, willingness to vaccinate one's child was the only independent predictor of engagement in HPV advocacy. Healthcare workers who were willing to vaccinate their child were more than three times more likely to engage in advocacy compared to those who were unwilling or unsure (AOR = 3.32, 95% CI: 1.59–6.92,  $p = 0.001$ ). Knowledge and perception were not independently associated with advocacy engagement after adjustment ( $p > 0.05$ ).

## Discussion

This study examined healthcare workers' knowledge, perception, willingness to vaccinate their children against HPV, and engagement in advocacy in a tertiary hospital in North-Central Nigeria. Participants were

predominantly female and largely nurses and midwives, reflecting workforce patterns reported in other African settings [17]. Only one-third had received formal HPV vaccination training, consistent with evidence of limited structured training in Nigeria [18]. Similar associations between demographic characteristics and knowledge or acceptance have been reported in Egypt and Ghana [17, 19]. This suggests that even in tertiary centres, structured professional development on HPV vaccination is not universal. For advocacy to be sustained, continuing professional education must be institutionalised.

The high proportion of respondents with good knowledge aligns with findings from Anambra State, where 91.6% demonstrated adequate knowledge [20]. In contrast, healthcare workers in Abakaliki demonstrated only moderate knowledge scores, with gaps regarding vaccination details [21]. The difference between their findings and ours may be explained by variations in measurement scales. Our study utilised a cut-off that defined good knowledge, whereas the Abakaliki study used a 21-item scoring system, potentially setting a higher threshold for knowledge. Studies conducted outside

Table 4. Multivariable Logistic Regression Analysis

Predictor	Adjusted OR	95% CI for AOR	p-value
Factors Associated with Willingness to Vaccinate Child Against HPV			
Age in Years (Ref: < 30)			0.675
30–39	0.95	0.31 – 2.97	0.934
40–49	0.88	0.23 – 3.34	0.85
≥ 50	0.49	0.11 – 2.25	0.357
Years of Experience (Ref: ≤ 5)			0.418
6–10	0.44	0.15 – 1.30	0.137
11–15	0.51	0.14 – 1.90	0.312
> 15	0.37	0.10 – 1.43	0.149
Perception (Ref: Negative)			<0.001*
Positive	6.12	2.54 – 14.71	<0.001*
Factors Associated with Participants' Engagement in HPV Advocacy			
Knowledge (Ref: Poor)			0.664
Good	1.15	0.62 – 2.12	0.664
Perception (Ref: Negative)			0.388
Positive	1.43	0.64 – 3.21	0.388
Willingness to Vaccinate Child (Ref: No/Unsure)			<0.001*
Yes	3.32	1.59 – 6.92	<0.001*

\*Statistically significant at  $p < 0.05$ ; OR = Odds Ratio; CI = Confidence interval; Ref = Reference

Nigeria reported varied knowledge levels. Among nurses and midwives in Ghana, less than half had high knowledge of cervical cancer risk factors [17]. Similarly, Egyptian obstetricians and gynaecologists showed poor-to-fair knowledge [19], while in the United States, persistent knowledge gaps were found among health workers despite having established HPV programmes [11]. These contrasts suggest that knowledge gaps are not limited to resource-poor settings but may reflect broader issues related to continuing education, competing priorities, and changing vaccine schedules.

Positive perception was strongly associated with willingness to vaccinate and remained the only independent predictor (AOR 6.12). This corroborates findings that provider confidence in vaccine safety and cancer prevention drives recommendation behaviour [10, 11]. In contrast, studies in Egypt and Ghana reported more negative or mixed attitudes [17, 19]. The difference may be attributed to methodological differences. In this study, perception was measured using structured Likert-scale items adapted from the HPV Attitudes and Beliefs Scale (HABS) [16], while other studies used different questionnaires. Whichever method was used, perception represents a more proximal determinant of behaviour than knowledge. Training programmes and other educational interventions must therefore prioritise confidence-building strategies that will result in behavioural changes, rather than just impacting knowledge about vaccines.

In our study, 82.7% of respondents were willing to vaccinate their own child. This willingness is comparable to 81.4% of Anambra State health workers who showed willingness [20], and in Lagos, where 81.8% of women accepted HPV vaccination for their teenage daughters [14]. However, the Abakaliki study reported lower support

for vaccinating boys compared to girls [21]. This gender disparity mirrors findings from the global parental review, where acceptance was higher for daughters than sons [22]. Although our study did not disaggregate by child sex, the broader literature suggests that HPV vaccination continues to be viewed as a female-focused intervention. In Ghana, vaccine uptake among nurses and midwives was low (17.6%) despite some level of acceptance [17]. This highlights the gap between stated willingness and actual vaccination behaviour. The scoping review of Nigerian cervical cancer policy found weak implementation structures and limited access, which likely contribute to this gap [18]. Our finding that younger healthcare workers and those with fewer years of experience were more willing mirrors the Egyptian study, where younger physicians were more likely to prescribe HPV vaccination [19]. Younger professionals may have received more recent curriculum exposure to HPV vaccination. However, after adjustment, these factors were no longer significant in our model, underscoring the dominant role of perception. The implication is that fostering positive perception across all age groups may neutralise generational differences and standardise advocacy behaviour.

Knowledge was not significantly associated with willingness, whereas perception was strongly associated and independently predictive (AOR 6.12). This finding contrasts with the Abakaliki study, which demonstrated a positive correlation between knowledge and vaccine acceptance [21]. Similarly, in Anambra State, a weak but significant correlation was observed between knowledge and willingness [20]. The divergence may stem from our study's adjustment for age and years of experience in multivariable regression, which potentially attenuating the knowledge-willingness relationship. After a systematic

review of healthcare worker practices, Bakari et al emphasizes that vaccine confidence, rather than knowledge alone, is central to recommendation behaviour [10]. This aligns with our finding. Another study also recognises that attitudes often mediate the knowledge–practice pathway [23]. This means that educational strategies that focus solely on knowledge may fail to influence behaviour. Interventions must intentionally build trust, professional responsibility, and personal conviction in order to improve acceptability and advocacy amongst healthcare workers.

Willingness to vaccinate one's child was the only independent predictor of engagement in advocacy (AOR 3.32). This finding is consistent with global evidence that healthcare worker personal endorsement predicts stronger vaccine recommendation behaviour [10]. Fernandes et al. similarly found that providers who strongly believed in vaccine benefits were more likely to strongly recommend it [11]. This pattern reflects a well-documented phenomenon that personal health behaviours influence professional counselling behaviour [24]. When healthcare workers imbibe the value of a vaccine, advocacy becomes authentic and persuasive. This means strengthening personal vaccine confidence among healthcare workers may indirectly improve uptake.

Lack of awareness was the most commonly identified barrier, followed by inaccessibility and misinformation. These findings mirror global evidence from the parental review, where fear of adverse effects and misinformation were dominant barriers [22]. The systematic review of recommendation practices also identified safety concerns, cost, and systemic barriers as major obstacles [10]. In Nigeria, the scoping review documented weak policy support and poor organised screening infrastructure [18]. Another Nigerian study identified barriers such as lacking sufficient knowledge about vaccines, concerns about vaccine availability, and the cost [9]. Our respondents' call for more training programmes and community engagement reflects recognition of systemic gaps. This implies that HPV advocacy requires a multipronged approach. Professional education must be combined with public enlightenment campaigns, improved vaccine supply chains, and supportive policy frameworks.

The study has a few limitations. Its cross-sectional design limits the ability to establish causal relationships between variables. In addition, self-reported responses may be influenced by social desirability bias and recall bias may have occurred as participants relied on memory when responding to some questions. There is also a possibility of selection bias due to the use of consecutive sampling, as participants were recruited based on availability during the study period. Furthermore, because the study was conducted in a single tertiary health facility, the findings should be generalized to other settings with caution.

In conclusion, healthcare workers demonstrated good knowledge, strong positive perception, and high willingness to vaccinate their children against HPV. Perception was the key determinant of willingness, and personal willingness predicted advocacy engagement. Strengthening healthcare workers' confidence and

attitudinal commitment is critical to improving HPV vaccine advocacy and uptake. Improving healthcare workers' engagement in HPV vaccination programmes could therefore contribute significantly to increasing vaccine coverage and reducing the burden of HPV-related diseases, particularly cervical cancer, at the population level. We, therefore, recommend, regular continuing professional education on HPV vaccination should be institutionalised, with emphasis on vaccine safety and communication skills. Interventions should focus on building confidence, not only knowledge. Ensuring vaccine availability and supporting healthcare workers as community advocates will enhance uptake and contribute to cervical cancer prevention efforts.

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#### *Conflict of Interest Statement*

The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

#### *Author Contributions*

UMA conceived and designed the study. UMA, MOA, SOO, and IEE participated in data collection and data analysis. RNA, YMT, and SOI contributed to manuscript drafting and critical revision of the manuscript. All authors read and approved the final version of the manuscript.

#### *Ethical Approval*

Ethical approval was obtained from the Health Research Ethics Committee of Benue State University Teaching Hospital (BSUTH/MKD/HREC/2025/117; approved 10 March 2025). Written informed consent was obtained from all participants prior to participation.

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