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■ Original Research Article

Awareness, Knowledge and Acceptability of Human Papilloma Virus Vaccination Among Women Attending Antenatal Clinics in Zaria, Northwestern Nigeria.

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ABSTRACT

Background: Cervical cancer remains a major cause of mortality in Sub-Saharan Africa despite being a preventable disease. Human Papilloma Virus (HPV) vaccine is an effective primary preventive strategy for cervical cancer prevention. Nigeria has rolled out HPV vaccine at grassroot level. Thus, there is need to assess the level of awareness and acceptance of the vaccine. **Objectives:** The study assessed awareness and acceptability of Human Papilloma Virus vaccination among women attending antenatal clinics in Zaria. Factors that influence such were explored. **Materials and Methods:** It was cross sectional descriptive study. Sample size was 435. It was conducted between December 2022 and July 2023 among women attending antenatal care Primary, Secondary and Tertiary health care facilities in Zaria Metropolis. Data was obtained using both quantitative and qualitative approach. **Results:** The mean age of respondents was 27.9 (± 6.1) years, 48% engaged in trade with only 2.5% working in health and allied profession. Only 67 (15.4%;) were aware of HPV vaccine; of which, only 3 (4.5 %) respondents had good knowledge. More were willing to vaccinate their female than their male children (86.6% versus 71.6%), however the difference was not statistically significant. Women with higher educational level were more willing to pay or travel to vaccinate their children (p =0.0031 and 0.0521 respectively). Lack of adequate information about the vaccine and safety concerns were major barriers to acceptability. **Conclusion:** Awareness of HPV vaccine is low, and knowledge is poor among the respondents. Acceptance was high among respondents that were aware of the vaccine.

Keywords: HPV vaccine, awareness, acceptability, antenatal attendees

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INTRODUCTION

Human papilloma virus (HPV) is the commonest sexually transmitted infection worldwide[1]. Prevalence among sexually active individuals has been reported to be as high as 80%.[1] HPV is associated with various types of cancers which include cervical cancer, anal cancer and oesophageal cancers.[2] It is a major public health problem in many nations worldwide. HPV has more than 100 strains and serotypes.[2] This is important because some strains are associated with malignant diseases while some are associated with benign diseases. Cervical cancer is one of the cancers that the aetiology is known. HPV infection is documented as a cause of more than 95% of cases of squamous cell carcinoma of the cervix.[3] The International Agency for Research on Cancer (IARC) reported 604,127 new cases of cervical cancer and 342,000 deaths in its 2020 cancer statistics.[4] Cervical cancer was also reported as the fourth most frequently diagnosed and fourth leading cause of cancer in women worldwide. However, based on the same report by the IARC, cervical cancer is the most commonly diagnosed cancer in 28 countries of Sub-Saharan Africa and South Eastern Asia.[4] Cervical cancer also has the highest regional incidence and mortality in Africa. Cervical cancer is the commonest gynaecological cancer in many parts of Nigeria and second to breast cancer in some parts.[4]

The picture is however different in countries with high human development index where they have been able to control the disease by routine screening over the past decades.[1] Lack of screening programmes is a major challenge in our environments.[5] This is coupled with inadequate manpower to screen and manage precancerous lesions of the cervix. Screening is at most opportunistic in our environment and patients that get to be screened are just the tip of an iceberg.

HPV vaccine provides an opportunity for prevention of cervical cancer in our environment. This is more so due to the lack of national protocol for screening. Vaccination will not only prevent cervical cancer but may also prevent the occurrence of premalignant diseases of the cervix there by saving cost for treatment. HPV vaccine is less invasive than the screening methods that are presently available and as such may be acceptable in regions where screening methods are already acceptable. Nigeria has an existing national programme for immunisation which can be leveraged on to offer HPV Vaccine.

Studies have shown that that awareness and acceptability of HPV vaccines is quite low in most low socio-economic regions of the world.[6,7] This is worrisome because such regions are worse hit by the disease.[4] Health care providers are at a position to inform the women that present to them for health care service about HPV vaccine. Information can be disseminated through health talk in antenatal clinics, gynaecology clinics, immunisation centres and even general outpatient clinics.

The Society of Obstetricians and Gynaecologist of Nigeria has released a guideline for the prevention of cervical cancer in Nigeria.[8] The use of prophylactic vaccination for HPV is part of the primary prevention method for cervical cancer. Also, Nigeria has rolled out a national HPV vaccination programme in 2023. Thus, we conducted this study to determine the awareness and acceptability of HPV vaccine among women attending antenatal clinics across all cadre of health facilities in Zaria Metropolis.

MATERIAL AND METHODS

Study Design

The study was a cross sectional descriptive study conducted from December 2022 to July 2023. Both quantitative and qualitative methods were used to obtain data. The quantitative approach was used to obtain details of sociodemographic profile of respondents and assess awareness, knowledge and acceptability while the qualitative approach explored the factors that affect acceptability.

Study Area

The study was conducted in Zaria metropolis of Kaduna state across all the three (3) categories of health facilities where antenatal care and immunisation services are available. Ahmadu Bello University Teaching Hospital is the only tertiary Hospital within the area and was thus selected. Hajiya Gambo Sawaba general hospital and Major Ibrahim Bello general hospital were the selected secondary health facilities. Three primary health care centres, namely Primary Health Care Centre Babban Dodo, Primary Health Care Centre Samaru and Comprehensive health centres Sabongari were chosen based on the high patient load and their locations to ensure wide coverage within the study area.

Sampling Technique

The sample size for the quantitative aspect of the study was calculated using Fishers Formula with prevalence from a similar study done in Kano[7] which is in the same geopolitical zone with the study area. A sample size of 435 was obtained. The sample was proportionately divided across the study sites based on the average

antenatal attendees seen in the various centres. Purposive sampling was used for the qualitative aspect of the study to select participants that were aware of HPV vaccine and volunteered to participate in the focus group discussion. All clients that presented to the selected health facilities during the study period were assessed for eligibility. Those that were eligible were sampled consecutively for the quantitative data.

Attrition rate of 10% was anticipated and alpha level of significance was set at $p \leq 0.05$.

Data Collection

The was collected between December 2022 and July 2023 among women attending antenatal care in one tertiary, two secondary and three primary health care centers in Zaria Metropolis. Mixed method of data collection was used.

The inclusion criterion for the study was awareness of cervical cancer among the pregnant women attending antenatal clinics in the selected hospitals. Quantitative data was obtained using Open Data Kit (ODK) open-source mobile data collection platform. The sociodemographic profile of the clients, awareness of HPV vaccine and acceptability was obtained by the researchers through one-on-one interview with the participants. Focus Group Discussion was used to obtain the qualitative data. Knowledge of HPV vaccine was also assessed. A total score of ≥50% for questions that were asked about HPV vaccine was adjudged good knowledge while a score of <50% was adjudged poor knowledge.[9] Focus group discussion (FGD) was conducted for data collection for the qualitative arm of the study. Only participants that were aware of HPV vaccine participated in the Focus group discussions. A total of 19 clients participated in the FGD. The research team included the principal investigator/ researcher, lead moderator, note taker and a recorder (tape recording).

A structured focus discussion guideline was used to obtain data. The guideline was translated to Hausa and then back to English for quality assurance. Each group discussion was conducted in Hausa language. One of the research team members introduced the research team and consent was taken from each participant before starting the FGD. Adequate rapport was created to encourage maximum co-operation from participants.

A total of three (3) FGD were conducted at PHC Babban Dodo, PHC Samaru and Hajiya Gambo Sawaba General Hospital. The average number of participants per PHC was 6 and an average of 45 minutes was spent during each session. The discussions were tape recorded and transcribed verbatim.

Data Analysis

The quantitative data obtained was transferred to Excel spread sheet and then exported to SPSS version 23.0 where it was analysed. Inferential statistics was done using students t-test and Chi square test for quantitative and qualitative data respectively. Level of significance was set at $p < 0.05$.

The qualitative data from the FGD was transcribed verbatim and analysed into themes. This was done by the investigators. The themes were acceptability of HPV vaccine, factors that affect acceptability and willingness to vaccinate females and/or male children and ways to improve HPV vaccine awareness and uptake were also explored.

Ethical approval was obtained from the Health Research Ethics Committees of Kaduna State Ministry of Health (MOH/ADM/744/VOL.1/925-NHREC/17/03/2018) and Ahmadu Bello University Teaching Hospital, Zaria (DUNS NUMBER: 954524802-ABUTH/HREC/CL/05-NHREC/10/12/2015).

RESULTS

The mean age of respondents was 27.9 ± 6.1 years. The Median parity was 3.1 (IQR 4). Business women made up 48% of the respondents. A total of 67 (15.4%) of respondents were aware of HPV vaccine. The main source of information was Television and radio in 22 (32.8%) of respondents. However, only 3 (4.5 %) respondents had good knowledge. Awareness was significantly higher among Christians ($p = 0.009$), Igbo tribe ($p = 0.03$) and women that visit tertiary health care centre ($p=0.004$). (Table 2). However, when the result was subjected to multivariate analysis, the association was not significant for Christianity and the Igbo tribe but persisted for type of health care facility and respondents that visit primary and secondary health facilities for ANC were 61% less likely to be aware of HPV vaccine than those who visit tertiary health facilities ($p= 0.014$). (Table 4.)

Good knowledge was significantly more among respondents that heard about cervical cancer from a health facility ($p = 0.04$). Acceptability of HPV vaccine was high with 58 (86.6%) willing to vaccinate their female children and 48 (71.6%) willing to vaccinate their male children. Also, women with good knowledge were significantly ($p = 0.001$) more willing to accept the vaccine for their children. Respondents who have completed tertiary education were significantly more willing to pay for their children to get vaccinated ($p = 0.003$).

For the qualitative data, the first theme explored acceptability of HPV vaccine.

It revealed that most of the respondents were willing to accept the vaccine with only few that were not really willing or unwilling. Some of their responses are as follows:

Table 1: Sociodemographic Profile of Participants.

Variable	Frequency (n=435)	percentage
Age (years)		
<20	27	6.2
20-29	230	52.9
30-39	154	35.4
40-49	24	5.5
Tribe		
Hausa	337	77.5
Fulani	30	6.9
Yoruba	17	3.9
Igbo	8	1.8
Others	43	9.9
Religion		
Islam	396	91.0
Christianity	39	9.0
Level of education		
Quranic	35	8.0
Some primary school	11	2.5
Primary school completed	35	8.0
Some junior Secondary school	15	3.4
Junior Secondary School completed	39	9.0
Some senior secondary school	28	6.4
Senior secondary school completed	133	30.6
Some tertiary school	29	6.7
Tertiary school completed	110	25.3
Occupation		
Business	209	48.0
Handcraft/Artisan	93	21.4
Health allied workers	11	2.5
Teaching/Lecturing	30	6.9
Not Employed	64	14.7
Others	28	6.4
Health Center Visited		
Primary	140	32.2
Secondary	154	35.4
Tertiary	141	32.4

"Vaccination is good for protection. I have been taking all my children for vaccination without any problems. I am sure this one is also good' (23years, FGD 1, Number 2).

"I have heard about it in the radio but I have never seen anyone that has given his child that vaccination even in this hospital. I don't know if I can give it or not" (35 years, FGD 3, Number 5)

Also, majority were willing to vaccinate both male and female children while some were willing to vaccinate only their female children. Some of their responses were:

"Why not. If the vaccine is for both males and females like the other childhood vaccines, I will take them for the vaccine" (31years, FDG 2, Number 1)

"I am just thinking why should I give my male children since the cancer affects only females" (29years, FGD 1, number 5)

Table 2: Awareness and Knowledge of HPV Vaccine among respondents

Variable	Awareness (n=435)			Knowledge (n=67)		
	Yes	No	P value	Good	Poor	P value
Age						
<20	4 (14.8)	23 (85.2)	0.19	0 (0)	4 (100)	0.11
20-29	37(16.1)	193 (83.9)		0 (0)	37 (100)	
30-39	19 (12.3)	135 (87.7)		2 (10.5)	17 (89.5)	
40-49	7 (29.2)	17 (70.8)		1 (14.3)	6 (85.7)	
Tribe						
Hausa	46(13.6)	291 (86.4)	**0.03***	2 (4.3)	44 (95.7)	0.91
Yoruba	3 (17.6)	14 (82.4)		0 (0)	0 (0)	
Igbo	4 (50.0)	4 (50)		0 (0)	0 (0)	
Others	14 (19.2)	59 (80.8		1 (7.1)	13 (92.9)	
Religion						
Islam	55(13.9)	341 (86.1)	**0.009***	2 (3.6)	53 (96.4)	0.48
Christianity	12(30.8)	27(69.2)		1 (8.3)	11 (91.7)	
Education						
Islamic	4 (11.4)	31 (88.6)	0.21	0 (0)	4(100)	0.96
Some primary school	0 (0)	11(100)		0	0	
Primary school completed	4 (11.4)	31 (88.6)		0 (100)	4(100)	
Some junior Secondary school	3 (20.0)	12 (80.0)		0 (100)	3(100)	
Junior Secondary School completed	8 (20.5)	31 (79.5)		0 (100)	8(100)	
Some senior secondary school	2 (7.10	26 (92.9)		0 (100)	2(100)	
Senior secondary school completed	18 (13.5)	115 (86.5)		1 (5.6)	17 (94.4)	
Some tertiary school	3 (0.3)	26 (89.7)		0 (100)	3(100)	
Tertiary school completed	25 (22.7)	85 (77.3)		2 (8.0)	23 (92.0)	
Occupation						
Business	34(16.3)	175 (83.7)		1 (2.9)	33 (97.1)	
Handcraft/Artisan	8 8.6)	85 (91.4)		0 (0)	8 (100)	
Health allied workers	4 (36.4)	7 (63.6)		0 (0)	4 (100)	
Teaching/Lecturing	7 (23.3)	23 (76.7)		1 (14.3)	6 (85.7)	
Not Employed	9 (14.1)	55 (85.9)		1 (11.1)	8 (88.9)	
Others	5 (17.9)	23 (82.1)		0 (0)	5 (100)	
Health Center						
Primary	26(18.6)	114(81.4)	**0.004***	1 (3.8)	24 (96.2)	0.48
Secondary	12(7.8)	142(92.2)		0 (0)	12 (100)	
Tertiary	29(20.6)	112(79.4)		2 (6.9)	27 (93.1)	

* Statistically significant

"From my understanding, the problem of the uterus starts from interaction between male and female, so if you block it from the side of the male and also block it from the side of the female, it is more likely to lead to prevention of the problem" (35years, FGD 3, number 1)

"Boys may receive but it is better to give females" (39years, FGD 3, number 3)

The second theme explored factors that affect acceptability and willingness to take HPV vaccines for

their children. Among reasons for not accepting the vaccine, lack of adequate knowledge about the vaccine was prominent. Some respondents also expressed unwillingness to accept the vaccine because they have never seen any woman that has vaccinated her children with HPV vaccine while others mentioned concerns about safety profile.

"I don't know much about this vaccine so it will be difficult for me to decide now. I just heard about it in the radio and I can't even remember most of the things they said about it. I don't know the other problems it can cause" (36years, FDG 2, Number 2)

"This decision is beyond me. You see I have to talk to my husband about it and if he asks me more about it, I don't know what to say" (32years, FGD 2, Number 3)

"Even in this hospital they don't talk to us about it but they give other vaccines to our children" (35years, FDG 3, Number 4)

Table 3: Acceptability of HPV Vaccine

Variable	Acceptability for Female children (n=67)				Acceptability for Male children (n=67)			
	Not willing	Somehow willing	Willing	P value	Not willing	Somehow willing	Willing	P value
Age								
<20	0 (100)	0 (100)	4 (100)	0.72	0 (0)	0 (0)	4 (100)	0.23
20-29	2 (5.4)	4 (10.8)	31 (83.8)		3 (8.1)	5 (13.5)	29 (78.4)	
30-39	0 (0)	2 (10.5)	17 (89.7)		4 (21)	5 (26.3)	10 (52.6)	
40-49	1 (14.3)	0 (0)	6 (85.7)		2 (28.4)	0 (0)	5 (71.7)	
Tribe								
Hausa	3 (6.5)	4 (8.7)	39 (84.8)	0.81	6 (13)	7 (15.2)	33 (71.7)	0.78
Yoruba	0 (0)	0 (0)	3 (100)		0 (0)	0 (0)	3 (100)	
Igbo	0 (0)	0 (0)	4 (100)		2 (14.2)	3 (21.4)	9 (64.3)	
Others	0 (0)	2 (14.3)	12 (85.7)		1 (25)	0 (0)	3 (75)	
Religion								
Islam	3 (5.5)	65(9.1)	47 (85.5)	0.84	6 (9.4)	9 (16.4)	40 (72.7)	0.24
Christianity	0 (0)	1 (8.3)	11 (91.7)		3 (25)	1 (8.3)	8 (66.7)	
Education								
Islamic	1 (25)	1 (25)	2 (50)	0.10	1 (250	1(25)	2 (50)	0.52
Some primary school	0	0	0		0	0	0	
Primary school completed	1 (25)	0(0)	3 (75)		2 (50)	1 (25)	1 (25)	
Some junior Secondary school	0 (0)	0 (0)	3 (100)		0 (0)	0 (0)	3 (100)	
Junior Secondary School completed	1 (12.5)	0 (0)	7 (87.5)		1 (12.5)	1 (12.5)	6 (75)	
Some senior secondary school	0 (0)	0 (0)	2 (100)		0 (0)	0 (0)	2 (100)	
Senior secondary school completed	0(0)	4 (22.2)	14 (77.8)		1 (5.6)	4 (22.2)	13 (72.2)	
Some tertiary school	0 (0)	0 (0)	3 (100)		0 (0)	0 (0)	3 (100)	
Tertiary school completed	0 (0)	1 (4)	24 (96)					
Occupation								
Business	3(8.8)	5 (14.7)	26 (76.5)	0.41	6 (17.6)	6 (17.6)	22 (64.7)	0.16
Handcraft/Artisan	0 (0)	0 (0)	8 (100)		0 (0)	0 (0)	8 (100)	
Health allied workers	0 (0)	0 (0)	4 (100)		0 (0)	0(0)	4 (100)	
Teaching/Lecturing	0 (0)	0 (0)	7 (100)		1 (14.3)	0 (0)	6 (85.7)	
Not Employed	0 (0)	1 (11.1)	8 (88.9)		1 (11.1)	4 (44.4)	4 (44.4)	
Others	0 (0)	0 (0)	5 (100)		1 (20)	0 (0)	4 (80)	
Health Center								
Primary	2 (7.7)	4 (15.4)	20 (76.9)	0.13	4 (15.4)	6 (23.1)	16 (61.5)	0.13
Secondary	1 (8.3)	0 (0)	11 (91.7)		2 916.6)	0 (0)	10 (83.3)	
Tertiary	0 (0)	2 (6.9)	27 (93.1)		3 (10.3)	4 (13.8)	22 (15.9)	

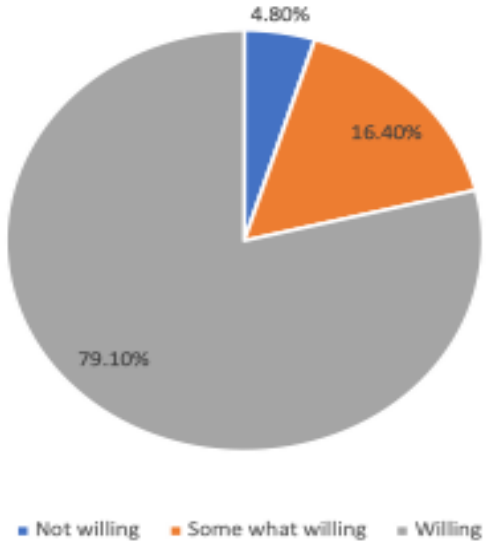
The theme further discussed whether they were willing to pay for the vaccine or travel out of their town of residence to get their children to get vaccinated. While many were willing to do so some highlighted that financial burden may be a barrier to that. Surprisingly, one of the participants suggested that adding a cost to the vaccine may make it more valuable. Some of their responses are as follows.

"Whatever the cost, if I have the means I will do it. If there is none, you can ask for help or subsidy from the government" (25years, FDG 1, Number 3)

Table 4 Predictors of awareness of HPV Vaccine

Variable	aOR	95 % CI for OR	*P* – value
		Upper-Lower	
Tribe			
Hausa	1.017	0.260 – 3.975	0.980
Igbo	3.910	0.545 – 28.003	0.175
Others	1.334	0.331– 5.276	0.686
Yoruba	1.00		
Religion			
Christianity	1.420	0.505-3.912	0.498
Islam	1.00		
Health facility			
Primary Health Care center	1.051	0.559-1.976	0.878
Secondary health facility	0.388	0.182-0.827	**0.014***
Tertiary health facility	1.00		

Respondents that visit primary and secondary health facilities for ANC were 61% less likely to be aware of HPV vaccine than those who visit tertiary health facilities (p= 0.014).



The Figure 1: Respondents Willingness to Pay To Get Their Children Vaccinated.

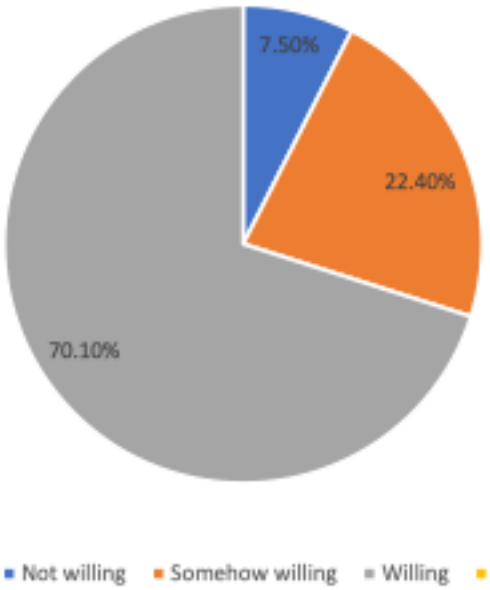


Figure 2: Respondents Willingness to Travel To Get Their Children Vaccinated.

"It should not be free, because people will not value it, but it should also not be too expensive that people can't afford. Even if it's a token, people will be more willing to take it than free." (37years, FDG 2, Number 4)

"People are looking for what to eat, when people don't even have the illness asking them to pay is difficult, so government should subsidise" (27years, FDG 1, Number 6)

The last theme explored how the participants feel the uptake of HPV vaccine can be promoted in the community. It revealed that most respondents are of the opinion that taking the campaign for the vaccine to hospital, places of work, homes and religious houses may help in creating awareness and improving acceptability. Some mentioned male involvement as women must seek the permission of their spouses before seeking for any form of health care intervention. One of the participants suggested that women should be shown those that are affected with the disease because that was what made her willing to vaccinate her children. Some of their responses are as follows:

"The health workers should tell men and women that come to the hospital for any reason about the vaccine. If not, they won't know about it." (41 years, FGD 3, Number 2)

"Men need to give permission for the vaccination, so they need to be enlightened and they will also inform their wives. They should be targeted at their work places or gathering areas or mosques or even their unions, because not all men even allow their wives to go for ANC" (33years, FGD 2, Number 6)

"People should be followed to their houses for the vaccine like polio. If you insist on people going to the hospital, many will not go. But if you follow them home, even if they don't intend to, if the husband has the opinion, he will insist." (26years, FGD 1, Number 4)

"I think people should be shown women that have this type of cancer. I don't take my children for vaccination but I will take them for this particular vaccine because I have seen what this type of cancer did to someone I know" (39years, FGD 2, Number 5)

DISCUSSION

Awareness of HPV vaccine was quite low with only 15.4% of respondents being aware of the vaccine with television and radio being the most common 22 (32.8%) sources of information among the respondents. This means that only about 1 in 6 of the respondents were aware of HPV vaccine. Awareness rate ranging from 19.7% to 29% has been reported in different parts of Nigeria.[10,11] This is considered low considering the huge burden of cervical cancer in the country.[4] and also the recent introduction of the HPV vaccine in the country.

Even though some regions of Africa have reported a higher awareness about HPV vaccine of up to 60%,[12] low awareness has been identified as a major barrier to HPV vaccine uptake in Africa.[13-16] In this study, women within the 20 to 29 years, Igbos, Christians, those that visit tertiary health facility and women that have completed their tertiary education have higher awareness rate. However, this was only statistically significant for tribe (Igbo p value = 0.03), religion (Christianity p value 0.009) and type of health facility (0.004). When this was subjected only type of health care facility was significant. Respondents that visit secondary health facilities for ANC had 61% lower odds of HPV vaccine awareness than those who visit tertiary health facilities (p= 0.014). A study in Lagos, Nigeria showed a significant association between awareness of HPV vaccine and level of education. [10]This was not the case in our study.

Despite being aware of HPV vaccine, only 3 (4.5%) of them had good knowledge about the vaccine. The fact that awareness does not always translate to good knowledge that will promote prevention has been demonstrated by other studies on cervical cancer prevention.[17] Good knowledge was significantly more among respondents that heard about cervical cancer from a health facility (p = 0.04). This is quite understandable because health care providers are trained to offer such information in a more detailed and simplified format. However, social media has also been associated with good knowledge in other reports.[18]

The acceptability of HPV vaccine from this study is comparable to what was obtained in other regions of Nigeria and Africa with 58(86.6%) of women willing to vaccinate their female children and 48(71.6%) of them willing to vaccinate their male children. Acceptability rate ranging from 71.9% to 88.9% has been reported from various regions of Nigeria and Africa.[10,12,19,20]

The study explored willingness to pay for HPV vaccine, because cost has been identified as one of the barriers to HPV vaccine in a systemic review on barriers and facilitators of HPV vaccine in Sub-Saharan Africa.[21]A total of 53(79.1%) and 47(70.1%) were willing to pay and travel out of their town of residence to get their children vaccinated. It was also noticed that women that had completed tertiary education were more willing to pay for their children to get vaccinated and the association was statistically significant (p = 0.03). A study on HIV positive women from another region of Nigeria also reported that up to 68.3% the women were willing to pay for their children to get HPV vaccine with good knowledge about the vaccine being positively associated with willingness to pay for the vaccine.[11] With the roll out of free HPV vaccine in Nigeria, cost may not be a barrier to vaccination anymore.

The high level of acceptability and willingness to vaccinate children among women that are aware of HPV vaccine may be a positive indicator of success for the HPV vaccine programme that was rolled out in Nigeria. However, there is need for a rapid and pro-active awareness campaign in the country especially at grassroot levels to improve awareness.

The FGD revealed that women were willing to vaccinate their children because they have vaccinated their children against other diseases without any adverse effects. On the other hand, some women were not willing to have their children vaccinated because of lack of adequate knowledge and information about the vaccine and the fact that they were not informed in the health centre about HPV vaccination. Also, some women mentioned the need for spousal involvement in decision making with regards to health care issues. A systematic review on barriers and facilitators of HPV vaccination in Sub-Saharan Africa[21] highlighted some critical barriers to HPV vaccination in the region. They include limited health systems socio-economic status, stigma, fear and cost of vaccination, negative experience with vaccination, COVID 19 pandemic and lack of correct information among others. Some of these barriers were evident from this study. However, one of the participants opinion was that the vaccine should be obtained at a

reasonable cost as this will make it more valuable. This is quite a different perspective from what has been reported in the literature.[19] The fact that some women were not willing to accept the vaccine due to the need for partner involvement buttresses the fact that male partner involvement is crucial in maternal and child health. This has also been proven in the literature.[22]

The women's perceived factors that can facilitate awareness and uptake of the HPV vaccine ranged from health education in health facilities to involvement of religious bodies and peer education. Others mentioned door to door mobilisation and also more involvement of health workers in creating awareness about the vaccine. These points revolve around social mobilisation and dissemination of knowledge which have all been documented as facilitators of HPV vaccination in Sub-Saharan Africa.[13,21]

CONCLUSION

In conclusion, awareness of HPV was low among the study population and majority of the women that were aware had poor knowledge. Despite low awareness and poor knowledge, acceptability and willingness to vaccinate children was high among women that were aware of the vaccine.

This calls for a robust awareness campaign for HPV vaccine in the grassroots. Community participation especially male partner involvement will likely improve vaccine uptake.

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