

Research Article

Introduction of Human Papilloma Virus Vaccination in Delta State, Nigeria: Mother's Knowledge, Attitude and Concerns

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Abstract

Background: Cervical cancer remains a major cause of death among women especially in Nigeria. Human Papillomavirus (HPV) is a major risk factors for the development of cervical cancer. The HPV vaccine has been found safe and effective in reducing the burden of HPV infection and consequently, of cervical cancer. **Aim of the study:** The study is aimed at assessing the knowledge, attitude and concerns of mothers towards HPV vaccine introduction in Delta State, Nigeria. **Methods:** This is a cross sectional study that was carried out among 500 mothers attending the immunization/antenatal clinics using a simple random method. A structured, pretested, self-administered questionnaire was used to collect the data. SPSS version 24.0 was used for data analysis. Statistical significance was set at p-value less than 0.05. **Results.** A total of 500 woman participated in this study. The study revealed that 52.2% of the women have heard of HPV vaccine while 51.4% have good positive attitude towards HPV Vaccine. Health care workers 60.7% were the major source of information regarding HPV vaccine while side effects 42.8% was the commonest concerns of mothers towards HPV vaccine. Only 60% of the mothers were willing to vaccinate their children with HPV vaccine. Mother's level of education and place of residence positively influence their willingness to vaccinate their children with HPV vaccine. **Conclusion.** For effective implementation of HPV vaccination program in Delta State, Nigeria, concerted effort should be made by health authorities in educating the populace on the importance and need for the vaccine as this will aid its acceptability.

Keywords

Human Papilloma Virus, Knowledge, Vaccination, Mothers

1. Introduction

Cervical cancer is the second leading cause of cancer in women worldwide after breast cancer. [1] It is estimated to cause the death of about 275,000 women with about 529,000 new cases yearly. [1] Regrettably, More than 80% of these

deaths from cervical cancer occurs in low and medium income countries like Nigeria. [1, 2] Human papilloma virus (HPV) is one of the most common sexually transmitted viruses in the world and a leading cause of cervical cancer. [3]

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The two strains of HPV (HPV 16 and HPV 18) are responsible for 70% of cervical cancer. [4] While HPV infection is the most important risk factor for cervical cancer, other known risk factors includes: early age of sexual activities, early marriage (below 20 years of age), multiple sexual partners, unprotected sex, long term use of hormonal contraceptives, increased number of pregnancies, smoking, and unhygienic practices. [5-7]

One of the three targets of the global strategy to accelerate the elimination of cervical cancer as a public health problem is to fully vaccinate 90% of teenage girls under the age of 15 years. [8] To achieve this global target, six different types of HPV vaccines have been licensed for use; they include Cervarix, Cecolin, Walrinvax, Gardasil 4vHPV, Cervavac, and Gardasil 9vHPV. World Health Organization (WHO) recommend routine HPV vaccination in girls aged 9–14 years before becoming sexually active as HPV vaccination offers a unique opportunity for primary prevention of cervical cancer. [8] Human Papilloma virus vaccination has been introduced in about 107 (55%) of the 194 World Health Organization (WHO) Member States. It is estimated that 85% of countries in America, 77% of countries in Europe have already introduced HPV vaccination, while only 40% of countries in Asia, 56% in Oceania and regrettably only 31% of African countries have introduced HPV vaccination. [9] Several report have proven the safety and effectiveness of HPV vaccination in preventing high-risk HPV types which are the primary cause of cervical cancer. [10-12] The effectiveness of HPV vaccine has been further demonstrated by the significant reduction in cervical cancer cases among vaccinated women in Europe and America. [13-16]

Following Strategic Advisory Group of Experts on Immunization (SAGE) recommendation, Nigeria introduced the Gardasil 4vHPV vaccination into the routine immunization schedule in the third quarter of the year 2023 in 16 selected States and was introduced in the remaining 21 States in the year 2024. The HPV vaccine is currently being delivered to all girls aged 9-14 years. Despite the laudable effect of HPV vaccination, its acceptability and use in Nigeria and other African countries has remain poor. Factors such as lack of knowledge about cervical cancer, social/religious influence, lack of health education on HPV vaccine are some of the factors hindering the acceptability of HPV vaccine. Delta State has many ethnic groups such as the Urobo's, Igbo's, Ijaw's, Isoko's and Itsekiri's. Christian religion is the most common form of religion. Though the State is blessed with crude oil and natural gas, poverty still rampart in the region. It is estimated that 30.9 percent of Nigerians lives below the international extreme poverty line of 2.15 US dollar per person per day.

This study is aimed at assessing the knowledge, attitude and concerns of mother towards the introduction of HPV vaccination. The information from this study will help in policy making that will ensure a successful implementation of HPV vaccination campaign in the region.

2. Subjects and Method

2.1. Study Setting

The study was carried out in Asaba Specialist Hospital, Asaba, Delta State. The hospital is the one of the state owned tertiary hospital in Delta State. It provide services to an estimated population of eight million people. The hospital offers free antenatal and free delivery to pregnant women and also offers free treatment to all children less than five years.

2.2. Study Design, Study Population and Sample Size Determination

This is a cross sectional descriptive study that was conducted between May and July 2024. Inclusion criteria were mothers aged eighteen years (18) and above, and those who consented to the study. Mothers younger than eighteen (18) years and those who did not give consent were excluded. A simple random sampling method was used to recruit the participants. Study population were women who came to Asaba specialist, Hospital for routine antenatal visit and routine immunization visits. Using the formula for calculating sample size in a cross sectional study, a minimum sample size of 323 participants was calculated for this study at 95% confidence interval and a 30% projected uptake of the HPV vaccine. Five hundred (500) questionnaires were subsequently administered to respondents for this study.

2.3. Statistical Analysis

Data was entered and analyzed using Statistical Package for Social Science (SPSS) version 23. The results will be presented in the form of frequency tables, bar charts and cross tables. Statistical inference will be performed using chi-square test. Statistical significance was defined as a p-value < 0.05.

2.4. Ethical Consideration

Ethical approval was sought from the Ethics Committee of Asaba Specialist Hospital and approval was granted in March 2024. (IREC number: ASH/243).

2.5. Study Instrument

A pretested semi-structured, interviewer-administered, twenty-four questionnaire was be used to elicit information from respondents. The questionnaire was divided into two sections, namely (i) Respondents' socio-demographic characteristics, including age, sex, occupation, and marital status; (2). Caregiver's awareness, concern and acceptability of HPV vaccines. Confidentiality was be maintained throughout the study.

3. Results

Table 1 shows the socio-demographic characteristics of the subjects. A total of 500 women were studied, majority of the women (51.8%) were aged 20-29 years, 92.0% of the women were married, 59.4% were employed with 69.8% of the women from low socioeconomic class. 96.0% of the women were Christians, 65.8% lives in the urban area with 60.4% of the women having tertiary education.

Table 1. The socio-demographic characteristics of the subjects.

Variables	Frequency (N)	Percentages (%)
Age (years)		
20 -29 Years	259	51.8
30- 39 Years	215	43.0
40-49 Years	18	3.6
>50 Years	8	1.6
Marital status		
Married	460	92.0
Single	34	6.8
Separated	5	1.0
Widowed	1	0.2
Employment status		
Employed	297	59.4
Not employed	203	40.6

Variables	Frequency (N)	Percentages (%)
Socio-economic class (SEC)		
Low SEC	349	69.8
Middle SEC	92	18.4
High SEC	59	11.8
Religions		
Christian	480	96.0
Islam	12	2.4
Traditionalist	8	1.6
Place of residence		
Urban	329	65.8
Semi-urban	71	14.2
Rural	100	20.0
Educational level		
Primary	38	7.6
Secondary	152	30.4
Tertiary	304	60.8

Figure 1 showed the common concerns of mothers towards HPV vaccination. The most common concerns of mothers towards HPV vaccine was the fear of side effects followed by safety concerns.

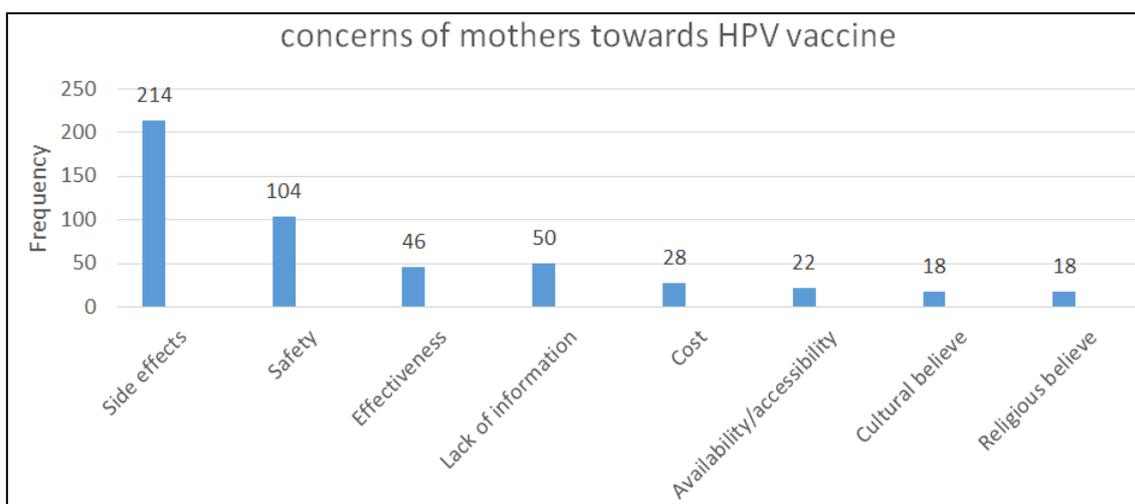


Figure 1. Concerns of mothers towards HPV vaccine.

Table 2 shows the perceptions, concerns and willingness of mothers towards HPV vaccine. The table shows that 52.2% of the mothers have heard of HPV vaccine, with 60.2% of that

respondent getting their information from health workers. While 49.6% had don't know if the vaccine is effective, 51.4% have a positive perception to vaccine. Only 60.0% of the women were

willing to vaccinate their babies with HPV vaccine.

Table 2. The perception, concerns and willingness of mothers towards HPV vaccine.

Variables	Frequency (N)	Percentages (%)
Heard of HPV vaccine		
Yes	261	52.2
No	239	47.8
Source of information (261)		
Television/Radio	22	8.4
Social-media	82	31.4
Health workers	157	60.2
Do you think the vaccine is effective in preventing HPV		
Effective	94	18.4
Not effective	107	21.4
Don't know	248	49.6
Perception to HPV vaccine		
Positive	257	51.4
Indifferent	148	29.6
Negative	95	19
While you be willing to vaccinate your child with HPV Vaccine		
Yes	300	60.0
No	61	12.2
Undecided	139	27.8

Table 3 shows the relationship socio-demographic variables and the willingness to vaccinate their children. The tables shows that the mother's level of education and the place of residence significantly influence their willingness to vaccinate their children with HPV vaccine.

Table 3. Shows the relationship socio-demographic variables and the willingness to vaccinate their children.

Variable	Willingness to vaccinate your child			χ^2	p-value
	Yes	No	Not sure		
Age (Years)					
18-29 Years	162	32	64	15.99	0.067
30-39 Years	141	18	56		
40-49 Years	11	5	2		
>50 Years	2	3	2		
Employed					
Yes	197	35	79	4.3	0.88

Variable	Willingness to vaccinate your child			χ^2	p-value
	Yes	No	Not sure		
No	118	23	45		
Education level					
Primary	19	4	9	23.0	0.006*
Secondary	80	24	42		
Tertiary	217	30	74		
Residence					
Urban	219	30	79	539.6	0.000*
Rural	62	19	18		
Semi-urban	32	9	27		
Socioeconomic class (SEC)					
Low SEC	228	43	90	8.3	0.210
Middle SEC	59	11	32		
High SEC	29	4	3		

* Significance $P < 0.05$

4. Discussion

The HPV vaccine is one of the most effective tools for the prevention of cervical cancer which is a leading cause of death from cancer among women in Nigeria and the world at large. This study showed that 52.2% of the mothers has heard of HPV vaccine. This is similar to what was reported among women in Kazakhstan [17] and Bangladesh [18] were 52.0% and 56.0% of the mothers respectively have heard of HPV. This is however in contrast to studies done in Brazil [19] and Ethiopia [20] where 75.9% and 63.4% of the mothers have heard of HPV vaccine. The possible explanation for these differences could be due to difference in the access and availability of information regarding HPV vaccine.

The finding from this study revealed that about two-third; 60.2% of the women main source of information about HPV vaccine was from health workers followed by social media 31.4% and then TV/Radio 13.4%. This findings is similar to the study done in Serbia [21] where it was documented that health care providers were the main source of information on HPV. These findings shows the important of health workers in disseminating timely and accurate information on health related issues to the community. Other studies conducted in Ethiopia [20] and United Arab Emirate [22] showed that majority of the women got their information through the TV/Radio stations. The difference in socio-demographic variables and availability/accessibility to primary health centers could explain the differences observed.

This study showed that 51.4% of the mothers has a good positive attitude towards HPV vaccination. This finding is similar to a studies done in Romania [23] and Ethiopia [24] where 50.7% and 59.9% respectively of the women studied had a positive attitude towards HPV vaccine. However, the findings from this study is however higher that 45% recorded among women in Kazastan [17] Mothers level of education and their believe system could account for the differences observed. In this study only 18.4% of the mothers believed that HPV vaccine was effective in preventing cervical cancer. This finding is very low compared to studies done in Ethiopia [20] and Brazil [25] were 77% and 90.7% of the women respectively believes that HPV vaccine is able to protect their girl child from cervical cancer.

The finding from this study showed that the major concern for mothers to vaccination is the potential side effects 42.8%. This is similar to work done among women in Ethiopia [20] were 52.4% of participants were afraid of the mild side effect of HPV vaccination for their daughter. For effective initiation of routine HPV vaccination, these fears and concerns must be adequately address through repeatedly sensitization of the populace.

This study showed that 60.0% of the women were willing to vaccinate their children. This finding is high compared to what was reported among the Ethiopian women, were only 44.4% of the women were willing to vaccinate their daughters. However, 70% of the women in Canada [26] and 91.0% of women in Honduras [27] were willing to vaccinate their daughter. The difference might be attributed to the difference in the study setting and study population. In the current study,

27.8% of the subjects are yet to decide if their children will receive the HPV vaccine despite 51.4% of the subject showing positive attitude to HPV vaccine. The reason for this observation is not clear, however it is believed with further sensitization /education on HPV vaccine, the undecided group will end up making up their mind to vaccinate their children with HPV vaccine.

Mother's educational level was significantly associated with their willingness to vaccinate their daughters. The mother level of education is not only likely to influence their understanding of HPV vaccination's importance and effectiveness but will play a crucial role in their decision-making about the vaccination of their children. Mothers' approval and agreement to HPV vaccination is a significant step to improve vaccination rates.

The mother's place of residence significantly influence their willingness to vaccinate their daughters. Mothers who resides in urban areas are more likely to vaccinate their daughters compared to those who are live in the rural area. It could be inferred that those who dwell in the urban area are mostly the educated once working in government established institutions. The urban dwellers are more likely to have access to healthcare facilities and appropriate information's regarding HPV vaccination.

5. Conclusion

Mothers play a significant role in decision-making about HPV vaccination for their children. Mother's educational level and place of residence significantly influence their willingness to vaccinate their daughters.

6. Recommendation

1. Continuous education of the mothers on the importance of HPV vaccination.
2. For effective delivery by using the existing structures such as the expanded program on immunization (EPIs), school based programs and community based sensitization campaigns.

Abbreviations

HPV Human Papilloma Virus

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Author Contributions

Obinna Chinedu Ajaegbu: Conceptualization, Data cu-

ration, Formal Analysis, Investigation, Methodology, Software, Supervision, Visualization, Writing – original draft, Writing – review & editing

Faith Nnenna Ajaegbu: Conceptualization, Data curation, Formal Analysis, Investigation, Resources, Software

Chukwunyem Uche Nwokoma: Data curation, Formal Analysis, Investigation, Validation

Sarah Onajefe Uwa: Data curation, Formal Analysis, Investigation, Resources, Software

Helen Obiajulum Ogbangwo: Software, Validation, Visualization

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Conflicts of Interest

The authors declare no conflicts of interest.

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