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UPTAKE OF HUMAN PAPILOMA VIRUS VACCINE AMONG STUDENTS OF TERTIARY INSTITUTIONS IN GOMBE STATE, NIGERIA

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ABSTRACT

Human Papilloma Virus (HPV) infection is among the commonest Sexually Transmitted Infection (STI) worldwide, HPV vaccination has been shown to prevent 70% of cervical cancers, as well as infection with HPV-16 and HPV-18. This study assessed the factors associated with uptake of HPV vaccine among students of higher institutions in Gombe state. A descriptive cross sectional study was conducted in Gombe State University. The study population consisted of 245 students from four departments of two faculties which were selected by multi stage sampling technique. The data was obtained using a self-administered questionnaire and analysed using IBM SPSS version 23. Majority of the respondents were single and Muslims 73.9% and 72.2% respectively, while 58.4%, 36.7% and 43.7% were between the age of 15-20 years, Fulani, and earned more than 10,000 naira monthly. In addition, majority of the respondents had poor knowledge on HPV vaccine (73.1%) with only 3.7% who received at least one dose of the vaccine. Furthermore, the study showed that knowledge of HPV vaccine and family history of cervical cancer are associated with uptake of HPV vaccine. The study showed that uptake of HPV vaccine among the respondents was very low. Factors associated with uptake were knowledge of HPV vaccine and family history of cervical cancer.

KEYWORDS: Cervical cancer, Human Papilloma Virus, knowledge, uptake, Gombe state.

BACKGROUND

Human Papilloma Virus (HPV) infection is a common Sexually Transmitted Infection (STI) worldwide. Approximately half of the sexually active men and women have been estimated to have HPV infection at one time during their lifetime.[1] HPV is a viral infection and is a major risk factor for cervical cancer, the second most common cancer among women worldwide.[2,3] Cervical cancer continues to be a major Public Health problem especially in poor resource countries where 80% of deaths due to cervical cancer occur annually.[4] In sub-Saharan Africa, cervical cancer rates are among the highest in the world, with an age-standardized incidence rate (ASR) of 27.6 per 100,000 women.[2] With the current trend, by 2050, there will be up to one million new cases of invasive cervical cancer worldwide annually.[2,4] The prevalence in high income countries has been reduced as a result of the availability of vaccines and screening for the disease.

There are over 130 serotypes of HPV which can be classified as low- and high-risk: low-risk types cause benign warts such as condyloma acuminatum, while high-risk types are carcinogenic agents.[5] High risk HPV types 16 and 18 are involved in 70% of all cervical cancers.[3,5] HPV serotypes have also been associated with the development of cancers of the vulva, vagina, anal canal, perianal skin and penis.[5]

The uptake of HPV vaccine has been consistently low in various countries including Nigeria due to the low level of awareness, cost of the vaccine, uncertainty over side effects and parental beliefs and attitudes.[6] However, the use of this vaccine has proven to limit the risk of HPV infection and cancers associated with it. Vaccination is a cost effective primary preventive strategy which will reduce complications from this infection. Adequate information about HPV and HPV vaccine among students would help in primary prevention and decrease the incidence of cervical cancer among this population. Primary prevention against HPV includes modification of the sexual risk factors and prophylactic vaccination.[1] This vaccination is carried out through the use of HPV vaccine which has shown to prevent 70% of cervical cancers, as well as infection with HPV-16 and HPV-18, the 2 HPV strains that account for most cervical cancer cases worldwide.[1] There are three approved prophylactic HPV-vaccines on the global market, these

are Gardasil (a quadrivalent vaccine that protects against type 16, 18, 11, 6) produced by Merck and approved in 2006, Cervarix (a bivalent vaccine that protects against type 16 and 18) produced by Glaxo SmithKline and approved in 2009, and Gardasil 9 (a nanovalent vaccine that offers protection against HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58).[2,3]

These vaccines should preferably be given before commencement of sexual activity, as such is given to girls 9-13 years of age because they are not likely to have begun sexual activity.[1] However, the American cancer society, suggests that 'catch-up' vaccination for girls aged 13 to 18 is preferable.[3,5] The vaccine is administered in three doses over a six months period, according to American cancer society.[5] Presently Nigeria does not have any national policy or guidelines targeted toward cervical cancer prevention and widespread cervical screening for women is limited.[4] This study aimed at determining the proportion of undergraduate students who have been vaccinated with HPV vaccine and the factors which influence its uptake.

MATERIALS AND METHODS

Study Design

This study was a descriptive cross sectional study design conducted in Gombe State from May to July 2019.

Study Area

Gombe state is situated in North Eastern Nigeria and has 10 higher institutions across the three senatorial zones of the State. Majority of the students in these higher institutions are from the eleven local government areas of the state. However, there are students from other states especially in Federal University Kashere and Federal College of Education Technical, Gombe

Study Population

The study population comprised of female undergraduate students from the selected tertiary institution who gave consent to participate in the study.

Sample Size Estimation

The sample size was calculated using the formula; $n = (z_{\alpha} + z_{\beta})^2 pq/d^2$. This was done using the prevalence of uptake of HPV vaccination from a study conducted in Ibadan taken as 4.1%.[1] The calculated minimum sample size (n) was = 119. However, 245 students were sampled.

Sampling Technique

A multi stage sampling technique was used to obtain the study participants. In the first stage, simple random sampling by balloting was used and Gombe state University was selected from the 10 higher institutions in Gombe state. Two faculties (Faculty of sciences and college of medical sciences) were selected from the five faculties in Gombe State University, using simple random sampling by balloting in the second stage. In the third stage, Departments of mathematics and biological sciences were selected from the 8 departments in faculty of sciences while Departments of medicine and human physiology were selected from the 3 departments in the college of medical sciences using simple random sampling technique by balloting. All the female students in the selected departments who gave consent were included in the study.

Data Collection Technique

A self-administered questionnaire was used for this study. The questionnaire was adapted from a previous study done at Lagos.[7] Research assistants were trained on study aim and good interpersonal relationship with the study participants. Participants who gave consent filled the questionnaires and returned them when they completed them.

Data Management and Analysis

Uptake of HPV was regarded as those that had received at least one dose of the vaccine and no uptake for those that did not receive any dose of the vaccine. Data was coded and analysed using SPSS version 23.0. The dependent variables were uptake of HPV vaccine, while age, educational status, department and level were some of the independent variables. Tables were used to present the variables with their frequencies. Chi square test was used to test for association between the variables, such as uptake of HPV vaccine and age.

Ethical Consideration

Permission was obtained from the university authority as well as a written informed consent from the participants. An ethical clearance was also obtained from the ethical committee of Federal Teaching Hospital, Gombe.

RESULTS

Table 1: Socio-demographic characteristics of the respondents.

VARIABLE	Frequency (%) n=245
Age group(years)	
15-20	143(58.4)
21-25	95(38.9)
26-30	7(2.8)
Department of respondent	
Biological sciences	91(37.1)
Mathematics	82(33.5)
medicine	67(27.3)
Human physiology	5(2.0)
Study level of respondent	
100level	116(47.3)
200level	44(18.0)
300level	42(17.1)
400level	28(11.4)
500level	9(3.7)
600level	6(2.4)
Marital status of respondent	
Single	181(73.9)
Married	61(24.9)
Divorced	3(1.2)
Tribe of respondent	
Hausa	64(26.1)
Fulani	90(36.7)
Tangale	33(13.5)
Tera	36(14.7)
Others	22(9.0)
Religion of respondent	
Islam	178(72.7)
Christianity	67(27.3)
Monthly allowance (Naira)	
>10000	107(43.7)
5000-10000	82(33.5)
<5000	56(22.9)
Parent occupation	
Civil servant	139(56.7)
Artisan	33(13.0)
Business	73(29.8)

Majority of the respondents were single and muslims 73.9% and 72.2% respectively. Also 58.4%, 36.7% and 43.7% were between the age of 15-20 years, Fulani, and earned more than 10000 naira monthly.

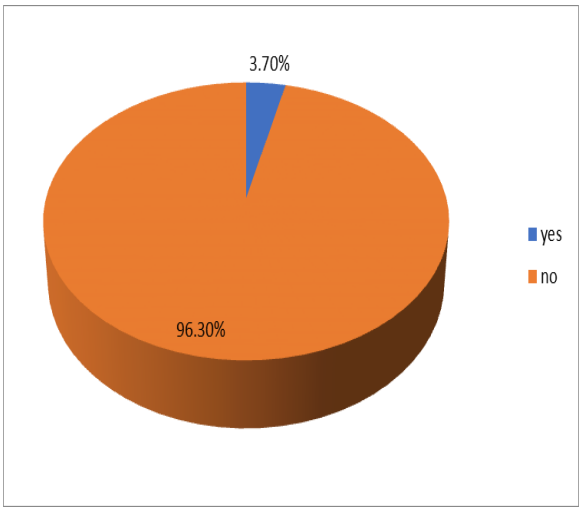
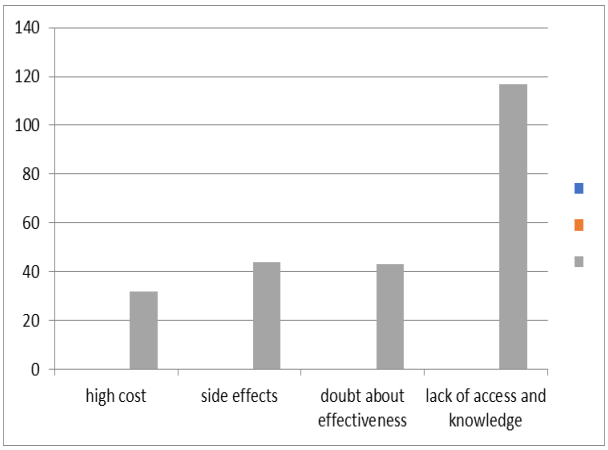


Fig. 1: uptake of HPV vaccine.

Majority of the study participants, 96.3% have not received HPV vaccine, only 3.7% received at least one dose of the vaccine



Reasons for not receiving HPV vaccines

About half of the respondents, 113 (46.1%) mentioned lack of access and knowledge as their reason for not receiving the vaccine.

Table 3: Factors associated with uptake of HPV vaccine.

VARIABLE	Received vaccine n=9	Did not receive vaccine. n=236	X^2	*df*	P value
Age group					
15-20	5(3.50%)	138(96.5%)	2.312	2	0.315
21-25	3(3.16%)	92(96.84%)			
26-30	1(14.28%)	6(85.72%)			
Level of study					
100level	4(3.45%)	112(96.55%)			
200level	1(2.27%)	43(97.73%)			
300level	0(0%)	42(100%)	8.991	5	0.109
400level	3(10.71%)	25(89.29%)			
500level	0(0%)	9(100%)			
600level	1(16.67%)	5(83.33%)			
Department					
Biological science	4(5.88%)	64(94.11%)			
Mathematics	2(28.57%)	5(71.43%)	0.800	3	0.849
Medicine	3(3.61%)	80(96.39%)			
Human physiology	0(0%)	87(100%)			
Marital status					
Single	4(2.21%)	177(93.79%)	4.737	2	0.094
Married	5(8.20%)	56(91.80%)			
Divorced	0(0%)	3(100%)			
Monthly allowance					
>10000	3(2.80%)	104(97.20%)	0.677	2	0.713
5000-10000	3(3.66%)	79(96.34%)			
<5000	3(5.36%)	53(94.64%)			
Knowledge on HPV vaccine					
Good	7(10.61%)	59(89.39%)	12.269	1	<0.001
Poor	2(1.12%)	177(98.88%)			
Dr's recommendation					
Yes	2(1.39%)	142(98.61%)	5.152	1	0.023
No	7(6.93%)	94(93.07%)			
Family history of ca cervix					
Yes	2(66.7%)	1(33.7%)	33.911	1	<0.001
No	7(2.90%)	234(97.1%)			

Factors associated with receiving at least one dose of HPV vaccine include having good knowledge of the vaccine, having recommendation by a Doctor and having a family history of cervical cancer p- value <0.001, 0.023 and <0.001 respectively.

Table 4: Logistic Regression Showing Predictors of Uptake of Hpv Vaccine.

VARIABLE	Odds ratio	95% confidence interval	p-value
Knowledge of HPV vaccine			
Good	1	0.025-0.711	0.018
Poor	0.133		
Dr's Recommendation			
Yes	3.740	0.695-20.132	0.126
No	1		
Family history of ca cervix			
Yes	1	0.006-1.005	0.055
No	0.077		

Respondents who had good knowledge of the vaccine were more likely to receive the vaccine compared to those who didn't know about the vaccine p- value 0.018 (CI 0.025-0.711).

DISCUSSION

This study revealed a very low uptake of HPV vaccine similar to studies conducted among students in Ibadan and Port Harcourt where only 4.1% and 5.1% of the respondents respectively had received at least one dose of HPV vaccine.[1,8] Another study conducted among Human Immunodeficiency Virus (HIV) positive women attending ending Antiretroviral Treatment (ART) clinic at university of Port Harcourt teaching hospital showed that none of the respondents had received any dose of HPV vaccine.[9] Although a higher proportion of the students received at least a doses of HPV vaccine, the findings are unacceptably low signifying poor awareness, availability, accessibility and probably acceptability of this Public Health strategy, implying that a higher proportion of women of reproductive age are still at risk of developing cervical cancer. This has the potential of worsening the already poor maternal health indices and increasing the economic burden on individuals and the country. However, a difference was observed from studies in developed countries such as Netherlands and in France. Where up to 50% and 28.5%of women respectively had received HPV vaccine even though the preferred target is to ensure that all young girls receive the vaccine, this is an improvement of what is observed in developing countries.[10] The findings in the studies can be explained by the school based programmes in these countries which have the ability to increase knowledge and acceptability of school aged children to take the vaccines. In addition, accessibility to health promotive and preventive measures such as HPV vaccine among women in developed countries is higher compared to those in developing countries.[10] Low uptake of HPV vaccine in Nigeria may not be unrelated to the lack of policy and guidelines regarding HPV vaccination in the country. Till date, HPV vaccine has not been incorporated into the EPI schedule for children from the age of 9-12 yrs. This also explains the higher proportion of women with cervical cancer in poor resource countries.

Furthermore, the findings on factors associated with uptake of HPV vaccine among study respondents were similar to studies in Malaysia and United States which showed that having knowledge on availability of the vaccine and having a close friend or relative with cervical cancer increased the likelihood of receiving HPV vaccine.[11,12] This may be related to the health belief of perceived susceptibility and perceived severity of cervical cancer. This may imply that improving the knowledge of parents and caregivers on cervical cancer and its preventive strategies may improve the uptake of the vaccine. In addition, encouragement to take the vaccine from a health worker, existence of community outreach and higher educational qualification were factors which influenced uptake of HPV vaccine as seen in a study conducted in Uganda.[13] Other factors associated with vaccine uptake include ever having an STD, perceived risk of HPV infection, social stigma and religious concern.[11,12]

CHAPTER SIX

6.1 Conclusion

Uptake of HPV vaccine is still very poor among women of reproductive age in Gombe state which may increase the risk and burden of HPV infection and cervical cancer. The factors associated with uptake were: being aware that the vaccine existed, recommendation by a doctor and having a close relative who had cervical cancer. However, being aware of the vaccine was the only predictor of uptake.

6.2 Recommendation

1. There should be increased dissemination of information on HPV vaccine in schools and among parents and caregivers. This can be done by health workers at facility and community levels.
3. HPV vaccine should be free and included in the National Programme on Immunization to increase coverage.

REFERENCES

1. Ndikom CM, Oboh PI et al. Perception, acceptance and uptake of human papilloma virus vaccine among female adolescents in selected secondary schools in Ibadan, Nigeria. Journal of biomedical research, 2017; 1: 237-244.
2. Masese AM. knowledge on human papilloma virus and acceptance of HPV vaccine among mothers seeking maternal child health services at Mbugathi

district hospital, Nairobi, Kenya. Jomo Kenyata university of agriculture and technology, 2016; 1-7.
3. Solvind H, Sandra S. Knowledge of human papilloma virus and attitudes towards HPV vaccine among Thai female university students. Uppsala university, 2013; 1-10.
4. Michael UJ. Attitudes and Intentions Related to Adoption of the HPV Vaccine among Adolescent Girls and their Mothers in Akinyele Local Government Area of Oyo State. *South American journal of Public Health, special edition*, 2016. doi.10.21522/tijph.2013.04.02.art035.
5. Forster A. The human papilloma virus immunization programme and sexual behavior. University college London, 2010; 21-32.
6. Saleh JA, Yusuph H, Zailani SB, Aji BM. Role of HPV vaccine in the prevention of cervical cancer. Journal of Intediscip histopathol, 2013; 1(4): 212-216.
7. Adejuyigbe FF, Balogun RB, Sekoni AO, Adegbola AA. Cervical cancer and human papilloma virus knowledge and acceptance of vaccination among medical students in SouthWest Nigeria. *African Journal of reproductive health*, 2015; 19(1): 140.
8. Ojimah C, Maduka O. Awareness and uptake of Human Papillomavirus Vaccine among female undergraduate students. Implications for cervical cancer prevention in South- South Nigeria, Port Harcourt. *Port Harcourt Medical Journal*, 2017; 11(3): 134-140.
9. Nyengidiki TK, Durugbo IK, Oranu E. Human papilloma virus awareness and uptake of HPV vaccination among HIV positive women in Nigeria. *International Journal of tropical disease and health*, 2016; 15(2): 1-7.
10. Hopkins TG, Nick W. Female Human Papilloma Virus (HPV) vaccination: global uptake and the impact of attitude. Vaccine, 2013; 31: 1673-1679.
11. Jones M, Robert C. Intent to receive an HPV vaccine among university men and women and implications for vaccine administration. Journal of American college health, 2009; 57(1): 1.
12. Wong IP. Young multiethnic women's attitudes towards the HPV vaccine and HPV vaccination. International Journal of gynecology and obstetrics, 2009; 103(1): 131-135.
13. Kisaakye E, Namakula J, Kitembo C, Kisakye A,Nsubuga P, Babirye JN. Level and factors associated with uptake of human papilloma infection vaccine among female adolescnets in Lira distrct Uganda. *Pan African Medical Journal*, 2018; 31: 184.