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Perceived Benefits, Willingness and Uptake of Human Papilloma Virus Screening and Vaccination among Female Undergraduates in a Tertiary Institution in Nigeria

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Abstract

Background: Human papilloma virus (HPV) is the most common sexually transmitted infection of which many of the infected persons were in their late teens and early 20s. HPV is also responsible for causing cervical cancer. The major primary prevention of HPV includes prophylactic screening and vaccination.
Objectives: The study assessed the perceived benefits, willingness and uptake of HPV screening and vaccination among female undergraduates in University of Ibadan.
Methodology: A cross-sectional research design was adopted and 308 females from the university answered the self-structured pre-tested questionnaire. Data was analyzed using SPSS (version 25). Descriptive and inferential statistics were used to present results and test hypotheses
Results: The mean age of the respondents is 22±4years. Analysis revealed positive perceived benefits of HPV screening and vaccination 295(96%), moderate willingness to uptake screening 197(64%) and vaccination 231(75%) and poor uptake of HPV screening and vaccination 15(5%). Ethnicity does not have any significant influence on the uptake (R^2= 0.05, p = 0.216) and no significant relationship between the perceived benefits and uptake (p=0.257). There is a positive perceived benefits of HPV screening and vaccination, average willingness to undergo screening and vaccination and poor uptake of screening and vaccination amongst the female undergraduate students.
Conclusion: It is therefore necessary the government and other stakeholders provide adequate funds for health sector to procure vaccines and screening equipment for HPV screening and vaccination.

How to Cite this Article

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Keywords: Human Papilloma Virus, perceived benefits, uptake, willingness

Introduction

Human papilloma virus (HPV) is the most common sexually transmitted infection with a prevalence of about 43 million in 2018, many of the infected persons were in their late teens and early 20s.[1] Although the HPV infection sometimes clear within few months to two years, a proportion of the infection persists and can lead to cervical cancer, making HPV infections a prerequisite for the development of cervical cancer.[2]

Worldwide, cervical cancer is the 4th most common cancer diagnosed in women with incidence of 570,000 and mortality of 311,000 in 2018.[2] It is the leading cause of female cancer deaths in Sub-Saharan Africa, even though it is almost totally preventable.[3] In Nigeria, cervical cancer is the second most common female cancers, following breast cancer, and was responsible for 21% of all female cancers in Nigeria in 2018.[4] Some strains of HPV also cause genital warts, and other types of cancers such as anal, vulvar, vaginal, penile and oropharyngeal.[5] Cervical cancer screening allows pre-cancerous lesions to be identified early and be treated easily.[6]

The primary prevention of HPV includes elimination of sexual risk factors (unprotected sexual intercourse, unprotected mouth-to-genital and anal sex, multiple sexual partners, engaging in sexual activities at young age, having high-risk partner) and prophylactic vaccination.[7] HPV vaccines should be routinely administered to young girls around ages 9-12 years because they are most likely not to have begun any sexual activity, and for everyone through age 26 years, if not yet adequately vaccinated.[1]

The HPV vaccines was licensed in 2006,[8] and a 2-dose schedule is recommended for people who get their first dose before 15 years (6-months interval), and people who get their first dose after 15 years are recommended to take a 3-dose schedule (second dose, 1-2 months after first, and third dose, 6 months after second dose).[9]

The level of knowledge of cervical cancer, HPV, its screening and vaccination in various countries, including Nigeria was reported to be low as the screening and vaccination still lag behind other screenings and vaccinations.[10,11] There are paucity of

studies explored among female undergraduates of Nigerian institutions regarding HPV. Hence, the objective for this study was to identify the perceived benefits, willingness and uptake of Human Papilloma Virus (HPV) screening and vaccination among female undergraduates in University of Ibadan.

Research questions and hypotheses

1. What are the perceived benefits of HPV screening and vaccination?
2. What is the level of willingness to undergo HPV screening and vaccination?
3. What is the level of uptake of HPV screening and vaccination?

H_{o1}: There is no significant association between ethnicity and willingness to undergo HPV screening and vaccination.
H_{o2}: There is no significant association between perceived benefits and uptake of HPV screening and vaccination.

Methods

Research Design: This study adopted a cross-sectional research design. A multi-stage sampling was used to calculate the sample size of 308.

Settings: The University of Ibadan was founded on the 17th November 1948. The institution is a Federal Tertiary Institution, consisting of Sixteen Faculties which include: Clinical Sciences, Economics, Environmental Design and Management, Dentistry, Public Health, Basic Medical Sciences, Arts, Education, Veterinary Medicine, Science, Law, Pharmacy, Social Science, Renewable Natural resources, Technology and Agriculture. The university was established solely to expand the frontiers of knowledge through provision of excellent conditions for learning and research. The vision is a world-class institution for academic excellence geared towards meeting societal needs.

Study Population: The study population comprised of female undergraduates from eight out of the sixteen faculties in the University of Ibadan who had been randomly selected using balloting to take part in the study. These Faculties were: Faculty of Education, Faculty of Clinical Sciences, Faculty of Technology, Faculty of Agricultural Science, Faculty of Pharmacy, Faculty of Arts, Faculty of Social science and Faculty of Veterinary Medicine.

Sample size: A sample size of 308 inclusive of 10% attrition rate was obtained for this study was calculated using Taro Yamane formula

Sample size and sampling: A multistage sampling technique was used.
Stage 1: Eight Faculties were randomly selected using balloting from the sixteen Faculties in University of Ibadan
Stage 2: Out of the eight randomly selected Faculties, one Department was purposively selected from each of them.
Stage 3: Questionnaires were then administered consecutively based on availability to respondents from the selected departments.

Instrument: Questionnaire was the instrument for data collection. Questions were developed from intense literature search which was critiques and reviewed by experts. However, the questionnaire developed was pre-tested using 10% of sample size, i.e., 31 female undergraduates in Obafemi Awolowo University, Ile-Ife. The institution and participants had similar characteristics with the study setting and population. A reliability co-efficient of the instrument was found to be 0.194.

Institutional review board: The study protocol was duly reviewed and approved by UI/UCH Institutional Review Committee with approval number UI/EC/23/0150. Informed consent was obtained from all participants and only consenting students were told to participate in the study using google forms containing all questions. Confidentiality of data was assured and the data collection spanned over a period of one month.

Statistical Analysis: Data collected was analyzed using Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics such as percentages, mean and standard deviation were used to summarize and present the results. Regression analysis was used to investigate the association between ethnicity and willingness to undergo HPV screening and vaccination, while Chi-square was used to assess the relationship between perceived benefits and uptake of HPV screening and vaccination at 0.05 level of significance.

Results

Sociodemographic Characteristics of the Respondents

Majority of the respondents 218(71%) as at last birthday are within the age range of 21-26 years while 72(23%) fall within the age range of 17-20 years. Also, majority 151(49.1%) of the students that participated in this study are currently studying Nursing Science, 45(14.6%) are studying Pharmacy and 23(7.5%) are studying Economic. In addition, majority 241(78.3%) of the respondents practice Christianity, 65(21.1%) of the respondents practice Islam while 2(0.6%) are of other religion. Meanwhile, most of the respondents 227(73.7%) are Yoruba by ethnicity (Table 1). Exactly 27(8.8%) are in 100 level, 79(25.6%) are in 200 level, 79(25.6%) are in 300 level, 55(17.9%) are in 400 level, 63(20.5%) are in 500 level while 5(1.6%) of the respondents are currently in 600 level (Figure 1).

Table 1: Distribution of the Respondents' Sociodemographic Information

Information	Responses	Frequency N=308	Percentage (%)
Age at last birthday	15-20	72	23.0
	21-26	218	71.0
	27-30	16	5.0
	31 & above	2	1.0
Course of study	Adult education	18	5.8
	Agric extension	18	5.8
	Civil engineering	5	1.6
	Economics	23	7.5
	Geology	15	4.9
	Nursing science	151	49.1
	Pharmacy	45	14.6
	Veterinary medicine	33	10.7
Religion	Christianity	241	78.3
	Islam	65	21.1
	Others	2	0.6
Ethnicity	Yoruba	227	73.7
	Hausa	20	6.5
	Igbo	40	13.0
	Others	21	6.8

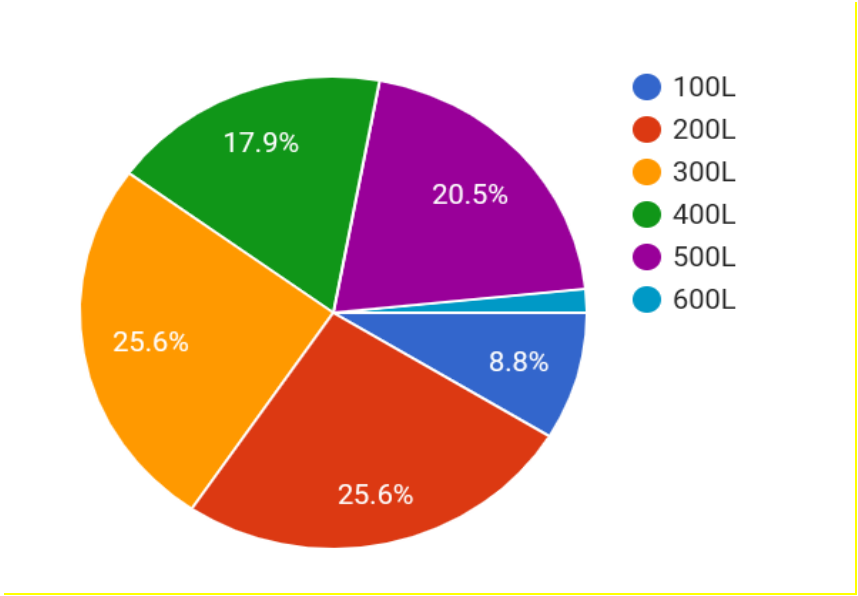

Figure 1: Distribution of the Respondents' Level of Study.

Perceived Benefits of Human Papilloma Virus (HPV) Screening and Vaccination.
Majority 195(63.3%) of the respondents agreed that HPV screening can detect genital warts. Likewise, majority 210(68.1%) agreed that HPV screening can detect cervical cancer. Moreover, slightly above average 209(67.8%) respondents agreed that Pap smear will almost always detect HPV. Furthermore, significantly above average 255(83%) agreed that HPV vaccine help to prevent infection with HPV. Likewise, majority 200(64.9%) of the respondents agreed that HPV vaccine help to prevent the transmission of HPV. In addition, more than half 192(62.4%) of the respondents agreed that HPV vaccine protect against cervical cancer. However, majority 139(45.1%) of the female undergraduates of University of Ibadan agreed that HPV vaccine protect against all types of viruses that causes cervical cancer. Meanwhile, almost half 146(47.4%) of the respondents disagreed that HPV vaccine protects against all sexually transmitted diseases (Table 2).

The female undergraduates in University of Ibadan have moderate to good perception of the benefits of human papilloma virus (HPV) screening and vaccination given that majority 179(56%) of the respondents have a frequency around mean score for moderate perception while very minimal of the 13(4%) respondents are observed to have a poor perception of human papilloma virus (HPV) screening and vaccination (Table 3).

Table 2: Perceived Benefits of Human Papilloma Virus (HPV) Screening and Vaccination

Variables	Freq. (%) SD	Freq. (%) D	Freq. (%) DK	Freq. (%) A	Freq. (%) SA	Mean
HPV screening can detect genital warts	6(1.9%)	25(8.1%)	82(26.6%)	117(38.0%)	78(25.3%)	1.5
HPV screening can detect cervical cancer	4(1.3%)	21(6.8%)	73(23.7%)	111(36.0%)	99(32.1%)	1.37
Pap smear will almost always detect HPV	6(1.9%)	15(4.9%)	79(25.3%)	119(38.6%)	90(29.2%)	1.34
HPV vaccine help to prevent infection with HPV	3(1.0%)	10(3.2%)	40(13.0%)	145(47.0%)	110(36.0%)	0.90
HPV vaccine help to prevent the transmission of HPV	3(1%)	36(11.7%)	69(22.4%)	121(39.3%)	79(25.6%)	1.44
HPV vaccine protect against cervical cancer	5(1.6%)	23(7.5%)	88(28.6%)	112(36.4%)	80(26.0%)	1.50
HPV vaccine protect against all types of virus that causes cervical cancer	9(2.9%)	60(19.5%)	100(32.5%)	95(30.8%)	44(14.3%)	2.04
HPV vaccine protects against all sexually transmitted diseases	53(17.2%)	93(30.2%)	80(26.0%)	58(18.8%)	24(7.8%)	2.93
Women who are vaccinated are free from cervical cancer in the future	10(3.2%)	58(18.8%)	95(30.8%)	98(31.8%)	47(15.3%)	1.99
	Weighted mean: 1.667, Criterion mean: 3.000					

Decision mean = weighted mean (1.667)

Table 3: Categorical table for the Respondents Perceived Benefits of HPV Screening and Vaccination

Perception	Mean perception score	Frequency	Percentage (%)
Positive perception	Greater than mean perception and frequency around mean score	295	96
Negative perception	Lesser than mean perception score	13	4
Total		308	100

n=308

Willingness to Undergo Human Papilloma Virus (HPV) Screening and Vaccination.
The result shows that 197(64%) of the female students responded that they were willing to undergo the screening and 231(75%) responded that they were willing to undergo HPV vaccination. **(Table 4).**

Table 4: Willingness to Undergo Human Papilloma Virus (HPV) Screening and Vaccination

Item	Responses	Frequency	Percentage (%)
Have you ever had sexual intercourse?	Yes	87	28
	No	221	72
If yes, please state number of partner(s)	1	51	16
	2	20	7
	3	7	2
	4	9	3
Are you willing to undergo HPV screening?	Yes	197	64
	No	111	36
Are you willing to undergo HPV vaccination?	Yes	231	75
	No	77	25

Uptake of Human Papilloma Virus (HPV) Screening and Vaccination
Almost all 294(95%) of the respondents have never undergone HPV screening. Likewise, almost all 292(95%) the respondents have never had HPV vaccine. Furthermore, almost all 300(97%) the respondents have never completed the series of 3 shots for the HPV vaccine. Likewise, majority 300(97%) of the respondents responded that they have not started and have not completed the series of 3 shots of the HPV vaccine (Table 5).

The female undergraduate students of the University of Ibadan have a poor uptake of HPV screening and vaccination given that 293(95%) of the respondents have a mean score for poor uptake while very minimal 15(5%) of the female undergraduates' students have a good uptake of HPV screening and vaccination (Table 6).

Table 5: Uptake of Human Papilloma Virus (HPV) Screening and Vaccination

Item	Responses	Frequency	Percentage (%)
Have you ever undergone HPV screening?	Yes	14	5
	No	294	95
Have you ever had HPV vaccine?	Yes	16	5
	No	292	95
I have completed the series of 3 shots for the HPV vaccine	Yes	8	3
	No	300	97
I have started, but not completed the series of 3 shots of the HPV vaccine	Yes	8	3
	No	300	97

Table 6: Categorical Table for the Respondents Uptake of HPV Screening and Vaccination

Variable	Frequency	Percentage (%)
Good uptake	15	5
Poor uptake	293	95
Total	**308**	**100**

n=308

Hypotheses testing: There was no significant association between ethnicity and willingness to undergo HPV screening and vaccination (R^2= 0.05, p = 0.216) (Table 7). Also, there was no significant association between perceived benefits and uptake of HPV screening and vaccination (p= 0.257 (Table 8).

Table 7: Association between Ethnicity and Willingness to undergo HPV Screening and Vaccination

Hypothesis	Regression weights	Beta coefficient	R^2	F	P-value	Remark	Decision
Ho	E ---> W	0.07	0.005	1.536	0.216	Not significant	Ho not rejected

**p<0.05, E= ethnicity, W= willingness to undergo HPV screening and vaccination*

Table 8: Relationship between Perceived Benefits and Uptake of HPV Screening and Vaccination

Variables	High benefit	moderate benefits	low benefits	Chi-square	Df	P-value	Remark	Decision
High uptake	0	8	0				Not significant	H_O not rejected
Moderate	9	9	1	7.754	6	0.257		
Poor	114	154	12					

Discussion

Majority of the respondents are within the age range of 21-26 years. This is similar to the study carried out among college students in Vietnam and the United States where most of the respondents fall within the age range of 20 - 25years.[12] This could be because the target population for the study are also students of a tertiary institution. The findings of this study show that the female undergraduates in University of Ibadan have positive perception of the benefits of human papilloma virus (HPV) screening and vaccination. This may be attributed to the fact that most of the respondents from the study were medical students who might have had lectures on HPV.

The result reveals moderate willingness to undergo HPV screening and vaccination. This is contrary to some studies carried out among female adolescents where less than half of the respondents were not willing to take HPV vaccination.[11, 13] The findings of this study may be attributed to educational environment of the participants, as university students generally have greater exposure to health information through academic activities, social media, healthcare campaigns and peer networks.

The findings reveal that the respondents have a poor uptake of HPV screening and vaccination. This is similar to the study carried out by among students in Ethiopia.[14] The reason for low uptake found in this study may be due to the fact that the Nigerian government is yet to organize a subsidized vaccination program for HPV. On the contrary, similar studies conducted in some developed countries like Germany and the United States revealed a considerable high uptake of HPV vaccines.[15,16] The higher uptake of HPV vaccine seen in developed countries could be attributed to vaccination subsidy in such countries. In order to increase the HPV vaccination rate in Nigeria, the government may need to consider subsidizing the cost.

The study revealed that there was no significant association between ethnicity and willingness to undergo HPV screening and vaccination (R^2= 0.05, p = 0.216). This is contrary to the study carried out in Ethiopia which showed that belief of ethnic group in regards to sexual activity may affect uptake.[14] For an ethnic group that discourages pre-marital sex, there might be low uptake of vaccination as there is a low perceived risk of getting infected with the virus.

Also, there was no significant association between the perceived benefits and uptake of HPV screening and vaccination (p=0.257). This is similar to the study carried out among some adolescents in Nigeria,[11] which could be due to shared sociocultural and economic environments that influence adolescent experiences.

Implication of the Study

The findings of the study can help the administrators in preparing nurses for counseling and teaching the public about HPV. Policies can be made where the nurse plays an important role in raising awareness, reinforce positive attitudes towards HPV as information literacy and evidence-based practice (EBP) are fundamental to delivering culturally competent, safe patient care.

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