

## Original Article

## Assessing the Knowledge of Female Tertiary Institution Students in Ile Ife, Nigeria on Human Papillomavirus and Cervical Cancer

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### Abstract

**Background:** Cervical cancer is a serious health problem which can either be prevented or treated when detected early. Cervical cancer is the second most common cancer in Nigerian women, coming after breast cancer. Cervical cancer is linked to persistent Human Papilloma virus (HPV) infection. The virus is usually transmitted during sexual intercourse.

**Objective:** The aim of this study was to determine the awareness of female students on the HPV and cervical cancer.

**Method:** a cross-sectional study was conducted among 230 female undergraduates of Obafemi Awolowo University (OAU), Ile Ife, Nigeria. Multistage sampling technique was used to select the six departments where the questionnaires were administered. Descriptive statistics and chi square test was use for analysis.

**Results:** out of 230 female students, 45.65% were between the ages of 21 and 25 years while 2.6% were above 25 years old, 85.2% were aware of the two cancer (breast and cervical) that accounts for the highest number of deaths in Nigeria. More than half (56.9%) of the participants had a low knowledge of HPV and cervical cancer, Age and course of study of students did not influence knowledge of HPV and cervical cancer as they did not reach significant levels. The p-values were 0.14 and 0.85 respectively.

**Conclusion:** Knowledge of HPV which is primarily responsible for cervical cancer was low among the students.

**Keywords:** knowledge, human papilloma virus and cervical cancer

### Introduction

Cervical cancer is an important public health problem. It is preventable and treatable if detected early. Cervical cancer is the second most common cancer in women worldwide and the leading cause of cancer deaths among women in developing countries (Ferlay, 2010). Cervical cancer is strongly associated with Human Papilloma virus infection (HPV) that can persist over years in the human body. HPV infection is commonest among young and sexually active individuals. Estimates are 75 to 80% of sexually active individuals over the course of their lifetime will be infected, in the

majority the infection is cleared by the immune system (Bethany, 2006). A total number of 529,800 cases and 275,100 deaths from invasive cervical cancer (ICC) are estimated annually worldwide with developing countries accounting for 453,300 new cases and 242,000 deaths (Ferlay, 2010)

Nigeria, the most populous country in Africa has also been greatly affected by incidence of cervical cancer. According to WHO, cervical cancer is the second most common cancer among women in Nigeria and also the second most frequent cancer among women aged 15 to 44 years with estimates indicating that out of

the 14,550 women that is diagnosed yearly, 9659 of them die from the disease (WHO, 2010). To address this problem, prevention and screening strategies which have proven successful are recommended. HPV vaccination prevents HPV infection and therefore prevents the cancer. Papanicolaou smear (Pap smear) or Visual inspection of the cervix can detect early lesions which are treatable.

Despite the alarming increase in the incidence of cervical cancer, the awareness and uptake of Pap smear is still quite low in most developing countries. The low awareness and uptake of Pap smear could be as a result of lack of appropriate screening programmes in the developing countries including Nigeria. According to a study among young people in Nigeria, 95% of the respondents have never had a Pap smear test (Wright et al, 2011). Various other studies also found that the knowledge and practice of cervical cancer screening among Nigerian women is quite low (Nwankwo et al, 2011, Arulogun & Maxwell, 2012). The purpose of this research was to assess the knowledge of female tertiary institution students in Ile Ife, Nigeria on human papilloma virus, cervical cancer.

## Methods

A cross-sectional study among female students of Obafemi Awolowo University, Ile Ife, Osun State Nigeria There are about 32,000 students in the University. Using self-administered questionnaires, Multistage sampling technique was employed to select the departments that participated in the study. The University has a total of 13 faculties which are sub-divided into 82 departments. 6 faculties were selected using simple random sampling. From the list of the selected faculties, 6 departments were selected for the survey. The selected departments are English Language, Economics, Pharmacy, Accounting, Law and Medicine. 40 students were selected from each of the pre-selected departments making a total of 240 students. In order to get 40 students from each of the selected departments, 10 students were selected from each level (class) employing convenience sampling techniques. Sample size was determined using a standard formula  $Z^2pq/d^2$ .

## Ethical approval

A formal approval was received from the ethical board at the beginning of July, 2013 and a

certificate of approval covering the period June 2013- May 2014 was issued. However the fieldwork could not be initiated until the beginning of 2014 (January) because there was an industrial action by University lecturers in Nigeria which lasted for almost 6 months (1<sup>st</sup> July - 20 December 2013). Regarding the participants, they were informed that the information provided would be kept confidential. Moreover, personal information like names, address and matriculation number were not collected in the questionnaires during data collection. The only place they were requested to append their names and signature was in filling of the consent forms as it was a legal document.

## Results

230 students were included in the final analysis but the actual number of questionnaires distributed was 240. 10 questionnaires could not be used as they were either not filled completely or the students did not put their age while some were less than 18 years old which was an exclusion criteria in this study. The response rate was quite high at 96%.

## Socio demographic variables of the respondents

Out of 230 female students 18 years and above participated in the survey, 51.74% of the respondents were between the ages of 18 and 20 years, 45.65% were between the ages of 21 and 25 years while 2.6% were above 25 years old. The mean age of the students was 21 years, standard deviation of 2.61 while the modal age was 20 years. The youngest student in the survey was 18 years old while the oldest participating student was 31 years old. About three-quarters of the students (77.83%) are from the South-Western part of the country followed by South-East and South-South which accounts for 9.13% and 7.83% respectively. The North-Central states and the North-Western states account for 4.35% and 0.87% while there were no students from the North-Eastern part of the country. About 42.2% of the respondents have monthly income ranging between N10, 000 (\$ 62.5) - N19, 999 (\$123.5). 31.3% have monthly income ranging between N5, 000 (\$31.3) – N9, 999 (\$62.5). 13.04% earn less than N5, 000 (\$31.2) monthly and just a slightly higher percentage (13.48%) earn over N20, 000(\$125) monthly. Furthermore more than two-thirds of the students (82.17%) were Christians while the remaining 17.8% were Muslims as nobody reported practicing the

traditional religion. 222 (96.52%) students were single, 6 (2.61%) were married while 2 (0.87%) said they were co-habiting with their partners.

### **Knowledge on route of transmission cervical cancer**

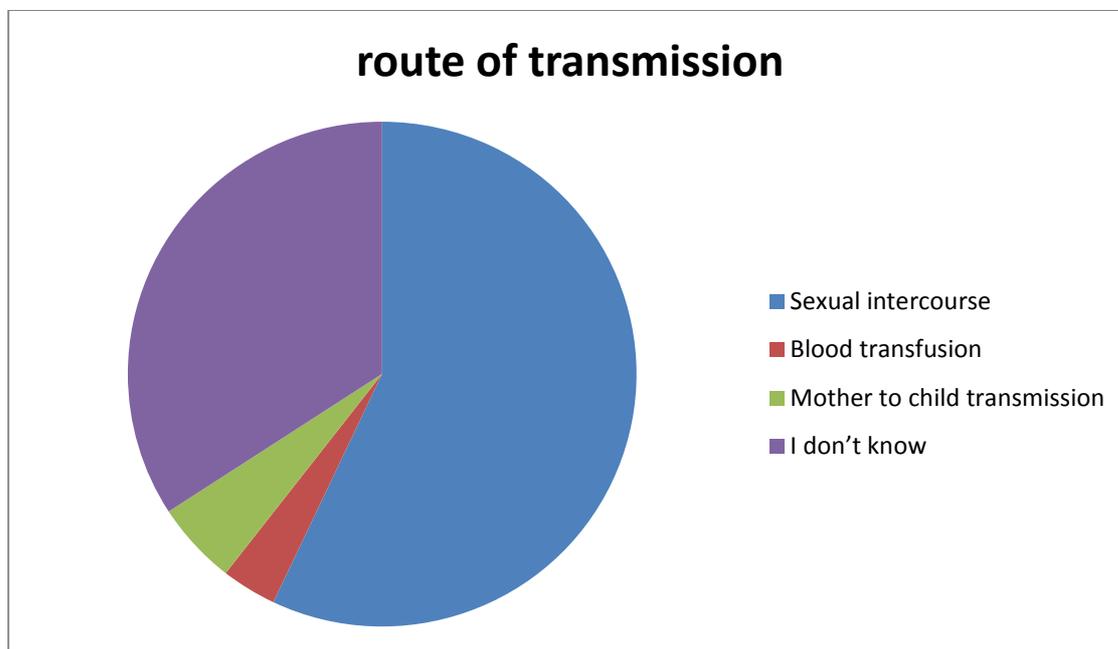
A question to determine if the students knew the major route of transmission of the virus causing cervical cancer was asked and more than half of the students (57.0%) correctly identified sexual intercourse as the main route of transmission. 34.2% said they didn't know the major mode of

transmission of the virus, 5.3% identified mother to child transmission as the main mode of transmission while 3.5% said the virus was majorly transmitted through blood transfusion. More than 85.2% of the students responded correctly that cervical and breast cancer accounts for the highest number of deaths in Nigeria. 4.3% said breast cancer and leukemia accounts for the highest cancer deaths in Nigeria. 6.5% responded that they do not know the cancer type that accounts for the highest number of deaths.

**Table 1: Socio demographic variables of the respondents**

<b>Variables</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>AGE (YEARS)</b>		
18-20	119	51.74
21-25	105	45.65
Above 25	6	2.6
<b>State (Geo-political zones)</b>		
South East	21	9.13
South South	18	7.83
South West	179	77.83
North Central	10	4.35
North West	2	0.87
North East	--	--
<b>Total</b>	<b>230</b>	<b>100.0</b>
<b>Course of study</b>		
English	40	17.39
Economics	40	17.39
Law	40	17.39
Medicine	40	17.39
Accounting	30	13.04
Pharmacy	40	17.39
<b>Total</b>	<b>230</b>	<b>100.0</b>
<b>Monthly Allowance (Naira)</b>		
4999 and below	30	13.04
5000-9999	72	31.30
10000-19999	97	42.17
20000 and above	31	13.48
<b>Total</b>	<b>230</b>	<b>100.0</b>
<b>Religion</b>		
Christianity	189	82.17
Islam	41	17.83
<b>Total</b>	<b>230</b>	<b>100.0</b>
<b>Relationship status</b>		
Single	222	96.52
Married	6	2.61
Cohabiting	2	0.87
<b>Total</b>	<b>230</b>	<b>100.0</b>

**Figure 1: Knowledge on route of transmission cervical cancer**



**Table 2 Knowledge of two cancer types that account for most deaths in Nigeria**

2 cancer types that account for highest number of cancer deaths in Nigeria	Frequency (n)	Percentage (%)
Cervical and breast cancer	196	85.2
Cervical cancer and leukemia	8	3.5
Breast cancer and leukemia	10	4.3
Breast cancer	1	0.4
I don't know	15	6.5
<b>Total</b>	<b>230</b>	<b>100.0</b>

**Table 3 Knowledge of age group that accounts for the highest cancer incidence in Nigeria**

Which age group in Nigeria is mostly affected by cervical cancer incidence?	Frequency (n)	Percentage (%)
15-44	85	37.0
45-65	97	42.2
65 and above	4	1.7
I don't know	44	19.1
<b>Total</b>	<b>230</b>	<b>100.0</b>

**Table 4 Knowledge of cervical cancer prevention (multiple responses)**

<b>Prevention of cervical cancer may require</b>	<b>Frequency(n)</b>	<b>Percentage of responses</b>	<b>Percent of respondents</b>
Going for pap smear test in the	142	52.4	62.3
Delayed age of sexual activity	42	15.5	18.4
Use of condoms	25	9.2	11.0
I don't know	62	22.9	27.2
<b>Total</b>	<b>271</b>	<b>100</b>	<b>118.9</b>

**Table 5: Knowledge of Human Papilloma virus**

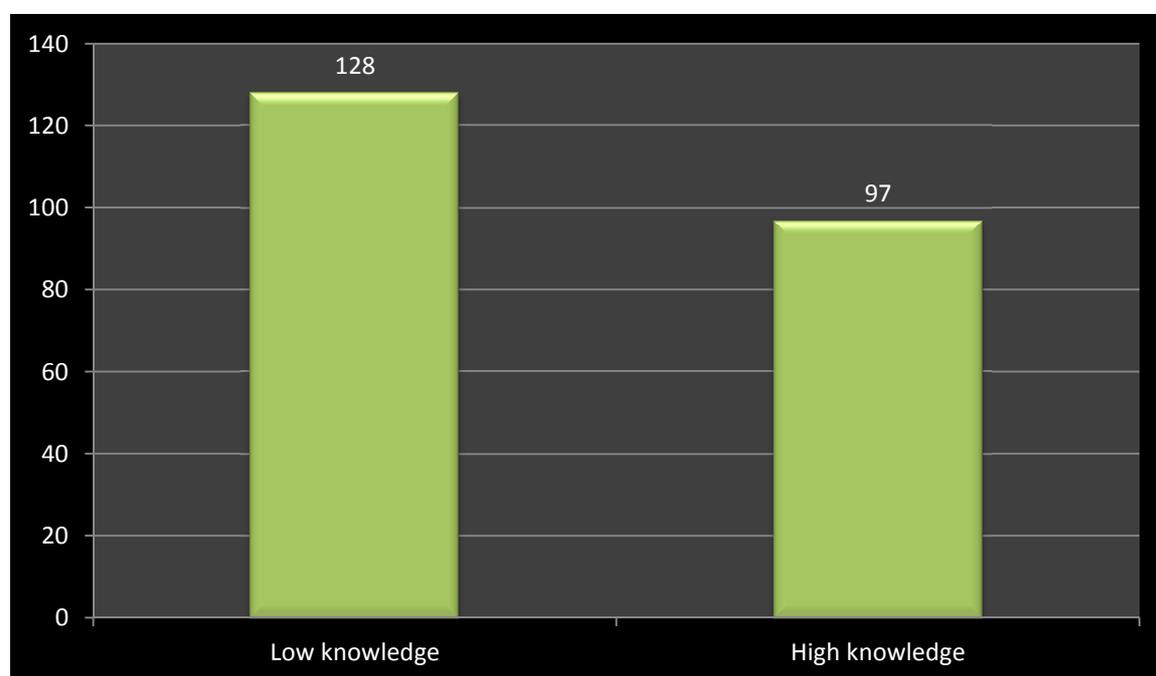
<b>Human Papilloma virus (HPV) can cause</b>	<b>Frequency</b>	<b>Percentage of responses</b>	<b>Percentage of respondents</b>
Vaginal discharge	45	13.6	19.6
Cervical cancer	106	31.9	46.1
Itching	41	12.3	17.8
Genital warts	45	13.6	19.6
I don't know	95	28.6	41.3
<b>Total</b>	<b>332</b>	<b>100.0</b>	<b>144.3</b>

**Table 6 HPV self- risk awareness**

<b>Do you think you are at risk of</b>	<b>Frequency</b>	<b>Percent (%)</b>
Yes	19	8.3
No	137	59.8
I don't know	73	31.9
<b>Total</b>	<b>229</b>	<b>100</b>

**Table 7: Symptoms of Cervical Cancer**

What are the symptoms of cervical cancer?	Frequency(n)	Percentage of responses	Percent of respondents
Abnormal bleeding from vagina	94	27.7	40.9
Pain during sex	71	20.9	30.9
Vaginal discharge with blood	84	24.8	36.5
I don't know	90	26.5	39.1
<b>Total</b>	<b>339</b>	<b>100</b>	<b>147.4</b>

*Symptoms of cervical cancer***Figure 2: Respondents Knowledge about HPV and Cervical Cancer**

**Knowledge of age group that accounts for the highest cancer incidence in Nigeria:** 37% of the respondents got the age group that accounts for the highest incidence of cervical cancer in Nigeria correctly. 42.2% said the incidence is highest among women aged 45-65 years while 1.7% said the incidence is highest in women over 65 years of age. 19.1% filled the "I don't know" option i.e. having no knowledge of the age group that accounts for the highest incidence of cervical cancer in Nigeria.

**Knowledge of cervical cancer prevention:** When asked what cervical cancer prevention entailed, 62.3 % of the respondents indicated going for a

pap smear in the hospital, 18.4 % mentioned delayed age of sexual activity, and 11.0% mentioned the use of condoms. About 27.2% of the respondents did not know what cervical cancer prevention methods entailed.

To examine their knowledge of HPV, the respondents were asked questions on what they think human papillomavirus can cause. 46.1% of the respondents correctly said HPV is the virus responsible for cervical cancer, 19.6% said it can causes vaginal discharge while another 19.6% said it is responsible for genital warts. 12.3% of the respondents said it causes itching in the

vagina. 28.6% of the respondents did not know what HPV causes in the body.

**HPV risk awareness:** A total of 137 (59.8%) respondents felt they were not at risk of contracting the HPV virus when questioned. 19 (8.3%) felt they could contract the virus while 73 (31.9%) didn't know if they were at risk of getting the HPV virus or not.

**Symptoms of cervical cancer:** 40.9% gave abnormal bleeding from the vagina as a symptom of cervical cancer. 30.9% mentioned pain during sex. Vagina discharge with blood was picked by 36.5% of the respondents while more than a quarter (39.1%) didn't know the symptoms of cervical cancer.

**Knowledge about HPV and cervical cancer:** After summing up all their answers on the knowledge aspect of the questionnaire, their knowledge of HPV and Cervical cancer was divided into either having a high knowledge or low knowledge. Those below 50% were classified as having low knowledge while those who scored above 50% were seen to have a high knowledge. Looking at the results, more than half of the respondents (56.89%) had a low knowledge of HPV and cervical cancer while 43.11% had a high knowledge.

## Discussion

Several studies have been conducted among female tertiary institutions students across Nigeria on HPV, HPV vaccine knowledge, cervical cancer and uptake of cervical screening (Ayinde, Omigbodun & Ilesanmi, 2004; Akujobi et al, 2008; Oladepo, Ricketts, John- Akinola 2008; Iliyasu 2010;) but to the best of knowledge, this is the first study to be conducted among the female students of Obafemi Awolowo University, Ile Ife, Nigeria. The main purpose of this study was to assess the knowledge of the female students on Human Papilloma Virus and cervical cancer. The study also sought to know if students' course of study and year of study in the University had an influence on their knowledge and uptake of the available preventive health services. Female students of Obafemi Awolowo University (OAU), Ile Ife selected from six Departments (English Language, Economics, Law, Medicine, Accounting and Pharmacy). Almost all the students (97.39%) were within the age bracket 18 – 25 years with mean age of 20.68 years. Majority of tertiary institution students usually fall within this age range, a study in

South Africa among female students on awareness of cervical cancer also observed a mean age of 20.81 years among their participants (Owoeye & Ibrahim, 2013). Students from other Geo-political zones of the country were under-represented in the study as more than three quarters of the students (77.83%) were from the south-western part of the country. This is typical of Nigerians who largely reside in the Geo-political zone of the country they originate from due to language barriers and sometimes cultural reasons. A similar trend was observed in a study carried out in the south-south region of the country where three-quarters of the students (74.4%) who participated in the study were from the south-south region of the country (Ugwu et al, 2013). In yet another study in the south-eastern part of the country, 96% of the respondents came from the same region. There were no foreigners in the study. A larger percentage of the students cited Christianity as their religion. This is not unconnected to the fact that the south west is home to a large percentage of Christian believers while the North is predominantly Muslim (Ezenwa, Balogun & Okafor, 2013). This correlate with a study in Lagos also reported three-quarters of their participants (78.6%) to be Christians (Ortashi et al, 2013) while another study in the North observed that majority of their respondents (87.5%) were Muslims (Oladepo, Ricketts, John-Akinola 2008) Only 6 students (2.61%) were married, the rest are still single though they might be in one relationship or the other. Similar scenario was observed in a study in South Africa where only one out of all the respondents was married (Owoeye & Ibrahim, 2013). This kind of observation may not be unconnected to the belief that education increases the age at first marriage of women. Women who are educated tend to marry at a much older age when compared with their uneducated peers. Monthly allowance of the students ranged between N4999 – N20, 000 (\$31-\$125) with almost half (42.2%) of them collecting between N10, 000 – N19, 999 (\$63-\$125).

## Knowledge of HPV and Cervical Cancer

Over half of the respondents (57.0%) knew that the virus linked to cervical cancer is transmitted mainly during sexual intercourse. This is higher than what was documented among women (15%) in United Arab Emirates (Blödt et al, 2011) and among female students attending vocational schools in Germany (31.7%) (Tang et al, 2014).

More than a quarter of the students (34.2%) could not mention the virus principally needed for cervical cancer development and progression in women. Similar finding was reported from a study in Lagos where the participants did not know the virus needed for cervical cancer progression (Ortashi et al, 2013).

A vast number of the students (85.2%) were knowledgeable on the two cancer types that accounts for the highest number of cancer deaths in Nigeria. Though quite knowledgeable about the cancer types that accounts for the highest number of deaths in the country, a large number of them were not aware of the age group with the highest cancer incidence in the country. About 19.1% of them did not know the age group with highest cancer incidence while another 42.2% thought the incidence was highest in women 45-65 years. Those who answered this question correctly were about 37.0% of the total respondents.

Students were quite knowledgeable about the prevention of cervical cancer (77.1%) although about a quarter of them did not know what cervical prevention methods entailed. Cervical cancer prevention methods such as going for Pap smear (62.3%), delayed age of sexual activity (18.4%), use of condoms (11.0%) were picked from the range of answers by the students. Association of HPV with cervical cancer which stood at 46.1% was higher than what was observed among female university students in Ghana (7.9%) and doubled that of high school students in China (18.6%) (Ayissi et al, 2012). However, this is quite low when compared with a study among school attending adolescents in Cameroon where 82.3% of the students could ascertain that certain HPV types were responsible for cervical cancer development (Ayissi et al, 2012). The report from Cameroon illustrates the benefits that can be accrued from sensitization programmes within societies as the study was conducted after a community based sensitization programme on HPV and cervical cancer. Another study in Lagos found that about a quarter of their respondents could identify the relationship between HPV and cervical cancer (Ortashi et al, 2013). This study also reveals a dearth in knowledge about the relationship between HPV and genital warts as just about a fifth (19.6%) could link HPV with genital warts. This is just a little higher than what was reported in a German study (10%) among vocational school students (Blödt et al, 2011) although one would have

expected this to be quite higher among tertiary institution students due to the fact that they are more exposed and have attained more years of education.

Surprisingly, more than half (59.8%) of the students felt they were not at risk of getting the HPV virus, although further questions were not asked to determine why they did not perceive themselves to be at risk as the questionnaire did not touch on sexual lives of the respondents. Those who are not sexually active may not see themselves to be at risk of getting the virus since it is transmitted mainly during sexual intercourse. Consistently, studies have documented that when women do not perceive themselves to be at risk of getting cervical cancer, it underscores the reason for low uptake of screening programmes (Hoque, 2013). Overall knowledge about HPV and cervical cancer was low from the study (43.1%). This research work aims to provide baseline information about HPV and cervical cancer among tertiary institution students who are deemed to be more knowledgeable and exposed than the general population.

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