Knowledge and utilization of cervical cancer vaccine among female undergraduates in University of Ibadan, Ibadan

[1]JO Aluko, [2]O Fanifosi, [2]OB Ani, [1]OA Onasoga

1. Department of Nursing Sciences, Faculty of Clinical Sciences, College of Health Sciences, University of Ilorin, Nigeria
2. Department of Nursing Sciences, Faculty of Clinical Sciences, College of Medicine, University of Ibadan, Nigeria

Abstract

Cervical cancer is the leading cause of cancer mortality among women in developing countries. An estimated 529,409 new cases and approximately 274,883 deaths are recorded annually. Vaccination has been identified as the surest way of preventing cervical cancer. Cervical cancer vaccines were licensed and introduced in Nigeria in 2009, but they are being utilized by only a few privileged population. Although cervical cancer is known to be preventable, poor knowledge of the disease and the possible preventive measures are responsible for late presentation of cases and consequently high cases of mortality in Nigeria. This study identified the knowledge and utilization of such vaccines available for cervical cancer prevention.

This Study adopted a descriptive cross-sectional survey to assess the level of knowledge and utilization of cervical cancer vaccine. The instrument for the study was a semi-structured questionnaire. Data obtained was coded and entered into spread sheet, and analysis was done using SPSS (version 20.0). Chi-square test and independent sample t- test was used to determine whether the relationships between the variables are statistically significant at $P < 0.05$.

A very low level of knowledge and awareness, 45.6% was seen among the female undergraduates. This also amounted to a low utilization; as 99.5% had never utilized the services. Different factors were also identified as barriers to utilization of screening services such as affordability, accessibility, fear of procedure among many others.

The menace cervical cancer is very high in Nigeria. There is urgent great need to establish adequate measures to ensure that services are available, knowledge about the disease is adequate and that available services are being utilized.

Key words: Cervical Cancer, Knowledge, Utilization, Vaccine, Female Undergraduates

Correspondence to:

JO. Aluko
Department of Nursing Science,
Faculty of Clinical Sciences,
College of Health Sciences,
University of Ilorin, Nigeria
e-mail: joelforfavour@gmail.com;
aluko.jo@unilorin.edu.ng
+234(0)7015055376; +234(0)8060633244

Introduction

Cervical carcinoma has been identified to be the second most common cancer affecting women worldwide. There were an estimated 529,409 new cases and approximately 274,883 deaths annually.[1] More than 80% of cervical cancer occurs in women in developing countries, and it is the leading cause of cancer mortality among women in developing countries.[2, 3] Its mortality rates in developing countries range from 10 to 35 per 100,000 compared with two to four deaths per 100,000 in developed nations.[4, 5]

Over the last decade, astonishing progress has been made in understanding the pathogenesis of cervical cancer. An overwhelming body of evidence shows that infection with distinct types of the Human Papilloma Virus (HPV) is the primary risk factor for the development of cervical cancer and its precursor lesions.[6] Epidemiological, molecular, and clinical evidences have shown that cervical cancer is caused by human papilloma virus, a sexually transmitted infection, especially serotype 6, 11, 16, and 18. HPV is common in Nigeria. Genital HPV infection is primarily transmitted by genital skin-to-skin contact usually and not necessarily during sexual intercourse. HPV infection can occur at any age and has been reported in healthy young children. More than 40 HPV types can affect the cervix; Human Papilloma Virus types 16 and 18 are responsible for approximately 70% of cervical cancer cases.[7]

In view of the high burden of cervical cancer, various means of prevention has been encouraged. One way of primary prevention is through vaccination against oncogenic HPV types. Currently there are two vaccines that have been approved by the U.S Food and Drug Administration (FDA). These are the bivalent HPV vaccine (cervarix) and the quadrivalent HPV vaccine (Gardasil). Both have been found to be nearly 100% effective in preventing cervical Intra-epithelial neoplasia 2 (CIN 2), CIN 3 and condylomatous vulva disease related to the HPV genotypes covered by the vaccines. The bivalent and quadrivalent vaccines have demonstrated efficacy of over 90% against persistent infection due to genotypes 16 or 18 in women who received 3 doses of HPV vaccine. HPV vaccines are designed to be prophylactic (that is to prevent infection and consequent disease).

The HPV vaccine is recommended for 11 and 12 year old girls. It is also recommended for girls and women aged 8 through 26 years of age who have not yet

been vaccinated or completed the vaccine series. The vaccine can also be given to girls 6 to 10 years of age in three shots over six-months.[8] Ideally females should get the vaccine before they become sexually active, when they may be exposed to HPV. Females who are sexually active may also benefit from the vaccine, but they may get less benefit from it, this is because they may have already been infected by an HPV type targeted by the vaccine.[9] Few sexually active young women are infected with all HPV types covered by the vaccine so they would still get protection from those types they have not yet been infected. The vaccines have been licensed by the FDA and approved by Centre for Diseases Control (CDC) in America as safe and effective.[9]

These vaccines were licensed and introduced in Nigeria in 2009, but they are being utilized by only a few privileged population.[10] The predominance of this cancerous disease has been proven to be majorly due to the low uptake of HPV vaccine which may be influenced by low level of knowledge of the disease by the population as well as the low uptake of proven preventive measures. Morbidity and mortality related to cervical cancer can effectively be reduced by vaccination, and eradicating pre-invasive disease. [11] Females being the most susceptible gender to this infection importantly need to have the knowledge about cervical cancer vaccination at their fingertips and as well be encouraged to utilize the vaccination preventive measure so as to prevent the infection as early as possible. Therefore, this study sought to assess the knowledge and utilization of cervical cancer vaccine among female undergraduates of the University of Ibadan in Nigeria.

Materials and method

Study design

This Study adopted a descriptive cross-sectional survey to assess the level of knowledge and utilization of cervical cancer vaccine among the female undergraduates of the University of Ibadan, Oyo state, Nigeria.

Study setting

The research took place in the female undergraduate halls of residence of University of Ibadan. Three halls namely; Obafemi Awolowo hall, Queen Elizabeth II hall and Queen Idia hall were used for the study. University of Ibadan is the first University in Nigeria established in 1948. The University was established solely to expand the frontiers of knowledge through provision of excellent conditions for learning and research. The vision is to be a world-class institution for academic excellence geared towards meeting societal needs. The female hostels were built to provide shelter, safety and a serene environment to promote female undergraduate students' effective learning process Obafemi Awolowo hall occupies about 1,590 female undergraduates, Queen Elizabeth II hall occupies about 1,200 female undergraduates, and Queen Idia hall occupies about 1,300 female undergraduates each session.

Sampling and sampling technique

The total population of female undergraduate students living in the three female hostels as at the time of data collection was 4,090. A total of 444 sample size was calculated using Fisher's formula: $n= N/1+(e)^2$ where 'n' = required sample size; N = the total population size; e = error of tolerance which is 0.05. Out of the 444 questionnaires administered to participants, 399 were found to be properly completed and suitable for data analysis. Thus, the response rate was 89.9%. A simple random sampling method was used to select the study participants from the sample frames.

Instrument for data collection

The instrument for the study was a semi-structured questionnaire which was designed by the researcher and was administered to collect information from the female undergraduate students. The questionnaire was made up of six sections. Section A collected information about socio-demographic variables, Section B collected information about knowledge of cervical cancer, Section C collected information about attitude of female undergraduates towards cervical cancer vaccination services, Section D collected information about awareness and utilization of cervical cancer vaccination services, Section E collected information about Perception of susceptibility to cervical cancer, while section F collected information about barriers to utilization of cervical cancer.

Data Collection and analysis

A Structured questionnaire was used to elicit responses from the respondents, it was given to them to complete appropriately and was collected back after completion. The questionnaires were given to the respondents by the researcher herself and explanation was given to them about the importance of the study. The data was collected over four weeks.

Data obtained was coded and entered into spread sheet. Analysis was done using SPSS (version 20.0). Descriptive statistics such as frequency counts, percentages, charts, mean+SD was used to summarize and present the results.

Ethical considerations

Ethical approval for the study was applied for and gotten. A brief introduction of the purpose of the study was made known to the principal of the school and to the students. Anonymity and confidentiality

were maintained, respondents were told not to write their names on the questionnaire.

Results

Table 1 shows the socio demographic data of the respondents. Results from the study indicate that the highest proportions of the students, 65.6% were aged between 16-20 years of age. Also, the greatest percentage of them, 99.5 were single, while 86.7% of them were Christians. In addition, 30.6% of them were in their 100 level, while 99% of them have never had children.

Table 2 shows the respondents' level of knowledge about cervical cancer. The table shows that though majority of the respondents know what cervical cancer is but they do not have enough knowledge and detail about it. The study findings show that 45.6%of the participants were not aware of cervical cancer vaccination. Besides, 397 (99.5%) of the respondents had not been vaccinated against cervical cancer. Table 3 shows participants' perceived susceptibility to cervical cancer. Results from the study indicate that a good proportion of the respondents agree they are very susceptible to cervical cancer because of different reasons such as family history, drinking alcohol or

Table 1: Socio- demographic data of respondents (N = 399)

Socio- demographic data	Frequency	Percent
Age:		
16-20	262	65.6
21-25	130	32.6
26-30	7	1.8
Marital status		
Single	397	99.5
Married	2	0.5
Religious Affiliation		
Christianity	346	86.7
Islam	51	12.8
Others	2	0.5
Level of study		
100 level	122	30.6
200 level	94	23.6
300 level	93	23.3
400 level	68	17.0
500 level	20	5.0
600 level	2	0.5
No of children of respondents		
None	395	99.0
1-3	3	0.7
4 and above	1	0.3

Table 2: Respondent's knowledge of cervical cancer (N=399)

Knowledge of cervical cancer	Yes	No	Not sure
Cervical cancer is a cancer of the cervix	374(93.7%)	1(0.3%)	24(6.0%)
Cervical cancer is caused by sexual intercourse	161(40.4%)	100(25.1%)	138(34.6%)
Cervical cancer is the second most common cancer among women in Nigeria	285(71.4%)	15(3.8%)	99(24.8%)
Cervical cancer is caused by Human Papilloma Virus	153(38.3%)	25(6.3%)	221(55.4%)
Cervical cancer can progress to advanced stage when cure is elusive	330(82.7%)	9(2.3%)	60(15.0%)
Being a female or a woman can put one at risk	285(71.4%)	64(16.0%)	50(12.5%)
Early exposure to sexual intercourse can cause cervical cancer	279(69.9%)	19(4.8%)	101(25.3%)
Cervical cancer is preventable	295(73.9%)	17(4.3%)	87(21.8%)
There are vaccines for preventing cervical cancer	160(40.1%)	34(8.5%)	205(51.4%)
Having one's mother or sister(s) who is/are suffering or has/have suffered from cervical cancer can put one at risk	122(30.6%)	119(29.8%)	158(39.6%)
Not utilizing cervical cancer vaccination services as a female can put one at risk	171(42.9%)	42(10.5%)	186(46.6%)
Not able to receive HPV vaccine before the first exposure to sexual intercourse can put one at risk	129(32.3%)	39(9.8%)	231(57.9%)
Cervical cancer makes women experience prolong period of illness and suffering	252(63.2%)	15(3.8%)	132(33.1%)
Cervical cancer causes financial wastage and poverty in a family	277(69.4%)	38(9.5%)	84(21.1%)
Cervical cancer can lead to premature death, sorrow and grief	328(82.2%)	16(4.0%)	55(13.8%)
Cervical cancer can cause pain, sorrow and grief to victims and her family members	98(24.6%)	66(16.5%)	235(58.9%)
Cervical cancer can be prevented by using condom during sexual intercourse	339(85.0%)	15(3.8%)	45(11.3%)

Table 3: Respondent's knowledge of their susceptibility to cervical cancer (N=399)

Perceived susceptibility	SA	A	U	D	SD
As a woman I am prone to cervical cancer	73(18.3%)	192(48.1%)	47(11.8%)	57(14.3%)	30(7.5%)
My risk to cervical cancer increases as I grow older	41(10.3%)	137(34.3%)	93(23.3%)	90(22.6%)	38(9.5%)
I may develop cervical cancer if my mother, sister or aunt had cervical in the past	34(8.5%)	93(23.3%)	105(26.3%)	104(26.1%)	63(15.8%)
I may develop cervical cancer if i drink alcohol and smoke cigarette	26(6.5%)	74(18.5%)	122(30.6%)	128(32.1%)	49(12.3%)
I may develop breast cancer if I use Intrauterine Contraceptive Device (IUCD) for a long time	42(10.5%)	115(28.8%)	129(32.3%)	97(24.3%)	16(4.0%)
Prolonged use of oral pills may cause me to develop cervical cancer	36(9.0%)	95(23.8%)	136(34.1%)	116(29.1%)	16(4.0%)
I may develop cervical cancer if I sleep with a man during my period	20(5.0%)	81(20.3%)	137(34.3%)	135(33.8%)	26(6.5%)
Older women are more likely to get cervical cancer than younger women	39(9.8%)	110(27.6%)	117(29.3%)	108(27.1%)	25(6.3%)
I believe God cannot allow me to develop cervical cancer. Hence, I don't really need it	105(26.3%)	83(20.8%)	82(20.6%)	77(19.3%)	52(13.0%)

Table 4: Respondent's attitude towards cervical cancer vaccination

Attitude of students towards cervical cancer vaccination	SA	A	U	D	SD
I am scared of going for vaccination because it is painful	19(4.8%)	47(11.8%)	156(39.1%)	101(25.3%)	76(19.0%)
I don't have to go for cervical cancer vaccination because I am not at risk of developing cervical cancer	37(9.3%)	70(17.5%)	105(26.3%)	124(31.1%)	63(15.8%)
I don't really need to take HPV Vaccines because my partner and I are faithful to each other	19(4.8%)	43(10.8%)	141(35.3%)	103(25.8%)	93(23.3%)
I know vaccination against Human Papilloma Virus infection is necessary but it has not occurred to me to go for it	49(12.3%)	155(38.8%)	120(30.1%)	46(11.5%)	29(7.3%)
There is nothing wrong with vaccination against Human Papilloma Virus infection but I don't just feel like going for it	33(8.3%)	113(28.3%)	126(31.6%)	82(20.6%)	45(11.3%)
I don't really know where cervical cancer vaccination is performed	123(30.8%)	148(37.1%)	54(13.5%)	48(12.0%)	26(6.5%)
I don't have time to go for it	25(6.3%)	81(20.3%)	121(30.3%)	119(29.8%)	53(13.3%)
I would prefer to get the vaccination in a private hospital rather than in any clinic or hospital around the University vicinity	37(9.3%)	85(21.3%)	152(38.1%)	87(21.8%)	38(9.5%)
I have not recommended cervical cancer vaccination service to anybody	135(33.8%)	165(41.4%)	65(16.3%)	27(6.8%)	7(1.8%)
I will get vaccinated against Human Papilloma Virus infection in future	109(27.3%)	117(29.3%)	131(32.8%)	27(6.8%)	15(3.8%)

Table 5: Barriers to respondent's utilization of cervical cancer vaccines

Barriers to utilization of cervical cancer vaccines	Yes	No
Unaffordable cost of the vaccines	219(54.9%)	180(45.1%)
Fear of discomfort or pain or unsafe procedure	196(49.1%)	203(50.9%)
Fear of adverse effect(s) of vaccination	203(50.9%)	196(49.1%)
Inaccessibility to the cervical cancer vaccination services	273(68.4%)	126(31.6%)
Inaccessibility to the cervical cancer vaccination facilities	268(67.2%)	131(32.8%)
Feeling of embarrassment exposing myself when am not sick	147(36.8%)	252(63.2%)
Fear of lack of privacy and lack of confidentiality	165(41.4%)	234(58.6%)
Am worried about the vaccine effectiveness	158(39.6%)	241(60.4%)
My cultural values and beliefs do not encourage the use of cervical cancer vaccine	85(21.3%)	314(78.7%)

smoking, unprotected sexual intercourse among many others.

Table 4 illustrates participants' attitude towards cervical cancer vaccination. Results from the study indicate that the students have a positive attitude towards vaccination, as a good number of them agreed to go for vaccination in the future.

Table 5 shows barriers to respondents' utilization of cervical cancer vaccine. Results from the study point to not being able to afford vaccine, 54.9%, fear of discomfort or pain or unsafe procedure, 49.1%, Fear of adverse effects of vaccination, 50.9%, Inaccessibility to the cervical cancer vaccination services, 68.4% and Inaccessibility to the cervical cancer vaccination facilities, 67.2% as the barriers that can prevent them from utilizing cervical cancer vaccination.

Discussion

Results from the study indicate that most of the respondents were within teenage and early twenties, which largely coincides with the age range of the productive workforce of any nation, and this age range has also been implicated as one where risky sexual behaviours are likely going to occur. This has implications for findings from this study, as incidence rate of cervical cancer has been noticed to be very high among young people. [12] The incidence rate of cervical cancer which was 0.21 per 100,000 in 1988 rose to 1.35 per 100,000 in 2002 among women within 20 and 24 years.[12] This is therefore constitutes a serious concern as some of the participants may have cervical carcinoma without knowing it. In addition, majority of the female undergraduate were not married. This was perhaps due to the fact that most of these students were just starting their adolescent life and as well schooling.

Moreover, more than 45% of the participants were not aware of available vaccination services for cervical cancer and majority of the participants did not have sufficient knowledge regarding cervical cancer. This finding shows that there is need to institute dissemination of health education and information on cervical cancer vaccination, its indications, and location of screening vaccination facilities in order to improve its utilization by women in developing countries. Similar low levels of awareness and knowledge of cervical cancer and its risk factors had been reported in a previous studies.[13, 14, 15] This means that awareness about cervical cancer is still low in general women population groups across the country.

Although the level of the awareness of cervical cancer vaccination was considerably above 50%, A good proportion of them had never been screened, while 99.5% of the participants had not been vaccinated against cervical cancer before the data collection. This is an issue of great concern, because most of the students were at the peak of their productive and reproductive lives, and therefore need to be protected against every form of disease that may cause disability to them. Low pap smear utilization has been reported in previous studies.[16, 17] Nigeria's Cancer Control Plan is aimed at providing information and education through outreach services nationwide.[18] Promulgating the cancer control plan at all levels, will go a long way in ensuring adequate utilization of screening and vaccination services.

Furthermore, this study identified factors namely; family history, family type, and parity as additional risk factors for cervical cancer. Perception about non-susceptibility might be responsible for non-utilization of cervical cancer vaccination services as well. Moreover, approximately 34% of the participants

perceived that risk to cervical cancer increases as one grows older. This could explain why nearly all the participants have not been vaccinated. In addition, it is important to note that, the population of female undergraduates who were not sure of the risk factors of cervical cancer was much. For instance, close to 35% were not sure if they could develop cervical cancer as a result of having coitus during menstruation. Similarly, almost half of the female undergraduate were not sure if prolong use of oral contraceptive pills could predispose them to cervical cancer. Therefore, health education targeting female undergraduate would be of great benefit to this category of national population.

The attitude of the female undergraduate was measured on likert scale. Thus female undergraduates were categorised into two: students with 'positive' and 'negative' attitudes. More than 50% of the participants had negative attitude towards cervical cancer vaccination. A similar picture as above was observed in Ugandan female health workers.[19] It is therefore concluded that an intervention programme focusing on a change of attitude should be planned and implemented to improve women's health seeking attitudes and behaviours. Actually, modification of health behavior through education, and social empowerment of women are essential for a population based cervical vaccination programmes to succeed[20].

However, different factors were implicated by the female undergraduate students for their non-utilization cervical cancer vaccination services. Central to some of these reasons was the lack of accessibility to the vaccines and vaccination centres. Poor participation in cervical cancer screening and vaccination services was due to high cost, lack of knowledge about the disease and the need for vaccination, fear of cervical cancer and lack of know ledge about service centers.[21] The University and health administrators should try as much as possible to provide these services at the University clinic, at subsidized rates, in order to boycott the barriers of availability, accessibility and affordability of services.

Conclusion

This descriptive cross-sectional study done among female undergraduates of University of Ibadan has been able to identify the factors contributing to low utilization of cervical cancer vaccine among the study participants. The major factor implicated for low uptake or utilization of cervical cancer vaccine in this study was attitude of the students towards the service. Thus, female students who exhibited negative towards cervical cancer vaccination service are less likely to utilize cervical cancer vaccine. Besides, age, education was implicated for low uptake of cervical cancer vaccine among the students as well. These three factors border on attitude as well. For instance, younger students would not likely see the need to utilize the vaccine because most of them believe that risk for cervical cancer increases as one grows older. Furthermore, female students who had had high knowledge of cervical cancer and its prevention were less than half of the population. In addition, perceived barrier to utilization of early prevention modality include fear of discomfort, pain, service cost and in-accessibility. The above elucidated findings form the basis for the recommendations/suggestions outlined below.

Recommendations

Awareness campaigns on availability and benefits of HPV vaccine should be embarked upon to sensitize the female undergraduates and other members of the institution and the entire public to improve its uptake with the aim of subsequently improving the health of female population in Nigeria.

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