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# Awareness of Cervical Cancer Screening and Prevention among Students of a Tertiary Institution in Southern Nigeria

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***Authors' contributions***

*This work was carried out by the collaboration of both authors. Both authors designed the study, wrote the protocol and wrote the first draft of the manuscript. Author BPA managed the analyses of the study. Author ILO managed the literature searches. Both authors read and approved the final manuscript.*

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## ABSTRACT

**Aim:** To access the level of awareness of cervical cancer screening tools and preventive measures amongst students of a tertiary institution.
**Methodology:** This was a questionnaire-based cross-sectional study. Pre-tested self-administered Questionnaires were distributed to students who were above the age of 18 years in the University of Port Harcourt, Rivers State, Nigeria, to obtain information on their socio-demographics and awareness of cervical cancer, its prevention, risk factors and association with Human Papilloma Virus infection. Information acquired from the questionnaires were presented using descriptive statistics. Chi-Square analysis was used to compare differences between knowledge and practice among the respondents. *P*-value < 0.05 was considered significant. All tests were carried out with the Epi Info v7 software.

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**Results:** A total of 227 students were interviewed.82.8% were female and 22.9% indicated being sexually active. About two-thirds of respondents had some knowledge (heard) of cervical cancer and Pap smear, majority of whom indicated they did so from health care personnel followed closely by the media houses and social media. Only 12.1% were aware of sexual intercourse as a risk factor for Human Papilloma virus infection and about one-fifth knew the currently recommended age for vaccination against the virus.
**Conclusion:** The degree of awareness of cervical cancer in a key population such as the undergraduates sampled in this study is unacceptably low. Increased efforts must therefore be put into public enlightenment as primary prevention of cervical cancer

*Keywords: PAP; cervical cancer; prevention; institutional study.*

## 1. INTRODUCTION

Cervical cancer is known to affect people of all races worldwide though incidence varies across regions. It ranks as the fourth most frequent cancer in women and eighth most commonly occurring cancer globally [1] but the second most frequent cancer of women in Nigeria, second to breast cancer [2,3].

The incidence of cervical cancer seems to even be on the increase because in the year 2000, the estimated number of new cases of cancer of the cervix per year was 500,000 of which 79% occurred in the developing countries [4], in 2012 an estimated 528,000 new cases of cervical cancer with 266,000 deaths were recorded worldwide[3] while 570,000 new cases were diagnosed worldwide in 2018 [1]. Very worrisome is the fact that Africa seems to bear the brunt, as Bray et al reported that the highest regional incidence and mortality rates were seen in Africa in 2018, this being 7 – 10 times higher than many other regions of the world [5].

It is a leading cause of cancer- associated deaths in women living in the developing areas of the world [3]. Low and middle income countries contribute approximately 90% of deaths from cervical cancer [1].

In recent times, higher rates of diagnosis in Nigeria have been observed, probably due to improved awareness, improved health-seeking behavior among women, and better access to screening services and probably improved clinical case finding. Crude incidence rate of 15.5/100,000 and age-standardized rate of 27.2/100,000 have been reported in Nigeria [2]. Cervical cancer tends to occur in midlife, most frequently between age 35 and 43 years [6] making it of grave economic impact no wonder screening efforts are concentrated at older age groups [2]. It is worth noting however, that reports of cancer at earlier ages have been made [7] and this may be due to early age at onset of sexual intercourse.

Cervical cancer has been proven to be associated with the high risk genotypes of the Human Papilloma virus (HPV), a DNA virus which could be transmitted during sexual intercourse. Among the 13 high risk genotypes, genotypes 16 and 18 are most commonly implicated [2,6]. Dysplastic changes in the cervix caused by persistent infection with the Human Papilloma virus, tend to manifest about a decade after infection by the virus, by which time, instituting treatment of the viral infection offers no chance of recovery from the malignancy [6,8].

It is therefore more fruitful and effective to target efforts at primary and secondary prevention and control strategies. A study as far back as 2000 stated that “the accumulated evidence suggests that cervical cancer is preventable and is highly suitable for primary prevention. Sexual hygiene, use of barrier contraceptives, and ritual circumcision can undoubtedly reduce cervical cancer incidence. Education, cervical cancer screening of high-risk groups, and improvement in socioeconomic status can reduce cervical cancer morbidity and mortality significantly [4].

Fortunately, there are effective screening tools for early detection of cervical dysplasia, such as Visual inspection with Acetic acid (VIA) and the Papanicoulou (Pap) smear cytology as well as potent vaccines for prevention of infection with the Human Papilloma virus [9,10].

The big question is how informed is the general populace, particularly young girls and women of child bearing age about these and how accessible and affordable are they to the Nigerian populace?

This study aimed to determine the degree to which young men and women of child bearing age in the foremost tertiary institution in Port Harcourt, Nigeria were aware of the available

preventive measures and screening tools for Cervical Cancer.

## 2. METHODOLOGY

This was a questionnaire-based cross-sectional study. Pre-tested, self-administered questionnaires were distributed to female and male students of the University of Port Harcourt above the age of 18 years, to obtain information on their socio-demographics and awareness of cervical cancer, its prevention, risk factors and association with Human Papilloma Virus infection. Study participants were chosen by random sampling and informed consent obtained prior to administration of questionnaires. Confidentiality was maintained as individuals' identities were not recorded. Ethical approval was obtained from the institution's ethical committee. The minimum sample size of 215 was calculated using the formula for qualitative cross-sectional studies. Information acquired from the questionnaires were presented using descriptive statistics (mean, percentage). Chi-Square analysis was used to compare differences between knowledge and practice among the respondents at a 95% confidence interval and a *P*-value < 0.05 was considered significant. All tests were carried out with the Epi Info v7 software.

## 3. RESULTS AND DISCUSSION

A total of 227 students were interviewed. The majority of them were between 21 and 30 years old (50.7%) and they were all unmarried (Table 1). These fall within the age range where cervical cancer is generally less prevalent and so a good target for primary prevention activities. Above this age- group, screening is recommended as it is most beneficial [1].

Interestingly, 82.8% of respondents were female and 22.9% of all subjects indicated being sexually active (Table 1). Sexual intercourse is a documented risk factor for infection with HPV and invariably for cervical cancer [11].

About two-thirds (134/227) of Respondents had some knowledge (heard) of cervical cancer and Pap smear (Table 2) and this was statistically significantly higher than those who did not know and those who did not respond to these questions. This is similar to findings in another study carried out in Nigeria [3] and probably indicates that the increasing awareness campaigns and efforts have yielded some positive results, but it still leaves a lot to be desired. Other reports indicate larger percentages of persons who were not aware [12,13].

**Table 1. Socio-demographic data of respondents**

| Variable | | Frequency (n= 227) | Percent |
|---|---|---|---|
| **Age** | <20 | 111 | 48.9 |
| | 21 -30 | 115 | 50.7 |
| | 31 – 40 | 1 | 0.4 |
| **Sex** | Male | 39 | 17.2 |
| | Female | 188 | 82.8 |
| **Marital Status** | Single | 227 | 100.0 |
| **Occupation** | Student | 227 | 100.0 |
| **Educational Level** | Post-Secondary | 227 | 100.0 |
| **Sexually Active** | Yes | 52 | 22.9 |
| | No | 139 | 61.2 |
| | No response | 36 | 15.9 |

*Mean age (SD) of subjects is 20.82±6.7 years*

**Table 2. Knowledge of cervical cancer and Pap smear**

| Knowledge | Cervical Cancer (n, %) | Pap Smear (n, %) | $X^2$(p-value) |
|---|---|---|---|
| Yes | 200 (88.1) | 134 (59.0) | 56.61(0.0001) |
| No | 25 (11.0) | 80 (35.2) | |
| NR | 2 (0.9) | 13 (5.7) | |
| **Total** | **227 (100.00)** | **227 (100.00)** | |

*$X^2$= Chi-Square test, NR: No Response*

Majority of those who had heard about the Pap smear claimed they did so from health care personnel followed closely by the media houses and social media (Table 3). This buttresses the fact that public enlightenment and awareness campaigns are an effective tool for prevention and early diagnosis of cervical cancer which leads to better clinical outcomes.

As regards the purpose of a pap smear, about 20% were aware it was to detect cervical abnormality (as a marker of cervical cancer), however; over 70% of respondents didn't respond to this question (Table 4) which suggests that they may not have been aware of its purpose, though they had heard of it. On this background, it is highly unlikely that the majority of our study subjects who were unaware of the purpose of the Pap smear would have undergone one. This is similar to findings from other studies among similar populations in Nigeria where very poor knowledge and poor uptake of cervical cancer screening were recorded [13,14,15].

When asked about the risk factors for Cervical Cancer, multiple responses applied and their responses are as shown in Table 5; only 12.1% of respondents were aware that sexual intercourse is a risk factor for Human Papilloma virus infection and by extension, of Cervical Cancer. The situation is similar in other Nigerian settings [3,12,13].

64.3% (146/227) of our respondents were aware that there is a vaccine available for prevention of HPV infection (Fig. 1), however, the number that were not aware is still quite significant and should be of concern. Also important to note here is that only about one- fifth of respondents were aware of the currently recommended age for vaccination (Fig. 2). This is similar to other reports across Nigeria which show a large proportion are still ignorant of HPV vaccination and cervical cancer screening [9,14,15]. These are important aspects of the information that should be spread to the wider public in order to ensure effective prevention of this menace. There is the need to clearly incorporate these information while designing awareness campaign strategies. Details of the recommended vaccination schedule is also important in health enlightenment/education campaigns though this was not elucidated in our study.

**Table 3. Source of knowledge of Pap smear**

| Source | Frequency (%) | Percent (%) |
|---|---|---|
| Health Worker | 82 | 61.2 |
| Media | 31 | 23.1 |
| Internet | 13 | 9.7 |
| Other | 8 | 6.0 |
| **Total** | **134** | **100.00** |

**Table 4. Purpose of a Pap smear**

| Use of pap smear | Frequency (n) | Percent (%) |
|---|---|---|
| HIV Screening | 1 | 0.4 |
| Secretions | 1 | 0.4 |
| Detection of Infections | 7 | 3.1 |
| HPV | 8 | 3.5 |
| Cervical Cancer | 45 | 19.8 |
| No Response | 165 | 72.7 |
| **Total** | **227** | **100.00** |

**Table 5. Awareness of risk factors for cervical cancer**

| Risk Factors | Frequency (n) | Percent |
|---|---|---|
| Early Menarche | 28 | 9.4 |
| Having sexual intercourse | 36 | 12.1 |
| Sexually Transmitted Infection | 52 | 17.5 |
| Family Member with cancer | 37 | 12.5 |
| Unprotected sex | 29 | 9.8 |
| Early onset of sexual intercourse | 54 | 18.2 |
| Multiple Sexual partners | 61 | 20.5 |
| **Total** | **297** | **100.00** |

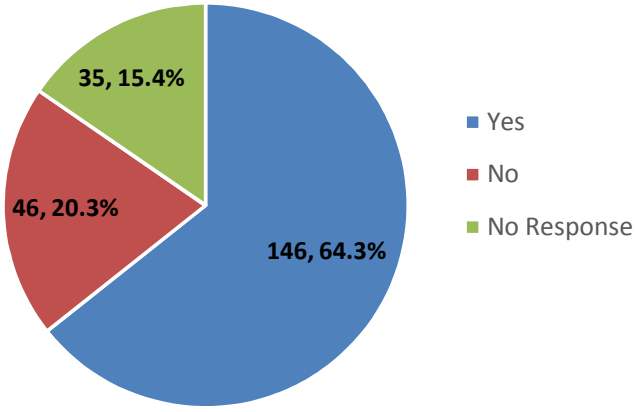


**Fig. 1. Knowledge of availability of HPV vaccine**

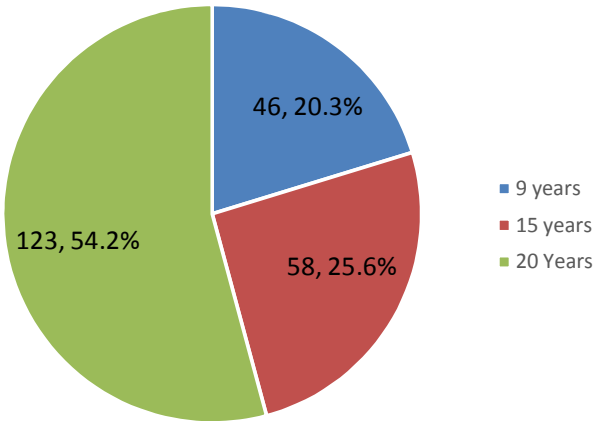


**Fig. 2. Knowledge of recommended age for HPV vaccine**

Vaccines against the Human Papilloma virus and screening are cost intensive in Nigeria, making it inaccessible to the majority of the populace. This poses a major challenge as persons of low socio-economic status are even at higher risk for cervical cancer [13]. Financial impact of treatment is also huge, with a report from northern Nigeria quoting the overall cost of illness as ranged from ₦191,338 ($524) to ₦1,001,298 ($2,743) for local to metastatic diseases respectively; an amount, majority of Nigerians cannot afford [16]. The WHO recommends that vaccination against the HPV be incorporated into the school –based vaccination programme[1] (WHO) but Nigeria is yet to adopt that.

## 4. CONCLUSION

The degree of awareness of cervical cancer in a key population such as the undergraduates sampled in this study is unacceptably low.

Increased efforts must therefore be put into public enlightenment as primary prevention of cervical cancer. Beyond women of reproductive age, these should be targeted at the young ones, particularly before the onset of sexual activity in order to get the best gains from it. It should commence at the level of primary schools and continue through secondary and tertiary levels. HPV Vaccination should be made readily available and affordable in Nigeria, to enable the general populace easy access to it, while efforts to make it freely accessible intensify.

## CONSENT AND ETHICAL APPROVAL

Informed consent was obtained prior to administration of questionnaires. Confidentiality was maintained as individuals' identities were not recorded. Ethical approval was obtained from the institution's ethical committee.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES


1. World health Organization. Cervical cancer.
   Available:https://www.who.int/cancer/prevention/diagnosis-screening/cervical-cancer/en/
   [Accessed December, 31, 2019]
2. ICO/IARC Information Centre on HPV and Cancer. Nigeria Human Papilloma virus and Related Cancers, Fact Sheet; 2018. Available:https://www.hpvcentre.net/statistics/reports/NGA_FS.pdf
   [Accessed January 8th, 2020]
3. Sowemimo OO, Ojo OO, Fasubaa OB. Cervical cancer screening and practice in low resource countries: Nigeria as a case study. Trop J Obstet Gynaecol. 2017;34: 170-6
4. Shanta V, Krishnamurthi S, Gajalakshmi CK, Swaminathan R, Ravichandran K. Epidemiology of cancer of the cervix: Global and national perspective. J Indian Med Assoc. 2000;98(2):49-52.
5. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global Cancer Statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68(6):394-424.
   DOI: 10.3322/caac.21492
6. Prat J, Mutch DG. Pathology of cancers of the female genital tract including molecular pathology. Int J Gynaecol Obstet. 2018; 143(Suppl 2):93-108.
   DOI: 10.1002/ijgo.12617.
7. Ebughe G, Ekanem I, Omoronyia O, Omotoso A, Ago B, Agan T et al. J Cancer Tumor Int. 2016;3(2):1-13.
8. Patanwala IY, Bauer HM, Miyamoto J, Park IU, Huchko MJ, Smith-McCune KK. A systematic review of randomized trials assessing human papilloma virus testing in cervical screening. Am J Obstet Gynecol. 2013;208:343–353.
   DOI: 10.1016/j.ajog.2012.11.013
9. Adaobi I. Bisi-Onyemaechi, Ugo N. Chikani, Obinna Nduagubam. Reducing incidence of cervical cancer: knowledge and attitudes of caregivers in Nigerian city to human papilloma virus vaccination. Infect Agents Cancer. 2018;13:29.
   Available:https://doi.org/10.1186/s13027-018-0202-9
10. Erickson BK, Avarez RD, Huh WK. Human papilloma virus: What every provider should know. Am J Obstet Gynecol. 2013; 208:169–175.
    DOI: 10.1016/j.ajog.2012.09.007
11. World Health Organization. Human papilloma virus (HPV) and cervical cancer. Available:https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer
    [Accessed 6th January, 2020]
12. Agboeze J, Nwali M, Ezeani N. Cervical cancer screening knowledge and behavior among female undergraduate students in a Nigerian University. Journal of Global Oncology. 2018; 4(Supplement 2):3s-3s.
    DOI: 10.1200/jgo.18.69200
13. Tope Olubodun, Oluwakemi Ololade Odukoya, Mobolanle Rasheedat Balogun. Knowledge, attitude and practice of cervical cancer prevention, among women residing in an urban slum in Lagos, South West, Nigeria. Pan Afr. med. j. 2019; 32:130.
    DOI: 10.11604/PAMJ.18/03/2019 .32.130. 14432
14. Aniebue Patricia, Aniebue Uzochukwu. Awareness and practice of cervical cancer screening among female undergraduate

students in a Nigerian University. J. Cancer Educ. 2010;25:106-8.
DOI: 10.1007/s13187-009-0023-z

15. Akujobi CN, Ikechebelu JI, Onunkwo I, Onyiaorah IV. Knowledge, attitude and practice of screening for cervical cancer among female students of a tertiary institution in South Eastern Nigeria. Niger J Clin Pract. 2008;11(3):216-9.

16. Akinfenwa AT, Monsur TA. Burden of cervical cancer in Northern Nigeria. Trop J Obstet Gynaecol .2018;35:25-9.



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