International Journal of Cancer, Clinical Inventions and Experimental Oncology
Vol.2, No.1, pp.13-24, July 2020
Published by ECRTD-UK
Print ISSN: ISSN 2059-1160
Online ISSN: ISSN 2059-1179

KNOWLEDGE AND ATTITUDE OF FEMALE STUDENTS OF TERTIARY INSTITUTIONS IN IMO STATE TOWARDS CERVICAL CANCER AND ITS SCREENING

'Ogwunga C.C., Anyadoh-Nwadike S.O. and Ahumibe Nkenna C.

'Department of Biotechnology, Federal University of Technology Owerri, Imo State, Nigeria'.

ABSTRACT: *Cervical Cancer which is the second most common cancer in women is largely preventable when detected early. Premalignant form is the earliest stage of cervical cancer can be detected early through effective cervical cancer screening. This work was carried out to ascertain the knowledge and attitude of female students in four tertiary institutions in Imo State towards Cervical Cancer and its Screening. Self-administered closed end structured questionnaire was used for data collection. The questionnaires were properly validated. Three hundred and ninety-eight female students in tertiary institutions who were of reproductive age between 16 - 45 years were used as respondents. All completed and returned their questionnaires. These were analysed using simple statistical methods. Result analysis showed that 350 (87.9%) have heard of cervical cancer while 265 (66.6%) have heard of cervical screening. One hundred and eighty-six (47%) were sexually active while 17(4.3%) have done the screening. Three hundred and seventy-two (93.5%) agreed that having multiple sexual partners was a risk factor. Three hundred and eighty-three (96.2%) of the population know that Human Papilloma Virus (HPV) is the causative agent. The most prevalent reasons for not undertaking the screening were embarrassment 374 (94%) and fear 320 (80.4%). The study has revealed high knowledge of cervical cancer amongst the students but poor attitude towards its screening. Women of reproductive age including students in the tertiary institutions should be enlightened on the need of the routine screening for cervical cancer especially once they become sexually active. This is expected to increase rate of early detection and treatment thereby preventing the heavy economic cost of treating and managing full-blown cervical cancer.*

KEYWORDS: knowledge, attitude, cervical cancer, human papilloma virus**,** Imo State.

INTRODUCTION

Cervical cancer which is categorized as Squamous cell carcinoma and Adenocarcinoma is a cancer that affects the cervix (https://www.asrn.org/journal-advanced-practice-nursing/1094-cervical-cancer-update.html). Human Papilloma Virus (HPV) is the organism responsible for cervical cancer (Ifemelumma *et al.,* 2019) being responsible for nearly 99.7 % of cervical cancer cases. Types 16 and 18 of HPV cause more than two-thirds of all precancerous cervical lesions and cervical cancers (Finocchario-Kessler *et al*., 2016). In developing countries, cancer of the cervix is the most common malignancy that affects the female genital tract and second most common cancer affecting women globally (Ifemelumma *et al.,* 2019). It is recorded, that roughly 500,000

new cases and 273,000 deaths occur yearly globally. Eighty percent of the new diagnosis and about 85% of the number of deaths recorded occur in developing countries (Ifemelumma *et al.,* 2019).

Cervical cancer is a preventable disease because of its latent period and a curable pre-invasive stage. When diagnosed early, it is important to take necessary steps preventing it from progressing to life- threatening advanced stage (Kawonga 2003). However, in developing countries such as Nigeria, most of the cases present at the later stage of the disease (Ifemelumma *et al.,* 2019). The national incidence of cervical cancer in Nigeria is 250/100,000 (Eze *et al*., 2012). Approximately 8,000 female die from cervical cancer while close to 10,000 women develop cervical cancer yearly in Nigeria (Ifemelumma *et al.,* 2019).

Women who are sexually active and those exposed to several sexual partner are at risk of developing cancer of the cervix (Eze *et al*., 2012). Individuals with multiple sexual partners, being sexually active before the age of eighteen and infection with sexually transmitted pathogens enhances the possibility of HPV infection. Compromised immune system and smoking are known risk factors. Other risk factors include teenage pregnancy, extended use of hormonal contraceptive pills and multiple pregnancies (Roomi *et al*., 2018). Women infected with HIV are at higher risk of developing cervical cancer and experience more swift progression of the infection. Cervical cancer was categorized as an AIDS-defining illness in the 1993 (Finocchario-Kessler *et al*., 2016). Symptoms of cervical cancer include, vaginal bleeding after intercourse, vaginal discharge with a foul odor, vaginal bleeding after menopause, vaginal bleeding between periods, pelvic pain and abnormal pain during intercourse, these appear in the advanced phases of the disease (https://www.asrn.org/journal-advanced-practice-nursing/1094-cervical-cancer-update.html).

The implementation of effective programme aimed at cervical cancer prevention in developed countries in the past decades has helped reduce the incidence and mortality rate by up to 80%. On the other hand, there's a rise in the number of women affected by this disease in developing countries as a result of limited or no screening centers (Nwozor & Oragudosi, 2013). Cervical cancer screening can be done in several ways such as Papanicolaou (Pap) smear, HPV DNA test visual inspection of the cervix with acetic acid (VIA) and colposcopy which is used in combination with other test (Ali *et al*., 2012). Treatment options are dependent on the clinical stage of the disease and the accessibility of treatment amenities. In most centers in Nigeria, surgery combined with adjuvant chemotherapy is commonly accessible (Oguntayo *et al*., 2011).

In developing countries, cervical cancer still remains a major health problem even with the implementation of cervical cancer screening programs and the awareness of pre-invasive stage of the malignant condition. Sadly, those diagnosed with cervical cancer never heard of it prior to the disease hence knew nothing of possible prevention and its risk factors. To increase the awareness level and screening coverage of cervical cancer, there's need to engage primary care approach (Gabriel *et al*., 2015).

It is recommended that cervical cancer screening starts at age 21. The screening varies from once a year to once every five years in a normal condition. Cervical screening by Papanicolaou test is foundation of its preventive measure (Nwozor & Oragudosi, 2013). Cervical cancer incidence and

prevalence have been reported to be reduced significantly in developed countries when compared to developing countries. This is as a result of available and affordable screening methods in developed countries (Oguntayo *et al*., 2011 & Jemal *et al*., 2010). Visual inspection of the cervix succeeding application of 3–5% acetic acid (VIA) and subsequent to the application of Lugol's iodine (VILI), have been mostly assessed as substitute screening tests in several developing countries, as they are simple, inexpensive and feasible (Khan *et al*., 2005). In order to reduce the burden of cervical cancer in developing countries, the International Agency for Research on Cancer (IARC) and the World Health Organization (WHO) have introduced screening programmes for cervical cancer by taking on an alternative screening method which is centered on visual inspection with acetic acid (VIA) (Nwozor & Oragudosi, 2013).

The most commonly used strategies in minimizing the risk of infection and reducing the prevalence of HPV in the environment is vaccination. The bivalent vaccine which protects against HPV types 16 and 18 and quadrivalent vaccine protecting against HPV types 16, 18 also types 6 and 11 are the two approved vaccines. Unfortunately, HPV vaccine is expensive and cannot be afforded by everyone considering the state of the Nigerian current economy.

It is recommended that youths between the age of 9 –13 years old should be the target for vaccination prior to sexual exposure (Finocchario-Kessler *et al*., 2016). However, many youths become sexually active before gaining admission into tertiary institutions, the aim of this study was to ascertain the knowledge and attitude of female students in tertiary institutions in Imo State towards cervical cancer and its screening. This will help in improving cervical cancer knowledge amongst the students and emphasize on the need of cervical cancer screening and subsequent vaccination with a view to reducing the prevalence of HPV.

METHODOLOGY

Materials and Methods

Study Area and subjects:

This study was carried out among female students in four tertiary institutions in Imo State. Imo state was created on February 3, 1976 one of the old East Central State by the then regime of General Murtala Mohammed. It has Owerri as it capital and largest city. It is one of the 36 states in Nigeria and lies in the south east (http://logbaby.com/encyclopedia/history-of-imo-state_9819.html#.XqipKXdFzIV). There are five tertiary institutions in Imo state, this work was done using four of them which included; Federal University of Technology Owerri (FUTO), Imo State University, Federal Polytechnic Nekede Owerri and Imo State Polytechnic Umuagwo.

FUTO, a federal university, is one of the oldest universities of technology in Nigeria and was established in the year

1980. The Federal Polytechnic Nekede is a federal government owned higher institution located in Nekede, a town in

Imo State, South-Eastern Nigeria, it was established in 1978 as College of Technology, Owerri. On 7th April 1993, it

was changed to a federal government institution and was renamed The Federal Polytechnic Nekede. Imo State
University was established in 1981 through Law No 4 passed by the Imo State house of assembly, Owerri. The law
was amended twice, it admitted the first intake of 392 pioneer students on 23 October 1981 (https://web.archive.org/web/20150905072833/http://portal.federalpolynekede.net/site/about.html).
Imo State polytechnic Umuagwo formerly called Imo State Michael Okpara College of Agriculture Umuagwo was
upgraded to a Polytechnic status and renamed Imo State Polytechnic, Umuagwo in 2007 (https://en.wikipedia.org/wiki/Imo_State_Polytechnic#cite_note-poly-1).

Study Design:

This study was done using qualitative approach research, a cross sectional descriptive survey to investigate the knowledge and the students' attitude towards cervical cancer.

Study Population:

Semi structured questionnaire which were reviewed by experts were distributed to female students (100 in each school) in the Biology department. On getting to the Biology department in each school, a brief announcement was made inviting available female students from second year to final year present in the school premises with permission from the head of department. On gathering, we excused the male students present and briefly explained why we were there. We randomly selected one hundred females from those who gave their consents, administered the questionnaire, went through the questionnaire explaining each section after which they were allowed to fill it.

Sample Technique and Data Collection:

Data was collected using self-administered semi structured questionnaire. The questionnaire had 3 parts; the first part assessed the sociodemographic characteristics of the respondents while the other 2 parts assessed their knowledge of cervical cancer, HPVirus & its vaccine, perception, utilization and attitude toward cervical cancer screening. A total of 398 questionaires were retrieved out of the 400 distributed from the four higher institutions and they were reviewed for completeness.

Data analysis:

The collected data were analysed using simple percentage method and SPSS version 20. Quantitative data were presented in tables and chi square scale measurement was also used.

Ethical Consent:

Informed consent was gotten from the head of biology department or his/her representative in each study area. The students also gave informed consent before being recruited as respondents. Questionnaires were administered on only consenting students as appropriate.

RESULTS

A total of 400 questionnaires were distributed and 398 were properly filled and returned. The 398 questionnaires which were properly and completely filled formed the basis of this analysis. The demographic characteristics of the respondents are summarized in Table 1. All the respondent considered in this research work were Biology students. Most of the respondents (78.9%) fell in the age bracket of 16 – 25 years while 4% were between 36 – 45years. Marital status of the respondents, revealed that only 1% was divorced while 8.5% of the respondents were married and the predominant group was the single women (90.5%). Most of the respondents are Christians (98.5%) and 1.5% are Muslims. Almost half of the respondents 46.7% were sexually active.

AGE	**Frequency**	**Percentage (%)**
16-25	314	78.9
26-35	68	17.1
36-45	16	4.0
Total	398	100
Mean	23 years	
MARITAL STATUS		
Married	34	8.5
Single	360	90.5
Divorced	4	1.0
Total	398	100
RELIGION		
Christianity	392	98.5
Islam	6	1.5
Total	398	100
SEXUAL ACTIVITY		
Active	186	46.7
Non active	212	53.3

Table 1: Distribution of respondent by demographic characteristics

Respondents' knowledge about cervical cancer and its screening

In the course of this research work, some questions were administered to the various respondent to examine their knowledge on cervical cancer and its screening. Majority of the students (87.9%) have heard about cervical cancer while 66.6% know about its screening also 85.4% agrees that cervical cancer can be prevented (Table 2). However, only 4.3% of the respondent have ever been screened.

Responses	Yes	No
Have you heard of cervical cancer?	350 (87.9%)	48 (12.1%)
Have you heard of cervical screening?	265 (66.6%)	133 (33.4%)
Is cervical cancer preventable?	340(85.4%)	58 (14.6%)
Have been screened before?	17 (4.3%)	381 (95.7%)

Table 2: Distribution of respondents on their knowledge of cervical cancer and its screening

Respondents knowledge on the various types of screening:

Respondents answered questions which ascertained their knowledge on the different types of screening, 54.7% of them said PAP smear is prevalent for cervical cancer screening while 30.2%, 8.3% and 6.8% agreed that HPV DNA, VIA and Blood testing are types of screening test for cervical cancer (Table 3).

Types of screening tests	Number of respondents
PAP Smear	**218 (54.7%)**
HPV DNA	**120 (30.2%)**
VIA	**33 (8.3%)**
Blood testing	**27 (6.8%)**

Table 3: Distribution of respondents on their knowledge of the different types cervical cancer screening test.

Respondents source of information on cervical cancer screening:

Majority of the respondents, 31.9% got to know about the screening from physicians and health workers, 22.9% were told by their family and friends, 4.5% got the information from newspapers, 19.8% read about it on the internet and 20.9% heard about it from television/radio (Table 4).

Source of Information	Frequency
Physician/Health worker	127 (31.9%)
Family/Friends	91 (22.9%)
Newspaper	18 (4.5%)
Internet	79 (19.8%)
Tv/Radio	83 (20.9%)

Table 4: Distribution of respondents according to their source of information on cervical cancer screening

Perceived knowledge of respondent on the causes and risk factors of cervical cancer:

The respondents were accessed to know their perceived knowledge on the causes and risk factors of cervical cancer. Majority of the respondents 96.2% agreed that HPV is the causative agent for cervical cancer, 93.5% also agreed that having multiple sexual partners is a risk factor however, 84.8% disagreed that bacteria infection is a risk factor, 71.6% disagreed that onset of old age is a risk factor, 56.3% disagreed that cervical cancer is hereditary and 51% disagreed that family planning is a risk factor.

Risk Factors	Yes	No
Multiple sexual partner	**372 (93.5%)**	**26 (6.5%)**
Family planning methods	**195 (49%)**	**203 (51%)**
Bacterial Infection	**60(15.2%)**	**338 (84.8%)**
Onset of old age	**113 (28.4%)**	**285 (71.6)**
Hereditary	**174 (43.7%)**	**224 (56.3%)**
Caused by HPV	**383(96.2%)**	**15(3.8%)**

Table 5: Distribution of respondent according to their perceived knowledge of the causes and risk factors of cervical cancer.

Various reasons why the respondents had not undertaken the screening test

It was observed that 94% of the respondent had not done the screening due to fear of embarrassment, 80.4% did not take part to avoid stigmatization, 45.2% said it is expensive, 35% said lack of access to screening centers prevented them from undertaking any screening, 51.2% said they feel well hence no need for the screening, 35% of the respondent had not done the screening in order to avoid detection of other diseases and 20.1% weren't aware of the screening test.

Reasons for not undertaking the screening	Frequency (%)
Embarrassment	374 (94%)
Fear (stigma)	320 (80.4%)
Cost	180(45.2%)
Religion	40(10.1%)
Access to screening centers	139 (35%)
Feeling of wellbeing	204 (51.2)
Exposure to other diseases	139 (35%)
Lack of awareness	80 (20.1%)

Table 6: Distribution of respondent according to their various reasons for not undertaking the test

DISCUSSION

Their age ranging 16-45, 78.9% were between the age of 16-25, 17.1% were ranges of 26-35 years, 4.0% were from 36-45years of age with the mean age been 23 years. Majority of the respondents 90.5% were single, 8.5% were married and only 1% were divorced.

The results obtained from this study shows that knowledge on cervical cancer amongst the respondents were high, this could be related to the fact that they are in the Biology department in their different tertiary institution. Majority of the respondents (87.9%) have heard about cervical cancer, 96.2% agreed that HPV is a causative agent for cervical cancer and 85.4% agrees that cervical cancer can be prevented. This study corroborates the reports from a study done on nurses where there was 99% awareness of cervical cancer (Awodele *et al*., 2011) and also consistent with the earlier study of Ezem, 2007. It also aligns with the work of Ayinde *et al*., 2004 where 71.1% of respondents who were undergraduate students knew about cervical cancer, awareness was more among medical students and married ones. However, it disagrees with the findings of Bisi-Onyemaechi *et al*., 2018 where 68.3% of the respondent had tertiary education yet the awareness of cervical cancer was low amongst the respondents. One hundred and eighty-six of the respondents (46.7%) of respondents in the current study were sexually active, Ayinde *et al.,* 2004 in their work recorded high percentage (81.5%) of sexually active respondents which were undergraduate students.

Also, their knowledge on the predisposing factors for HPV were high as majority of the respondents, 93.5% said having multiple sexual partner is a predisposing factor, 49% said using some family planning method is a predisposing factor this could also be related to their educational background. However, 43.7% said its hereditary, 28.4% said onset of old age is a predisposing factor while 15.2% are of the opinion that having a bacterial infection is a predisposing factor. Bisi-Onyemaechi *et al*., 2018 reported that few of his respondent knew about the risk factor of HPV infection and the relationship between HPV infection and cervical cancer.

The major source of information for the respondents were from health workers this was followed by family and friends, Television and radio, internet and the least was from the newspaper. It is encouraging to find out that families are enlightening their relatives on cervical cancer. In

accessing the awareness and practice of Cervical Cancer Screening among Women Accessing Care in a Rural Tertiary Hospital in Nigeria, it was observed that the major source of information for the few that knew about cervical was from health worker (Gabriel *et al.,* 2015). In a study done by Awodele *et al.,* 2011 the major source of information was from electronic media and health professionals. The print and audio media need to enhance their awareness creation, these are the most common places that people seek for information.

Sixty-six percent of the respondent have heard about the screening, 54.7% know that PAP smear is a type of screening, 30.2% agreed that HPV DNA is also a type of screening, 8.3% says that VIA is also a screening for cervical cancer while 6.8% says that blood testing can be used to ascertain cervical cancer. Despite the fact that majority of the respondents knew about the screening test, only 4.3% of the respondent have ever gone for a screening test. A study done by Akanbi *et al.,*2015 reported that only 14.9% of their respondents have taken the Pap smear test before. Earlier study done on undergraduate students reported that 33.5% were aware of papnicolaou's smear, only 8.3% of them have had a papnicolaou's smear (Ayinde *et al*, 2004). Furthermore, a study done on Nurses on cervical cancer reported high level of awareness but only very few of respondent had done a pap smear (Awodele *et al*., 2011). This implies that while knowledge of cervical cancer by the respondents was good, they had poor attitude towards prevention of the disease.

Sadly, in this study, 94% refused to go for screening for fear of being embarrassed, 80.4% were afraid of being stigmatized while 51.2% said the fear of feeling sick prevented them from going for a screening, 45.2% said screening is expensive while 35% said they lacked access to screening centers. Ifemelumma *et al*., 2019 recorded low level of cervical screening 20.6% and the common reason for not utilizing the cervical cancer screening was that it had not crossed their minds. However, it was reported in a previous study that 17% of the respondents that were used for the study had not done PaP smear because of its cost effect (Awodele *et al*., 2011).

For cervical cancer screening to be effective, the level of its awareness, utilization of cervical cancer screening and its vaccine should increase in higher institutions as some students are above 21 years and many are usually sexually active prior admission or while in school. The high incidence of cervical cancers needs to be reduced in developing countries hence the need for more awareness, improved treatment methods, availability of screening centres are paramount. The three approaches for cervical cancer treatment (surgery, radiotherapy and chemotherapy) should be readily available and accessible.

CONCLUSION AND RECOMMENDATION

In Northern Nigeria, cervical cancer was reported to be responsible for 65.7% of all gynecological cancers thereby been the leading cause of gynecological cancers irrespective of the fact that it is preventable (Oguntayo *et al*., 2011). Unfortunately, most cases of cervical cancer in Nigeria present at later stage hence the need to create awareness in hospitals (especially at antenatal classes), schools, churches, offices, market places etc.

Every woman needs to understand that cervical cancer is preventable and can be managed properly once detected early. This study has revealed that female students of higher institution in Imo State are aware with good knowledge of cervical cancer, its cause, predisposing factors and method of prevention, however their attitude towards accessing screening and vaccination is very poor mostly due to social issues. There is therefore great need for all hands (families, peer educators, lecturers, government agencies, media, non-governmental organizations and advocates) to be on deck to sensitize and get the youths especially those who are already sexually active to go for screening and take preventive measures so as to curb the rate of cervical cancer in the state and country as well.

There is need to go for screening once sexually active, screening centres should be made accessible and affordable. Incorporating cervical cancer screening facilities in clinics, hospital and health centres in every higher institution is important as this will give the students access to a screening centre. Students pay medical fees while most times they end up not visiting the school clinical throughout their stay in school. Part of this can be used for the screening or if possible should be made free. Cervical cancer awareness should be created to the new students in their first year enlightening them on the predisposing factors, telling them on the need to go for screening at least once during their stay in school if they are sexually active

The use of vaccine can help in preventing the incidence of cervical cancer, unfortunately, these vaccines are not included in the National immunization schedule hence they are optional. In trying to reduce the cases of this cancer, the Nigerian government should include it in the National immunization schedule or subsidize it. Children between the age of 9 –13 years old should be the target for vaccination prior to sexual exposure. Enlightening parents about vaccination is important as at these ages, parents are the ones to make decision for their children. In previous research done it was recorded that awareness on cervical cancer vaccine was low (Bisi-Onyemaechi *et al*., 2018).

REFERENCES

Akanbi, O. A., Iyanda, A., Osundare, F. and Opaleye, O. O. **(**2015) Perceptions of Nigerian Women about Human Papilloma Virus, Cervical Cancer and HPV Vaccine. Scientifica, 2015:1-4.

Ali, F., Kuelker, R. and Wassie, B. (2012) Understanding cervical cancer in the context of developing countries, Annals of Tropical Medicine and Public Health, 5(1): 3-15.

American Society of Registered Nurses (2013) Cervical cancer Update, Retrieved from https://www.asrn.org/journal-advanced-practice-nursing/1094-cervical-cancer-update.html on April 20th, 2020.

Awodele, O., Adeyomoye, A. A. A., Awodele, D. F., Kwashi, V., Awodele, I. O. and Dolapo, D. C. (2011) A Study on Cervical Cancer Screening Amongst Nurses in Lagos University Teaching Hospital, Lagos, Nigeria, Journal of Cancer Education, 26(3):497-504

Ayinde, O.A., Omigbodun, A.O. and Ilesanmi, A.O. (2004) Awareness of cervical cancer, Papanicolaou's smear and its utilisation among female undergraduates in Ibadan, African Journal of Reproductive Health, 8(3):68-80

Bisi-Onyemaechi, A. I., Chikani, U. N. and Nduagubam, O. (2018) Reducing incidence of cervical cancer: knowledge and attitudes of caregivers in Nigerian city to human papilloma virus vaccination, Infectious Agents and Cancer, 13(29):1-6.

Eze, J. N., Umeora, O. U., Obuna, J. A., Egwuatu, V. E. and Ejikeme, B. N. (2012) Cervical cancer awareness and cervical screening uptake at the Mater Misericordiae Hospital, Afikpo, Southeast Nigeria, Annals of African Medicine, 11(4): 238–243.

Ezem, B. U. (2007) Awareness and uptake of cervical cancer screening in Owerri, South-Eastern Nigeria. Annals of African Medicine, 6(3):94–98.

Finocchario-Kessler, S., Wexler, C., Maloba, M., Mabachi, N., Ndikum-Moffor, F. and Bukusi, E. (2016) Cervical cancer prevention and treatment research in Africa: a systematic review from a public health perspective, BioMed Central Women's Health, 16;(9)

Gabriel, O. E., Busari, O. A., Komolafe, A. O., Agboola, S. M., Elegbede, O. T. and Omoragbon, A. (2015) Awareness and Practice of Cervical Cancer Screening among Women Accessing Care in a Rural Tertiary Hospital in Nigeria, Clinical Medicine Research, 4(4): 120-126.

Ifemelumma, C. C., Anikwe, C.C., Okorochukwu, B. C., Onu, F. A., Obuna, J. A., Ejikeme, B. N. and Ezeonu, O. P. (2019) Cervical Cancer Screening: Assessment of Perception and Utilization of Services among Health Workers in Low Resource Setting, International Journal of Reproductive Medicine, 2019:1-8.

Jemal, A., Siegel, R., Xu, J. and Ward, E. (2010) Statistics CA: A Cancer Journal for Clinicians, 60(5):277-300.

Kawonga, M. (2003) A Literature Review on Cancer of the cervix. Retrieved from https://www.scribd.com/document/389238771/cervical-cancer on March 20th, 2020.

Khan, M.A., Raja, F.Y., Ishfaq, G., Tahir, F., Subhan, F., Kazi, B. M. (2005) PAP screening for precancerous conditions of the cervical cancer, Pakistan Journal of Medical Research, 44:111-113.

Nwozor, C. M. and Oragudosi, A. L. (2013) Awareness and Uptake of Cervical Cancer Screening among Women in Onitsha, South-East, Nigeria, Greener Journal of Medical Sciences, 3(8) :283-288

Oguntayo, O.A., Zayyan, M., Kolawole, A.O.D., Adewuyi, S.A., Ismail, H. and Koledade, K. (2011) Cancer of the cervix in Zaria, Northern Nigeria, Ecancermedicalscience, 5:219.

Roomi, M W., Bhanap, B., Niedzwiecki, A. and Rath, M. (2018) A Novel Nutrient Mixture Induces Apoptosis in Human Ovarian and Cervical Cancer Cells, Journal of Cervical Cancer Research, 2(1):10-17.

Schoell, W. M., Janicek, M. F. and MirhaShemi, R. (1999) Epidemiology and biology of cervical cancer, Seminars in Surgical Oncology, 16:203-11.

The History of Imo State. (2020, March 12). Retrieved from http://logbaby.com/encyclopedia/history-of-imo-state_9819.html#.XqipKXdFzIVRetrievedfrom https://web.archive.org/web/20150905072833/http://portal.federalpolynekede.net/site/abo

ut.html on Feburary 16th, 2020.Retrieved from https://en.wikipedia.org/wiki/Imo_State_Polytechnic#cite_note-poly-1 on March 20th, 2020