

Prevalence of Cervical Cancer in Enugu State: A Critical Review of 5-year Hospital Data in Enugu State, Southeast Nigeria

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Abstract

Cervical cancer is one of the most common cancers that affect women worldwide. In developing countries, cancers are detected late due to limited access to preventative measures and late treatment options leading to higher death rates in these countries. The study was undertaken to determine the cervical cancer prevalence to aid in planning grass root level programs to reduce the morbidity and mortality from the disease. This study is a hospital-based retrospective design that reviewed reported screening test results of CCa cases in five screening centres identified in Enugu state. Reported data sets were analysed and one-sample t-test analysis of statistical significance was determined. A pooled total of 27 333 patients were screened using pap smear and 3528 tested positive for cervical cancer was reported over the five years period giving a prevalence rate of 13%. The mean age of the positive cases was 38.82 ± 8.15 years. The majority of the cases (62%) were recorded among the age group 30 – 39 years. The yearly rates included 14% prior to 2016, 12%, 9%, 20%, 13% and 10% for 2016, 2017, 2018, 2019 and 2020 respectively. T-test analysis showed a significant difference in testing rate when compared to previous study $t = 5.7$, $p = .002$. The prevalence of this study is high when as reported in previous studies. Therefore, a targeted awareness and enlightenment of the public on cervical cancer screening is highly recommended to ensure early detection which guarantees good treatment outcomes.

Keywords: Cervical Cancer; Enugu State, Nigeria, Prevalence, Screening test.

Introduction

While cervical cancer is the fourth most frequent cancer in women worldwide, it is the second most common cancer in women living in developing countries with an estimated 570,000 new cases (84% of the new cases worldwide annually) representing 7.5% of all female cancer deaths. In 2018, approximately 311,000 women died from cervical cancer out of which about 85% occurred in low- and middle-income countries [1]. In the world, an estimate of almost half a million new cases and 274,883 deaths occurred in 2008, 86% of the cases occurred in developing countries. Worldwide, the crude incidence rate of cervical cancer is 15.8, while in

Western Africa, it is 19.9 and in Nigeria, it is 19.3. According to The Global Cancer Observatory 2018 [2], about 14,943 new cervical cancer cases are diagnosed in Nigeria with 10,403 deaths. Cervical cancer occurs most commonly in women over 40 but rarely in women under 30 years of age. Since it is also associated with the early age at which sexual intercourse begins, it remains a problem in African countries [3].

Despite the prevalence and burden of cervical cancer worldwide with almost 80% occurring in developing countries such as Nigeria, only about 52% of Nigerian women were aware of this deadly disease [4]. A study in Oyo and Osun states Nigeria reported that the prevalence of

cervical cancer screening in Nigeria is low as only about 7.1% of Nigerian women have reportedly had cervical cancer screening done and only 8% had received HPV vaccination among women who attended the clinic between 2010 and 2011 [5]. The effectiveness of a vaccine delivery program depends largely upon the awareness of the vaccine and the attitude in terms of the acceptability of the vaccine [6].

It has been observed that there are several barriers and factors which affect the uptake rate of cervical screening, i.e., accessibility to testing facilities, lack of health education, low socioeconomic status, low perceived risk of disease, fear of cervical cancer diagnosis, fear of pain and embarrassment, lack of female health care providers, busy schedules, and beliefs that such tests are unnecessary [7]. Identifying factors and barriers associated with cervical screening uptake before organizing community-based screening programs is essential. In low-resource countries, identifying barriers and factors associated with low cervical screening uptake helps policymakers and health care delivery organizations to improve and take necessary steps to overcome the existing barriers and reach the community to increase the cervical screening uptake, which in turn may decrease the incidence and mortality of the disease. Primary studies have been conducted to identify the factors and barriers to the uptake of cervical screening in various countries. Systematic reviews were also conducted on various aspects to increase screening uptake such as through the special event of health promotion [8]. Self-collection of Human papillomaviruses (HPV) testing [9,10] and other interventions [11, 12]. There was a systematic review done on barriers to CCA screening participation in developed countries like the UK, Australia, Sweden, and Korea [13]. There have been integrated reviews of barriers to CCA screening from sub-Saharan Africa and Asia [14-16]. Devarapalli [7] conducted a systematic review of studies from low- and middle-income countries and concluded that there is a need for policies

advancement of cervical cancer screening programs by focusing on aspects of affordability, accessibility, cervical cancer education, and the necessity of screening to improve screening uptake to control the cervical cancer morbidity and mortality rate in these countries.

In developed countries, some programmes enable women to uptake HPV vaccination and cervical cancer screening regularly. Screening allows for early detection of pre-cancerous lesions for easy treatment. This helps in preventing up to 80% of cervical cancers in these countries [17]. In developing countries, women have limited access to these preventative measures and the disease is often not identified until it has symptoms develop and it is further advanced. In addition, access to treatment for such late-stage diseases (for example, cancer surgery, radiotherapy, and chemotherapy) may be very limited and expensive leading to a higher rate of death from the disease in these countries.

The global high mortality rate from cervical cancer can be reduced by effective interventions. Comprehensive cervical cancer control includes primary prevention (HPV vaccination), secondary prevention (screening and treatment of pre-cancerous lesions), tertiary prevention (diagnosis and treatment of invasive cervical cancer), and palliative care. Screening and treatment of pre-cancer lesions in women of 30 years and more is a cost-effective way to prevent cervical cancer. Clinical trials and post-marketing surveillance have shown that HPV vaccines are very safe and very effective in preventing infections with HPV infections.

Although early detection and screening might decrease the mortality associated with cervical cancer, most women report to the hospital with an advanced form of the disease due to community-level interventions to encourage screening and lack of awareness. The study conducted by Agorye in 2016 [18] among pregnant women in a tertiary hospital in Enugu found that there is poor knowledge of cervical cancer as only 8.1% knew that cervical cancer is

caused by HPV and only 2.8% had carried out a screening test. HPV infection is a sexually transmitted infection that has been identified as the chief cause of cervical cancer. Over 100 Human Papilloma Virus types have been identified out of which about mucosal epithelium is affected by about 40 types and are classified according to their epidemiologic relationship with cervical cancer [19].

In developing countries, cervical screening programs failed to decrease the incidence and mortality of the disease due to the low uptake rate of screening [20, 21]. The Papanicolaou (Pap) test, visual inspection with acetic acid (VIA), and Lugol's iodine (VILI) are effective screening methods for the early detection of CCa. The Pap test can be performed in hospitals and clinics, whereas VIA does not require laboratory procedures and can be done in areas with fewer resources also.

To date, few studies have exclusively studied the prevalence, knowledge, attitude, and practice of cervical cancer prevention among women in Enugu. This study will therefore document such important information which will be critical in planning community-level interventions needed to reduce the burden and mortality from cervical cancer.

Materials and Methods

Description of Study Area

Enugu is a state in southeastern Nigeria, created in 1991 from part of the old Anambra State. Located in the southeast of the country, Enugu spreads its borders to the states of Kogi and Benue to the north, Ebonyi to the east, Abia and Imo to the south, and Anambra to the west, covering an area of around 8,730 km². Enugu has an estimated projected total population of 4,411,119 based on the 2006 population census figure and is divided into 17 LGAs. The total population of women of childbearing age in the state is 970,447 (22% of the total population). For healthcare delivery, the state is divided into seven health districts with each health district being made up of between one to three LGAs.

Within the State, there are a total of six district hospitals, 36 cottage hospitals, and 366 PHCs (including comprehensive health centers, health posts, and health centers). There are also about 700 private health facilities which include non-profit and profit-making facilities, and faith-based facilities [22].

Study Design

The study is a retrospective design looking at the data reporting of positivity rate in the cancer screening centers.

Study Population

The population of interest was all the cervical cancer screening test data in the five identified screening centers in the state.

Sample Size

All the screening centers were included in the study.

Data Collection Tool

Data were collected electronically using a developed excel template which was administered by trained research assistants with a minimum of post-secondary school qualification. Information elicited included the number tested per year, the number positive, and the age of the patients.

Data Collection

Two research assistants were recruited from the state. They were trained for two days on how to review the hospital records and collect the relevant data by the principal investigator. The principal investigator monitored the research assistants to ensure that the correct information was collected. Data were collected over one week.

Ethical Consideration/Approval

Ethical approval was obtained from the ethical review committee of the Enugu State Ministry of Health before the commencement of the study. Informed consent was obtained from the facility workers after explaining the aim and

purpose of the study. Confidentiality and anonymity were maintained throughout the conduct of the study by not collecting identifying information of patients. Entered data was password protected.

Data Management

Data were cleaned and consistency checks were done severally to ensure accuracy and completeness. Data were analyzed using excel and SPSS for t test. Descriptive statistics and simple frequency tables of respondents' characteristics were made.

Limitation of Study

Limitations included expected testing and documentation biases from the staff as well as the failure to subject the results of the tests generated from other clinics to quality assurance standards.

Results

Five cervical cancer screening centers were identified in the state. Their records were reviewed to determine the testing rate and the test positivity rate before 2016 and between 2016 to 2020. The identified centers are University Teaching Hospital (UNTH) Enugu, Aruike Ndi Oya, Hansa Clinic, Mother of Christ Hospital, and God's Own Hospital. only one hospital (UNTH Ituku) consistently conducted screening exercises in the five years. The other facilities were screened between one and three years in the period under review. A total of 27,333 patients were screened using the Pap smear method out of which 3528 tested positive for cervical cancer giving a prevalence rate of 13% (figure 1). This reported 13% prevalence demonstrates that a total of 140,911 women of childbearing age in Enugu are reportedly positive for cervical cancer (1,083,930 projected population of women of childbearing age in Enugu in 2020).

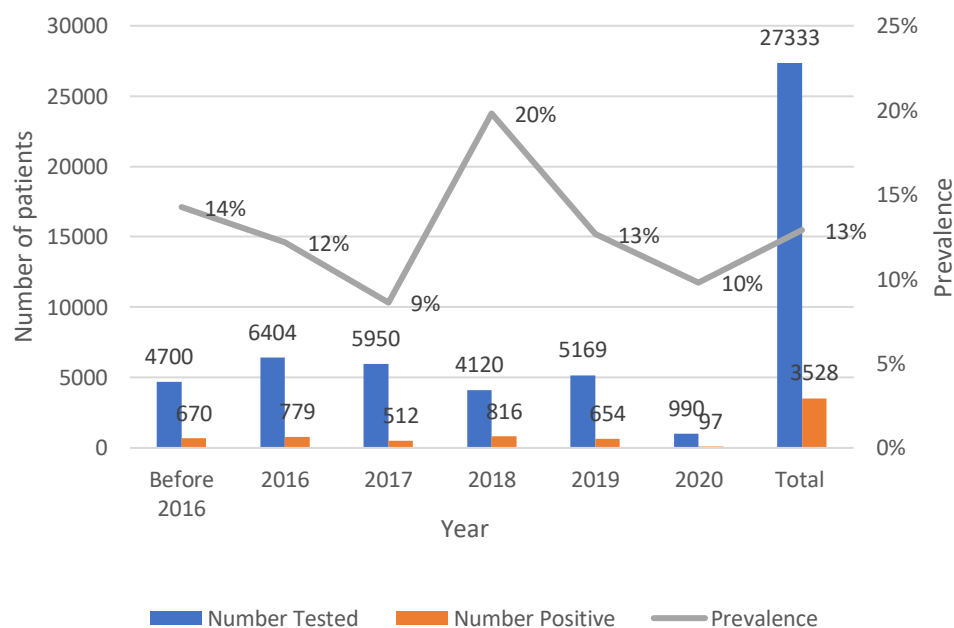


Figure 1. Prevalence of Cervical Cancer in Enugu State

Out of the total positive cases, only 49% of the cases had their age recorded. The mean age of the positive cases was 38.82 ± 8.15 years. The majority of the cases (62%) were recorded

among the age group 30 – 39 years, while 20 – 29 years old recorded the least number of positive (14%) (Figure 2).

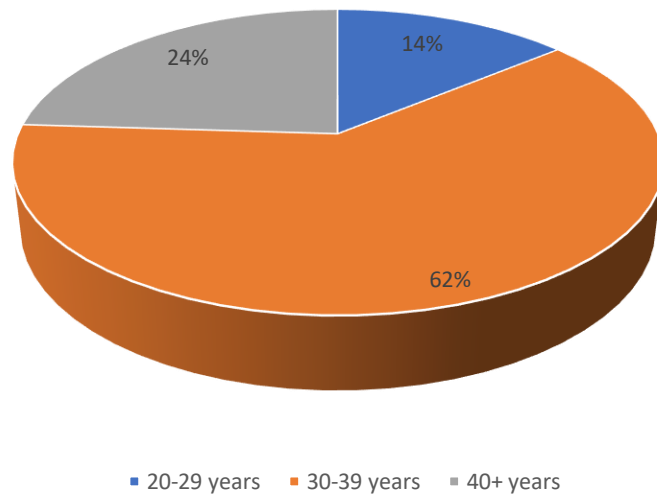


Figure 2. Age Distribution of the Cervical Cancer-Positive Cases

One sample t-test was used to estimate the difference between the mean from the study and the mean from the previous study in the state. The analysis showed a significant difference between the testing means (t-value = 5.677211 and p-value = 0.002361).

Discussion

Worldwide, cervical cancer is the fourth most frequent cancer in women with an estimated 604127 new cases in 2020 and a 5-year prevalence of 38.7% [23]. In the same year, Africa reported new cases of 117316 with a 33.3% 5-year prevalence while Nigeria reported new cases of 12075 with a 22.1% 5-year prevalence [2]. The lower reported prevalence rate in Nigeria may be due to low access to screening tests resulting in underreporting as many people are not even aware of the need to do pap smear as documented [24]. There is need to enlighten the low-income countries to access the services. It becomes very necessary because the prevalence of cervical cancer is on the alarming increase in Southeast Nigeria as demonstrated and reported by two different studies on the prevalence of gynaecological cancers in the Southeast Zone, Nigeria which reported that cervical cancer accounted for

60.6% and 61.4% of all the cancers in Abakiliki and Nnewi respectively [25, 26].

This study was undertaken to fill the knowledge gaps in this area since no study has been done on prevalence of cervical cancer in Enugu state in recent years while very few have been done in Southeast Zone of Nigeria. This study reported a cervical cancer prevalence rate of 13%. This is slightly similar to the report of a 10-year (1991 – 2000) review at a screening center by Chukwuali in 2003 which reported a prevalence of 12.2% [27]. This shows a 0.8% increase in the prevalence of cervical cancer in the state in almost 20 years. The number of people screened in the 10 years was 815 which is very much lower than the number of people screened in this present study 27,333 showing an increase in screening by the populace, however, more still needs to be done to increase screening.

Another study by Dim et al in 2011 reported a prevalence of 4.6% [28] which is quite lower than what was reported by this study. This can be explained by the disparity in the test subjects. The present study was focused on the women who came for cervical cancer screening at various screening sites in the state, while the study subjects Dim were controlled for an HIV study at a facility. The same study by Dim found

a prevalence of 12.6% among HIV-positive women at the health facility which is similar to the 12.2% [29] prevalence reported by Daniel et al in 2020 in Jos Nigeria among HIV-positive women.

Other studies within the Southeast zone showed a slightly lower prevalence of 10.1% and 11.2% in Nnewi and Abakiliki, respectively [30,31]. However, a study among pregnant women in Abakiliki reported a lower prevalence of 6.3% [32].

Outside the zone, a similar prevalence of 13.6% [33] was reported by Kani et al 2020 in Jigawa state Nigeria. Other studies among diverse population groups in other zones of Nigeria, reported much higher prevalence rates including 14.7 % in Irun [34], 18.6% in Southwest Nigeria [35], 18.7% in Yola [36], 19.6 % among HIV-infected patients in Lagos [37], 25 % in Abuja [38], 26.3 % in Ibadan [39], 30.4% in Lagos [40], 48.1% in Gombe [41] and 76% in Kano [42]. This difference in prevalence may be explained by variations in the different study populations with varying levels of exposure to different risk factors based on diverse socio-cultural and geographical differences.

Other studies done in other parts of sub-Saharan Africa among similar population groups have shown high prevalence rates compared to the study's rate. Prevalence of 49.6%, 60.7%, and 66.1 % was reported among women in Kenya [43], Sudan [44], and Burkina Faso [45] respectively.

Similar studies conducted among HIV-positive women in other sub-Saharan African countries reported a higher prevalence. Studies conducted in Rwanda, Keffi Nigeria, South Africa, Uganda, and Zambia reported a prevalence of cervical pre-cancer and cancer among HIV-positive women of 24.3%, 54.1%, 66.3%, 73.0%, and 76%, respectively [46-50].

The disparities of prevalence rates reported by different studies in different zones and countries may be linked to different surveillance systems

status in various countries. It also reflects different study designs and populations as noted by Akubue A.U. et al in 2018 in Enugu [51]. Despite the increase in the prevalence rates reported by different studies, there exists surveillance gaps which is complicated by poor access to screening services hence the need for an urgent awareness campaign.

In low-and middle-income countries, there is limited access to preventative measures, and cervical cancer is often not identified until it has further advanced, and symptoms develop. In addition, access to the treatment of cancerous lesions (for example, cancer surgery, radiotherapy, and chemotherapy) may be limited, resulting in a higher rate of death from cervical cancer in these countries [23]. Other risk factors that are associated with cervical cancer include lack of formal education, polygamy, unemployment, low-income earnings, and younger age (< 18 years) at sexual debut. A study by Morhason-Bello et. Al on the modeling for predictors of knowledge score and prevention of cervical cancer among women of reproductive age in Ibadan, Nigeria shows that with the high prevalence of cervical cancer in their findings, Nigerian women were under-informed on cervical cancer risk factors and prevention strategies [52]. Women from higher socioeconomic classes had a greater understanding of cervical cancer than those from lower socioeconomic classes.

Conclusion

This study has actually shown that despite low rates of screening for cervical cancer in Enugu state, the prevalence rate remains high meaning that improved screening testing will evidently result in higher Prevalence rate that will be reflective of the actual population estimates. This paper, therefore, advocates for further studies looking at awareness and access to cancer preventive programmes in Enugu state whose results will be used for actual estimation.

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Conflict of Interest

The authors declare that they have no conflict of interest. This work was self-funded.

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