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A Public Health Menace: Increasing rate of Cervical Cancer among Women of Childbearing Age in Abia North, Abia State, Nigeria

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Abstract
For decades now cervical cancer among women of childbirth has been identified is a global health issue, the cancer burden is felt more acutely in developing countries, where resources are not sufficiently available for prevention, diagnosis, and treatment of cancer, hence, making it a public health concern. To achieve the objectives of this study, relevant literatures were review and both qualitative and quantitative methods of data collections was used to elicit information on the factors that contributes to the increasing rate of cervical cancer among women of childbearing age in Abia North. The study found that lifestyle, genetic factors and untreated sexually transmitted infections are some of the causes of cervical cancer. The study further recommends regular medical checkup and health education to women and the public on the dangers of some lifestyle and risky behaviours, as it will go a long way in addressing the increasing rate of cervical cancer as well as other health conditions.

Key words: *reproductive health, disease, childbearing age, public health, and lifestyle*

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I. Introduction

For decades now, cervical cancer has been an important reproductive health disease that is assuming serious public health concern. Studies including Afolayan *et al* (2012) and (Ferlay *et al* 2010) described cervical cancer as one of the major diseases that affect women of childbearing age and is the third most common cancer worldwide. Cancer Statistics Worldwide (2010) also affirmed that cervical cancer is the commonest malignancy of women in Africa with high prevalence in Uganda with over 80% of patients diagnosed with cervical cancer.

Mustapha (2014) observed that the differences in the prevalence and mortality of cancer in different regions of the world can be explained through heredity, medical practices, life styles changes and environmental exposures like different diets, tobacco and pesticides. In 2018, nearly 570,000 new cases were reported globally, resulting in an estimated 311,000 deaths worldwide. Nearly 90% of deaths related to cervical cancer occur in the world's poorest countries (Ricky *et al* 2019). One in ten women is diagnosed with cervical cancer and every two minutes a woman dies of it, globally, making it the second most commonly diagnosed gynecological cancer. Highest incidence of cervical cancer related death occurs among middle age women about 30-40 years and it is when women are at the highest risk of precancerous lesions (Boyle and Levin 2008). The incidence of cervical cancer is increasing all over the World with the increase occurring in multiples in developing countries that hitherto had lower incidence. According to WHO, (2002) high risk regions are Eastern and Western Africa: Age standardized rate (ASR) greater than 30 per 100,000), southern Africa (26.8 per 100,000), South-central Asia (24.6 per 100,000,000), South America and Middle Africa (ASRs 23.8 and 23.0 per 100,000, respectively). Rates are lowest in Western, Northern America and Australia/New Zealand (ASRs less than 6 per 100,000). More than 85% of cervical cancer deaths occur in developing countries, where it accounts for 13% of all female cancers. The increase is attributed to ignorance, life style changes and negative attitude of people towards preventive health. Other reasons the reported raised incidence of cervical cancer include poor screening practices, low level of education of the populace and poor access to medical care, (Obaseki and Nwafor, 2013). While cervical cancer is a global health issue, the cancer burden is felt more acutely in developing countries, where resources available for prevention, diagnosis, and treatment of cancer generally are limited.

Cancer is a genetic disease that is caused by changes to genes that control the way our cells function, especially how they grow and divide. They can also arise during a person's lifetime because of errors that occur as cells divide or because of damage to DNA caused by certain environmental exposures. Cancer-causing environmental exposures include substances, such as the chemicals in tobacco smoke, and radiation, such as ultraviolet rays from the sun. In general, cancer cells have more genetic changes, such as mutations in DNA, than normal cells. Some of these changes may have nothing to do with the cancer; they may be the result of the

cancer, rather than its cause. There are more than 100 types of cancer. Types of cancer are usually named for the organs or tissues where the cancers form. For example, lung cancer starts in cells of the lung, and brain cancer starts in cells of the brain. Cancers also may be described by the type of cell that formed them, such as carcinoma, sarcoma, leukemia, lymphoma, multiple myeloma, melanoma and cervical cancer among others.

Epidemiology of Cervical Cancer

Cervical cancer is a disease that develops in the female reproductive system where the cells of the cervix become malignant (Ferlay, Shin, Bray et al, 2010). The primary cause of cervical cancer is infection with HPV. Cervical cancer is an important public health problem and it is the third most common cancer worldwide (Fitzmaurice, Dicker and Pain, 2015). In 2012, there were 528,000 new cases of cervical cancer and about 266,000 women died of the disease worldwide. In addition, more than 76% of the cases occur in women from medium and low resources settings (Globacon 2013:2). According to the human papilloma virus and related cancer fact sheet of 2013, it is estimated that about 132 women are diagnosed with cervical cancer and 59 die of the disease each year in Namibia, which has an estimated population of 2.1 million. Geography, religion, culture and socio-economic factors such as level of illiteracy, marital status have been shown to influence cervical cancer rates. The differences in cervical cancer rates between developing countries are due to levels of human development, economic resources and the capacity to sustain a National Cervical cancer programme (Ferlay, *et al*., 2010).

Cervical cancer causes and Risk Factors

The cause of cervical cancer remain unknown, however certain risk factors abound. Different cancer has various risk factors. It is important to note that although the presence of cervical cancer risk factors increases the odds of a woman getting cervical cancer In her life time, not all women exposed to risk factors develop cancer several risks or predisposing factor were identified and discussed.

Human Papilloma Virus

The most important risk factor for cervical cancer is the sexually transmitted human papilloma virus (HPV). HPV infection is mostly prevalent in young women under 30 and less in older women over 30 years. There IS currently no cure for HPV infection apart from management of growths caused by HPV infection (American Cancer Society, 2013). HPV types 16 and 18 cause approximately 70% of incidences of cervical cancer worldwide, although there are variations across countries. Early studies have shown a relationship between HPV and cervical neoplasma. In a study conducted in Britain, 2010 women with high risk of HPV infection had a 33 fold increased risk of cervical neoplasma, compared to HPV-negative women. In same study, it was found that HPV test had a higher sensitivity than a pap smear test (Kjaer, 2013: 2). Women who were HPV positive for type 16 and 18 were found to be at higher risk of developing cervical cancer lesions when followed over 10-year period. (Parkin, 2009).

Weakened Immune System

Pinhero et al (2009) concur that the highest burdens of pre cancer lesions is among HIV infected women and in some cases co-existence of HPV infection also increase the risk. In addition to HIV serum positivity as a risk factor, (Ruche, *et al*, 2012) argues that others factors significantly associated with cervical cancer lesions should also be considered such as smoking, oral usage of contraceptives etc.

Smoking

This risk of developing cervical cancer is doubled in smoking women compared to non-smokers due to exposure to high levels of carcinogens in cigarette. Carcinogens are thought to damage the DNA of cervical cells, leading to cervical cancer. (American Cancer Society,) 2009:2)

Other risk factors for developing cervical cancer include early age sexual debut, early pregnancy, multiple sex partners, use of oral contraceptives, high parity and viral infections such as herpes and HIV) (Sankaranarayan, 2015). Cervical cancer was recognized as an Acquired Immune Deficiency Syndrome (AIDS)-defining illness and a leading cause of mortality in HIV positive women by the United States centers for Disease Control and Prevention. (CDC 2013: 1).

Prevention of Cervical Cancer

Primary prevention of cervical cancer is possible through vaccination against HPV and healthy life styles such as use of condoms and reduction of sexual partners (World Caner Report, 2013). Prevention of cervical cancer is important and this can be achieved by avoiding transmission of Human Papilloma Virus, HPV vaccination. A case-control study conducted in Australia to measure the effectiveness of quadrivalent HPV vaccine against, cervical abnormalities, four years after implementation of the National vaccination Programme shows that the vaccine confers a statistically significant protection against cervical abnormalities (Sylla and

Mild, 2011). HPV vaccine is available in the private sector, however, National, HPV Vaccination programmes are not yet available in most developing countries (World Health Organization, 2013).

Additionally, health education and awareness raising programmes to reduce high-risk, behaviors and discourage tobacco use which is known to cause cervical cancer and other cancers are important in reducing prevalence of cervical cancer. Secondary prevention of cervical cancer is screening and early treatment of abnormalities detected aimed, at early diagnosis of precancerous lesions followed by adequate treatment while tertiary prevention involves diagnosis of precancerous lesion followed by adequate treatment white tertiary prevention involves diagnosis and treatment of identified cases, which will be discussed in the following sections.

Cervical Cancer Screening

Early cervical cancer is often asymptomatic while locally advanced disease could cause symptoms including abnormal vaginal bleeding, abnormal vagina discharge, pelvic pain and dyspareunia (WHO, 2013). Aschengrau and Serge (2013) states that cancer screening test must be valid, reliable, sensitive and specific, it should have good predictive value and it should be able to detect the condition at an early stage whilst it is treatable. In addition, the WHO (2013:2) describes cervical cancer death as an avoidable death. Low-tech inexpensive tools can be used to effectively to reduce the burden of cervical cancer in low resource setting. (Sankaranarayanan in WHO, 2013).

In developing countries, programmes to prevent cervical cancer have been difficult to implement owing to lack of resources resulting in low cervical cancer screening coverage. (WHO, 2013)

According to WHO (2007), to effectively prevent cervical cancer, 70-80% of the targeted women should be screened every 5 years. However, screening uptake remains low even in developed countries with screening programmes.

There are three types of cervical cancer screening methods which include cytology based screening using pap smear or liquid based cytology, Visual Inspection with Acetic acid (VIA) or Visual Inspection with Lugol's Iodine (VILI) and molecular screening methods using HPV Deoxyribonucleic acid (DNA) testing for high risk HPV types (WHO 2014). Different *screening* methods may be used to screen for cervical cancer. However, feasibility relies with an availability of resources such as infrastructure and affordability.

Diagnosis and Staging of Cancer

Invasive cervical cancer is generally diagnosed based upon a cone biopsy done following an abnormal pap smear and colposcopy. Colopscopy is a way of examining the cervix using a special magnifying device to look at the vulva, vagina and cervix or from inside the opening of the cervix (Endocervical cancer) for further examination in the laboratory (Albert, Oguntyo, and Samalia, 2012. Invasive cancer can be staged staging and stage appropriate treatment are important in management of cervical cancer. The International Federation of Gynecology and Obstetrics (FIGO) is the most widely used way of staging is as follows:

Treatment of Cervical Cancer

Treatment of cervical cancer is effective if the disease has not progressed. Cervical cancer or cervical cell abnormalities that have been identified early can be treated successfully. Treatment options available include surgical removal of the lesion, radiotherapy, Chemotherapy or a combination depending on the stage of disease. (Thomas and Oyemakinde, 2014); The goal of treatment is to remove the cancer as much as possible, where cure is not possible in order to make the patient live longer and feel better but sometimes treatment aims at relieving symptoms which is referred to as palliative care. In the earlier stages treatment usually is a combination of surgery and radiation or chemotherapy and in later stages, radiation and chemotherapy is the main treatment (Agarwal, *et al*, 2013).

Study Design

This is a descriptive survey of the cross section of women of childbearing age for their knowledge and acceptance of cervical cancer screening in Abia North Senatorial districts. The instrument used for this study is structured questionnaires. The questionnaires were administered personally in English and Igbo Languages as the case may be.

Study Population

The target population of this study included a cross-section of women of child bearing age from the five (5) Local government areas (Arochukwu, Isuikwuato, Bende, Umunneochi and Ohafia) that constitute Abia North Senatorial district. A total of 417 respondents were investigated for their knowledge and acceptance of cervical cancer screening, with 50, 69, 75, 110 and 113 examined from Isuikwuato, Umunneochi, Bende, Ohafia and Arochukwu respectively.

Sampling

A sample of 417 women from Abia North Senatorial District was used for the study. The sample size was calculated using power analysis method, which stated thus: Minimum sample size = n/1+ (n/population)

Where

$$n = \frac{Z^2P(1 - P)}{d^2}$$

Z = Standard normal deviation of 1.96 when the critical limit is set at 95% confidence interval; usually expressed as 1.96

P = Prevalent15% incidence of cervical cancer screening if P and q are not known or not available from previous studies, 15% should be used for both 'P' and 'q' as these are the values which will give the largest sample size;

d = degree of accuracy desired or maximum allowable margin of error set at 95% (0.05)

A total of 980 respondents, comprising 196 each from Arochukwu, Umunneochi, Isuikwuato, Bende and Ohafia local government areas respectively participated in the study. The respondents characteristics captured included the age, number of children, educational status, religion, marital status, and occupation/vocation. In order to address the respondent's knowledge and acceptance of cervical cancer screening, answers to certain basic questions about cervical cancer were obtained. At the same time, questions as to the acceptability of the available cervical cancer screening method among the respondents were obtained and recorded.

Data Analysis

Date obtained from the respondents characteristics were arranged into tables, and relevant statistics were employed to evaluate the respondents characteristics, their knowledge and acceptance of cervical cancer screening in the study area. Basic statistics like average/means, standard deviation, correlation and Chi-square were used to test for possible correlation and statistical significance of variable in the study.

Ethical Consideration

Ethical clearance was obtained from Abia State University Teaching Hospital Research Ethical Committee. Research objectives as well as the significance were explained to the respondent who gave their informed consent.

II. Results

Early detection of cervical cancer through certified screening methods often reduce the incidence and mortality of cervical cancer to 70 – 80% among the targeted women population. In view of the report of low cervical cancer screening uptake by WHO (2013), and other relevant researches, women of child bearing age in Abia North Senatorial District, Abia State, Nigeria, were evaluated for knowledge, acceptance and otherwise of cervical cancer screening, including recognition of the signs of cervical cancer. The results generated were obtained by administering structured questionnaires (Appendix 1), and the summary of the findings were presented in tables in this section of the write – up.

The age range of the studied respondents was 15years to 49 years with a mean age of (39.4 years) and standard deviation of 35.6 ± 9.9 years. Considering the knowledge of respondents for cervical cancer screening, on average 750 (76.5%) has knowledge of what cervical cancer screening means. However, of the 980 respondents, 668 (68.2%) indicated willingness to accept cervical cancer screening.

On a closer examination of 980 respondents from the five (5) Local Governments Areas studied, knowledge of respondents for cervical cancer screening ranged from 111(56.5%) for Arochukwu, 113(58.0%) for Umunnochi, 143(73.0%), 187(95.5%) for Ohafia to 196(100%) for Bende LGAs. (Table 1)

At the same time, considering the age specific distribution of respondents' knowledge for cervical cancer screening, there appeared to be increased knowledge of cervical cancer screening, as the age bracket of the respondents increased; 15 – 20 year old with 27(47.4%), 21 – 26 year old with79(58.1%), 27 – 32 year old with128(74.9%), 33 – 38 year old with 187(81.0%), 39 – 44 year old with 263 (84,3%) to those aged ≥45 years with 66(90.3%) as the highest. At the same time, those who indicated interest in accepting cervical cancer screening coincidentally followed the same trend with those assessed for knowledge for cervical cancer screening; 15 – 20, 21 – 26, 27 – 32, 33 – 38, 39 – 44 and ≥45 years old with 20(35.1%), 64(47.1%), 111(64.9%), 173 (74.9%), 253(81.1%) and 47(64.2%) respectively (Table 2).

Table 1. Distribution of Respondents' Knowledge and Acceptance of Cervical Cancer Screening By Local Government Areas

L.G.A	No examined	No (%) for Knowledge, No(%)+ve	No(%)-ve	No (%) for Acceptance No(%)+ve	No(%)-ve
Arochukwu,	196	111(56.5)	85(43.5)	68(34.8)	128(65.2)
Umunnochi	196	113(58.0)	83(42.0)	68(34.5)	128(65.5)
Isuikwuato	196	143(73.0)	53(27.0)	161(82.2)	35(17.8)
Bende	196	196(100)	00(.00)	188(95.4)	8(4.6)
Ohafia	196	187(95.5)	9(4.5)	179(91.5)	17(8.5)
Total	980	750(76.5)	230(23.5)	668(68.2)	312(31.8)

Table 2: Age Specific Distribution of Respondents' Knowledge and Acceptance of Cervical Cancer Screening

Age (years)	No examined	No (%) for Knowledge No(%)+ve	No(%)-ve	No (%) for Acceptance No(%)+ve	No(%)-ve
15-20	57	27(47.4)	30(52.6)	20(35.1)	37(64.9)
21-26	136	79(58.1)	57(41.9)	64(47.1)	72(52.9)
27-32	171	128(74.9)	43(25.1)	111(64.9)	60(35.1)
33-38	231	187(81.0)	44(19.0)	173(74.9)	58(25.1)
39-44	312	263(84.3)	49(15.7)	253(81.1)	59(18.9)
≥45	73	66(90.3)	7(9.7)	47(64.5)	26(35.5)
Total	980	750(76.5)	230(23.5)	668(68.2)	312(31.8)

The educational status of the study respondents ranged from primary to tertiary institutions. Considering the knowledge of respondents of cervical cancer screening by their educational status, 14(37.3%) and 124(45.1%) with primary and secondary school education respectively have the knowledge of what cervical cancer screening means. All the respondents with tertiary education appeared to have 100% knowledge of what cervical cancer screening means. Of the 980 respondents, 11 (8.7%), 209(76.0%) and 408(77.4%) with primary, secondary, and tertiary education respectively would be ready to accept cervical cancer screening (Table 3).

Table 3: Distribution of Respondents' Knowledge and Acceptance of Cervical Cancer Screening by Educational Status

Educational Status	No of Respondents	No (%) for Knowledge No(%)+ve	No(%)-ve	No (%) for Acceptance No(%)+ve	No(%)-ve
Primary	126	47(37.3)	79(62.7)	11(8.7)	115(91.3)
Secondary	275	124(45.1)	151(54.9)	209(76.0)	66(24.0)
Tertiary	579	579(100.0)	0.00	448(77.4)	131(22.6)
Total	980	750(76.5)	230(23.5)	668(68.2)	312(31.8)

When the distribution of respondents' knowledge and acceptance of cervical cancer screening by religion was evaluated (Table 4). Of the 980 respondents evaluated, 968 were of the Christian religion faith, and 748(77.3%) indicated having knowledge of cervical cancer screening, while 668 (69.0%) would be ready to undergo the process should the need arise. The 2 (16.7%) of the 12 Islamic faith investigated indicated having knowledge of cervical cancer screening, no one from the Islamic faith indicated acceptance of cervical cancer screening. The other two religious faith; Traditional and Atheist had no respondents.

Table 4: Distribution of Respondents' Knowledge and Acceptance of Cervical Cancer Screening by Religion

Religion	No of Respondents	No (%) for Knowledge No(%)+ve	No(%)-ve	No (%) for Acceptance No(%)+ve	No(%)-ve
Christianity	968	748(77.3)	220(22.7)	668(69.0)	300(31.0)
Islam	12	2(16.7)	10(83.3)	0(0)	12(100)
Traditional	0	0(0)	0(0)	0(0)	0(0)
Atheist	0	0(0)	0(0)	0(0)	0(0)
Total	980	750(76.5)	230(23.5)	668(68.2)	312(31.8)

The distribution of respondents' knowledge and Acceptance of cervical cancer screening by marital status is shown in table 5. Considering the marital status of the respondents captured in this study, out of 554 single, 360 married, 30 divorced, and 36 widowed, 420 (75.8%), 284 (78.9%), 24 (80.0%) and 22 (66.6%) respondents respectively indicated knowledge of cervical cancer screening.

Out of the 554 respondents investigated among singles, 400 (72.2%) indicated acceptance of cervical cancer screening. For the married, 210 (58.3%) of the 360 indicated acceptance of cervical cancer screening, followed by 30 Divorced with 28 (93.3%) acceptance and then 36 widows with 30 (83.3%) acceptance.

Table 5: Distribution of Respondents' Knowledge and Acceptance of Cervical Cancer Screening by Marital Status

		No (%) for Knowledge		No (%) for Acceptance	
Marital Status	No of Respondents	No(%)+ve	No(%)-ve	No(%)+ve	No(%)-ve
Single	554	420(75.8)	134(35.0)	400(72.2)	154(22.9)
Married	360	284(78.9)	76(21.1)	210(58.3)	150(41.7)
Divorced	30	24(80)	6(20)	28(93.3)	2(6.7)
Widow	36	22(61.1)	14(38.9)	30(83.3)	6(16.7)
Total	980	750(76.5)	230(23.5)	668(68.2)	312(31.8)

The distribution of the occupation of the respondents' knowledge and acceptance of cervical cancer screening is shown in table 6. Considering the occupation of the respondents' captured in this study, House Wives, civil servants, farmers, Traders, students and Artisan workers showed having 136 (79.5%), 224 (95.4%), 11 (15.5%), 112 (82.4%), 245(84.2%) and 22 (37.9%) indications respectively the knowledge of cervical cancer screening.

When acceptance of cervical Cancer screening was evaluated among the respondents by occupation, the Housewives gave 54(31.6%). The civil servants had 238 (94.1%), farmers with 7 (9.9%), Traders had 119(87.5%), Students were reported with 243 (83.5%) and Artisan workers with 7(12.1%). Statistical analysis of the differences in the respondents' knowledge of cervical cancer screening was made among the various occupational groups studied using chi-square at $P<0.05$, and it was not statistically significant. Statistical analysis was also made for the acceptance of cervical cancer screening among respondents of varying occupation using chi-square at $P< 0.05$, and it was statistically significant.

Table 6: Distribution of Respondents' Knowledge and Acceptance of Cervical Cancer Screening by Occupation

		No (%) for Knowledge		No (%) for Acceptance	
Occupation	No of Respondents	No(%)+ve	No(%)-ve	No(%)+ve	No(%)-ve
House Wives	171	136(79.5)	35(20.5)	54(31.6)	117(68.4)
Civil Servant	253	224(95.4)	29(4.6)	238(94.1)	15(5.9)
Farmers	71	11(15.5)	60(84.5)	7(9.9)	64(90.1)
Traders	136	112(82.4)	24(17.6)	119(87.5)	7(12.5)
Students	291	245(84.2)	46(15.8)	243(83.5)	20(16.5)
Artisan workers	58	22(37.9)	36(62.1)	7(12.1)	20(87.9)
Total	980	750(76.5)	230(23.5)	668(68.2)	312(31.8)

III. Conclusion

It is not unlikely that the majority of the respondents do not know that cervical cancer screening testing may be obtained anywhere, as the service is not routinely done in available hospitals. In addition, health officers do not engage these women in routine cervical cancer awareness campaigns, and the few occasions they do, they may not adequately pass the information in a manner the women may understand. The study concluded that seeking cervical cancer screening testing often leads to early detection of the condition, which will in turn save more lives of women of childbearing age. The study further identify factors that often facilitate practice of cervical cancer screening, which includes, appropriate information from public health officers, availability, more awareness campaign on cervical cancer, and hearing/testimonies from people who have undergone cervical cancer screening.

IV. Recommendations

- Public health officers should create more awareness on cervical cancer screening and its importance as well as early detection, prevention and possible treatment.
- Advocacy programmes on dissemination of information on cervical cancer screening should be properly done using audiovisual approaches.
- Caregivers should give the information using the language the people will understand.
- The screening should be made available within a distance close to the people.
- The public health officers/other health officers should teach, do more teaching on cervical cancer screening.
- Girls and women aged 9 to 26 years should be vaccinated against HPV. The vaccine is most effective if given to girls before they become sexually active.
- Women should practice safe sex. Using condom, having fewer sexual partners and delaying intercourse may reduce the risk of cervical cancer.
- Women should endeavor to have routine pap smear tests. Pap tests can detect precancerous conditions of the cervix, so as to be monitored or treated in order to prevent cervical cancer. The Pap smear test should be done from the age 21 years and be repeated every few years.

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