



# **RISKS FACTORS, UPTAKE OF SCREENING AND WORKING GUIDELINES FOR CERVICAL CANCER SCREENING IN NIGERIA: A FIFTEEN YEARS REVIEW**

<sup>1</sup>Uzoigwe Chidimma

<sup>2</sup>Ilika Amobi

<sup>1&2</sup> *Department of Community Medicine, Faculty of Medicine Nnamdi Azikiwe University, Awka, Nigeria.*

## **ABSTRACT**

*Cervical cancer is the world's third most common female cancer, the fourth most common cause of female cancer mortality. It is also Nigeria's second-largest female cancer following breast cancer. Awareness of risk factors, the use of diagnostic programs, and practicable screening operational protocols will minimize cervical cancer occurrence. Although more people are aware of cervical cancer, screening practice among women is still scarce. There is very limited knowledge of risk factors. Updates need to be provided about cervical cancer risk factors and the benefits of screening via platforms such as radio jingles, social media, and TV advertisements for everyone. Knowledge of HPV infections and treatment vaccinations will increase the demand for and use of preventive vaccination.*

**KEY WORDS:** *Cervical Cancer, Risks Factors, Screening, Nigeria.*

## **1.0 INTRODUCTION**

### **1.1 Aetiological Determinants of Cervical Cancer**

The third most common cause of cancer in the world is cervical cancer. It is the fourth leading cause of cancer mortality in females and accounts for around 12% of all cancer forms.<sup>1</sup> Cervical cancer is a prevalent but preventable female cancer that develops in the cervix<sup>2</sup>. HPV, a common sexually transmitted infection, has been involved as a carcinogenic cause.<sup>3,4</sup> Cervical cancer does not come on suddenly; it is preceded by precancerous changes of the cervix, known as Cervical Intraepithelial Neoplasia (CIN).<sup>5</sup> Two cell types are found on the cervix, the squamous cells (on the exocervix) and the glandular cells (on the endocervix).<sup>3</sup> Cervical cancer can be identified through cytological study of epidermal cells scrapped from the cervix in a process known as Pap smear. These scrapings are tested for Human Papillomavirus (HPV) under visual inspection using acetic acid (vinegar) or iodine.<sup>6,7</sup>

Cervical cancer has been reported to be caused by an infection with oncogenic high-risk types of Human Papilloma Virus (hr-HPV).<sup>5,8</sup> They include types 16,18,31,33 and 45, with types 16 and 18 causing 70% of the cervix's cancer. The low-risk types cause warts and verrucas. These have no cell changes that may develop into cancer later.<sup>9</sup> Several factors including sexual behaviours, diet, use of contraceptives might contribute to the onset of cervical cancer.<sup>1,2</sup>

### **1.2 General objectives**

The objective of this paper is to review the risk factors, uptake of screening and screening guidelines for cervical cancer in Nigeria.

### **1.3 Specific objectives**

To review:

1. The risk factors associated with cervical cancer.
2. The knowledge and prevalence of these risk factors among women in Nigeria.
3. The rate of screening uptake in Nigeria.

- Screening guidelines for cervical cancer in Nigeria and that of the World Health Organization.

The cervix is a muscular opening which is part of the female reproductive organ that connects the uterus to the vagina. Another term for it is “neck of the womb”. The cells lining the surface of the cervix could undergo abnormal changes leading to cancer. While it could take years to manifest, complications could also occur in quite a short time.<sup>7</sup>

## 2.0 CLINICAL PRESENTATION OF CERVICAL CANCER

### 2.1 The Cervix

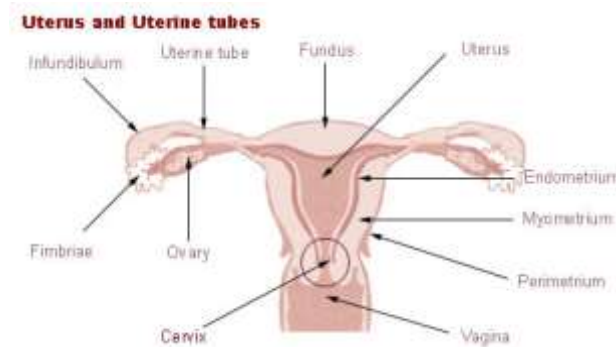


Figure 1: The Female Reproductive Organ. Source.<sup>7</sup>

### 2.2 Stages of Cervical Cancer Progression

Cervical cancer may not present any symptoms at early onset, but pelvic pain, pain during intercourse, vaginal discharge and post-intercoital bleeding may manifest in later stages.<sup>3,4</sup> Other

symptoms could include tiredness, weight loss, lack of appetite, and a single swollen leg.<sup>9</sup> Some of these manifestations could also be caused by other non-cervical cancer-related conditions.

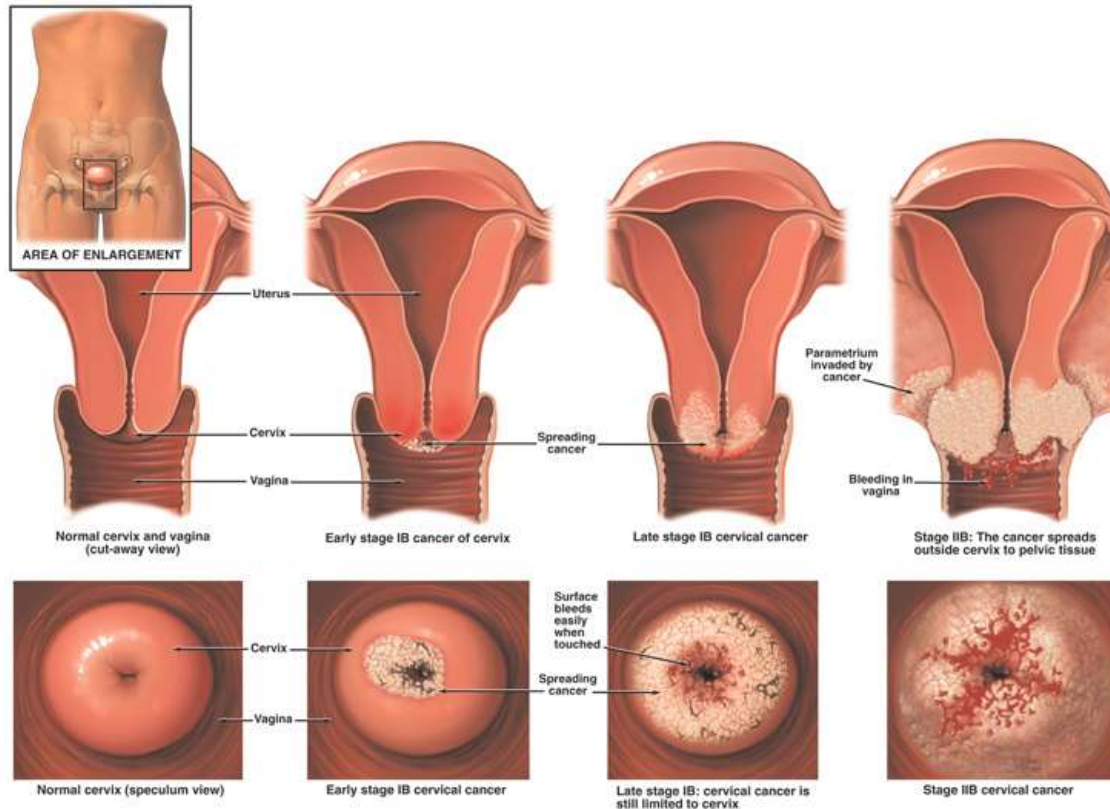


Figure 2: Stages of Cervical Cancer Progression. Source.<sup>10</sup>



### 2.3 Burden of Cervical Cancer

Cervical cancer makes up for 7.5% to 12% of cancer deaths in females, with a large proportion occurring in developing nations.<sup>9</sup> It is most frequent with the highest morbidity and death rates of female cancer in developing countries and with the highest incidence of sub-Saharan Africa, with a daunting estimate of about 70,722 new cases of invasive cervical cancer. Studies have shown that in the United States, about 12,109 women learn that they have cervical cancer annually.<sup>2,11</sup>

In Nigeria, female cancers are the second most prevalent after breast cancer with incidences of 34.5 cases per 100,000 females and that in 2008 the seventh most common cancer in the world, with 530,000 new and 275,000 mortalities in Nigeria.<sup>1</sup>

### 3.0 METHODS

This was a 15-year literature review between 2005 and 2019 on risk factors, the implementation of female's cervical cancer screening and the Nigeria screening guidelines.

Electronic literature search was conducted in this study. Information was obtained from the survey of medical journals, online databases, publications compiled by World Health Organization (WHO), and other scientific papers (Google Scholar, Medical Annals and several African Journals). Literature and relevant information were identified and analysed. The information gotten was further organized and presented in structured sections.

### 4.0 RISK FACTORS ASSOCIATED WITH CERVICAL CANCER

A woman is predisposed to cervical cancer by a variety of factors. These are divided into the following; genetic, socio-economic, biological, lifestyle, and climate. With prolonged HPV infection and the involvement of certain risk factors, the chances of developing cervical cancer rises. It is worth noting that many women who are at these risks do not develop the disease.<sup>6,12,13</sup>

#### 4.1 Biological and Genetic Factors

1. Human Papillomavirus infection: this is the major risk factor, notably high-risk infection with HPV. It contains more than 150 classes, including oral, vaginal or anal sex, of the related viruses, that infect epithelial cells of the skin, genitals, anus, mouth, throat, and spreads through intimate contacts between one's skin-to-skin contacts with infected persons.<sup>3,5</sup>
2. Co-infection with the Human immunodeficiency virus (HIV): The weakened HIV-related immune system makes women more vulnerable to

cervical cancer.<sup>3,5,14,15</sup> reported a higher HPV prevalence for HIV-positive women.

3. Medical Family history of cervical cancer: a woman with a family history of cervical cancer is more likely to develop the condition.<sup>16</sup>
4. Diethylstilbestrol (DES): This is a hormonal drug used in the United States of America from 1930 to 1971 in pregnant women to prevent miscarriage. Daughters born to these women are particularly likely to develop cervical cancer, not necessarily caused by HPV or other gynaecological cancers, such as clear cell adenocarcinoma of the vagina and cervix.<sup>3,17</sup>
5. Parity and multiple full-term pregnancies: In HPV positive women, increased number of vaginal births equate higher chances of developing cervical cancer. Changes in late pregnancy hormone levels may boost the risk of cervical cancer.<sup>1,3-5</sup>
6. The risk for HPV infection increases when one is co-infected with other Sexual Transmitted infections such as *Chlamydia trachomatis* and genital herpes.<sup>4,5</sup>

#### 4.2 Lifestyle Factors

1. Smoking: HPV-positive smokers are more vulnerable than non-smokers to the development of cervical cancer because smoking inhibits the response of immunity to HPV.<sup>3,4,18,19</sup>
2. Having multiple sex partners or having a partner with multiple sex partners (e.g. polygamy): The higher the number of sex partners a woman has or her partner, the greater the chances of getting HPV and thus being vulnerable to cervical cancer.<sup>2,4,5</sup>
3. Early coitus: the cervix may not be matured and more vulnerable to persistent form of HPV infection.<sup>4</sup>
4. First full-term gestation at an age younger than 17.<sup>3</sup>
5. Poor genital hygiene.<sup>4</sup>
6. Being overweight and physical inactivity: "Women who are overweight are more likely to develop cervix adenocarcinoma" according to the American Cancer Society.<sup>1,3</sup>
7. Poor nutritional status: Diets low in fruits and vegetables does not make for a strong immune system, that may have fought off infections.<sup>1,3</sup>
8. Male circumcision: Studies have shown that circumcised male is less likely to have and



transmit HPV.<sup>20</sup> Houle noted that an uncircumcised male is at higher risk for oncogenic and non-oncogenic HPV infection. Also, among the Muslims males, whose culture do not practice circumcision, the risks of contraction and transmission of HPV are high for women and thus increases the risk for developing cervical cancer.<sup>20</sup>

9. Contraceptive use over the long term: Studies showed that women with HPV positive status suggested that the long-term use of oral and intra-uterine contraceptives may be an essential cofactor in of cervical cancer risk.<sup>1,9,21,22</sup>
10. Infrequent screening practice.<sup>22</sup>

### 4.3 Socioeconomic and Environmental Factors

1. Low socioeconomic status: Low income earning women may not be able to afford adequate health care services, hence might not get screened and treated.<sup>2-4</sup>
2. Low educational attainment and illiteracy.<sup>1,2</sup>
3. Lack of accessible screening centres.<sup>23</sup>

### 4.4 Knowledge and Prevalence of Risk Factors among Women in Nigeria

Ahmed *et al* reported that among 260 market women evaluated in a descriptive study in 2013, 43.5% have heard of cervical cancer and its screening, knowledge of risk factors was poor, although 62.5% of the women mentioned Sexually Transmitted Infections (STIs) as a risk factor.<sup>24</sup>

Ingwu in his study in 2016 among 508 pregnant women, reported 8.1% knowledge of the risk factors for cervical cancer.<sup>25</sup> Also, a study conducted among 2000 women in Ogun State stated that 2.3% of the women could not identify the causative agent of cervical cancer and over 95% of them could not indicate risk factors for cervical cancer.<sup>23</sup> Similarly, another study conducted in 2018 on the knowledge and attitudes of caregivers in Enugu State reported low knowledge about the risk factors for HPV and its connection to cervical cancer.<sup>11</sup>

A contrasting finding in Lagos reported a 100% knowledge of cervical cancer among 185 female students with a notably high knowledge of risk factors.<sup>26</sup>

From the findings of this review, several risk factors associated with cervical cancer are prevalent among women in Nigeria. A study that assessed the knowledge and distribution of risk factors for cervical cancer among rural women of Northeast Nigeria reported early marriage, parity, multiple sex partners as the most prevalent risk factors, this could be a result of the influence of the traditional and religious practices of the people of this region on their lifestyle.<sup>27</sup>

Furthermore, Durowade *et al* in 2012 gave the following as the risk factors prevalent among the respondents of their study; early sexual debut, age at marriage, number of sexual partners (polygamy was included), family history of cervical cancer, parity, use of oral contraceptives, male partner circumcision, low socio-economic status and tobacco smoking. However, number of sexual partners was the highest risk factor prevalent.<sup>28</sup>

### 4.5 Uptake of Screening Among Women in Nigeria

Research has shown relatively low attitude in voluntary uptake of screening, with several themes make up the basic reason for this panacea; lack of awareness, fear of screening result, no time, not seen as necessary( as some women believe they can never have cancer), invasion of privacy, financial constraints, lack of health education, poor access to screening services, poor quality of services, relatively low number of working health personnel and few standard facilities for cervical cancer screening.<sup>14,19,22,23,25,29,30</sup> The above stated reasons could be due to the lack of knowledge of the benefits of screening and why those who have no clinical manifestations may believe it is not necessary.

A study carried out on 846 women in Owerri by Ezem in 2007 on the awareness and uptake of cervical cancer screening reported that 447 participants (52.8 percent) were aware of the screening, with major sources of information from hospitals (31.3 percent) and friends (30.9 percent).<sup>14</sup>

Also, another study conducted among female medical practitioners in Nigeria found out that awareness of Pap test does not necessarily mean its use, with only 18% of the participants stating that they have had screening.<sup>31</sup> In Ogun state reported low level of awareness of cervical cancer (6.5%) and its screening (4.8%) and 27 out of 2000 women studied have been screened.<sup>23</sup> In Enugu, although 90% of the participants have heard of cervical cancer screening, only 2.8% have been screened.<sup>25</sup>

Additionally, in Kaduna, Ahmed *et al* in 2013, stated that 43.5% out of 269 respondents knew about cervical cancer screening. Screening attitude was low (19.9%), 32.7% have never heard of cervical cancer screening prior to the study, while another 32.7% have had screening.<sup>24</sup>

In Ogbomosho, 22.6% of the participants were aware of cervical cancer, 79.2% know of screening services for it but only 1.6% have had a procedure done on them,<sup>22</sup> while in Lagos, among 185 students, 67% have been screened for cervical cancer, giving a remarkable high uptake of screening.<sup>26</sup>

Furthermore, in Nnewi Southeast Nigeria, 123 (71.5%) of the respondents knew about the screening tests, but only 12 (9.8%) have had Pap smear test. Bankers had the highest level of practice (44.4%),



followed by teachers (11.1%), then health workers (5.4%).<sup>30</sup> This low uptake of screening among health workers agrees with a study carried out by Dim.<sup>32</sup>

Another study conducted in Ogun State, Nigeria, reported low awareness of cervical cancer screening tests and concurrently a low uptake. The study suggested that the women's perception of cervical cancer might be a predictor of screening uptake.<sup>33</sup>

## 5.0 GUIDELINES FOR SCREENING

### 5.1 Cervical cancer screening in Nigeria

A cancer control policy, based on the guidelines for cancer control set by WHO, is in existence in Nigeria.<sup>34</sup> The National Cancer Control Program was established in 2008 by the Feral Ministry of Health (FMOH) with the aim of decreasing cancer morbidities and mortalities, to promote screening for the early detection of cervical cancer and the administration of the HPV vaccine to young females aged 9-15 years.<sup>35</sup> For cervical cancer screening, the ministry adopted the use of Visual inspection with acetic acid (VIA) or with Lugol's iodine (VILI) for screening as the most affordable mode of screening. The process of implementing a national guideline for cervical cancer screening is still in the works.<sup>34</sup>

### 5.2 World Health Organization Recommendations

On December 3<sup>rd</sup> 2014, the WHO launched a new guidance for the prevention and control of cervical cancer in Melbourne, Australia. The new guide outlines strategies for comprehensive cervical cancer prevention and control, the need for collaboration, and portrays the promising developments that new technologies can offer in addressing the problems encountered with cervical cancer prevention and control.<sup>36</sup>

The major elements in the guide include;

1. **2-dose vaccination of girls aged 9-13 years old.** As opposed to the previous 3-dose, the 2-dose vaccination was found to be as effective as it. This reduction was made in order to cut cost especially for countries with strained national health budgets.
2. **HPV testing.** It is recommended in screening to reduce the frequency of rescreening. This is because a negative HPV test result will not need to be rescreened for at least 5 years, but should not exceed 10 years. This will go a long way to save cost.
3. **Communicate more widely.** The guide recommends targeting a wider audience when carrying out health education for screening, as the people will be

compelled to make the women in their lives take up necessary preventive practices.

4. **Addressing Inequities.** The importance of addressing gender and social inequities is of paramount importance. Women of low social class and income are at increased risk of invasive cervical cancer. The new guide recommends that these group of women be considered in the development of national health policies and programs.
5. It also recommends a "screen, diagnose and treat" approach.

The guide also advocates for the creation of national cervical cancer prevention and control programs in developing countries, that includes all healthcare levels, promoting prevention activities and access to palliative care.<sup>36</sup>

## 6.0 FINDINGS

Treatment is possible with early diagnosis of cervical cancer. The administration of vaccine and knowledge of risk factors is primal in its prevention. This review showed that Nigerian women know little about the associated risk factors of cervical cancer and the benefits of regular screening. According to Abiodun *et al* when women have knowledge of cervical cancer, there is a possibility that they will take up screening.<sup>33</sup> But awareness of cervical cancer does not mean uptake of screening as shown by Eke *et al* and Dim *et al*. Female health workers had the lowest level of screening uptake.<sup>30,31</sup> This does not help in promoting screening awareness as they, who are supposed to influence this attitude on other women, do not promote the practice.

Several reasons cited as cause for low uptake of screening, which included no time, no need for the test and fear of outcome of result. Research has shown how little women understand the benefits they stand to gain from taking up screening.<sup>14,32</sup> Proper health education is needed to clear these wrong ideologies and fears. Several of the identified risk factors are prevalent among Nigerian women.<sup>29</sup> There is a national policy for cancer in Nigeria, with a cervical cancer control plan, although assessing the impact of this plan is debatable.<sup>34,35</sup>

From the Nigerian based studies reviewed,<sup>1,2,13,21,22,26,31</sup> it was discovered that with each yearly publication, there was little or no change in the results of the new study compared to that of a previous related study. This might be because the government shows little interest in the area of research; hence it does not follow the trends in health research or rely on the results from these studies to formulate strategic programs that will lead to the



promotion of better health for the people, especially concerning the cervical cancer threat.

## 7.0 CONCLUSION

This review showed that although more people are aware of cervical cancer, there is still low practice of screening among women. There is a dearth of comprehension of cervical cancer risk factors. There is need for the provision of updated information on associated risk factors and the benefits of screening through; radio jingles, social media, television adverts to everyone. Awareness of HPV infections and vaccine for treatment may increase demand and uptake of vaccination for preventive purpose.

## 8.0 RECOMMENDATIONS

The following recommendations were made based on the results of this review:

1. Efforts should be made to provide adequate health facilities for cervical cancer screening.
2. The cost of screening should be subsidized to enable uptake of screening by women of all social class.
3. Vaccines should be made available to all at subsidized rates.
4. It is essential that health practitioners in Nigeria talk more about the associated risk factors of cervical cancer to their patients and advice screening uptake where applicable.
5. Continuous advocacy for the availability and accessibility of screening centres and vaccines for the people.
6. Female health workers should be active in the fight against cervical cancer, they can do this by giving talks especially during antenatal visits.
7. Women in Nigeria should be encouraged to educate themselves on health issues especially those that affect women in order to avoid the outcomes of ignorance.
8. Community mobilization is important in the disseminating of health information. According to WHO, educating the masses on the associated risk factors and the benefits of regular screening offers a better chance of reducing the incidence of this menace. This is because the community is another influential group and includes family and friends, who will take it upon themselves and make the women in their lives partake in screening, thereby ensuring their safety.

**CONFLICT OF INTEREST:** The authors declare that there is no conflict of interest on this article.

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