



## **Awareness of Cervical Cancer and Its Screening among Post-natal Clients at a Tertiary Hospital in Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author OSO conceptualized and designed the study, managed literature searches, participated in data collation and wrote the first draft of the manuscript. Authors PWO and AI modified the study protocol and supervised the entire research. Author MS participated in literature searches and wrote the results. Author PWA participated in literature searches and writing of the results. Author AAD participated in literature searches and analysis of data. All authors read and approved the final manuscript.*

### **Article Information**

#### **Open Peer Review History:**

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/94199>

**Original Research Article**

**Received 04 October 2022**  
**Accepted 09 December 2022**  
**Published 14 December 2022**

### **ABSTRACT**

**Background:** Awareness of cervical cancer screening is a vital first step in the prevention programme of cervical cancer in any population. The study sought to determine the awareness and identify the sources of information on cervical cancer and screening uptake among post-partum women receiving care at the Federal Medical Centre (FMC), Yenagoa between June to October 2018.

**Methodology:** In a cross-sectional descriptive study, one hundred and four (104) researcher-developed questionnaires were used for data collection. The same was researcher-administered to and retrieved from the respondents (52 HIV-positive and 52 HIV-Negative), with data on sociodemographic characteristics, awareness of cervical screening programmes and methods, sources of information, factors related to cervical cancers and uptake of cervical screening services obtained. Data analysis was limited to univariate analysis, variables were summarized by frequencies and proportions using SPSS for windows.

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**Results:** The study participants were mostly young women with a mean age of  $31.12 \pm 4.46$ . The majority had basic education (94.1%) and were married (97.1%) with most in a monogamous family setting (98.0%) About half were multiparous women (52.9%). Only 39.2% of participants have heard about cervical cancer; 17.3% about cervical screening and only 1% had utilized (uptake) the screening programme. The main sources of information were health workers (47.5%) and print /mass media (47.5%). Identified factors included having more than one sexual partner (80.4%), multiparity (62.7%) and hormonal contraceptive use (37.3%).

**Conclusion:** Despite being a preventable disease, there was a low level of awareness about cervical cancer, its screening and virtually non-uptake of screening services in the studied population. The findings suggest a need to pursue and implement effective communication and service provision strategies to increase the awareness of cervical cancer and uptake of cervical screening services in this population.

*Keywords: Awareness; cervical cancer; screening; pap smear; HIV; postnatal care.*

## 1. INTRODUCTION

Carcinoma of the uterine cervix is a deadly but preventable disease. It remains a major gynaecological concern worldwide and one of women's leading causes of cancer-related deaths. It is the fourth commonest cancer in women worldwide, with an estimated incidence of 570,000 cases and 311,000 deaths in 2018 [1]. About 90% of these occur in women in less developed regions where it has been reported as the most common cancer with about 190,000 deaths occurring each year in sub-Saharan Africa [1,2]. In Nigeria, it accounts for 70% of female genital cancers with an annual incidence of 25,000 new cases or 480 cases per week [3]. Mortality varies 18- fold between the different regions of the world with the incidence decreasing in developed countries due to the provision and uptake of intervention strategies.

Screening programmes such as cervical cytology - either organized or opportunistic – remain key to early detection and prompt treatment of cervical premalignant and malignant pathology. This has significantly reduced the mortality and morbidity associated with the disease in developed countries. Screening programmes often vary from one country to the other but all are planned to suit the availability of resources, both human and material. However, uptake of such programmes is often dependent on the level of awareness and perception among other factors of the target population [4]. The uptake of screening programmes may be aided by raising awareness about the risk factors of cervical cancer and improving access to health facilities.

Risk factors for cervical cancer include early coitarche, high parity, multiple sexual partners, sexually transmitted infections, especially with oncogenic strains of human papillomaviruses (HPV) and smoking [5,6]. Other reported risk

factors include HIV/AIDS, long-term use of oral contraceptive pills and low socioeconomic status [5-7]. More than 99.7% of all cervical cancers have been attributed to High-Risk human papillomavirus (HR-HPV) infection [8,9]. HPV is a sexually transmitted infection (STI) acquired not only through penetrative sex but also by skin-to-skin contacts, such as penile-to-vulval contact and other sexual contacts for which people typically do not use condoms. Significantly cervical cancer develops following 10-15 years of premalignant transformation during which preventive measures could obviate consequent morbidities and mortality. The course of development of cervical carcinoma, which is usually a slow process, through precursor lesions has largely been well understood and hence its suitability for screening [8,10].

However, several factors reported affecting the utilisation and uptake of screening for cervical cancer in Africa, India and other low-income countries where patients present at advanced stages of the disease include limited awareness, apprehension and social stigma [11,12]. Other related factors are the lack of symptoms, not feeling at risk lack of adequate healthcare facilities and poor or wrong information about cervical cancer.

The 6th-week postnatal clinic (PNC) affords the opportunity for women, who had previously been educated, to be screened for cervical epithelial cell abnormalities using cervical smear (Pap smear) cytology to detect the premalignant stages of this deadly but preventable disease for appropriate management [13-15].

Strategic use of the immediate postnatal period of care and the preceding antenatal care period to educate and raise the awareness of women and their partners may obviate some of the

identified challenges that mitigate against screening for cervical cancer in Africa, India and other low-income countries where patients present at advanced stages of the disease [11,12]. This will be quite important as systematic screening programmes are not yet fully implemented in Nigeria [16].

The study, therefore, sought to determine the awareness and identify the sources of information on cervical cancer and screening uptake among post-partum women. It also identified factors associated with the development of cervical cancer present in these women receiving post-partum care in the Federal Medical Centre (FMC), Yenagoa.

## 2. METHODOLOGY

### 2.1 Study Area

This study was carried out at the postnatal care clinic of the Federal Medical Centre (FMC), Yenagoa. The hospital is a 400-bed hospital located within the Yenagoa metropolis, the capital city of Bayelsa State in the South-South region of Nigeria. It is a tertiary institution that provides all levels of health care services to patients, particularly from Bayelsa, Rivers and Delta States. These areas have for years been disproportionately affected by HIV/AIDS, an infection transmitted in similar circumstances as HR-HPV, known to cause cervical cancer. It also undertakes training and research to generate data for health policy development. The Obstetrics and Gynaecology department is one of the major clinical departments of the hospital with twenty consultants and ninety-two-bed spaces. The postnatal clinic is held five times a week from Monday to Friday with an average attendance of about 20 postnatal women per day. At each postnatal care clinic, the nurses take and record the patient's weight, and vital signs. A health education session is usually held in a group before they are called to see the doctors. The department has a nine-bed delivery suite that is manned twenty-four hours by a team consisting of a minimum of a consultant, a senior registrar, two Registrars, House Officers, and trained Midwives. On average, about one hundred and fifty (150) deliveries are recorded per month.

### 2.2 Study Design

A descriptive cross-sectional design was adopted to explore awareness and identify sources of information about cervical cancer among post-

partum women and identify factors associated with the development of cervical cancer among postpartum women.

### 2.3 Study Population

The study was carried out among patients presenting for postnatal care at the postnatal clinic of the Federal Medical Centre, Yenagoa. Eligibility criteria included women aged 18 years and above who were seen postnatally up to the 6th week. Women with a previous history of abnormal cervical cytology, managed previously or currently for cervical cancer and/or having abnormal uterine bleeding or were still passing lochia were excluded from the study.

### 2.4 Sample Size

The sample size was calculated using the statistical formula for estimating a simple proportion in a population (shown below), based on the reported prevalence of abnormal cervical cytology of 3% (0.03) reported from the postnatal clinic of the University of Calabar Teaching Hospital [17].

$$N = \frac{Z^2 X P X Q}{d^2}$$

where N is the minimum sample size, Z is the standard normal deviate at the 95% confidence interval (1.96), P is the prevalence of abnormal cytology (3%; 0.03) reported in the University of Calabar Teaching hospital, and Q is the complementary proportion of P given by  $1 - P$  ( $1 - 0.03 = 0.97$ ), and d is the level of precision in the study which is set at 5% in the study. After substitution, a sample size of 44.7 (approximately 45 persons) was obtained for the study [18]. The sample size was adjusted for non-response using a non-response rate of 15%, which further increased the same size to 52 persons. However, since the larger study was a comparative study of 2 groups, there were a total of 104 persons recruited for the study.

### 2.5 Recruitment Technique

Women who met the inclusion criteria were recruited consecutively from the post-natal ward after their delivery and they were followed up at the post-natal clinic 6 weeks after delivery.

### 2.6 Study Instrument

A structured, researcher-developed questionnaire was used for data collection. The

study tool was made up of 3 sections; Section A captured the socio-demographic characteristics and sexual history of participants such as age, level of education, occupation, ethnicity, coitarche, sexual activity, marriage setting, history of HIV infection, parity, religion, etc. Section B explored the awareness of cervical cancer, knowledge and use of the Pap smear among participants. It also investigated factors that could put a woman at risk for developing cervical cancer. Section C is a Pro forma to be used for the documentation of results of cervical cytology by the pathologists in a subsequent study.

All the questions were constructed in the same style and were either direct or open-ended. Confidentiality and anonymity were maintained by not including the names and addresses of respondents so as to elicit correct responses.

## 2.7 Study Procedure

The objectives and benefits of the study were explained to every eligible woman and informed consent was obtained from those willing to respond and participate. In the privacy of a consulting room, the respondents were asked the questions on the questionnaire one by one by the researcher. After completing the interview, patients were educated about cervical cancer, risk factors and the Pap smear with the aid of a diagram of the female genital tract. The gathered data were stored in an encrypted folder accessible only by the researcher.

## 2.8 Data Analysis

All data obtained were entered into and analysed using the Statistical Package for Social Sciences (SPSS) version 22. Univariate analysis was carried out and using frequencies and proportions categorical variables like educational status, occupation, religion, awareness of cervical cancer, source of information, and hormonal use were summarized, while continuous variables like age were summarized using mean and standard deviation.

## 3. RESULTS

### 3.1 Socio-Demographic Data of the Patients

A total of 104 eligible women participated in the study, however, only 102 completed the study giving a completion rate of 98.1%. As shown in

Table 1, the mean age of the study subjects was  $31.2 \pm 4.5$  years. Of the 102 participants in this study, majority (97.1 %) were married. Almost all married women were in a monogamous family setting (98.0%). Most of the respondents (58.8 %) were Ijaws, with tertiary education (50.0%) and belonged to the Christian faith (98.0%). Thirty-eight women (37.3 %) were primiparous; 54 women (52.9 %) were multiparous (para 2-4) while 10 (9.8 %) were grand multiparous. Forty-four women (43.6 %) were engaged in unskilled employment with about equal numbers either unemployed (25.7 %) or in skilled employment (24.8 %).

### 3.2 Awareness, Sources of Information about Cervical Cancer and Uptake of Screening Services

Only 40 respondents (39.2%) were aware of cervical cancer and the leading sources of information include health workers (47.5%), reading (25.0%), and electronic media (22.5%). Among the study participants, less than a fifth (17.3%) knew about screening for cervical cancer. Significantly, only one woman in the study population had ever been screened for cervical cancer giving a screening uptake rate of 1% (Table 2).

### 3.3 Factors associated with Cervical Cancer Identified among participants

Most women (80.4 %) have had more than one-lifetime sexual partner but very few reported ever having a sexually transmitted infection (11.8%), smoking (1.0%), or being exposed to second-hand smoke from their spouses (11.8 %). Slightly above a third of the women (37.3 %) had used hormonal contraceptives; the majority of them (42.1%) used levonorgestrel for emergency contraception while 21.1% used combined oral contraceptive pills and 28.9% used injectable progestogens for family planning (Table 3).

## 4. DISCUSSION

This study reveals a low level of awareness of cervical cancer and screening services (39.2% and 17.3% respectively) among women in the puerperium during the period of study. These are lower than previously reported among pregnant women in the same centre which showed that 49% of antenatal clinic attendees were aware of cervical cancer but only 28% were aware of the pap test for cervical cancer screening while only 9.3% of the respondents had done a pap test

[19]. This poor knowledge is manifest in the near absence of uptake of screening services with only 1% of the women having ever been screened. Similar findings have also been reported from Ikeja, South-West Nigeria which showed that only 25.3% of the women in an Antiretroviral clinic had heard of cervical cancer; 16% were aware of Pap smear and only 5% of the women had ever done the test in the past [20]. A study from Onitsha, South-East of Nigeria also reported a low level of awareness about cervical cancer screening with 35.56% being aware, while only 1.8% had ever undertaken the test [21].

The findings from Jos, North-Central Nigeria differed, with 50.9% and 38.6% of the study participants reporting awareness of cervical cancer and screening (Pap smear) tests respectively [22]. The reported uptake of screening services was also comparatively better at 10.2% of studied participants. The increased

awareness and uptake observed in the study from Jos may have been because study participants were all civil servants in a federal establishment with regular income (high socioeconomic status), who may be more enlightened about health information and screening facilities coupled with a high level of education expected among civil servants. Most of the participants in the current study (over 68%) were either unemployed or had no regular source of income (self-employed). This highlights the possible complementary role of education, exposure to quality health information and financial empowerment.

It has been recommended that pregnant women receiving antenatal care should be taught about cervical cancer and its screening as well as the need for a postpartum screening. The findings of this study add more weight to the need for such education and counselling to be given during antenatal clinic lectures.

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

<b>Characteristics</b>	<b>Frequency (N = 102)</b>	<b>Percentage (%)</b>
<b>Age (years)</b>		
< 30	37	36.3
30 – 39	62	60.8
40 and above	3	2.9
Mean age: 31.12 ± 4.46 years;		
<b>Marital status</b>		
Single	3	2.9
Married	99	97.1
<b>Family setting</b>		
Monogamous	97	98.0
Polygamous	2	2.0
<b>Educational level</b>		
Primary	6	5.9
Secondary	45	44.1
Tertiary	51	50.0
<b>Tribe</b>		
Ijaw	60	58.8
Igbo	19	18.6
Urhobo/Isoko	23	22.6
<b>Religion</b>		
Christianity	100	98.0
Islam	2	2.0
<b>Parity</b>		
Primipara	38	37.3
Multipara	54	52.9
Grandmultipara	10	9.8
<b>Occupation (n=101)</b>		
Unemployed	26	25.7
Unskilled	44	43.6
Skilled	25	24.8
Professional	6	5.9

**Table 2. Awareness and risk factors of cervical cancer**

Variable	Frequency (n=102)	Percentage (%)
Awareness of cervical cancer		
• Yes	40	39.2
• No	62	60.8
Major information source		
	N = 40	
• Radio/TV	9	22.5
• Reading	10	25.0
• Health worker	19	47.5
• Others	2	5.0
Knowledge of screening tests		
• Yes	17	17.3
• No	85	82.7
Known screening tests		
	N = 17	
• Pap smear	16	94.1
• Others	1	5.9
Had pap smear		
• Yes	1	1.0
• No	101	99.0

**Table 3. Factors associated with cervical cancer identified among participants**

Variable	Frequency (n=102)	Percentage (%)
>1-lifetime sexual partner		
• Yes	82	80.4
• No	20	19.6
Prior STI		
• Yes	12	11.8
• No	90	88.2
Smoking		
• Yes	1	1.0
• No	101	99.0
Second-hand smoke		
• Yes	12	11.8
• No	90	88.2
Hormone use		
• Yes	38	37.3
• No	64	62.7
Which hormone used		
	N = 38	
• OCP	8	21.1
• Implant	3	7.9
• Injectable	11	28.9
• Emergency Contraceptive	16	42.1

A study among staff and students of a tertiary institution in Bayelsa State, South-South of Nigeria reported that most of the respondents (72%) were aware of cervical cancer and many were aware of the screening for it (50.6%) but

few had been screened [23]. While the majority (>87%) of the respondents had not been screened, those who were screened reported doing so either during a free health outreach service or on request by a doctor thus pointing to

the necessity of engaging health workers in effective recruitment strategies. This is not unexpected though in regions without organised screening programmes.

At the current low level of awareness of cervical cancer, its screening methods and worse still the uptake of screening coupled with the continued spread of HIV, the impact of efforts at reducing the incidence of cervical cancer may remain insignificant. Concerted efforts are needed at all levels of governance to put in place a national cervical cancer screening policy with a suggestion that an interim measure will be to make education about cervical cancer and the screening programme a key part of postnatal care services in Nigeria and the West African Sub-region.

## 5. CONCLUSION

This study has demonstrated a low level of awareness about cervical cancer and its screening among women receiving postnatal care in Yenagoa, South-South Nigeria, an area afflicted with HIV/AIDS. The near absence of screening uptake reflects defects in public health awareness campaigns among women with more than average levels of education.

It is therefore imperative that healthcare workers and indeed all channels of communicating health information deploy and implement effective strategies to increase the uptake of screening programmes.

## 6. LIMITATION

The study is not without its limitations. The study was hospital-based and the participants were postnatal patients who presented for postnatal care and this may not represent the general population. However, they form a good population for a sentinel study to investigate this subject.

## CONSENT

The study was carefully explained to the patients and their informed consent was obtained before being recruited into the study. Confidentiality was strictly adhered to. The rights of patients to participate or not in the current or subsequent study were respected.

## ETHICAL APPROVAL

Approval for the study was obtained from the research ethics committee of the Federal Medical Centre Yenagoa, Nigeria.

## ACKNOWLEDGEMENTS

The authors appreciate the patients that participated in this study, and the consultants, residents and nurses at the Department of Obstetrics and Gynaecology for their roles in making this study possible.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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