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Original Research Article

Socio-demographic and clinico-pathological analysis of cervical cancer patients at a tertiary care centre in South-south Nigeria

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ABSTRACT

Background: Cervical cancer is a significant public health burden in low- and middle-income countries where access to screening and treatment is limited. It is the leading cause of cancer deaths in women in Africa, often due to late presentation and diagnosis. Aim of this study was to determine the socio-demographic and clinical profile of cervical cancer patients and their relationship with tumour related factors.
Methods: This was a retrospective review of all cases of histologically confirmed cervical cancer patients managed at the University of Port Harcourt Teaching Hospital, Port Harcourt, over a 5-year period. A data collection form was used to obtain socio-demographic characteristics and clinical profile from the patients' case records.
Results: The mean age of the women was 53.3±8 years, with the highest prevalence in the 55-64 age group 26 (33.3%). Majority 59 (74.4%) of the women were multiparous, and 50 (64.1%) were married. Most 32 (41%) had primary education and about one-third 24 (30.8%) were farmers. The most common clinical features were vaginal bleeding, foul-smelling vaginal discharge, pelvic pain, and weight loss 46 (59%), while squamous cell carcinoma (SCC) was the predominant histological type 56 (71.8%). Only 9 (11.5%) had any form of screening for early detection of cervical cancer. Most 31 (39%) of the patients presented with stage III disease, with a median hemoglobin level of 6.8 (2.3) g/dl before treatment. About two-third 54 (69%) of them had severe anaemia. There was significant association between marital status and histological type (X^2 = 42.096, p-value = 0.001). Use of oral contraceptive pills (X^2 = 7.602, p-value =0.04) and menopausal state (X^2 = 6828, p-value =0.05), were significantly associated with cancer stage.
Conclusions: There is an urgent need to scale up advocacy for regular screening for cervical cancer and vaccination, to ensure increased awareness, early detection, and prevent the progression of early disease.

Keywords: Cervical cancer, Clinical profile, Demography, Pathology, Port Harcourt

INTRODUCTION

Globally cervical cancer is the second most common malignancy among women.[1] It is the most common genital tract cancer among women in low-and-middle income countries.[1-,3] It has a significant global burden, with 530,000 new cases and 275,000 deaths recorded each year.[4] It is the leading cause of cancer-related death among women in developing countries, accounting for approximately 83% of all cases.[5,6] With an age-standardized incidence rate of 34.5 cases per 1000 women, it is the second most common female cancer in Nigeria after breast cancer.[7,8] In Spain, the United States, and India, age-standardized rates of 4.68, 4.55, and 38.9 cases per 1000 women were observed, respectively.[9,10]

Cervical cancer is diagnosed at an average age of 48 years, and the disease prevalence rises in the fourth decade of life.[11] In Europe, older patients are more likely to be diagnosed with cervical cancer, and account for more than 40% of the annual mortality.[7] Despite progressive declines in wealthy countries, morbidity and mortality rates from

this preventable disease remain high in developing countries such as Nigeria.[12] The disparity in cervical cancer incidence between developed and emerging economies reflects a significant disparity in wealth and access to extensive screening programmes.[3]

Given the widespread adoption of screening tools such as the Papanicolaou (Pap) test, the prevalence of this condition has declined significantly in both Europe and America.[13-16] Sad to say, Nigeria has yet to acknowledge this cancer as a serious concern for public health or a significant contributor to the plight of women, as evidenced by the utter lack of a policy requiring universal screening and the use of preventive measures available in developed countries, such as vaccination.[17]

High-risk human papillomavirus (hrHPV) infection has been linked to nearly all cases of cervical pre-cancer and carcinoma, with serotypes 16 and 18 being the most common. Notwithstanding this, only about 12% of infections associated with HPV develop cervical cancer or pre-cancer.[18] As a result, while hrHPV infection is not the sole cause of cervical cancer, it can play a role. Other factors, in addition to hrHPV, influence how cervical pre-cancer and malignancy develop from persistent hrHPV infection. Some of these factors include oral contraceptive pills, smoking, high parity, early coitarche, diet, immune suppressive disorders like HIV, high-risk sexual activity, and ageing.[8,18,19] Cervical cancer is classified into four types based on clinicopathological features: squamous cell carcinoma (SCC), adenocarcinoma, adenosquamous carcinoma, and neuroendocrine carcinoma. [8,18,19]

Cervical cancer can be asymptomatic or symptomatic, and it can be discovered during screening procedures or during a family planning assessment.[1,20] Cachexia, micturition symptoms, pelvic discomfort, rectal symptoms, and pedal oedema may be observed in severe illness. Other symptoms include irregular and/or atypical vaginal bleeding, contact vaginal bleeding, bad-smelling vaginal discharge from secondary infection, and malodorous vaginal discharge from secondary infection.[21,22] This study examined the socio-demographic factors, and clinical profile of cervical cancer at a tertiary health institution in Port Harcourt, Nigeria.

METHODS

This study was conducted at the University of Port Harcourt Teaching Hospital (UPTH) located Obio-Akpor Local Government Area of Rivers State, Nigeria. The State is bounded by Imo, Abia, Anambra, Akwa-Ibom, Bayelsa and Delta States. The University of Port Harcourt Teaching Hospital has an estimated bed capacity of 988 and an estimated 200,000 patients are seen annually. It serves as a referral centre for neighbouring states. The department of obstetrics and gynaecology is one of the four major clinical departments, occupying 17.7% of the total bed spaces in the hospital. It has 5 teams, each headed by consultants. Every week, the gynaecology clinic is open from Monday to Friday, and each clinic session is run by consultants, resident doctors, house officers, and nurses. Patients are evaluated in the clinic before they are admitted into the gynaecogical ward for surgery.

This was a retrospective review of all histologically confirmed cases of cervical cancer treated at the UPTH Nigeria, between January 1, 2016, and December 31, 2020. Permission was obtained from the heads of the Departments of Obstetrics and Gynecology and Medical Records to use patient records for this study. The names and folder numbers of all cervical cancer cases diagnosed during the study period were obtained from the gynaecology ward and theatre registers. The folder numbers were used to retrieve the patient's case files at the Medical Records Department, and relevant data was extracted from the case files and entered in a proforma. Socio-demographic features, predisposing factors, and previous screening methods used, clinical features, and stage of the disease were all obtained.

Statistical analysis

The Statistical Package for Social Sciences (SPSS) version 25 was used to analyze the data. Descriptive statistics are presented in frequencies and percentages. The chi-square test was used to assess the relationship between the type of malignancy and demographic and clinic-pathological features. The 95% confidence interval was used, and a p value of ≤0.05 was considered statistically significant.

RESULTS

The study included seventy-eight women. One-third 26 (33.3%) of the women were aged 55-64 years with a mean age of 53.3±8 years. Majority 59 (74.4%) were multiparous, and 50 (64.1%) were married. Most of the women 32 (41%) and primary education and were engaged in farming 24 (30.8%). This is shown in Table 1.

Table 1: Socio-demographic profile of cervical cancer patients.

Variables	n (%)
Age (years)	
35-44	11 (14.1)
45-54	18 (23.1)
55-64	26 (33.3)
≥ 65	23 (29.5)
Parity	
1 - 2	9 (11.5)
3 - 4	11 (14.1)
≥ 5	59 (74.4)
Median parity	6 (3)
Median no. of living children	6 (3)
Median age at menarche	13 (1)
Marital Status	
Single	4 (5.1)
Married	50 (64.1)

Continued.

Variables	n (%)
Divorced	1 (1.3)
Separated	2 (2.6)
Widowed	21 (26.9)
Education	
None	17 (21.8)
Primary	32 (41.0)
Secondary	20 (25.6)
Tertiary	9 (11.5)
Occupation	
#Technical/associate professional	7 (9.0)
$Professional	4 (5.1)
&Elementary	16 (20.5)
!Service/sales workers	12 (15.4)
>Skilled workers/farmers/fishermen	24 (30.8)
<Craft/related trade/traders	15 (19.2)

#: Civil/public servant, Auxiliary nurse; $: Doctors, Engineers, Lawyers, Nurses, Clergy; %: Secretaries, &: Housewives, Students; !: Businessmen; >: Farmers/fishermen <: Tailors, traders, shoemakers

Table 2: Clinical profile of women with cervical cancer.

Clinical variables	n (%)
Histological type	
Squamous cell carcinoma	56 (71.8)
Adenocarcinoma	12 (15.4)
Adenosquamous carcinoma	10 (12.8)
Presenting symptoms	
Vaginal bleeding+ discharge+ pelvic pain+ weight loss	47 (60.2)
Vaginal bleeding + pelvic pain	13 (16.7)
Vaginal bleeding+ offensive discharge	16 (20.5)
Vaginal bleeding only	1 (1.3)
Vaginal bleeding+ discharge+ pelvic pain	1 (1.3)
Pap smear screening	
Yes	9 (11.5)
No	69 (88.5)
Menopausal	
Yes	54 (69.2)
No	24 (30.8)
Referred to the facility	
Yes	74 (94.9)
No	4 (5.1)
If yes, where	
Private clinic/maternity	25 (32.1)
Primary health centre	20 (25.5)
Secondary health centre	25 (32.1)
Tertiary health centre	8 (10.3)
Oral contraceptive pill use	
Yes	32 (41.0)
No	46 (59.0)
Referred for chemo-radiation	
Yes	77 (98.7)
No	1 (1.3)

The clinical profile of patients with cervical cancer are displayed in Table 2. The most common 56 (71.8%) histological type was squamous cell carcinoma, while adenocarcinoma was found in 12 (15.4%) of the women. A combination of vaginal bleeding, foul-smelling vaginal discharge, pelvic pain, and weight loss were the commonest 47 (60.2%) presenting symptoms seen in all patients. Majority 54 (69.2%) were menopausal and only 9 (11.5%) had been screened for cervical cancer. The majority 74 (94.9%) of these women were referred from private hospital and secondary health centres 25 (32.1%). Almost all 77 (98.7%) were thereafter referred out for chemo-radiation after a histologic diagnosis was made.

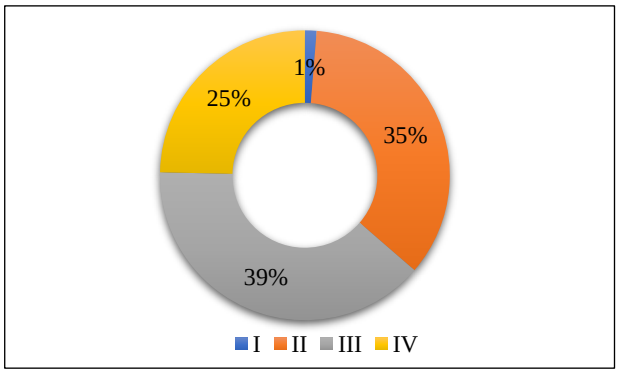

Figure 1: Stages of cervical cancer among women diagnosed at UPTH.

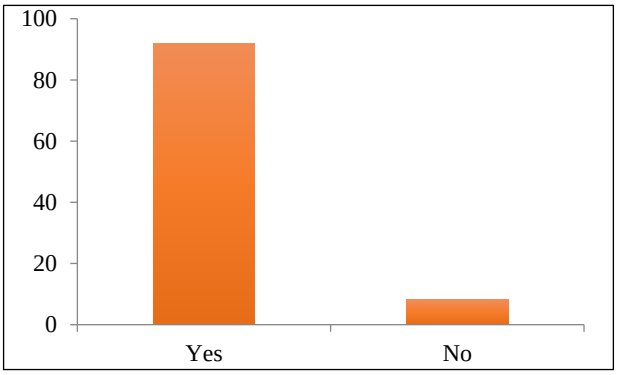

Figure 2: Prevalence of anaemia among women with cervical cancer at UPTH.

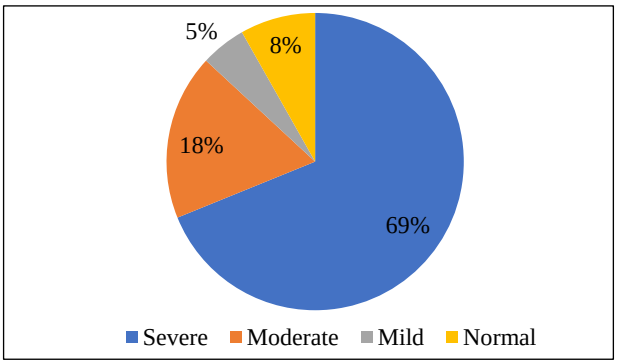

Figure 3: Severity of anaemia among women with cervical cancer at UPTH.

Figure 1 showed that many of them 30 (39%) had stage III cervical cancer. A greater proportion 56 (91.8%) were diagnosed with anaemia, of these 42 (69%) had severe anaemia. This is shown in Figures 2 and 3. There was a significant statistical relationship between marital status (X^2 = 42.096, p-value = 0.001), and histological type as shown in Table 3.

Table 4 and Table 5 showed the relationship between socio-demographic characteristics, clinical profile, and stage of cervical cancer. Bivariate analysis showed that there was a statistically significant relationship between oral contraceptive pill use (X^2 = 7.602, p-value =0.04), menopausal status (X^2 = 6828, p-value =0.05), and cancer stage. However, there was no significant relationship between other variables and disease stage.

Table 3: Relationship between socio-demographic characteristics and histological type.

Variables	Squamous cell carcinoma	Adenocarcinoma	Adeno-squamous carcinoma	X^2	P-Value
Age (years)					
35-44	7 (63.6)	1 (9.1)	3 (27.3)	4.121	0.681
45-54	11 (61.6)	3 (16.7)	4 (22.2)		
55-64	18 (72,0)	4 (16.0)	3 (12.0)		
≥ 65	20 (83.4)	2 (8.3)	2 (8.3)		
Marital Status					
Single	1 (25.0)	2 (50.0)	1 (25.0)	13.615	0.049**
Married	39 (78.0)	3 (6.0)	8 (16.0)		
Divorced		1 (100.0)			
Separated	2 (100.0)				
Widowed	14 (66.7)	4 (19.0)	3 (14.3)		
Occupation					
Technical/associate professional	7 (100.0)			9.028	0.458
Professional	2 (50.0)	2 (50.0)			
Elementary	12 (75.0)	2 (12.5)	2 (12.5)		
Service/sales workers	7 (58.3)	1 (8.3)	4 (33.3)		
Farmers	16 (72.7)	2 (9.1)	4 (18.2)		
Craft/related trade/traders	12 (70.6)	1 (5.9)	4 (23.5)		
Occupation Status					
Active	31 (68.9)	8 (17.8)	6 (13.3)	2.874	0.537
Inactive	11 (84.6)	2 (15.4)			
Retired	6 (100.0)				
Education					
None	9 (52.9)	4 (23.5)	4 (23.5)	8.633	0.153
Primary	24 (51.5)	5 (15)	3 (9.4)		
Secondary	14 (70.0)	1 (5.0)	5 (21.0)		
Tertiary	9 (100.0)				

* Significant at p<0.05 in Pearson's chi-square; ** significant at p<0.05 in Fischer's exact (>20%Cells <5) X^2; Chi-square; Ca: Cancer

Table 4: Relationship between socio-demographics, clinical profile, and disease stage.

Variables	I	II	III	IV	X^2	P-value
Age (years)						
35-44	1 (9.1)	3 (27.3)	3 (27.3)	4 (36.4)	8.191	0.521
45-54		9 (50.0)	7 (38.9)	2 (11.1)		
55-64		8 (33.3)	9 (37.5)	7 (29.2)		
≥ 65		7 (28.0)	10 (40.0)	8 (32.0)		
Parity						
1-2	1 (11.1)	2 (22.2)	3 (33.3)	3 (33.3)	6.132	0.462
3-4		4 (36.4)	5 (45.5)	2 (18.2)		
≥ 5		21 (36.2)	22 37.9)	15 (25.9)		
Marital status						
Single	1 (25.0)	1 (25.0)	1 (25.0)			

Continued.

Variables	I	II	III	IV	X^2	P-value
Married		16 (32.7)	21 (42.9)	1 (25.0)		
Divorced			1 (100.0)	12 (24.5)	16.132	0.275
Separated		2 (100.0)				
Widowed		9 (41.0)	7 (31.8)	6 (27.2)		
Occupation						
Technical/ associate professional		5 (71.4)	1 (14.3)	1 (14.3)		
Professional			2 (66.7)	1 (33.3)		
Elementary		6 (37.5)	6 (37.5)	4 (25.0)		
Service/sales workers	1 (8.3)	2 (16.7)	6 (50.0)	3 (25.0)	18.624	0.218
Farmers		11 (45.8)	8 (33.3)	5 (20.9)		
Craft/related trade/traders		2 (12.5)	8 (50.0)	6 (37.5)		
Education						
None		5 (29.4)	7 (41.2)	5 (29.4)		
Primary		11 (34.4)	12 (37.5)	9 (28.1)	4.637	0.956
Secondary	1 (5.0)	7 (35.0)	7 (35.0)	5 (25.0)		
Tertiary		4 (44.0)	4 (44.0)	1 (11.1)		

* Significant at p<0.05 in Pearson's chi-square; ** significant at p<0.05 in Fischer's exact (>20%Cells <5) X^2; Chi-square; Ca: Cancer

Table 5: Relationship between socio-demographics, clinical profile, and disease stage.

Variables	I	II	III	IV	X^2	P-value
Pap smear screening						
Yes		5 (55.6)	3 (33.3)	1 (11.1)		
No	1 (1.4)	24 (34.8)	26 (37.7)	18 (26.1)	1.435	0.882
Oral contraceptive use						
Yes		7 (21.9)	12 (37.5)	12 (37.5)		
No	1 (3.1)	20 (43.5)	18 (39.1)	8 (17.4)	7.601	0.04*
Menopausal						
Yes		15 (27.8)	24 (44.4)	15 (27.8)		
No	1 (4.2)	12 (50.0)	5 (20.8)	6 (25.0)	6.828	0.054*

* Significant at p<0.05 in Pearson's chi-square; X^2; Chi-square; Ca: Cancer

DISCUSSION

Cervical cancer is a public health problem in low-and-middle income countries including Nigeria. It is a highly preventable cancer that can be effectively controlled through accelerated population-based screening programmes, due to the long latent period.

Studies have shown that the primary demographic risk factor for cervical cancer among women is age. Cervical cancer can develop in women of all ages, but it usually develops in women aged between 40 and 59 years with a peak age of the incidence varying with populations.[1,7,20,22] The mean age recorded in this study was 53.3±8 years, with a peak age prevalence in those aged 55-64 years old. This is like findings previously reported at the study centre, and conforms with reports from Abuja, Jos, Tanzania, Morocco, Zimbabwe, and China where cervical cancer mostly affected middle-aged women, especially in resource-limited countries.[2,3,23-25,27,28] This older age indicates a relative lack of awareness and access to adequate and equitable cervical cancer screening facilities in our environment. Sawaya et al reported that age has a significant effect on the timing and frequency of cancer screening.[30] Furthermore, it has been previously demonstrated that lifestyle and dietary choices play an important role in the aetiology and clinical prognosis of cervical cancer.[31] This preference for middle-aged and elderly women increases cervical cancer morbidity and mortality, especially when combined with other co-morbidities associated with the elderly population. As a result, screening programmes should target women of reproductive age with the goal of detecting pre-invasive stages of the disease that can be treated easily.

However, the findings were at variance with reports from India and Bangladesh which reported a higher prevalence in the 40-49 and 41-50 age groups respectively.[32,33] The result also differs slightly from those of the USA, which found a higher prevalence in women between the ages of 45 and 49.[34] This may be due to the robust large-scale screening programmes in these countries, which results in the detection of cervical cancer in younger women. Despite this, the current study did not find a significant

association between age and stage of cervical cancer. This is in concert with the reports from New Delhi but at variance with studies in Mumbai, Maharashtra and Kenyatta, which showed a significant association.[5,9,11,32]

Our study showed that although multiparous women were diagnosed with advanced stage cervical cancer, yet this association was not statistically significant. However, it is well established that multiparous women are at a higher risk of cervical cancer compared to other women Port Harcourt, Jos, Tanzania, New Delhi, and in Mangalore.[3,23,25,32,35] Significant associations were reported in Kenyatta.[11]

Majority of the women had primary education, while only one-eighth had tertiary education. Educational status has been shown by previous studies to be significantly associated with the stage of cervical cancer.[5,9,32] The finding from the current study is at variance. However, our report is consistent with other studies where illiteracy was documented as a risk factor for cervical cancer.[2,4,5,9,11,23,33,36] Lack of education is also associated with early marriage and high parity, which are also considered to be independent risk factors for cervical cancer.[2,4,5,9,11,23,33,36] These observations have clearly emphasized the fact that improvement in literacy level of women could serve as an essential tool for the control of cervical cancer.

Squamous Cell Carcinoma (SCC) was found to be the most common histological type. SCC arise from the squamo-columnar junction and can be keratinizing or non-keratinizing type (well-differentiated or poorly differentiated carcinoma). This corroborates reports from previous studies that majority of cervical cancer cases were of SCC type.[5-9,11,21,23,32,37,38]

With regards to presenting symptoms, the findings showed that vaginal bleeding, foul-smelling vaginal discharge, pelvic pain, and weight loss were the most common This finding is consistent with other reports.[3, 23,24,27,28,32,39]

The clinical features of cervical cancer identified in the cases are typically seen in patients with advanced stages of the disease, as many women presented with the disease in later stages, where prognosis is generally poor and treatment options are limited. This is not uncommon in resource-constraint low- and middle-income countries like Nigeria. Women who live in areas with limited access to healthcare, including regular cervical cancer screenings, are at a higher risk of having advanced disease This may be due to delays in diagnosis and treatment.[3,5,7,9,18,19,23,24,27,38-40]

Human immune-deficiency virus was observed in 9% of patients, which was comparable to the findings from Port Harcourt and Abuja.[23,41] However, it contradicted findings from similar studies in South Africa, Uganda and Kenya where higher prevalence of HIV were reported.[42] The higher prevalence observed in other studies may be partly due to differences in case selection and sexual practices of the study population.[41] Poverty is a major contributor to the aetiology of this disease in our environment because it predisposes to early sexual exposure, early marriage, and multiple sexual partners, as well as exposure to sexually transmitted diseases such as human papillomavirus (HPV) and HIV. Although HPV infection with oncogenic strains is required for the development of cervical cancer, with more than 70% of cervical cancers attributed to serotypes 16/18, our study was unable to determine the HPV infection status of the patients due to a lack of HPV serotype testing facilities.[28]

Even though the facility has a Pap smear testing unit and other screening modalities, 88.5% of our patients have never been screened. As a result, it is critical that health institutions raise public awareness about cervical cancer screening facilities. Furthermore, governments should work to end the vicious cycle of poverty, predisposition to early sexual exposure, and multiple sexual partners, all of which are major contributors to the development of cervical cancer.

There was a significant association between oral contraceptive use and late-stage cervical cancer.

The findings correspond to study in North Carolina.[43] Long-term use of oral contraceptives could be a cofactor that increases risk of cervical cancer by up to four-fold in women who are positive for cervical HPV DNA. A comprehensive review conducted by the International Agency for Research on Cancer (IARC) classified the use of combined oral contraceptives as carcinogenic to humans, and this was partly based on the reported associations with Cervical Cancer.[44]

Hence, concerted effort should be made to include long-term users of oral contraceptive pills (OCP) in cervical screening programmes. This is because the estrogen content in OCP increases proliferation of cells and increases longevity and reduces the turnover which predisposes to the perpetuation of HPV virus hence progresses to carcinoma cervix.

CONCLUSION

The study shows that cervical cancer was high among older women. The late-stage presentation of cervical cancer among most of the participants is of serious concerns for women's health. The findings of the study highly recommend and increased advocacy for regular pap smear screening and improved health education to increase the awareness of cervical cancer among women living the Port Harcourt metropolis.

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