

## Socio-Demographic and Clinical Profile of Breast Cancer Patients in Benin City, Nigeria

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### ABSTRACT

**Background:** Although breast cancer is reported as the commonest cancer in women, there is a dearth of literature and research concerning patient profile and utilization of hospital radio-therapeutic services.

**Aim:** The aim of the study was to document the knowledge of socio-demographic profile and clinical pattern which is a requirement for control measures and appropriate treatment of cancers.

**Method:** This was a retrospective study made up of 257 patients seen in University of Benin Teaching Hospital (UBTH) and undergoing their radio-therapeutic clinic visits for breast cancer. The data was analysed using Statistical Package for Social Sciences (SPSS) version 20.0.

**Result and Conclusion:** The age ranged between 23 - 83 years, with a mean of  $48.94 \pm 11.09$  years, median of 48 years and mode of 43 years. Out of these total 47.6% of the breast cancers were located in the right breast and 51.2% were on the left, with invasive ductal carcinoma (93.7%) as the most common histological type. This basic information on socio-demographic and clinical profile of patients can help plan and optimize the utilization of hospital services, more especially in a resource poor country like Nigeria.

**Keywords:** Retrospective, breast cancer, socio-demographic profile, Nigerian study population

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### Introduction

Breast cancer is the commonest malignancy affecting women worldwide, second only to cervical carcinoma.<sup>1,2</sup> The incidence rate varies worldwide ranging from 27 per 100,000 in central Africa to 96 per 100,000 in Western Europe. It is reported to be 33.6 per 100,000 in Ibadan, Nigeria.<sup>3</sup> The average annual crude incidence

rate (CR) and the age standardized incidence rate (ASR) for breast cancer in Benin City was 16.7 per 100,000 and 25.4 per 100,000 respectively.<sup>4</sup> It is the most frequent cause of cancer death in women in low middle income countries like Nigeria (324,000 deaths, 14.3% total deaths).<sup>3</sup> The burden of breast cancer is huge, causing 13.1 million disability-adjusted patient lives in 2013; 63% occurred in developing countries, while 37% occurred in developed countries. Therefore, there are various researches into the aetiology, socio-demographic patterns, knowledge attitude and practice of breast examination and treatment modalities for management of women with breast cancer.<sup>5</sup>

Several aetiological factors for breast cancer have been identified by epidemiological studies and it is reported to be rare before the age of 20 years. Thereafter the incidence doubles every 10 years after the age of 30 years until menopause.<sup>5,6</sup> Genetic predisposition accounts for around 10% of female breast cancer and 20% of male breast cancer.<sup>3</sup> Previous benign breast lesion is associated with a four-fold increase in risk of breast malignancy. The use of unopposed oestrogen in hormone replacement therapy for 10-15 years is associated with an increased risk of developing breast cancer.



Other risk factors are exposure to ionizing radiation, high dietary fat intake and high alcohol consumption.<sup>2,3,5</sup>

The most important factor to reducing mortality and morbidity from breast cancer is early diagnosis and treatment whenever this is possible.<sup>7</sup> Early clinical diagnosis reduces the patients' distress and aids in effective treatment plan using surgery, chemotherapy, hormonal therapy, targeted therapy using monoclonal antibodies (Trastuzumab), radiotherapy or palliative/supportive care in late presentation. Biopsy of breast lesions should be carried out as soon as indicated for histo-pathological assessment to rule out malignancies.<sup>5,6,7</sup>

In Nigeria, a reasonable proportion of the population live below the poverty line; they are neither aware nor have access to breast cancer screening, diagnosis, and treatment facilities. Furthermore, despite breast cancer being a leading cause of cancer mortality in the country, accounting for 16.0% of all cancer related deaths in Nigeria<sup>8</sup>, there has been no synchronized national initiative from public health authorities on this statistic. A study on the sociodemographic profile and clinical profile is the first step in planning control measures and treatment facilities. Hence, in light of the above, the present study was planned to study the sociodemographic and clinical profile of breast cancer patients visiting a tertiary health care centre in Benin City, Nigeria.

### Materials and Methodology

The study was a retrospective study of 257 breast cancer patients visiting the radiotherapy department of the University of Benin Teaching Hospital (UBTH). Patients were seen and treated following referral to UBTH from neighbouring hospitals and across the six geo-political zones of Nigeria. The radiotherapy department is equipped with a multi-modal linear accelerator (LINAC) with two photons energy (6mV and 15mV) and five electron energy capabilities. This is associated with a computed tomography simulator (CT-Sim), a computerized treatment planning system (TPS) and a fully functional mould room.

All available radiotherapy case notes and treatment records of cancer patients attended to at the department from January 1, 2013 to

December 31, 2015 were retrieved from the records department of the hospital. Data including patients' socio-demographic information and clinical diagnosis including age, marital status, treatment history, stage of disease, co-morbidities at presentation were extracted into a Microsoft Excel spread sheet.

### Statistical Analysis

The study employed the use of descriptive statistics such as mean, standard deviation for continuous variables as well as frequency and percentages for categorical variables. The data was analysed using Statistical Package for Social Sciences (SPSS) version 20.0 (Chicago, IL, USA).

### Results

Two hundred and fifty-seven case files and treatment cards of cancer patients attending the Radiotherapy department, University of Benin Teaching Hospital, Benin City between 2013 and 2015 were reviewed. The age distribution of the patients is shown in Table 1.

All two hundred and fifty-seven patients aged between 23 and 83 years recruited in the study were females. The age group 41-50 years or fifth decade of life recorded the highest frequency of 94 (37.3%) and the mean age was 48.94±11.09 years, median of 48 (range 23-83) years and mode of 43 years. Patients younger than thirty years contributed 3.5% of breast cancer to the study population.

The distribution of cancer staging as shown in Table 2 reported that 235 (91.4%) of the breast cancers are stage III, while 22 (8.6%) are stage II; there was no reported case of stage I breast cancer in the study.

The distribution of tumour sites in the study population as shown in figure 1 reported that 135 (51.2%) of the breast cancers were located in the left breast, while 122 (47.6%) were located in the right breast and 3 (1.2%) were bilateral breast cancers.

The distribution of the common sites of metastasis with breast cancer showed that the most common site was the axilla in 18 cases, then the vertebral spine in 4 cases and the least site was the brain in a single case report as shown in figure 2.



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Figure 3 documents the distribution of the different histological types of breast cancer and invasive ductal carcinoma (IDC) was the most common with 240 (93.7%) and followed by invasive lobular carcinoma (ILC) with 8 (3.2%) as

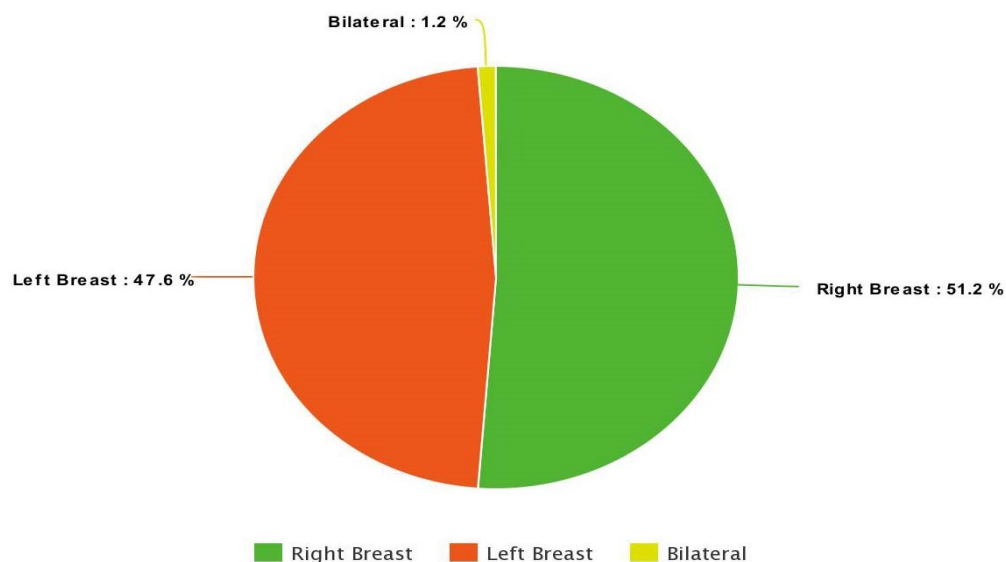
documented in this study. The other histological types include Paget's disease of the nipple (PDN) 0.8%, lobular carcinoma in-situ (LCI) 0.8%, adenoid cystic carcinoma (ACC) 0.4%, and inflammatory breast cancer (IBC) 1.2%.

**Table 1:** Age distribution of 257 female patients with breast cancer in the study population

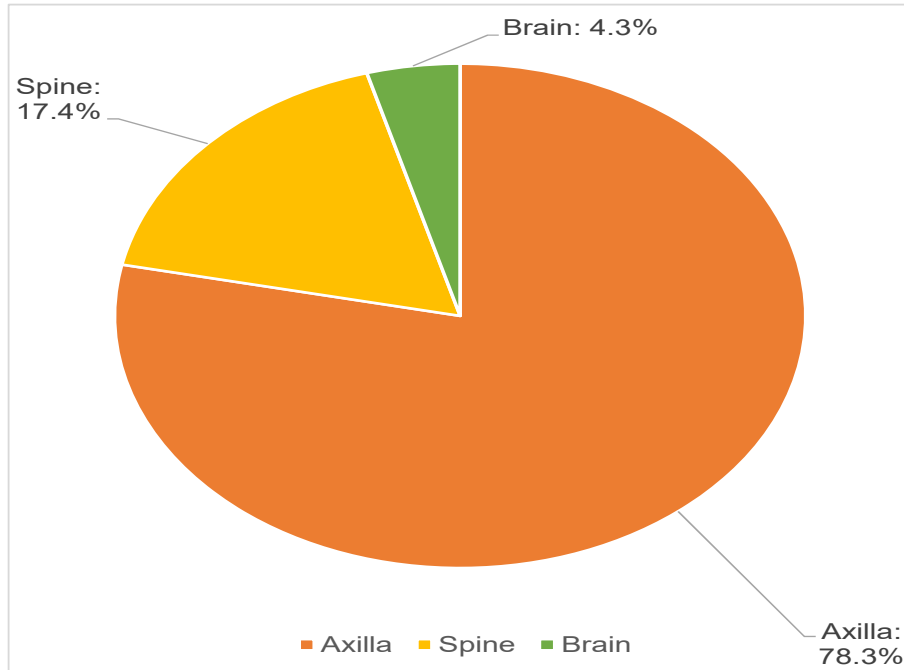
Age Group (Years)	Frequency (n)	Percentage (%)
21 - 30	9	3.5
31 - 40	49	19.0
41 - 50	91	35.4
51 - 60	61	23.7
61 - 70	41	16.0
71 - 80	4	1.6
≥ 81	2	0.8
<b>TOTAL</b>	<b>257</b>	<b>100.0</b>
Mean Age	48.94 ± 11.09 years	
Range	23 - 83 years	

**Table 2:** Cancer Staging distribution of 257 female patients with breast cancer in the study population

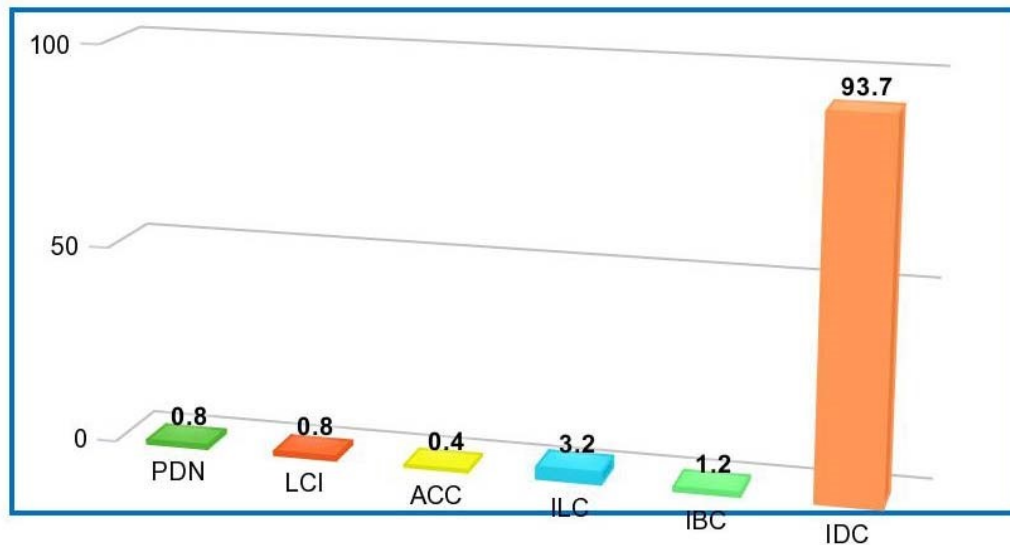
Staging	Frequency	Percentage
I	0	0.0
II	22	8.6
III	235	91.4



**Figure 1:** Pie chart showing the unilateral and bilateral distribution of the breast cancer.



**Figure 2:** Pie chart showing the distribution of the common sites of metastasis from the breast cancer



**Figure 3:** Bar chart showing the frequency of the histological types of the breast cancer in this study made up of invasive ductal carcinoma (IDC), invasive lobular carcinoma (ILC), Paget’s disease of the nipple (PDN), Lobular carcinoma in-situ (LCI), adenoid cystic carcinoma (ACC), inflammatory breast cancer (IBC).

**Discussion**

Morbidity and mortality from breast cancer has reached global concern and of epidemic proportion.<sup>5</sup> There is documented evidence of the considerable variation in the geographical, racial and ethnic distribution of breast cancer. In this

study, two hundred and fifty-seven patients were recruited and the peak age of occurrence was between 41-50 years or fifth decade of life (94 or 37.3%), mean age was 48.94 ± 11.09 years with

age range of 23 – 83 years. Patients younger than thirty years contributed 3.5% of breast cancer to the study population (Table 1). This finding corroborated previous research which showed that breast cancer was more common in the middle and older age groups than in younger women.<sup>6</sup> In a study done in Sagamu, Nigeria, the peak age of occurrence was between 40-49 years with mean age of 47.5years. Adisa *et al*,<sup>9</sup> reported a peak incidence age of 41-50 years, while Okobia and Osime<sup>10</sup> in their study documented a peak incidence at 41-50 years' age group, age range of 24 to 73 years and mean age of 38 years. However, the value was lower than studies in Caucasian which reported breast cancer in women older than 65 years.<sup>6</sup>

We reviewed 257 case files and treatment cards of cancer patients between 2013 and 2015 which were all females of different age groups which is in conformity with documentation that breast cancer is more common among females. There was no documentation of a single male patient in the current study. The finding in this study may be due to a number of factors such as risk factors, geographical distribution, prevalence and willingness of the males to present at hospital. The common belief among Nigerians is that breast cancer is only a disease of women and cannot affect men. Secondly, the affected men do not seek medical treatment for breast tumour early due to poor knowledge. However, breast cancer is rare in men and accounts for approximately 1% of all cases of breast cancer.<sup>11,12</sup> One hundred and thirty-five cases (51.2%) of the breast cancers were located in the left breast, while 122 (47.6%) were located in the right breast and 3 (1.2%) were bilateral breast cancers. The patients were aged 34 years, 73 years and 83 years respectively with bilateral breast cancer at presentation and two patients (34 years and 83 years) already had metastasis to the spine. This corroborates findings reported by Okobia and Osime<sup>10</sup> which documented that 54.5% of cases of breast cancers were located in the left breast and 45.5% were located in the right breast. Bilateral breast cancer, which can occur synchronously or metachronously, occurs more commonly in Caucasian and has an overall incidence of 4-20% of operable breast cancer. The bilateral breast involvement in this study was lower (3 patients or 1.2%) than Caucasian reports.<sup>13-17</sup>

The different sites of breast cancer metastasis reported in this current study are documented in Figure 2 and the common sites were the spine (78.3%), the brain (17.4%) and the axilla (4.3%). This corroborates the study done by Popoola *et al*,<sup>18</sup> on pattern of bone metastasis in breast cancer which reported the most common site was the spine (61%) as a result of hematogenous spread through the plexus of vertebral veins which form rich anastomotic connections with veins of the skull, neck, ribs, shoulder girdle and vertebral column allowing retrograde blood flow due to lack of valves within them. Adisa *et al*,<sup>9</sup> in their research documented that the common sites were the liver (63%), lung parenchyma (51%), pleural (26%) and contralateral breast (25%). Metastatic breast carcinoma is associated with low survival rate with a severe burden on the patient, healthcare system and country's economy. Popoola *et al*,<sup>19</sup> reported evidence of metastatic involvement at presentation to lymph node (41.7%), lung (20.2%), liver (5.4%) and spine (4.2%) in their study.

The distribution of the different histological types of breast cancer in this current study is documented in Figure 3 and invasive ductal carcinoma (IDC) was the most common with 240 (93.7%) and followed by invasive lobular carcinoma (ILC) with 8 (3.2%), Paget's disease of the nipple (PDN) 0.8%, Lobular carcinoma in-situ (LCI) 0.8% adenoid cystic carcinoma (ACC) 0.4% and inflammatory breast cancer (IBC) 1.2%. This finding was corroborated by the study by Abudu *et al*,<sup>20</sup> which reported that invasive ductal carcinoma was the predominant histologic type in 94% of cases in Shagamu. However, Okobia and Osime<sup>10</sup> documented that invasive ductal carcinoma as the most common histological type of breast cancer (66.8%) followed by anaplastic (undifferentiated) carcinoma (11.7%).

#### **Limitation**

The limitation of this study was that the study being retrospective, the poor record keeping in our setting affected outcome of analysis as some information such as associated risk factors, comorbidities, diet and lifestyles could not be extracted due to incomplete medical records of the patients.



**Conclusion**

Breast cancer is a global health issue and the menace of breast cancer afflicting women has consistently been reported among Africans, Nigerians in particular. This study adds to the hospital-based data in our locality, therefore contributing to the existing information regarding regional bias to breast cancer distribution. This study has provided data which may help the hospital to formulate policy and therefore develop specific guidelines for radio-therapeutic management of breast cancer that is necessary for education and audit of healthcare delivery.

**Conflict of interest:** The authors declare no conflict of interest.

**Authors' Declaration:** The authors hereby declare that the work presented in this article is original and that any liability for claims relating to the content of this article will be borne by them.

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