



Unveiling the Crises of Breast Cancer in Young Nigerian Women: A Ten Year Retrospective Study in a North Central State

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Authors' contributions

This study was carried out by all authors working in collaboration. Author POA conceptualized the study and wrote the first draft. Authors IE, BVK, SAA, IAO, JEB, NZB, JAE, OAS performed literature search, data collection and data analysis. All Authors edited, reviewed and approved the final manuscript.

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ABSTRACT

Aims: To determine the proportion of breast cancers that occur in young women at the Jos University Teaching Hospital, Jos, Plateau State, Nigeria between the 1st of January 2013 to 31st December 2022. The age distribution and the percentage contribution of breast cancer among malignancies in young women will also be determined.

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Study Design: This is a retrospective observational study.

Place and Duration of Study: Department of Anatomic Pathology and Forensic Medicine of the Jos University Teaching Hospital, Jos, Plateau State, Nigeria between the 1st of January 2013 to 31st December 2022.

Methodology: We extracted all 703 cases of female breast cancer diagnosed histologically and registered in the hospital-based cancer registry of Jos University Teaching Hospital, Jos, Plateau State, Nigeria. The age distribution and percentage of breast cancers diagnosed in women ≤ 40 years was determined. The total number of cancers diagnosed within the review period, the total number of cancers in women and the total number of cancers in women ≤ 40 years were also extracted and used to calculate the burden of breast cancer in relation to these groups.

Results: A total of 703 breast cancers were documented within the period of review, 211 (30.0%) of which occurred in women ≤ 40 years. The peak of breast cancer diagnosis occurred in the 5th decade. Female breast cancers accounted for 19.5% of all malignancies diagnosed within the period of review. They accounted for 32.5% of all cancers in women and 31.9% of cancers in women ≤ 40 years.

Conclusion: Female breast cancer was the commonest malignancy diagnosed during the period of our review. The proportion of cases diagnosed in young women in our study is significantly higher than observations in developed western nations.

Keywords: Breast cancer; young women; Nigeria; Jos; retrospective; unveiling.

1. INTRODUCTION

Female breast cancer is now the commonest cancer diagnosed worldwide accounting for 11.7% of all malignancies and surpassing lung cancer which held first position for many years [1]. It accounts for about 23% of all cancers in women and is more than twice as common as cancer in any other site of the female body [2]. Breast cancer incidence increases with age, with only about 7% of cases diagnosed in women below the age of 40 years [3]. International guidelines define breast cancer in young women as cases occurring in women 40 years and below [4]. Even though breast cancer occurs less commonly in women below 40 years it is still the commonest cancer diagnosed in this age group and the most common cause of death in women 20-39 years in the united states of America [5,6]. The proportion of breast cancers occurring in women 40 years and below is higher in women of African descent and in developing countries [7].

A number of factors such as demographics, genetics and age of child-bearing are postulated to be responsible for the high proportion of breast cancer diagnosis in young women of Low and middle income countries (LMICs) particularly in Africa [7-13].

Breast cancer in young women is associated with a poorer outcome when compared with the disease in older women, they have a higher mortality due to a higher proportion being

biologically aggressive and diagnosis of the disease occurring at more advanced stages [7,14-18]. Younger women are also faced with multiple challenges associated with the disease occurring in their reproductive and most economically productive years [19]. The increased incidence of breast cancer in young women in our environment should therefore be of public health concern considering the peculiarities of the disease in young women.

The aim of this study is to determine the proportion of breast cancers diagnosed in young women at the Jos University Teaching Hospital, Jos, Plateau state, Nigeria and hence draw attention to the significant burden of this disease in young Nigerian women.

2. METHODOLOGY

2.1 Study Design

This study was a retrospective observational study that utilized hospital-based cancer registry data of the Department of Anatomic Pathology and Forensic Medicine at Jos University Teaching Hospital (JUTH) between the 1st of January 2013 to 31st December 2022.

2.2 Study Technique

The Study entailed the extraction of all cases of breast cancer diagnosed histologically and entered into the cancer registry database of the Jos University Teaching Hospital (JUTH) between the 1st of January 2013 to 31st December 2022. The age distribution and

percentage of cases diagnosed in women ≤ 40 years was determined. The study also entailed the extraction of other cancer data within the period in order to relate breast cancer data to other cancer values and for the determination of relevant percentages. The total number of cancers diagnosed, the total number of cancers diagnosed in women and the total number of cancers diagnosed in women ≤ 40 years was extracted.

Only cases of histologically confirmed cancer are entered into the JUTH cancer registry and therefore included in the study. Cytologically or radiologically diagnosed cancers were therefore excluded.

2.3 Data Analysis

The data was extracted into excel sheet and entered into Epi-info 7 which was used to determine the relevant frequencies and proportions.

3. RESULTS

A total of 703 breast cancers were documented within the period of review, 211 (30.0%) of which occurred in women ≤ 40 years (see Tables 1 and 2).

The peak decade of breast cancer diagnosis occurred in the 5th decade (Table 1).

A total of 3598 malignancies were histologically diagnosed and entered into the JUTH cancer registry between the 1st of January 2013 to 31st December 2022. Female breast cancers therefore accounted for 19.5% of all malignancies within the period of review.

A total of 2163 cases of cancer were documented in women within the period of review, 661 of which occurred in women aged ≤ 40 years. Female breast cancers hence accounted for 32.5% of all cancers in women and 31.9% of cancers in women ≤ 40 years.

Table 1. Age distribution of breast cancer between year 2013 to 2022

		Age Distribution										
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	TOTAL
Yearly Breast Cancer Cases	2013	-	-	5	12	18	13	5	-	-	-	53
	2014	-	-	1	4	6	8	2	-	-	-	21
	2015	-	-	1	7	3	10	2	-	-	-	23
	2016	-	-	1	5	4	2	5	1	1	-	19
	2017	-	-	4	12	8	4	1	2	-	2	33
	2018	-	-	1	9	23	16	3	5	-	-	57
	2019	-	-	4	25	30	29	7	2	2	-	99
	2020	-	-	7	22	29	21	14	5	1	-	99
	2021	-	1	8	27	44	29	11	2	2	-	124
	2022	-	1	10	44	41	40	26	9	3	1	175
	TOTAL	0	2	42	167	206	172	76	26	9	3	703

Table 2. Proportion of breast cancer in young women ≤ 40 years between year 2013 to 2022

Year	≤ 40 Years (n) (% of total)	Total (n)
2013	17 (32.1)	53
2014	5 (23.8)	21
2015	8 (34.8)	23
2016	6 (31.6)	19
2017	16 (48.4)	33
2018	10 (17.5)	57
2019	29 (29.2)	99
2020	29 (29.2)	99
2021	36 (29.0)	124
2022	55 (31.4)	175
Total	211 (30.0)	703

4. DISCUSSION

Female breast cancer is the commonest cancer diagnosed during the period of our review accounting for 19.5% of all cancers and 32.5% of cancers diagnosed in women. The peak of breast cancer diagnosis in our study occurred in the 5th decade (see Table 1), which is 2 decades earlier than the peak in the United states [20]. Our data also revealed that breast cancer is the most common cancer among women 40 years and below accounting for 31.9% of cancers in the age group. Worldwide breast cancer is consistently the commonest malignancy in women below 40 years [6]. The proportion of breast cancers in young women (≤ 40 years) in our study is 30.0%(see Table 2), this correlates with the 28.9% documented by Ntekim et al at the University college hospital Ibadan Nigeria [7]. The alarmingly high proportion of breast cancers occurring in young women in these Nigerian studies is significantly higher than what is documented in most western studies [3]. In the United States of America 6.6% of breast cancers occur in women 40 years and below [21]. Worldwide only about 5.6% of breast cancers occur in women between the ages of 15-39 years [22].

A number of factors appear to be responsible for the high proportion of breast cancer in young Nigerian women. Some authors have speculated that the high proportion is attributable to the general population's low life expectancy and the resulting young population having a smaller cohort of the older women who usually bear most of the burden of breast cancer [7]. This assertion is supported by the similarly high albeit slightly lower proportion of breast cancers seen in young women in some non-African developing countries which have similarly young populations [23,24] Latif et al in Pakistan and Sheereen et al in India who both reported their findings in tertiary health facilities documented 18.3% and 20% respectively of breast cancers occurring in women ≤ 40 years [23,24].

Evidence shows that breast cancer in women below the age of 35 occurs up to two times more commonly in African American women than in Caucasian American women even though the overall incidence of breast cancer is higher in the Caucasian population [8-10]. Young women who have a breast cancer diagnosis are more likely to have hereditary disease than older women [25]. Higher rates of germline mutation in BRCA1, BRCA2 and PALB2 genes have been detected in

this population than in older women with breast cancer. This suggests a possible genetic basis for breast cancers occurring in young women [25]. Relatives of young women with breast cancer have a much higher risk of developing breast cancer than relatives of women who had their diagnosis later in life [25]. Diagnosis of breast cancer in young women therefore warrants referral of close relatives for genetic counselling and testing [11-13]. While delayed child birth (first child birth after 30) is an established risk factor for breast cancer in women over 35, early child bearing is postulated to be a risk factor for breast cancer in women before the age of 35 years based on recent evidence [8]. The tendency of women to start having children early in low and middle income countries may contribute to the current scenario.

Breast cancer in younger women frequently exhibit adverse tumor biology, their tumors have higher histologic grade, have a higher frequency of nodal disease, are more likely to be human epidermal growth factor receptor 2 (Her2) positive and triple negative [23,24,26,27]. Young women are more likely to present with advanced disease, have more aggressive disease and have more complications associated with the disease and its treatment [23,24,28].

The longer duration of survival associated with breast cancer in young women is fraught with multiple problems arising from the disease and its treatment. Depression, cardiovascular dysfunction and osteoporosis are commonly seen in long term survivors [29]. Reproductive challenges such as premature menopause, sexual dysfunction and fertility issues along with loss of economic productivity feature prominently amongst young breast cancer patient's morbidity [19,23,24,26-28]. In a majority of cases, young breast cancer survivors require physical, psychological, social, sexual, nutritional, financial and vocational rehabilitation [30,31]. Recognition of these challenges, anticipation and proper planning for mitigation should be advocated for and incorporated in the multidisciplinary teams managing young women with breast cancer.

The level of knowledge of breast cancer and its screening varies based on the population surveyed in Nigeria, however utilization of screening is generally low [32,33]. Public health education concerning breast cancer and the need for screening should be advocated using both media and formal education in schools. Most screening guidelines for breast cancer

recommend commencement of screening in women aged 40 years and above essentially excluding greater than a quarter of women that would benefit from breast cancer screening in our environment [34,35]. Low and middle income countries like Nigeria should incorporate screening of young women in the national screening guidelines in order to address the peculiarities of our situation. Utilization of a reliable, cost-effective and readily available breast cancer screening tool is therefore essential.

5. CONCLUSION

The proportion of breast cancers diagnosed in young women in our study is significantly higher than observations in developed western countries, with a peak occurring two decades earlier. The peculiarities of this disease in our environment has to be understood and tackled accordingly. Unveiling this hidden and largely ignored public health crises in our young women is therefore of utmost importance.

6. RECOMMENDATIONS

1. Increased awareness of breast cancer with special emphasis on young women and girls
2. Creation of a domesticated screening guideline that meets the breast cancer screening needs of young women.
3. Research on the genetics and hereditary characteristics of breast cancer in Nigerian women
4. Training of multidisciplinary teams for management of breast cancer with special emphasis on addressing the peculiarities of the disease young women

CONSENT

It is not applicable.

ETHICAL APPROVAL

Ethical approval has been obtained from the ethical committee of Jos University Teaching Hospital, Jos, Plateau State, Nigeria and retained by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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