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Determinants of late presentation and histologic types of breast cancer in women presenting at a teaching hospital in Kumasi, Ghana

Abstract

Introduction: Breast cancer is the most common malignancy in women and the leading cause of cancer deaths worldwide. In Ghana and many parts of Africa more than 50% of breast cancer patients present with advanced stage even though evidence suggests that health education on breast cancer has intensified.

Objectives: To determine the socio demographic characteristics of women presenting with breast cancer, pattern of presentation and the association between patients demographic characteristics and stage of presentation.

Methods: A prospective cross-sectional study over a period of three months was conducted at the Breast clinic of Komfo Anokye Teaching Hospital, Kumasi, Ghana. Women with histological diagnosis of breast cancer were interviewed using a structured questionnaire.

Results: Fifty women with breast cancer were studied with ages between 27 and 75years with peak between 40-49 years. Majority presented three months after noticing the first symptom, usually a breast lump. Twenty nine (58%) women presented with late stage breast cancer. The commonest histologic type 44(88%) was invasive ductal Carcinoma. There was a strong positive correlation between stage of breast cancer and place of residence (0.4496) but a weak positive correlation between stage of breast cancer and age (0.1684), as was also stage of breast cancer and marital status (0.1143). There was a negative correlation between level of education and stage of presentation (-0.3398).

Conclusion: Breast Cancer is common in 40-49 age groups. The incidence of late stage breast cancer is 58% with majority presenting within 7-12 months of onset of first symptoms, mostly breast lumps with invasive ductal carcinoma as the most common histologic type in stage 3. Fear of mastectomy was the main reason for late presentation. Most patients had some knowledge on breast cancer mostly from the radio stations. The stage of Breast cancer was strongly associated with patients' level of education, residence (distance from facility) and religion.

Keywords: determinants, late presentation, breast cancer, women

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Abbreviations: KATH, Komfo Anokye teaching hospital; BRCA, breast cancer antigen; NOS, not otherwise specified; IDC, invasive ductal carcinoma; OPD, out patient department; GSS, ghana statistical services; TNM, T- size of the Tumour, N-regional lymph Nodes and M-distant Metastasis; AJCC stage, American joint committee on cancer; SD, standard deviation

Introduction

Breast cancer is the most common malignancy in women and the leading cause of cancer deaths worldwide.[1,2] It accounts for nearly a quarter of cancers diagnosed in women across the globe and 16% of cancers in Ghana.[2] The incidence of breast cancer is lower in developing countries than in the developed, yet mortality is higher in developing countries due to late presentation and diagnosis in the developing countries.[1] High literacy rate, better facilities and screening programmes aimed at early diagnosis has accounted for the low morbidity and mortality in the developed world. In Ghana and many parts of Africa more than 50% of breast cancer patients present with advanced stage even though evidence suggests that health education on breast cancer has intensified.[3–5]

Socio-demographic characteristics

Breast cancer is a global health problem that affects both sexes but more common in females. The disease is rare in men and accounts for 0.6% of breast cancer across the globe.[2,6] A higher proportion of breast cancer patients in Africa are young premenopausal women, whiles it is found in older post-menopausal women in Europe and America.[2,5,7,8]

Age is considered one of the most important risks factors of breast cancer in clinical practice and gradually increases with age.[2,9] It is rare under twenty years with two percent (2%) occurring between 20 and 30years. Most cases are however reported to occur between 45 and 65 years and this is attributed to hormonal imbalance in this period of menopause.[2] In Ghana and many parts of Africa breast cancer affects a relatively young population, normally by the 5th decade,[2,4,5] a decade or two earlier than in Caucasians.

Socio economic status is said to weakly affect the risk of breast cancer disease. Western diet is known to contain excessive amounts of fat which is reported to increase the risk of developing breast cancer. In Japan, the increasing incidence of breast cancer has been attributed to westernization of their diet.[2] The disease can affect women at all levels of education. Women with high levels of education are more

likely to have some knowledge on breast cancer and therefore present early in the disease.[7,10] Nulliparity increases the risk of breast cancer and is worse when these women are unmarried. Some studies suggest that married women are more likely to present with early disease. This has been attributed to the social and financial support from their partners.[2,10] Other demographic characteristics such as distance from the house to hospital and religion may be associated with breast cancer presentation. It is reported that women who are highly religious may present late to the hospital with breast cancer, because they are less likely to speak to third parties aside their God.[7] In Nigeria, Ajekigbe[3] identified fear of mastectomy, utilisation of prayer camps as the two commonest reasons for delayed presentation.[3]

Pattern of presentation of breast cancer

The burden of breast cancer is known worldwide with increasing incidence in many parts of the world over the last decade. More deaths from breast cancer have been reported in developing countries with up to 87% of women presenting with advanced stage of the disease.[3–5] The most rapid increase in incidence is reported in many parts of developing countries.[8] The rise in incidence has been attributed to improved average life expectancy, life style changes that increase risk and improved survival from other diseases.[9] In spite of these, developing countries have a lower incidence of breast cancer and this has been attributed to a protective reproductive history including late menarche, early menopause, high parity with prolonged breast feeding, irregular menses and fewer ovulatory cycles.[1,11,12]

The aggressive histological types are more common in Africa and people of African ancestry like African Americans than Europe and America and this has been attributed to hereditary causes such as BRCA 1 mutations.[13] Invasive Ductal Carcinoma (IDC) is the most common histological type of breast cancer worldwide contributing up to 70%. Other types of IDC with special features include tubular, mucinous, medullary, and papillary cancers.[4,9] Other histological types include invasive lobular carcinoma and mixed epithelial and connective tissue tumours of the breast. Histological grade is considered an important prognostic indicator with high grades associated with lower survival rates.

Knowledge Attitude and Practice is known to influence pattern of presentation of breast cancer. It is generally known that breast cancer awareness is high in educated women and high socioeconomic class and this affects presentation and outcomes.[14] Even in the well-educated, including nurses, there is knowledge deficit in certain aspects like risk factors, and screening methods.[15,16] In developing countries there are a lot of beliefs and misconceptions about breast cancer. In Ghana many breast cancer awareness programmes have been carried out aimed at early detection and treatment but low levels of education and misconceptions have contributed to lack of awareness of early symptoms of the disease leading to late presentation.[5] The early symptoms of breast cancer presents in different ways with the commonest being painless lump in breast. In a few, there may be pain in inflammatory and advanced cases.

Association between socio-demographic characteristics and stage of presentation

There is an association between sociodemographic characteristics and the stage of presentation of breast cancer. Some studies have shown a strong association between older age and delay in presentation, contrary to findings from other studies.[17–19] Low educational level has been found to be strongly associated with delayed presentation of breast cancer.[7,10,20,21] Low socioeconomic status is generally accepted to be strongly associated with delayed presentation of breast cancer.[21] People with low income level may not be able to afford transportation cost and the high cost of diagnosis and treatment of the disease. Other factors such as lack of access to health care and lack of knowledge of the symptoms of breast cancer are associated with delayed presentation.[6]

Materials and methods

This is a cross-sectional study conducted in the breast clinic of the Komfo Anokye Teaching Hospital, Kumasi, Ghana from May 2013 to July 2013. The Hospital is the second largest Teaching Hospital and the main referral centre for the northern sector of the country. Ethical approval was obtained from the Committee on Human Research, Publications and Ethics of KATH and KNUST (CHRPE).

Selection of subjects

Fifty women aged between 27-75years with histologically diagnosed breast cancer during the period under study who consented to participate in the study were recruited. Patients with clinical diagnosis without histological confirmation of breast cancer were excluded.

Tools and methods

Structured questionnaire was constructed to address the questions posed by the study. The stage of the disease was obtained from clinical examination and investigations such as chest X- ray, abdominal Ultrasound and CT scan in some cases. Patients with an initial clinical diagnosis of breast cancer were confirmed by trucut biopsy and histopathology. Those who were confirmed with histology and consented were then interviewed at the Clinic. Secondary data on socio-demographic characteristics and pattern of presentation which included the stage at presentation, histological diagnosis, symptoms prior to presentation were captured from patient folders and documented. Additional data was captured by interviewing the patients on knowledge and attitudes.

Data analysis

Using epi info version 3.5.1, the questionnaire was transformed into an electronic case record form and data was entered and stored on a Microsoft access document and analysed. Frequency distribution, Percentages, Means and Standard Deviation was used to describe data. Correlation Matrix and logistic regression were used to describe associations.

Results and discussion

Results

The demographic characteristics of the respondents are as shown in Table 1. The ages of the 50 respondents ranged from 27 to 75years with a mean age of 47.6 and SD of 11.04. Respondents between the ages of 40-49 were the most commonly affected. Only one patient (2%) was below 30years of age. Majority (90%) of the patients were below 60 years. They were either Christians or Muslims with majority 80% of them being Christians. Twenty three (46%) patients lived near to the hospital, 17 (34%) lived far, within an estimated distance of 150km whiles 10 (20%) lived very far, more than an estimated distance of 150 kilometres.

Twenty five (50%) respondents had some form of primary education with some dropping out at various stages. Eleven (22%) had secondary education whiles 10 (20%) had tertiary education. Only four (8%) had no education. Twenty three (46%) women were married whiles 8(16%) had never been married. There were 5 (10%)

widows and 14 (28%) were divorced. Fifty four (54%) out of these women had no partners. Majority of the respondents 38 (76%) were in the non-formal sector, 10 (20%) in the formal sector and 2 (4%) were unemployed.

Table 1 Demographic characteristics of patients

Characteristics	Number (n)	Percentage (%)
Age group (yrs)		
< 30	1	2
30-39	11	22
40-49	17	34
50-59	16	32
60-69	2	4
70-79	3	6
Distance (closeness to facility)		
Near	23	46
Far	17	34
Very Far	10	20
Educational background		
None	4	8
Primary	25	50
Secondary	11	22
Tertiary	10	20
Marital status		
Single	8	16
Cohabiting	0	0
Married	23	46
Separated	0	0
Divorced	14	28
Widowed	5	10
Religion		
Christian	40	80
Muslim	10	20
Traditional	0	0
Others	0	0
Occupation		
Formal	10	20
Non formal	38	76
Unemployed	2	4

Pattern of presentation

From Figures 1–5 shows the distribution of patterns of presentation of breast cancer in the respondents.

Onset of symptom: Only 11(22%) respondents presented to the hospital within three months of onset of the symptoms. A greater number, 39(78%) presented three months or more later and 10 % after twenty four months.

Stage at presentation: More than halve of the patients, 29(58%) presented with late stage breast cancer. Over a quarter of those with late stage disease, 27.6%, presented with distant metastasis.

First symptom noticed: Breast lump was the commonest symptom noticed, representing 76% of cases. Eighteen (18%) presented with symptoms of distant metastasis.

Grade of tumour: Only 3(6%) respondents had grade 1 disease. Twenty one (42%) had grade 2 disease and 26(52%) had grade 3.

Histological type of tumour: Invasive ductal carcinoma was the most common type of tumour (88%) seen in the women. Four women (8%) presented with invasive lobular carcinoma whiles one (2%) each of the women had Pagets disease and papillary carcinoma respectively.

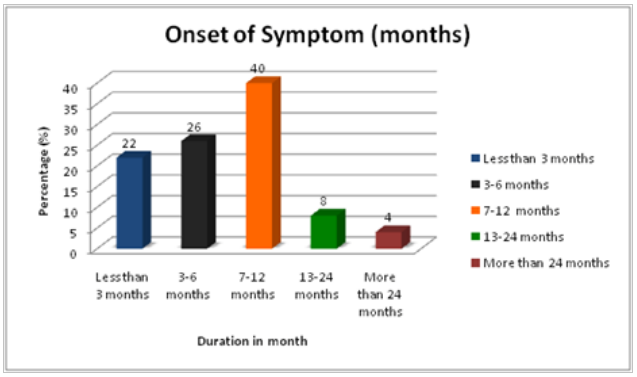

Figure 1 Distribution of onset of symptoms in months.

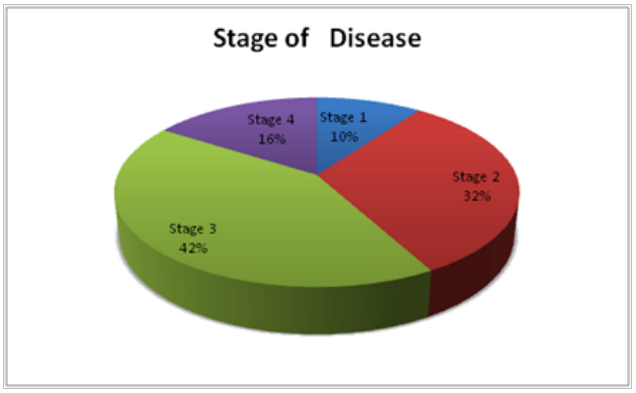

Figure 2 Pie Chart Showing the Stages of Disease.

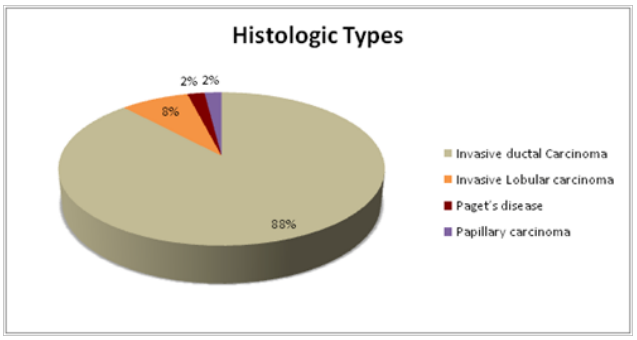

Figure 3 Distributions of Histologic Types by Pie Chart.

Knowledge and attitude of respondents

Table 2 shows knowledge and attitude of respondents. The most common reason for late presentation was the fear of mastectomy (38%). Other reasons given included self-medication (24%), distance from the hospital (20%), alternate treatment from herbalist (8%) and spiritualist (4%) and financial constraint (6%). All the respondents had some information on breast cancer with the commonest source being the radio station (40%). Other sources of information included churches or mosques (24%), hospitals (12%), friends (22%), with 2%

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of them getting their source form the market. More than two-thirds, 35, (70%) had no idea about the cause of breast cancer. Other possible causes included spiritual (8%), no cause (4%) and inherited from a family (18%). Forty eight women (96%) were of the opinion that breast cancer is curable or treatable, while 4% thought otherwise. Of the 48 respondents who thought breast cancer is curable, 95.8% were of the opinion that, the best form of treatment could be obtained from the hospital, whiles 4.2% gave spiritual treatment as the best. All respondents unanimously believed that breast cancer can kill if untreated.

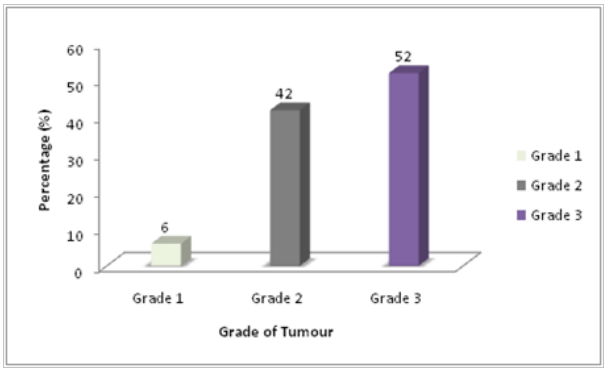

Figure 4 Distribution of Grade of Tumour.

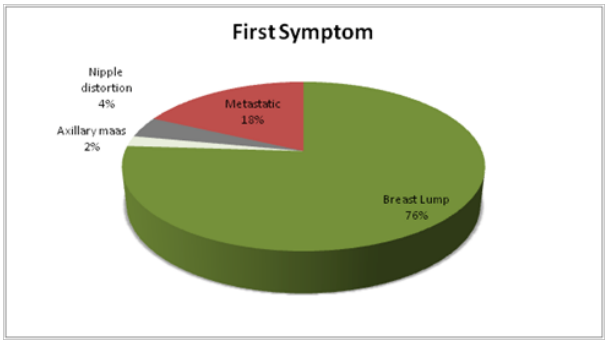

Figure 5 Distribution of First Symptom.

Table 2 Knowledge and attitude

Questions on knowledge and attitude	Number	Percentage
Reasons for delay in reporting		
Financial Constraint (No Money)	3	6
Self-Medicating	12	24
Consulted a Herbalist	4	8
Consulted Spiritualist	2	4
Distance too Far	10	20
Afraid of Mastectomy	19	38
Have you heard about breast cancer before?		
Yes	50	100
No	0	0
Source of information		
Radio	20	40
Church/Mosque	12	24
Hospital	6	12
Friend	11	22
Others	1	2
What do you think is the cause of breast cancer		
Birth Defect	0	0
Inherited from Family	9	18
Spiritual Cause	4	8
No Cause	2	4
Don't know	35	70
Do you think breast cancer can be cured/treated?		
Yes	48	96
No	2	4
If yes where can you get the best form of treatment		
Herbalist	0	0
Hospital	46	95.8
Spiritualist	2	4.2
Others	0	0
Can breast cancer kill if untreated?		
Yes	50	100
No	0	0

Association between socio-demographic characteristics and stage of presentation

Table 3 shows the correlation between the socio-demographic characteristics and pattern of presentation of Breast cancer. A correlation value of 0.1684 indicate a weak positive relationship between age and stage of presentation of breast cancer, -0.3398 shows a negative relationship between educational level and stage of presentation meaning that, as educational level increases, the stage of presentation will decrease and vice versa. Again, the correlation value of 0.1143 indicates that, there is a weak positive relationship between marital status and the stage of presentation, 0.2229 indicates a positive relationship between religion and stage of presentation. Also, a correction value of 0.4496 indicates that there is a positive relationship between place of residence and stage of presentation.

Correlation matrix and logistic regression were used to find the association. From Table 3, residence (distance) shows a significant relationship (P-value <0.011) with stage of presentation, that is, one has 4.4 times risk more of late presentation of breast cancer than does who are very close to a facility.

Discussion

Demographic characteristics

Breast cancer affects young and old women but generally, breast cancer is known to occur in a relatively younger age group in Africans than Caucasians, usually by a decade or two as shown by this study with the average age of 45 in Africans and 65 in Caucasians. A study comparing breast cancer in Americans, African Americans and Africans revealed a mean age of 48 years in the African group[13] which compares favourably with findings of 47.6 years in this study. It was also interesting to note that similar studies in the West African sub-region[4,5] found comparative results which further goes to support the assertion that breast cancer in Africans occurs usually in the fourth decade and earlier than Caucasians.

The Majority of the women affected by breast cancer in this study were Christians compared to their Muslim counterparts probably

only confirming the fact that there are more Christians in Ghana than Muslims. Logistic regression showed a positive correlation between religion and stage of presentation of breast cancer. The cause of this association is not clear but may be explained by the fact that, high parity, which is common among Moslems than Christians, could be protective against breast cancer. Most of the women had no education or just primary level which goes to support already existing literature that low level of education is associated with delayed presentation[17,18] as was also shown in this study that more than half of the women presented in late stage of the disease.

Table 3 Correlation matrix

Variables	Stage of presentation	Age	Educational level	Marital status	Religion	Occupation	Residence
Stage of Presentation	1	-	-	-	-	-	-
Age	0.1684	1	-	-	-	-	-
Educational Level	-0.3398	-0.0341	1	-	-	-	-
Marital Status	0.1143	0.3562	-0.117	1	-	-	-
Religion	0.2229	0.1674	-0.1923	0.1819	1	-	-
Occupation	0.231	0.0084	-0.6379	0.1493	0.1728	1	-
Residence	0.4496	0.0792	-0.3538	0.1861	0.039	0.2761	1

Pattern of presentation

Invasive ductal carcinoma was the most common histological type of cancer in this study. Similar results have been reported worldwide including sub-Saharan Africa and in Ghana.[4,5,9] Invasive lobular carcinoma was the second commonest histological type of breast cancer in the Ghanaian woman. Most presented with grade 2 or 3 cancer but approximately halve presented with grade 3. The commonest symptom of the disease was breast lump similar to findings in other published literature.[2,6] Almost one-fifth identified metastasis as the first symptom, a disturbing finding indeed. It is however possible that they may have ignored earlier symptoms for many reasons bordering on level of education and culturally directed attitudinal behaviours.

Knowledge and attitude

All the respondents had some knowledge on breast cancer obtained mainly from the radio, church and hospital educational programmes. Most women did not know what the possible causes of cancers could be but some believed it is inherited or caused by spiritual curses. The most common reason for the delay was the fear of mastectomy. This is similar to findings reported by Ajekigbe[3] about two decades ago.[3] It is however worrying to note that fear of mastectomy continues to be a leading cause of delayed presentation of breast cancer after twenty years, even among well-educated individuals. This may point to the fact that loss of breast in women has a huge gender and social implication. Self-medication, alternate treatment from herbalist and spiritualists, long distance from the facility and financial difficulty continue to be major reasons for delayed presentation to hospital. These were founded on socio-economic and socio-cultural backgrounds that govern the attitudes and choices people make in health matters. Majority were of the view that breast cancer disease can be cured when it is reported to the hospital early but in spite of this, patients still present late to the hospital for various reasons. A few doubted if breast cancer can be cured even if reported early and would prefer spiritual intervention. These findings suggest that there is very limited knowledge on breast cancer disease despite the reported increase in breast cancer awareness programmes. In Ghana, there is very little regulation on the kind of programmes presented by the media especially on radio and television. People with little or no knowledge in the pathologic basis of diseases, including herbalist and spiritualists, are allowed to give out information on various platforms such as radio, as confirmed by this study.

Association between socio-demographic characteristics and stage of presentation

Various published literature have not shown consistent relationships between socio-demographic characteristics and stage of presentation. This study found the stage at presentation to be weakly associated with age and marital status but strongly with level of education and distance of residence from a health facility. This informs us that the closer the patients are to the health facility and the more educated they are, the earlier they will present with its associated benefits in outcome of breast cancer management. This assertion is at variance with those of Lannin et al.[18,19] who reported otherwise.

Conclusion and recommendation

In this study, breast cancer, as in other women of African origin, occurs more frequently in the fourth decade of life. The incidence of late stage breast cancer is 58% with majority presenting within 7-12 months of onset of first symptoms, mostly with breast lumps. Patients presented late mainly for fear of mastectomy and the choice of self-medication. Invasive ductal carcinoma is the commonest histologic type. Most patients had some knowledge on breast cancer mainly from the radio stations while majority identified the hospital as the best place for treatment. The patients were of the view that untreated disease is associated with high mortality. The stage of Breast cancer in this study was strongly associated with patients' level of education and distance from facility.

Though breast cancer awareness should be intensified across all age groups in the female population, the fourth decade should be the main target for more robust campaign against breast cancer among women of African origin. Health education should be spearheaded by the Ministry of health and the Ghana Health Service through more aggressive campaigns by the Public Health educational units to provide accurate information and counselling services to the public. Breast foundations are becoming increasingly popular and visible in advocacy campaigns and should be encouraged to collaborate with government agencies to improve outcomes. This will help encourage early presentation, demystify mastectomy and discourage self-medication. It is the opinion of this study, that the provision of mammography services in the fourth decade to women and the advancement in breast reconstruction techniques could minimise late presentation and optimize cancer treatment outcomes.

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None.

Conflicts of interest

The authors declare there is no conflict of interests.

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