Physical Examination among Delayed Diagnosis of Breast Cancer Patients

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Abstract: *Background:* Breast cancer is the most common cancer among women worldwide, with early detection playing a crucial role in improving outcomes. *Objective:* This study aimed to evaluate the physical examination characteristics and the delay in seeking healthcare among breast cancer patients at Rangpur Medical College Hospital. *Methods:* A cross-sectional observational study was conducted from November 2015 to April 2016. A total of 62 patients diagnosed with breast cancer were included using simple random sampling. Data were analyzed using SPSS version 26.0. *Results:* The age distribution showed 43.54% (27 patients) between 51-60 years, and 21% (13 patients) between 41-50 years, with a mean age of 49.16. Hormonal contraceptive use was reported by 75.8% of patients, and 87% had a history of breastfeeding. A significant 67.74% had never heard of breast self-examination (SBE), and only 9.68% performed SBE. Physical examination revealed that 90.32% had breast lumps, 6.45% had wrinkled nipples, and 3.22% showed puckered skin. Regarding disease stage, 34% presented with stage II, 52% with stage III, and 14% with stage IV. Among stage II patients, 28% had delayed seeking medical attention for more than 3 months, while 81% of stage III patients and 89% of stage IV patients had a similar delay. The average delay in seeking medical care was 3.8 months. *Conclusions:* A considerable delay in seeking medical attention was observed, leading to advanced-stage breast cancer at presentation. The lack of knowledge regarding SBE emphasizes the need for public health campaigns to promote early detection and reduce delays in seeking care.

Keywords: Self-breast examination, Breast carcinoma, Tumor stage, Lump.

Article at a glance:
Study Purpose: To assess physical examination characteristics and healthcare-seeking delays in breast cancer patients.
Key findings: 67.74% of patients were unaware of breast self-examination (SBE), 90.32% had breast lumps, and delays in seeking care were common, with an average delay of 3.8 months.
Newer findings: The study highlights a significant lack of SBE awareness, suggesting that promoting early detection could reduce delays and improve outcomes.
Abbreviations: SBE – Self-Breast Examination, BPx – Breast Physical Examination, SPSS – Statistical Package for the Social Sciences, BSE – Breast Self-Examination, TBC – Tuberculosis.

INTRODUCTION

Breast cancer ranks as the foremost type of cancer affecting women globally. Early detection, followed by comprehensive multimodal treatment, can result in a cure for over 90% of cases. The effectiveness of screening methods such as breast self-examination (BSE) and breast physical examination (BPx) is most accurately assessed through randomized screening trials. Women need to remain informed about recommended screening practices and seek guidance from healthcare professionals regarding individualized breast

Peer Review Process: The Journal "The Journal of Teachers Association" abides by a double-blind peer review process such that the journal does not disclose the identity of the reviewer(s) to the author(s) and does not disclose the identity of the author(s) to the reviewer(s).

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cancer screening plans.[1] Bangladesh is facing a high burden of breast cancer disease. It is the 2nd leading cause of cancer death after cervical cancer.[2] Late presentation with advanced stage is a common feature of breast cancer patients in Bangladesh. It is easily understandable that breast cancer incidence is increasing at a faster rate. But, in Bangladesh, there is no national cancer registry. Taking into account the age-standardized incidence rates from Karachi and Kolkata, which are 53.8/100,000 and 25.1/100,000 respectively, and considering the cultural and historical parallels with Bangladesh, it's estimated that the annual new breast cancer cases in Bangladesh would be around 30,000 women.

This estimation helps in understanding the potential burden of breast cancer in the country, though it's essential to acknowledge other factors like genetics, lifestyle, healthcare access, and screening initiatives that could influence the incidence rates. Nonetheless, this approximation serves as a useful guideline for healthcare planning and resource distribution within Bangladesh.[3,4] Breast cancer incidence rates vary considerably, with the highest rates in the developed world and the lowest rates in Africa and Asia.[5] Multiple environmental and hereditary factors may be responsible for that. A striking feature of breast cancer epidemiology is its geographic variation of occurrence, with differences in breast cancer incidence as high as 10-fold internationally and two-fold among countries within the United States.[6] So, personal evaluation of breast cancer patients is necessary to find out the factors responsible for this variation. In developed countries, the majority of breast cancers are diagnosed following screening. In developing countries, patients have limited access to screening or any effective awareness programs. So, consequently goes to advanced diseases. Delay in breast cancer is defined as a patient delay between the first detection of symptoms and the first medical consultation.[7] In an ideal world, after being diagnosed people would start treatment within a month.[8] Delay can be due to patient delay (the interval between the first detection of symptoms and the first medical consultation) and system delay (the interval between the first presentation to a medical professional and initial treatment). Prolong delay is usually defined as intervals greater than 12 weeks.[9] About 60-80% of cancer patients with advanced staged disease are often quoted for patients in low and middle-income countries because of late diagnosis. One-third of cancer-related morbidity and mortality might be decreased if cases were detected and treated earlier.[10] The delay in diagnosing breast cancer and its presentation at later stages can be attributed to various patient-related factors, including age, level of education, marital status, economic status, awareness about breast diseases, and healthcare-seeking behavior. Additionally, systemic factors such as the structure and efficiency of the healthcare delivery system, including access to care providers, can also contribute to delays in diagnosis and advanced disease presentation.; waiting time for diagnosis for cancer, and lengthy referral system. This study aimed to evaluate the physical examination characteristics among delayed presented breast cancer patients.

METHODS

This cross-sectional observational study conducted in the Department of Surgery at Rangpur Medical College Hospital from November 2015 to April 2016 enrolled 62 patients diagnosed with carcinoma breast through simple random sampling, adhering to specified inclusion and exclusion criteria. The inclusion criteria encompassed lately diagnosed carcinoma breast patients admitted to the surgery ward seeking treatment during the research period, along with those willing to provide consent for participation. Conversely, patients declining participation or presenting unreliable delay history were excluded from the study. Data collection involved face-to-face interviews and retrieval of investigation reports, facilitated by a pre-formed questionnaire. The study defined delay in diagnosis as periods exceeding 12 weeks from symptom recognition to initial medical consultation and subsequent diagnosis and treatment. Patients were categorized based on whether they sought medical attention within three months of symptom onset or experienced delays beyond three months. Interviews covered various aspects including personal information, socioeconomic factors, diagnostic process, and details of delay such as dates of first consultation, hospital arrival, treatment at different levels, number of

consultations, and referrals. Data analysis utilized descriptive statistics and SPSS version 16.0 for Windows, incorporating Chi-square probability tests for comparisons. A significance level of 0.05 was set, with $p < 0.05$ deemed significant. Results were tabulated for presentation. Ethical clearance was obtained from the ethical committee of Rangpur Medical College Hospital, and informed written consent was secured from all participants prior to their involvement in the study.

RESULTS

Table 1: Distribution of study subjects according to the age group (N=62)

Age (Years)	n	%	Mean ± SD
20-30	3	4.38	
31-40	6	9.6	49.16±11.79
41-50	13	20.96	
51-60	27	43.54	
61-70	13	20.96	

27 patients (43.54%) were between 51 - 60 years of age, 13 patients (21%) were between 41-50 years of age. Another 13 patients (21%) were more than 60 years of age and 14% of patients were less than 40 years of age. The mean age was 49.16 & SD was 11.79. [Table 1]

Table 2: Distribution of study subjects according to residence (N=62)

Residence	n (%)	Delay <3 months n (%)	Delay >3 months n (%)	*P* value
Rural	49 (79.03)	18 (36.74)	31 (63.26)	0.758
Urban	13 (20.97)	6 (46.16)	7 (53.84)	

49 patients (79.03%) came from rural areas. Among them, 31 patients (63%) came with more than 3 months' delay. Patients who came from urban areas (21%) showed less percentage (53.84%) of delayed presentation than rural (63%) but that was statistically not significant. *The p*-value was 0.758. [Table 2]

Table 3: Distribution of study subjects according to socio-economic status- (N=62)

Social class	n (%)	Delay <3 months n (%)	Delay >3 months n (%)	*P* value
High	3 (4.38)	3 (100)	0 (0.0)	0.001
Middle	12 (19.6)	10 (83.33)	2 (16.67)	
Low	47 (75.8)	9 (19.14)	38 (80.86)	

High social class- Family income per capita >3000, Middle class- Family income per capita 1500-3000, Low social class- Family income per capita<1500. In this series, 75.8% of the patients came from low social class, among them 80.86% came with more than 3 months delay. On the other hand, only 16.6% of the middle class and none (0%) of the high socioeconomic class delayed more than 3 months. This was statistically significant where the value was 0.001. [Table 3]

Table 4: Distribution of study population according to marital status (N=62)

Marital status	n (%)	Delay <3 months n (%)	Delay >3 months n (%)	*P* value
Unmarried	5 (8.06)	2 (40.0)	3 (60.0)	0.734
Married	38 (61.27)	14 (31.58)	26 (68.42)	
Widowed & divorced	19 (30.64)	5 (26.32)	14 (73.68)	

In this study, the majority (61.27%) of the study population was married and 68.42% of them delayed more than three months. 30.64% were widowed and divorced, among them 73.68% delayed more than three months. 8.06% of study groups were unmarried and 60% of them delayed more than three months. However, their association was not statistically proven. (P=0.734) [Table 4]
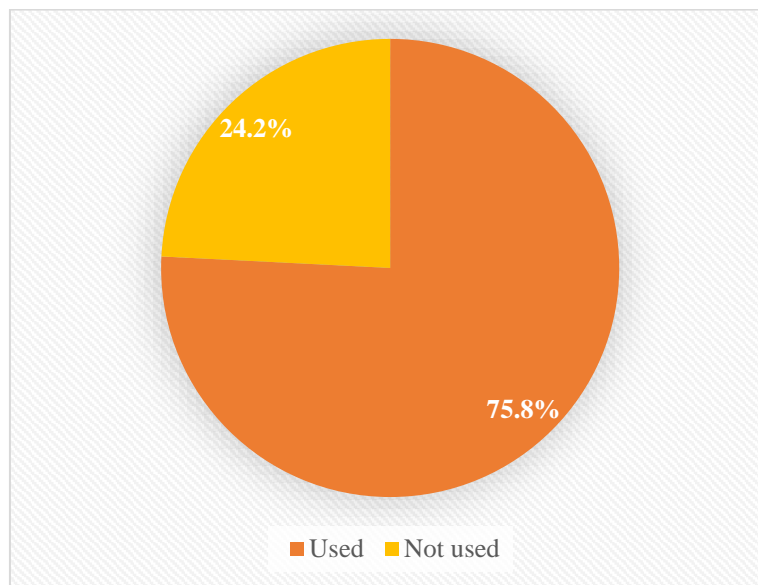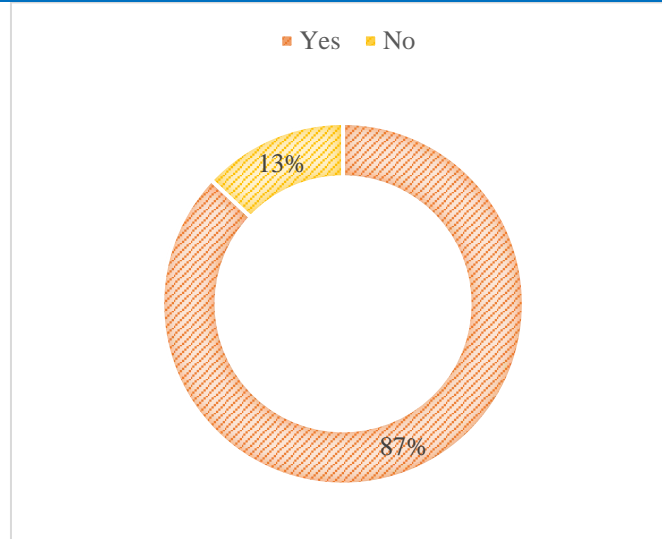

Figure 1: Distribution of study subjects according to use of hormonal contraceptives (N = 62)

In this series, 75.8% of patients used hormonal contraceptives. [Figure 1]

Table 5: Distribution of study subjects according to number of children (N=62)

Children	n	%
No child	13	20.97
1-3	20	32.26
>3	29	46.77

It was found that 29 patients (46.77%) patients had more than 3 children, and 20 patients (32.26%) had 1- 3 children. Only 21% were nulliparous. [Table 5]

Figure 2: Distribution of study subjects according to breastfeeding to their children (N=62)

In this study, 87% of patients gave a history of breastfeeding to their children. [Figure 2]

Table 6: Distribution of patients according to physical examination finding (N=62)

Finding	n	%
Breast lump	56	90.32
Wrinkled nipple	3	4.83
Puckered skin over the breast	2	3.22
Palpable axillary lymph node	2	3.22

Concerning the physical examination findings, the majority (56, 90.32%) of the patients were found to have breast lumps, followed by wrinkled nipples (3, 4.83%) and puckered skin over the breast (2, 3.22%)., and palpable axillary lymph node (2, 3.22). [Table 6]

Table 7: Distribution of study subjects regarding knowledge about breast screening methods (N=62)

Knowledge	Yes		No	
	n	%	n	%
Heard about SBE before	20	32.26	42	67.74
Performed SBE before	6	9.68	56	90.32
Heard about mammography	12	19.35	50	83.87
Had mammography done before	8	12.90	54	87.10
Knows cancer can occur in the breast	42	67.74	20	32.26
Whether breast cancer is treatable or not	21	33.88	41	66.13
Know some breast cancer patient	11	17.74	51	82.26

SBE = Self- Breast Examination

It was found that the majority of patients (67.74%) had not heard about SBE and only 9.68% performed SBE before this problem. 83.87% had not heard about mammography and only 12.9 % had done it. 67.74% know that cancer can occur in the breast and 66.13% do not know its treatment. 82.26% did not know any breast cancer patients. [Table 7]

Table 8: Distribution of study subjects according to tumor staging (N = 62)

Stage	n (%)	Delay <3 months	Delay >3 months	p-value
Stage II	21 (33.87)	15 (71.42)	6 (28.58)	0.001
Stage III	32 (51.61)	6 (18.75)	26 (81.25)	
Stage IV	9 (14.51)	1 (11.12)	8 (88.88)	

21 patients (34%) presented with stage II disease. Among them, only 28% delayed more than 3 months. 32 patients (52%) presented with stage III disease and 81% of them delayed more than 3 months. 9 patients (14%) presented with stage IV disease and 89% of them delayed more than 3 months. So, those who presented with more than 3 months of delay had a higher stage of disease and it was statistically significant where the p value was 0.001 (<0.05). [Table 8]

Table 9: Distribution of study subjects regarding the time interval between symptom and arrival at the tertiary center (N=62)

Time interval (months)	n	%	Mean delay
<3	22	35.48	
3-6	18	29.03	3.8
>6	22	35.48	

It was found that 35.48% of the study groups came in tertiary hospitals with less than 3 months' delay. 29.03% came within 3-6 months. 35.48% of patients came after 6 months at a tertiary hospital. The mean delay was 3.8 months. [Table 9]

DISCUSSION

In this study, 27 patients (43.54%) were between 51 - 60 years of age, and 13 patients (21%) were between 41-50 years of age. Another 13 patients (21%) were more than 60 years of age and 14% of patients were less than 40 years of age. The mean age was 49.16 & SD was 11.79. In a recent study focusing on women's awareness and beliefs concerning breast cancer, it was observed that older age is not only a risk factor for developing breast cancer but is also associated with delayed presentation for diagnosis and treatment.[11] Most of the patients came from rural areas (79%), compared to urban (21%) areas. Previous reports from India as well as other parts have shown a higher incidence of breast cancer in the urban population compared to the rural population.[12-13] 63 percent of the rural population reached the tertiary hospital with more than 3 months' delay. It was also observed in other studies because rural women face substantial barriers to receiving preventive health care services [14] Most (76%) of the patients were from lower socioeconomic status and delay was more marked in low social class. Similar findings have been observed in other studies.[15-16] At this tertiary-level hospital, we found only 4.38% and 19.6% of the high and middle-class groups respectively. There was a significant association found between lower social class and delayed presentation. (P=0.001) This statistic is similar to other studies.[17]

In our study, we found no association between marital status and patient delay. Though unmarried and widowed women came with delay it was not proved statistically (P value 0.735). Some other studies found an association with marital status.[11] In our study, 64% of patients with breast symptoms had a delay of more than 3 months before coming to a tertiary care hospital and the mean delay was 3.8 months. This number is quite similar to some developing countries like Nigeria, Cairo, and Ghana.[16-18] In our study, 42 (67.74%) patients had not heard about Self-breast examination (SBE), and only 9.68% performed SBE before this problem. 83.87% had not heard about mammography and only 12.9% had done it. This number is quite similar to some developing countries like Nigeria.[19] Like other studies the findings indicated that those who presented late had significantly bigger tumor size and presented with an advanced stage of the disease. The influence of delay on tumor size and disease stage

is well documented.[11] 41 patients came with advanced stage (Stage III & Stage IV) among them 34 patients were delayed more than 3 months. Among 34 patients 20 patients were delayed more than 3 months. So, prolonged delay was found in an advanced stage of patients. So, of the advanced-stage diseased patients came within 3 months this may be due to some factors like the biological behavior of the tumor, though the present study does not provide information regarding the distribution of tumor differentiation, it is important to note that a substantial proportion of late-stage diagnoses of poorly differentiated breast cancer cases could be avoided if patients with breast cancer presented to a doctor earlier.[11] Concerning the physical examination findings, the majority (56, 90.32%) of the patients were found to have breast lumps, followed by wrinkled nipples (3, 4.83%) and puckered skin over the breast (2, 3.22%)., and palpable axillary lymph node (2, 3.22). Similar findings were seen in several studies. [20-26]

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

The majority of participants exhibit a delay in seeking healthcare, resulting in the presentation of advanced-stage cancer upon arrival at the tertiary hospital. Concerning the physical findings, the most common observation is the presence of a breast lump. Additionally, a significant proportion of patients lack familiarity with self-breast examination (SBE), which serves as a crucial screening method and could potentially prevent the advancement of carcinoma to later stages.

Recommendation

The government should establish breast cancer awareness and treatment corners in each district health complex for easy entry of patients which in turn increases cancer patients' survivals. Moreover, further studies should be conducted involving a large sample size and multiple centers in this regard.

Ethical approval

The study was approved by the Institutional Ethics Committee.

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