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Original Article

Factors Influencing Delayed Presentation of Breast Cancer Patients in Tertiary Level Hospital

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ABSTRACT

Introduction: *Bangladesh is facing a high burden of breast cancer disease. It is the 2nd leading cause of cancer death after cervical cancer. Delay in seeking treatment contributes to breast cancer patients' presentation at tertiary hospitals when cancer is at an advanced stage and leads to poor prognosis.* ***Methods & Materials:*** *This cross-sectional observational study was conducted in the Department of Surgery, Rangpur Medical College Hospital, Rangpur from November 2015 to April 2016. A total of 62 patients with diagnosed carcinoma breast were included in this study through simple random sampling as per inclusion and exclusion criteria. Different statistical methods were utilized in this study. Data analysis was done by SPSS version 16.0.* ***Result:*** *84.61% of patients came with more than 3 months delay and only 15.39% came within 3 months. 75.8% of the patients came from low social class, and among them, 80.86% came with more than 3 months delay. In this series, 32.26% of the study population came after 3 months of noticing the lump because of financial problems and 24.19% took initial treatment from a homeopath. 22.58% made delay because of the long distance to RpMCH. 9.67% took traditional treatment & came after this. 4.83% took the wrong treatment and another 6.45% had delay because of false negative FNAC results.* ***Conclusion:*** *The findings suggest that two-thirds of women with breast cancer presented late which has a significant effect on their disease prognosis. There is a great impact of patient factors (personal and social)*

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Keywords: *Breast Cancer, Delayed Presentation, Self- Breast Examination, Patient Factor*

INTRODUCTION

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. Cancer is reported to be the second leading cause of death and disability in the world. It was reported that more than 70% of cancers in developing countries are diagnosed too late for a cure[1]. Breast cancer is one of the leading causes of cancer-related death in females and accounts for 29% of all cancers diagnosed each year worldwide. This disease accounts for 32% of all female cancers and is responsible for 19% of cancer-related mortality in women worldwide[2]. Bangladesh is facing a high burden of breast cancer disease. It is the 2nd leading cause of cancer death after cervical cancer[3]. 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[4,5]. Breast cancer incidence rates vary considerably, with the highest rates in the developed world and the lowest rates in Africa and Asia[6]. 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[7]. 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[8]. In an ideal world, after being diagnosed people would start treatment within a month[9]. 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[10]. 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[11]. 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, lengthy referral system. Hence, this study is designed to explore the factors responsible for the delayed presentation of breast cancer patients. The aim of the study is to explore factors associated with delay in seeking cancer treatment among breast cancer patients at a tertiary care hospital.

METHODS & MATERIALS

This cross-sectional observational study was conducted in the Department of Surgery at Rangpur Medical College Hospital, Rangpur, from November 2015 to April 2016. A total of 62 patients with diagnosed carcinoma of the breast were included through simple random sampling based on specific inclusion and exclusion criteria. The inclusion criteria comprised all histopathologically diagnosed carcinoma breast patients admitted to the surgery ward and seeking treatment during the research period, and those willing to consent to participate. Exclusion criteria included patients unwilling to participate and those with unreliable histories concerning delay. Data were collected through face-to-face interviews and investigation reports using a pre-formed questionnaire. The delay in diagnosis was defined as time periods exceeding 12 weeks from the initial recognition of symptoms to the first medical consultation, subsequent diagnosis, and treatment. Patients were categorized into two groups: those who sought medical attention within three months of symptom onset and those who experienced delays beyond three months. Interviews covered personal information, socioeconomic factors, the diagnostic process, and delay-related data, including the date of the first consultation, first arrival at the hospital, treatment at different levels, and the number of consultations and referrals. Collected data were analyzed using descriptive statistics and SPSS version 16.0 for Windows. A Chi-square probability test was performed for data comparison, with a significance level of 0.05, considering $p<0.05$ as significant. Data were presented in tables after analysis. Ethical clearance was obtained from the ethical committee of Rangpur Medical College Hospital, and informed written consent was secured from participants.

RESULTS

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 I**).

Table – I: Distribution of Study Subjects According to the Age Group (*n*=62)

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

37.09% of patients were less than 50 years of age, among them 69.56% came within 3 months, and 30.44% delayed more than 3 months. 62.91% of cases were more than 50 years of age. 84.61% of them came with more than 3 months delay and only 15.39% came within 3 months. The association of delayed presentation with age was statistically significant where *p*-value = 0.013 (<0.05). The Chi square test was employed to analyze the data (**Table II**).

Table – II: Association Between Age and Patient Delay (*n*=62)

Age (years)	*n*(%)	Delay <3 Months *n*(%)	Delay >3 Months *n*(%)	*p*-value
<50	23 (37.09)	16 (69.56)	7 (30.44)	0.013
>50	39 (62.91)	6 (15.39)	33 (84.61)	

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 III**).

Table III: 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)	

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 IV**).

Table – IV: 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)	

It was found that 62.9% of patients had no formal education, among them 77% came with more than 3 months delay. But who completed secondary (18%) only 18% delayed more than 3 months. 19.35% completed the primary level and 33% delayed more than 3 months. The association of this delayed presentation with education level was statistically significant *p*=0.002) (**Table V**).

Table – V: Distribution of Study Subjects According to Educational Level (*n*=62)

Education Level	*n*(%)	Delay <3 Months *n*(%)	Delay >3 Months *n*(%)	*p*-value
No formal education	39 (62.90)	9 (24.08)	30 (76.92)	0.002
Primary level	12 (19.35)	4 (33.34)	8 (66.66)	
Secondary level	11 (17.74)	9 (81.81)	2 (18.19)	

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 VI**).

Table – VI: 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)	

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 VII**).

Table VII: 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	3.8
3-6	18	29.03	
>6	22	35.48	

In this series, 41 patients (66.12%) took initial treatment from homeopath and traditional healer, among them 36 patients (87.8%) came to tertiary care hospital more them 3 months delay and 12% came to hospital less than 3 months delay. 21 patients (33.87%) who were attended by MBBS doctors, and 17 patients (81%) came to tertiary care hospital less than 3 months delay. Their association was statistically significant. The p-value was 0.012 (**Table VIII**).

Table – VIII: Distribution of Study Subjects Regarding Initial Mode of Treatment and Delay (*n*=62)

Mode of Treatment	*n*(%)	Delay <3 Months *n*(%)	Delay >3 Months *n*(%)	*p*-value
Homeopath and traditional healer	41 (66.12)	5 (12.21)	36 (87.80)	0.012
MBBS	21 (33.87)	17 (80.95)	4 (19.05)	

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 IX**).

Table IX: 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

In this series, 32.26% of the study population came after 3 months of noticing the lump because of financial problems and 24.19% took initial treatment from Homeopath. 22.58% made delay because of the long distance to RpMCH. 9.67% took traditional treatment & came after this. 4.83% took the wrong treatment and another 6.45% had delay because of false negative FNAC results (**Table X**).

Table – X: Distribution of Patients According to Reasons Behind Total Delay (*n*=62)

Reasons	***n***	**%**
Financial problem	20	32.26
Took treatment from a homeopath	15	24.19
Long distance to RpMCH	14	22.58
Took treatment from a traditional healer	6	9.67
Took treatment from local doctors (eg. Lumpectomy)	3	4.83
False negative FNAC report	4	6.45

DISCUSSION

Our study found a demonstrable association between advancing age and delayed presentation. Here more than 50 years of age group came with more than 3 month delay than younger age group of less than 50 years of age. This was statistically significant where the

value was 0.013 (<0.05). This finding is similar to one study in Sri Lanka[12]. 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 also associated with delayed presentation for diagnosis and treatment. As a result, the study suggests that any intervention program aimed at addressing these issues should prioritize older women specifically[13]. 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[14,15]. 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[16]. 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[17,18]. 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[19]. Our study found a significant association between education level and patient delay. 63 percent of patients had no formal education, and among them, 77 percent came with more than 3-month delay. Indeed, several studies have substantiated the pivotal role of education and knowledge in reducing delays in seeking medical attention for breast cancer symptoms[19,20]. 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[13]. 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 with some developing countries like Nigeria, Cairo, and Ghana [18,19,21]. But a gross difference is seen in developed countries like Germany[20]. So, the extent of patient delay is different in different places. 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[22]. Surprisingly we found that long distance was not a main factor but lower class, lack of knowledge about breast cancer as well as their health-seeking behaviour. 32.26% of responders initially came late to health providers because of financial problems. Whatever the initial cause of patients coming late to tertiary Hospital because of lack of money and knowledge about breast cancer 24.19% went to local homeopaths and took oral medications for months together. Though the long distance was initially a less influencing factor ultimately the third most

common cause of total delay in our study was 22.58%. 10% of the patients took treatment from traditional healers for months together in the form of kabiraji, harboring different things with them in the belief of a cure. Unfortunately, 5% of patients are maltreated by doctors at different levels by having inadequate surgery. There are some similarities and differences in the reasons for the late presentation of the disease between countries with different levels of development. In the United States of America, the reasons include a lack of education and knowledge about symptoms, risk factors, and benefits of early detection of breast cancer[23]. After analyzing we try to determine the pattern of delay, this is the referral delay at different levels. However, this was not statistically significant. Here lack of money is the most frequent factor. So, the patient factor has an impact on delayed presentation.

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

This study concludes that older age, low socioeconomic group, and lack of education are responsible for delayed presentation. Another important reason for delay is misguidance and maltreatment at different levels of the health care delivery system. The majority of the study participants were delayed as they were seeking treatment at the traditional healers. The cost of health care was among the reasons contributing to the delay in seeking health care.

Recommendation

An educational program is needed to increase females' awareness about breast cancer, the importance of monthly breast self-examination, and how and when to do it. As the most frequent age group in this study is between 51 and 60 so, screening programs should start from this age group. Moreover, further studies should be conducted involving a large sample size and multiple centers to get robust data.

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Conflict of Interest

The authors declare no conflict of interest.

Ethical Approval

The study was approved by the Institutional Ethics Committee

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