RESEARCH ARTICLE

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Current Treatment Status and Treatment Seeking Time of Breast Cancer Patients during COVID-19 Pandemic in Bangladesh

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Abstract

Background: Rising incidence of cancer is a challenging form of seeking help to start treatment, especially in a pandemic situation. Treatment in due time may reduce the time interval of treatment-seeking, which influences the survival of breast cancer patients. The objective of this study was to determine the effect of the pandemic on treatment delays among breast cancer patients in Bangladesh. **Method:** A cross-sectional study was conducted from July 2020 to June 2021. A total of 200 samples were collected randomly from the out clinic department of the National Institute of Cancer Research and Hospital. A face-to-face interview was taken with a pretested semi-structured questionnaire. Patients were selected by histopathologically confirmed breast cancer and excluded by their metastasis history, treatment history, physical condition, and informed consent. **Results:** Mean illness period was 16 months with patient delay was 4 months, provider delay was 7 months and total (treatment delay) was 11 months. Stage of cancer had 6 times chance to develop patient delay where OR of 6.234 at 95% CI (2.0, 19.23) and p-value 0.001, Stage of cancer had 4 times chance to develop provider delay where OR of 4.513 at 95% CI (1.35, 12.15) and p-value 0.012, to whom first seek help had 5 times chance to develop provider delay OR of 5.287 at 95% CI (2.58, 10.84) and p-value <0.0001. Provider delay was 2 times associated with a number of FNAC at 95% CI (1.13, 5.13) and a p-value of 0.023. Stage of cancer had 8 times chance to develop total delay where OR of 7.960, at 95% CI (3.20, 19.75) and p-value <0.0001, to whom first seek help had 4 times chance to develop total delay OR 3.860 at 95% CI (1.88, 7.95) and p-value <0.0001. **Conclusion:** Stage of cancer and first health care provider play a role in treatment-seeking, so, to improve treatment-seeking time, health education is needed to whom they go first, to where they go first.

Keywords: Current treatment status- treatment seeking time- breast cancer patients- Bangladesh

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Introduction

With 4th position in population density, Bangladesh is situated in South Asia bordered by Burma, India, and the Bay of Bengal. Although significant progress was recently achieved in socio-economic development, health, and population control, in Bangladesh breast cancer incidence rises dreadfully day by day (Iqbal et al., 2015). It is estimated that the rate of occurrence at all ages of female breast cancer is around 22.5 per 100,000 females (Forazy 2015). Grossly, there are 13 to 15 lakh cancer patients in Bangladesh, with about 2 lakh patients newly diagnosed with cancer each year (Hussain, 2013). According to World Health Organization (WHO), with 12,764 cases, breast cancer accounts for 8.5% of all cancer patients. It is the highest single cancer category for women accounting for 19% of all women cancer patients (WHO, 2022). Referring to the data from World Health Organization's International Agency for Research on Cancer (IARC), the speakers said, "65.5 percent of breast cancer patients delayed their diagnosis by more than six months, although 83 percent of them found lumps in their breast or had other symptoms of breast cancer." (Breast cancer patients need preventive measures, 2018).

In low-resource settings, Bangladeshi breast cancer patients are seeking treatment from various health care providers and different health care facilities even in the COVID-19 condition. Due to a lack of knowledge, patients seek treatment both conventional and alternative methods at a time. Cancer diagnosis and treatment facilities

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are extremely insufficient following poor prognosis. Multimodality of treatment is a big challenge with this little community awareness of breast cancer, inadequate pathology facilities, and fragmented care systems with respect to radiotherapy and systemic treatment are provoking delays in cancer treatment (Fan et al., 2015). For that, the majority of patients with breast cancer began treatment after a delay. Both patient delays and provider delays were associated with advanced disease (Unger-Saldaña et al., 2015).

Bangladesh is suffering from the double burden of both communicable and non-communicable diseases. So, improving the cancer scenario overnight is not very easy for a country like Bangladesh & the condition has become worse during COVID-19 condition (Hussain, 2013). Women are the key drivers of the Bangladesh economy and its social transformation through their enormous contribution to the clothing industries and in microcredit- and microfinance-based development programs (Hossain et al., 2014). So, healthy women are vital for healthy families and communities. However, women's problems generally get a lower priority in Bangladeshi society. Although Bangladesh has made enormous progress in the healthcare sector – especially related to infectious diseases, as recently highlighted by Lancet – the issue of cancer is given lower priority at both policy and research levels (Hossain et al., 2014). Through this study, we will provide essential information for formulating policies and strategies to combat this burning public health problem by determining the current treatment status of breast cancer patients and their different time interval to the beginning of cancer treatment and also determine the correlation between treatment status and time interval of treatment-seeking that affects breast cancer treatment in COVID-19 situation.

Materials and Methods

Study design

Conducting a cross-sectional study on breast cancer patients from July 2020-June to 2021 with a total of 200 samples which were selected from the National Institute of Cancer Research and Hospital, Dhaka, Bangladesh. The study protocol was approved by the research and Institutional Review Board of the National Institute of Preventive and Social Medicine and written permission was taken from the Ethical committee hospital authority, the National Institute of Cancer Research and Hospital.

Study participants: Patients who require chemotherapy and/or radiotherapy are referred to the National Institute of Cancer Research and Hospital, Dhaka, which offers the full spectrum of cancer care services. All diagnosed breast cancer patients were candidates to participate in the study. Inclusion criteria were diagnosed cases of breast cancer admitted to the hospital, and patients with breast cancer who had provided informed written consent. Mentally disabled patients; seriously ill patients; patients with recurrence of breast cancer; treatment failure patients; patients with metastasis; hearing impairment; patients who did not provide informed written consent were excluded from the study.

Reasons for exclusion and elimination are summarized in Figure 1.

Measures of time intervals

Patient delay

Patient delay was defined as the period from discovering the breast cancer symptom to the time a woman seeks evaluation of the symptom by a health care provider (Akhtar et al., 2008).

Provider delay

Refers to the period of time between the initial medical consultation and the definitive treatment of cancer. This includes the time between visiting the general practitioner (GP) and referral to the hospital, between the first hospital visit and cancer diagnosis, and the period between diagnosis and treatment.

Total delay or delay

The period of time between a woman first noticing a breast cancer symptom and receiving treatment for this can be referred to as delay or total delay.

Data Collection

A validated questionnaire was used to measure dates for the estimation of time intervals. The questionnaire was administered through face-to-face interviews conducted by trained interviewers at the outdoor cancer hospital. To minimize recall bias, study participants were asked to remember dates with the aid of a calendar. The questionnaire included questions focusing on the patient's socio-demographic, current treatment status, and medical help-seeking time for diagnosis and treatment. Information on the final diagnosis, cancer stage, and dates of diagnosis and treatment start was extracted from patients' hospital records. A questionnaire was prepared by reviewing the works of literature of a qualitative study that was done in the South-East Asian Region (Akhtar et al., 2018; Burgess et al., 2001; Bourdeanu et al., 2013; Bachok et al., 2012) and from various models (Karbani et al., 2011; Mhathuna and Mairin, 2011; (Bish et al.,2005).

Statistical analysis

Statistical analyses of the data were performed using the Statistical Package for the Social Sciences (SPSS) for Windows, version 25. Descriptive statistics like frequency distribution, mean, median, mode, range, standard deviation, etc. were calculated by the SPSS program. Logistic regression was done at a $p<0.05$ level of significance and a 95% level of confidence.

Results

The distribution of breast cancer patients by their illness period was summarized in Table 1. Results showed that 105 (52.5%) patients had been suffering for 1-12 months. Maximum patients 69 (34.5%) had been suffering from 13-24 months, and 26 (13.0%) patients suffered for more than 24 months. Maximum respondents 160 (80%) were taken chemotherapy, surgery was done in 23 (11.5%) respondents and only 17 (8.3%) respondents were taken

radiotherapy. Results showed that no patients were found in stage I, in stage II only 31 (15.5%) respondents suffered. The majority of patients were in an advanced stage, 130 (65.0%) were in stage III and 39 (19.5%) respondents were categorized as stage IV. Results showed that the majority of patients 160 (80.0%) initially presented with a lump in the breast, 23 (11.5%) patients presented with a lump on the axilla, and 17 (8.5%) patients presented their symptoms as disfiguration of breast or nipple. Maximum respondents 125 (62.5%) 1st sought help from homeopathy, 59 (29.5%) respondents sought help from a physician, and the rest of the respondents 16 (8.0%) consulted local health care service providers for breast cancer diagnosis. In total, 60 (30.0%) patients were diagnosed with breast cancer on 1st visit. Maximum 97 (48.5%) patients were diagnosed in the 2nd visit, and 43 (21.5%) patients were diagnosed in 3rd visit to the fifth visit. Among the respondents, 40 (20.0%) patients started treatment in the 2nd visit. Maximum patients 98 (48.0%) started treatment at the 3rd visit and 64 (32.0%) patients started treatment at the 4th to 6th visit. Three fourth of the respondents 140 (70.0%) sought help from a private hospital for diagnosis, 38 (19.0%) respondents sought help from different public hospitals and few patient 22 (11.0%) 1st time sought help to cancer hospital.

Table 1. Duration of Illness Period of Breast Cancer Patients (n= 200)

Present treatment related variables	n (%)
Duration of illness period (in months)	
1-12	105 (52.5%)
13-24	69 (34.5%)
>24 months	26 (13.0%)
Mean±SD	16.61± 9.128
Type of present treatment	
Chemotherapy	160 (80.0%)
Surgery	23 (11.5%)
Radio therapy	17 (8.5%)
Stage of breast cancer	
Stage I	0 (0.0%)
Stage II	31 (15.5%)
Stage III	130 (65.0%)
Stage IV	39 (19.5%)
1st Symptom present by breast cancer patients	
Breast lump	160 (80.0%)
Lump on the axilla	23 (11.5%)
Disfiguration of breast or nipple	17 (8.5%)
First contact with health care service provider	
Homeopathy	125 (62.5%)
Physician	59 (29.5%)
Local health care service provider	16 (8.0%)
Number of consultation(s) for diagnosis of disease	
First visit	60 (30.0%)
Second visit	97 (48.5%)
Third to fifth visit	43 (21.5%)
Number of consultations for start treatment	
Second visit	40 (20.0%)
Third visit	96 (48.0%)
Fourth to sixth visit	64 (32.0%)
First diagnostic institution	
Private Hospital	140 (70.0%)
Public Hospital (Medical College and District Hospital)	38 (19.0%)
Cancer Hospital	22 (11.0%)

Logistic Regression

Multivariate analyses confirmed independent correlations for the means of problem identification, patient delay, health system delay, and higher probability that patients would begin cancer treatment in an advanced stage.

Table 2 summarized the logistic regression of delay with socio demographic variable and present status. Stage of breast cancer was 6 times more likely to cause

Table 2. Relationship of Present Treatment Status and 3 Delays (n=200)

Variables	OR	95%CI for OR		p value
Present Treatment Status		Lower value	Upper value	
Patient delay				
Total illness period	2.361	1.241	4.489	0.009
Present treatment	0.645	0.253	1.64	0.357
Stage of cancer	6.234	2.018	19.254	0.001
First symptom	0.651	0.312	1.36	0.254
First health care provider	1.229	0.65	2.323	0.525
Referred to cancer hospital	0.499	0.257	0.966	0.039
Diagnostic institution	0.95	0.472	1.912	0.885
Number of FNAC	0.834	0.42	1.657	0.605
Number of diagnostic visit	0.9	0.399	2.029	0.8
Provider delay				
Total illness period	4.513	2.227	9.148	0
Present treatment	0.712	0.269	1.882	0.493
Stage of cancer	4.053	1.353	12.146	0.012
First symptom	1.187	0.541	2.602	0.669
First health care provider	5.287	2.579	10.838	0
Referred to cancer hospital	1.468	0.729	2.956	0.282
Diagnostic institution	0.574	0.272	1.21	0.145
Number of FNAC	2.405	1.126	5.133	0.023
Number of diagnostic visit	0.18	0.067	0.487	0.001
Total delay				
Total illness period	1.896	0.92	3.908	0.085
Present treatment	0.56	0.217	1.429	0.225
Stage of cancer	7.96	3.205	19.75	0
First symptom	1.12	0.51	2.466	0.775
First health care provider	3.86	1.875	7.945	0
Referred to cancer hospital	0.81	0.4	1.625	0.551
Diagnostic institution	0.555	0.245	1.25	0.155
Number of FNAC	1.83	0.865	3.862	0.115
Number of diagnostic visit	0.425	0.19	0.96	0.045

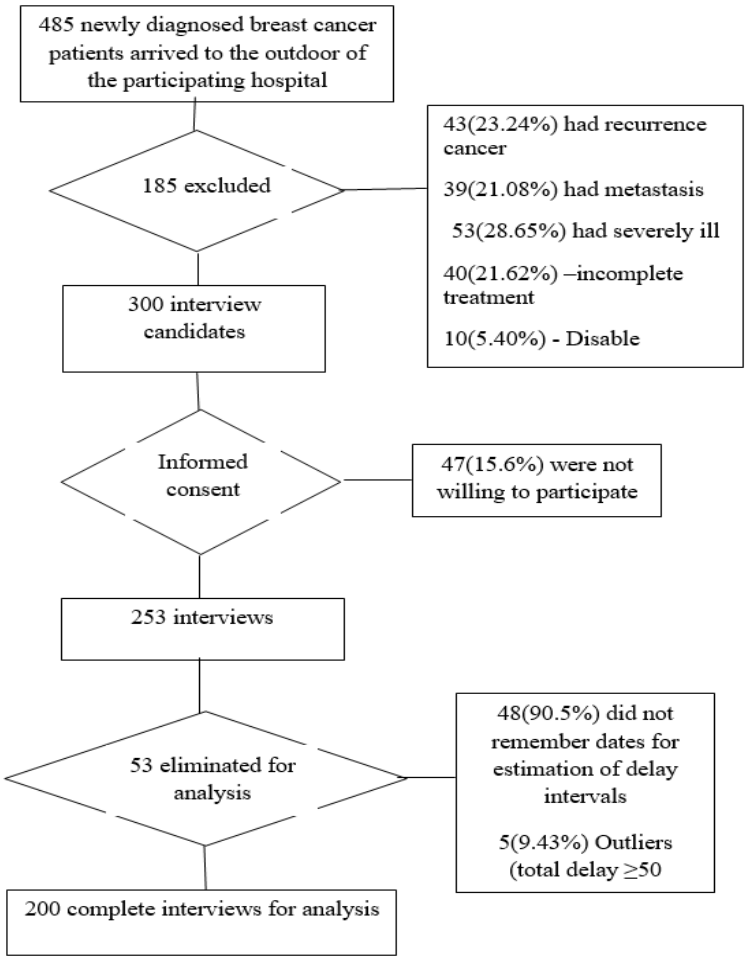

Figure 1. Inclusion, Exclusion and Elimination Criteria are Illustrated for the Current Study

patient delay (OR=6.234; 95% CI 2.02, 19.25) p=0.001. Reference to cancer specialized was less likely to cause delay (OR=0.49; 95% CI 0.26, 0.97) p=0.039.

In provider delay, staging cancer was 4 times more likely cause provider delay to help seeking (OR=4.053; 95% CI 1.35, 12.15) p<0.0001. First consultation to provider was 5 times more likely to cause delay (OR=5.287; 95% CI 2.58, 10.84) p<0.0001. FNAC time was 2 times more likely to cause provider delay. Diagnostic visit was less likely cause delay. (OR=0.18; 95% CI 0.07, 0.49) p<0.001 (Table 2).

Stage of cancer was 7 times more likely to cause delay help seeking (OR=19.749; 95% CI 3.21, 19.75) p <0.0001. First consultation to provider was 3 times more likely cause delay to help seeking. Diagnostic visit to provider was 3 times more likely cause delay to help seeking. Diagnostic visit was less likely cause delay (OR=0.426; 95% CI 0.19, 0.97) p=0.041.

Discussion

For healthy families and communities, healthy women are important. However, women's problems generally get a lower priority in Bangladeshi society (Hossain et al., 2014). In a study by (Unger-Saldaña et al., 2015), it was found that the median time between problem identification and the beginning of treatment was 7 months. The subinterval with the largest delay was that between the first medical consultation and diagnosis (median, 4 months), and also help-seeking time was above 12 months among more than one-third of the respondents with a mean help-seeking time was 11 months (Akhtar et al., 2018). In this study, the mean patient delay was 4 months, provider delay was 7 months and treatment delay was 11 months, and the mean total illness period was 17 months. Results showed that no patients were found in stage I, in stage II only 31 (15.5%) respondents suffered. The majority of patients were in an advanced stage, where 130 (65.0%) respondents were in stage III and 39 (19.5%) respondents were categorized as stage IV, whereas from a study by Unger-Saldaña et al., (2015), it was found that only 15% of the patients who had cancer were diagnosed with stage 0 and I disease, and 48% were diagnosed with stage III and IV disease, 66.5% (n=133) were in stage III and 16.5% (n=33) respondents were categorized as stage IV (Akhtar et al., 2018). Half of all breast cancer patients present at late stages, with only 1% in situ cancers, 7% stage I, 41% stage II, 40% stage III, and 10% stage IV (Fan et al., 2015). Maximum respondents 87.0% were taken chemotherapy which was near about similar and in the present study majority of patients 160 (80.0%) were initially presented with a lump in the breast. And in another study (Akhtar et al., 2018), it was narrated that 75%, that patients identified their lump as 1st symptom.

In the present study, a total of 60 (30.0%) patients were diagnosed with breast cancer on 1st visit. Maximum 97 (48.5%) patients diagnosed in 2nd visit, 43 (21.5%) patients diagnosed in 3rd to 5th visit. Among the respondents, 40 (20.0%) patients started treatment on the 2nd visit. Maximum patients 98 (48.0%) started treatment at the 3rd visit and 64 (32.0%) patients started treatment at the 4th to 6th visit. Three fourth of the respondents 140(70.0%) sought help from a private hospital for diagnosis. However, in a study (Akhtar et al., 2018), it was found that a total of 63 (31.5%) patients were diagnosed with breast cancer on 1st visit. All most half of the patients (47.0%) were diagnosed during 2nd visit. Around three-fourths of the respondents sought help from a private hospital for diagnosis as well as 41 (20.5%) respondents sought help from different public hospitals. Among them, 40% first sought help with homeopathy. Acceptability of alternative medicine e.g home medicine is much popular in this part of the world. A study on non-cancer diseases in west Bengal close to the Bangladesh border found that more than two third of the respondents showed an interest in home medicine (Akhtar et al., 2018).

In Japan, the median age at diagnosis increased from 48 years in 1946–1959 to 53.9 years in 2000–2001. Similarly, in China, the median age at diagnosis increased from 47.5 years in 1990 to 50 years in 2007, and the median age at diagnosis in Saudi Arabia increased from 40 years in 1981–1990 to 45 years in 2002 (Fan et al., 2015). In this study, the mean age was 42 ± 9 years. Stage of cancer was significantly associated with delay and use of alternative medicine which was similar to this study (OR 7.957, 95% CI 3.206- 19.749, p value< 0.0001(9). First health care provider OR 3.862, 95% CI 1.877 - 7.944 p< 0.0001(9) Number of FNAC OR 1.829, 95% CI -0.867 3.860, p= 0.113, Number of diagnostic visit OR 0.426, 95% CI 0.188- 0.965, p= 0.041 (Akhtar et al., 2018).

Although Bangladesh has made enormous progress in the healthcare sector, especially related to infectious diseases and the issue of cancer is given lower priority at both policy and research levels. In this study, we aim to present the current treatment scenario of breast cancer in Bangladesh and suggest a primary healthcare-based innovative strategy for the prevention of breast cancer that could be a model for other low-income countries as well (Hossain et al., 2014)

Limitations of the study

The present study was conducted with a small sample size collected from one center over a short duration. The findings might not represent the findings of the whole demographic

In conclusion, Stage of cancer and first health care provider plays a vital role in treatment-seeking behavior. The increased time between the first appearance of symptoms and health-seeking can greatly influence the treatment methods and outcomes. Chemotherapy was the most common method of treatment.

Author Contribution Statement

All authors contributed equally in this study.

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Conflict of interest

None declared.

References

Akhtar K, Akhtar K, Rahman MM (2018). Use of alternative medicine is delaying health-seeking behavior by Bangladeshi Breast cancer patients. *Eur J Breast Health*, **14**, 166–72.

Akhtar K, Hossain KJ, Kawsar AA, Hossain S, Das SR (2018). Perceptions on breast cancer pattern: Medical help-seeking among breast cancer patients. B*angladesh Med Res Counc Bul*, **44**, 39–44.

Bish A, Ramirez A, Burgess C, et al (2005).Understanding why women delay in seeking help for breast cancer symptoms. *J Psychosom Res*, **58**, 321–6.

Bourdeanu L, Luu T, Baker N, et al (2013). Barriers to treatment in patients with locally advanced breast cancer. *J Natl Compr Canc Netw,* **2013**, 1193–8.

Breast cancer patients need preventive measures (2018) Bssnews.net. Available at: http://wp.bssnews.net/?p=126033 (Accessed: September 29, 2022).

Burgess C, Hunter MS, Ramirez AJ (2001). A qualitative study of delay among women reporting symptoms of breast cancer. *Br J Gen Pract*, **51**, 971.

Forazy MAR (2015). Health Care: Current Reviews. 3, 53. [Last accessed-10-3-2022].

Hossain MS, Ferdous S, Karim-Kos HE (2014). Breast cancer in South Asia: a Bangladeshi perspective. *Cancer Epidemiol*, **38**, 465–70.

Hussain SMA (2013). Comprehensive update on cancer scenario of Bangladesh. *South Asian J Cancer*, **2**, 279–84.

Iqbal J (2015). Risk factors for premenopausal breast cancer in Bangladesh. *Int J Breast Cancer*, **2015**, 612042.

Karbani G (2011). Culture, attitude and knowledge about breast cancer and preventive measures: a qualitative study of South Asian breast cancer patients in the UK. *Asian Pac J Cancer Prev*, **12**, 1619–26.

Ní Mháthuna M (2011). Women's help-seeking behaviour and the associated influencing factors on self discovery of a breast symptom (Doctoral dissertation, University College Cork). Available at: https://cora.ucc.ie/handle/10468/892.

Norsa'adah B (2012). Understanding barriers to Malaysian women with breast cancer seeking help. *Asian Pac J Cancer Prev*, **13**, 3723–30.

Unger-Saldaña K (2015). Health system delay and its effect on clinical stage of breast cancer: Multicenter study: System Delay and Breast Cancer Stage. *Cancer*, **121**, 2198–06.

World Cancer Day: closing the care gap (no date) Who. int. Available at: https://www.who.int/news/item/03-02-

2022-world-cancer-day-closing-the-care-gap (Accessed: September 29, 2022).