

## PREVALENCE OF BREAST CANCER AT DIVISIONAL LEVEL IN BANGLADESH

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### Abstract

**Background :** Breast cancer remains a leading dreadful cancer of women in Bangladesh. Lack of screening program is the reason behind this high morbidity and mortality. The Government of Bangladesh (GOB) has taken initiative to develop a breast cancer screening program by Clinical Breast Examination (CBE) throughout the country. But there is almost no information on baseline prevalence of breast cancer in Bangladesh. Moreover, cancer surveillance is a fundamental element of the Cancer Control Strategy. To form a foundation of this surveillance program, the survey was done to determine the breast cancer prevalence in Chittagong Division of Bangladesh. **Materials and methods:** This cross-sectional population-based survey was conducted by the department of Surgery, Chattogram Medical College Hospital, in Chattogram Division from 01.12.2017 to 31.04.2018. Females willing to participate in the survey were included from 4 Upazilas (Anwara, Boalkhali, Lohagara and Patiya) of Chattogram district. CBE of the study population was performed by trained physicians to identify the suspected positive physical signs for breast carcinoma. These patients were further investigated by FNAC. Data were collected and analyzed. **Results:** Out of 732 women surveyed, 2 subjects

(A crude prevalence rate of 273.22/100,000 women) were finally diagnosed as carcinoma breast and another 29 had benign breast disease. **Conclusions:** This survey is an initiative towards a large scale intra-divisional epidemiological investigation in Bangladesh. The peak of breast cancer incidence in Bangladesh may be 15–20 years before the peak incidence in Western countries, suggesting that more attention should be paid to the premenopausal women.

### Key words

Breast cancer; CBE (Clinical Breast Examination); Prevalence.

### Introduction

Breast cancer is one of the most common malignancies in women worldwide and is the leading cancer-related cause of death in women<sup>1</sup>. In Bangladesh the rate of breast cancer occurrence is estimated to be 22.5 per 100000 females of all ages. In case of Bangladeshi women, aged between 15-44 years, breast cancer has the highest prevalence 19.3 per 100000 compared to any other type of cancer. It has become a hidden burden which accounts 69% death of women. One of the important reasons of this high morbidity and mortality is lack of screening program to detect cancer at early stage. The Government of Bangladesh (GOB) has taken initiative to develop a breast cancer screening program by Clinical Breast Examination (CBE) throughout the country. But there is almost no information on baseline prevalence of breast cancer in Bangladesh. Since the 1970s, there have been no population based large-scale surveys or nationwide disease survey except some hospital-based study for breast cancer in Bangladesh<sup>2</sup>. Some regional surveys have indicated that the incidence of breast cancer is rising in Bangladeshi women<sup>3</sup>. Regardless of variations of available data, it is observed that, breast cancer is fast becoming a major cause of concern<sup>2-4</sup>. Though nearly 70% of Bangladeshi population located in rural areas, most of these studies were focused on the

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patients attending in the oncology department of different tertiary level hospitals. In general, the causes of breast cancer are still not fully understood, therefore, obtaining relevant risk factors for breast cancer through a population-based study can contribute to the effective prevention and intervention of breast cancer among the population and make significant contributions to public health. Cancer control surveillance is a fundamental element of the Cancer Control Strategy. It involves the routine and continuous collection of information on the incidence, prevalence, mortality, diagnostic methods, stage distribution and survival of those with cancer and aspects of the care received<sup>5</sup>. The aim of our study was to form a foundation of this surveillance program to control the Breast cancer. With this view we tried to determine the prevalence of breast cancer in Chattogram Division of Bangladesh. Seven hundred and thirty-two women from 4 Upazilas of Chattogram Division were studied for this purpose. Patients were interviewed through a structured questionnaire and CBE was performed at Upazila Health complex. Subjects with positive findings in CBE were further investigated through Fine Needle Aspiration Cytology (FNAC). Mean ( $\pm$ SD) age of the study population was 35.45 ( $\pm$ 11.24) years and majority 63.4% were from 21-40 years of age group. Out of 732 female subjects completed the study, there were 2 cases of confirmed breast cancer (Crude prevalence: 273.22/100,000).

#### Materials and methods

This cross-sectional population-based survey was conducted in Chattogram District from 01.12.2017 to 31.04.2018. Female aged above 12 years, willingly participated in the survey by giving informed written consent were included from 4 Upazilas (Anwara, Boalkhali, Lohagara and Patiya) of Chattogram district. Each clinical breast examination of the study population was performed by two trained physicians to identify the physical signs of breast cancer. These patients were further investigated by FNAC. Criteria for suspected positive physical signs in breast exam were palpation of irregular mass, nipple discharge (Including bloody, yellow-green and colorless discharge), nipple retraction and changes in surrounding skin (Including peau d'orange, dimple sign, erythema and edema) and swollen or hard axillary lymph nodes.

This study was approved by the ethical review committee of CMC informed consent was obtained from all the study subjects. Investigators and physicians were recruited in each survey region before the implementation of this study. To ensure objectivity and authenticity, all participating investigators and physicians performing physical examinations were received strict and standardized professional training before the implementation of the project. Data were collected through in-person interviews based on a pretested self-designed structured questionnaire. After collection they were compiled in a computer-based software program and statistical analysis was done with the help of SPSS (Statistical Package for Social Science) for Windows version 23 software.

#### Results

In this survey, 732 women were surveyed. The average age of the surveyed women was 35.45 ( $\pm$ 11.24) years and majority (63.4%) were from 21-40 years of age group.

**Table I :** Age distribution of the study population by study site

Age in years	Name of Upazila				Total
	Anowara	Boalkhali	Lohagara	Patiya	
20 years	13 (9.2%)	6 (4.6%)	12 (4.5%)	10 (5.2%)	41 (5.6%)
21-30 years	52 (36.6%)	47 (36.2%)	85 (31.8%)	53 (27.5%)	237 (32.4%)
31-40 years	37 (26.1%)	30 (23.1%)	96 (36.0%)	64 (33.2%)	227 (31.0%)
41-50 years	29 (20.4%)	35 (26.9%)	49 (18.4%)	47 (24.4%)	160 (21.9%)
51-60 years	10 (7.0%)	9 (6.9%)	18 (6.7%)	15 (7.8%)	52 (7.1%)
61 years	1 (0.7%)	3 (2.3%)	7 (1.0%)	4 (2.1%)	15 (2.0%)
Total	142 (19.4%)	130 (17.8%)	267 (36.5%)	193 (26.4%)	732 (100%)
Mean	34.37	36.27	35.73	35.31	35.45
( $\pm$ SD)	( $\pm$ 11.07)	( $\pm$ 11.35)	( $\pm$ 11.20)	( $\pm$ 11.38)	( $\pm$ 11.24)

Data are presented as either frequency (Percentage) or in mean ( $\pm$ Standard deviation).

Among the surveyed female, 580 were premenopausal (79.24%) and 152 (20.76%) were postmenopausal. The average age at menopause in the postmenopausal subjects was 48.8 years old (SD=4.11). The average age at menarche in all surveyed women was 12.4 years old (SD=2.1). There were 597 (87.66%) subjects who had at least one child before the survey and 601 (88.25% of 681) who had breast-fed for at least 12 months.

**Table II :** Distribution of marital status and contraception use of the study population

Variables	Number of patient (n)	Percentage of total (%)
Age at menarche		
Mean ( $\pm$ SD)	12.4	$\pm$ 2.1
Marital status (n=732)		
Unmarried	51	7.0
Married	681	93.0
History of contraception use (n=681)		
No	284	41.7
Yes	397	58.3
Menopause		
No	580	79.24
Yes	152	20.76
Breast fed for at least 1 year (n=681)		
No	80	11.75
Yes	601	88.25
Parity (n=681)		
<2	84	12.34
$\geq$ 2	597	87.66

Data are presented as either frequency (Percentage) or in mean ( $\pm$ Standard deviation).

Out of 732 women, 592 (80.9%) had no associated comorbidity. The details of the comorbidity are presented in table III.

**Table III :** Co-morbid conditions among the study population

Co-morbidity	Number of patient (n)	Percentage of total (%)
Diabetes mellitus	35	4.8
Hypertension	65	8.9
Ischaemic heart disease	14	1.9
Cancer	3	0.4
Others	6	0.8

Seven hundred and one women had normal CBE and other 31 (4.23%) had some sort of abnormal findings in CBE (Table IV).

**Table IV :** Result of Clinical Breast Examination (CBE)

	Percentage of total (%)	
Normal CBE	701	95.77
CBE with positive findings	31	4.23
Positive findings in CBE (n=31)		
Breast lump	14	1.91
Nipple discharge	12	1.63
Nipple retraction	3	0.41
Axillary lump	2	0.27

Out of 732 women, only 2 subjects were finally diagnosed as carcinoma breast and another 29 had benign breast disease (Table V).

**Table V:** Final diagnosis by FNAC (n=31)

	Number of patient (n)	Percentage of total (%)
Fibroadenoma of breast	9	1.23
Fibrocystic change	9	1.23
Other benign type	11	1.5
Carcinoma breast	2	0.27

### Discussions

It is an initial report of an ongoing community-based survey on breast cancer conducted in Chittagong district. A total of 2 cases of breast cancer were identified in 732 women in this survey which gives a crude prevalence rate of 273.22/100,000 women. Further investigation found that the breast cancer cases identified in this study were 45 and 33 years old, suggesting that the peak of breast cancer incidence in Bangladesh may be 15–20 years before the peak incidence in Western countries<sup>6</sup>. Both the breast cancer cases were in premenopausal state, which is different from European and American countries, where the majority of breast cancer cases are postmenopausal<sup>7</sup>. This result is consistent with the finding of Bellah et al, which showed that the premenopausal cases accounted for 62.9%<sup>2</sup>. In fact, in our study, the premenopausal women accounted for 79.24% among all the surveyed individuals, suggesting that more attention should be paid to the premenopausal women. Among the 2 breast cancer cases, 100% were diagnosed between 33 to 45 years, which emphasizes the importance of regular breast examinations for Bangladeshi women over the age of 33 or additional interventions to preemptively prevent breast cancer. On the other hand, this study also indicates the possibility that the age of onset for breast cancer in Bangladeshi women is declining, suggesting that breast cancer prevention should not be neglected for women younger than 35. In this study, we found that the average age of menopause for women was 48.8 years old and that the average age of menarche was 12.4 years old. The age of menarche of Bangladeshi women is two to three years later than the age of menarche in women from the US and European countries. The characteristics of late

menarche, early menopause and short menstrual cycles in Bangladeshi women may partially explain the relatively low incidence of breast cancer in Bangladesh. Childbirth, especially with full-term pregnancy and associated breastfeeding, has been generally considered an important protective factor against breast cancer. Multiple childbirths could also reduce the risk of breast cancer<sup>8,9,10</sup>. This study found that both the carcinoma breast cases were obese (BMI>30kg/m<sup>2</sup>), which is consistent with the results from the previous studies<sup>11,12</sup>. A healthy lifestyle and preventing obesity and diabetes are important steps in the prevention of breast cancer, especially in Bangladesh, given the rapid increase in the overweight and obese population<sup>13-14</sup>.

#### Limitations

The present study has its limitations. First, only women of the 4 Upazila of Chiittagong Division were selected as the survey targets, therefore, our study results have limitations for extrapolation. Second, the subjects were selected conveniently rather than randomly. And finally, sample size was too small to make a definite conclusion.

#### Conclusion

Result obtained from this study will be helpful in planning and developing of any program aimed at prevention, early detection and management of the breast cancer patients of Bangladesh. As majority of the breast cancer patients are in 21-40 years of age group, more attention should be paid to the screening of premenopausal women. The association between the increasing incidence of breast cancer and the rapid growth of the diabetic and obese population requires further indepth investigation.

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#### Contribution of authors

SH-Conception, design, drafting and final approval.  
KAKA-Data interpretation, critical revision and final approval.

RRC-Acquisition of data, drafting and final approval.

NS-Analysis, drafting and final approval.

FUA-Design, drafting and final approval.

#### Disclosure

All the authors declared no conflict of interest.

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