

Body image, sexual function, and sexual satisfaction of breast cancer survivors after mastectomy- A cross-sectional study in Bangladesh

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Abstract

Background: Early diagnosis and surgical management have reduced breast cancer mortality worldwide, including in Bangladesh. However, the negative impact of mastectomy on quality of life and lifestyle is still unaddressed. Thus, this study attempted to evaluate the body image, sexual function, and sexual satisfaction of breast cancer survivors after mastectomy.

Methods: This cross-sectional study was conducted in three distinct hospitals, the National Institute of Cancer Research and Hospital, Ahsania Mission Cancer Hospital, and United Hospital, situated in Dhaka, Capital of Bangladesh. A total of 163 breast cancer patients with a history of mastectomy were included in this study. Informed written consent was ensured before participation. Data collection was performed by using a semi-structured questionnaire. Body image, sexual function, and sexual satisfaction were measured by the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire core: Breast cancer module (EORTC QLQBR-23). Statistical analysis was performed using Statistical Package for Social Sciences (SPSS), Version 22. Ethical issues were resolved according to the Declaration of Helsinki throughout the study.

Result: The average age was 47 years, with a range from 25 to 70 years. The mean scores for body image, sexual function, and sexual satisfaction were 74.69 ± 32.25 (SD), 16.23 ± 19.92 (SD) and 38 ± 11.68 (SD), respectively. Patients with lower body image in this study tended to be comparatively younger, had low family income, lacked formal education and were homemakers ($p < .05$). Additionally, patients receiving chemotherapy reported lower body image than others. A lower score for sexual function and sexual satisfaction were associated with the low-income groups and being homemakers ($p < .05$).

Conclusion: A worsening of body image, sexual function, and sexual satisfaction was observed among breast cancer survivors who underwent mastectomy.

Keywords: Breast cancer, EORTC QLQBR-23, mastectomy, body image, sexual function, sexual satisfaction

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I. Background

Breast cancer is a global epidemic with a rising incidence and associated mortality. In 2020, a total of 2,261,419 new cases of breast cancer were detected along with 648,996 attributed deaths.¹ Due to advancements in the medical sector, the life expectancy rate for breast cancer patients has increased during the last decades, even in developing countries such as Bangladesh.² Mastectomy is one of the predominant treatment options for breast cancer patients. Although mastectomy is a lifesaving procedure for breast cancer patients, a negative impact remains on their quality of life.³ Mastectomy may result in a sense of losing femininity as well as body image⁴ as the physical appearance adversely changes due to asymmetry. Alongside hair loss, skin changes, weight gain, symptoms such as pain, fatigue, vomiting, and weakness contribute to the worsening of body image and sexuality in breast cancer patients. Perception of loss of sexuality may trigger psychological distress, anxiety, depression, and sexual dysfunction. Therefore, despite successful treatment and an increase in life expectancy, breast cancer survivors may have to live with the long-term negative effects of mastectomy.⁵

In Bangladesh, the estimated incidence of breast cancer is 22.5 per 100,000 women.⁶ Treatment of breast cancer is available in some private and public hospitals in Bangladesh. However, ensuring the optimal use

of available management for breast cancer is also challenging due to a lack of public awareness and financial hardship. Nevertheless, the rate of successful treatment of breast cancer has increased with the rate of five-year life expectancy.⁷ In developing countries, the average five-year survival rate of breast cancer patients is 50-60%.⁸ Recently, the adverse effects of surgical treatment and post-surgery therapy on the quality of life and lifestyle of breast cancer survivors have drawn attention as an important public health concern.⁹

As the incidence of breast cancer patients is rising, the number of patients undergoing mastectomy is also increasing. However, the adverse impact of mastectomy on physical, mental and social functioning is still unaddressed, especially in developing countries.¹⁰ Therefore, some studies have been conducted in Western countries where the prevalence of depression among breast cancer survivors who underwent mastectomy ranges from 1 to 56%.¹¹ Unlike Western and developed countries, there is an unavailability of a support group for breast cancer survivors. Even psychological consultation is not routinely practiced. Vigorous treatment modality, financial strain, prominent physical symptoms, physical appearance due to cancer, surgery and therapy cause extensive psychological distress among breast cancer survivors. Both quality of life and sexuality are affected. Due to cultural and social stigma, many of these patients cannot share their sexual dysfunction of body image insecurity, if there is any. Therefore, this study aimed to evaluate body image, sexual function and sexual satisfaction among breast cancer survivors who underwent mastectomy.

II. Methods

Study design and study population:

This study was conducted through a cross-sectional approach from January 2018 to December 2018. The study sites were the National Institute of Cancer Research and Hospital (NICRH), Ahsania Mission Cancer Hospital, and United Hospital. NICRH is the only government-facilitated cancer care hospital situated in Mohakhali, Dhaka. Ahsania Mission Cancer Hospital is a multimodality cancer hospital aiding from a collaboration of the government of Bangladesh and the Dhaka Ahsania mission, a nongovernment organization. This hospital is situated on the northern side of Dhaka. United Hospital is a corporate private hospital situated in Gulshan, Dhaka. This study selected three hospitals situated in three areas of Dhaka and combinedly dedicated to patients of all socioeconomic conditions. Breast cancer patients aged ≥ 18 years who underwent mastectomy and were receiving post mastectomy treatment (radiotherapy, chemotherapy or hormone therapy) in these three studied hospitals were approached for this study. Mastectomy included unilateral mastectomy, bilateral mastectomy and partial mastectomy or lumpectomy. Patients aged under 18 years, diagnosed with cognitive and/or mental diseases, and severely ill patients who were unable to talk were excluded from this study. A total of 163 patients were included. The purposive sampling method was considered while selecting the patients.

Study procedure:

Prior to selection, breast cancer survivors with a history of mastectomy were briefed regarding the study's aim and objective. Written informed consent was obtained from each patient. A detailed semi-structured questionnaire was constructed for data collection. The questionnaire included three parts, two of which contained sociodemographic information and medical history. Another part contained information regarding body image, sexual function, and sexual satisfaction. Body image, sexual function and sexual satisfaction were measured by the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire core: Breast cancer module (EORTC QLQBR-23). Data were collected through face-to-face interviews and recorded accordingly. Scores for body image, sexual function and sexual satisfaction were calculated according to the EORTC QLQBR-23. Body image, sexual function and sexual satisfaction items were translated in Bangla by an expert translator. The Bangla translated version was pretested prior to the study.

EORTC QLQ BR-23:¹² The EORTC QLQ breast cancer-specific module is composed of functional scales and symptom scales related to treatment. Functional scales included body image, sexual functioning and sexual enjoyment.

Body image consists of 4 items: feeling physically less attractive, less feminine, difficulty looking at self-naked, and body dissatisfaction. Sexual functioning consists of two items: sexual interest and sexually active. Sexual enjoyment was a single-item function scale. A four-point Likert scale was used for scoring, where the response 'not at all' was scored as 1, 'a little' as 2, 'quite a bit' as 3, and 'very much' as '4'. Sexual enjoyment was not applicable if sexually active was responded to as "not at all."

Scoring procedure: For all scales, the raw score is the mean of the component items.

Raw score = $(I_1 + I_2 + I_3 + \dots + I_n) / n$

Then, for functional scales,

Score = $\{1 - (RS - 1) / \text{range}\} \times 100$

Total scores of all scales and single items were measured in a range from 0 to 100, where higher scores indicated better functioning and lower scores indicated poor functioning.

Statistical analysis: Collected data were checked for errors. Statistical Package for Social Sciences (SPSS), Version 22, was used for data analysis. Sociodemographic characteristics and functional scale scores for body

image, sexual function and sexual satisfaction are presented. Categorical variables are presented as percentages and frequencies, while continuous variables are presented as the means and standard deviations. To determine the difference in the mean between the variables, an independent Student's t test and one-way ANOVA were conducted. A p value of less than .05 was considered significant.

Ethical Consideration:

For this study, ethical clearance was sought from the Ethical Committee of the National Institute of Preventive and Social Medicine (NIPSOM/IRB/471). Informed written consent was ensured prior to including the participants in this study. The privacy of the patients was maintained given the highest priority. In all aspects of this study, the Declaration of Helsinki was followed.

III. Result

Most of the patients who underwent surgical treatment for breast cancer were middle aged (age group 35-54 years). The average age was 47, with a range from 25 years to 70 years. One-fourth of the patients did not receive any formal education, and three-fourths of them were home makers. Approximately two-thirds of the patients' monthly family income was ≤20,000 BDT. (Table 1)

Table 1: Socio-demographic characteristics of the breast cancer survivors (n=163)

BDT: Bangladesh Taka, SD: Standard deviation

The time since diagnosis of breast cancer was less than one year in most of the patients, comprising more than

	n	%
Age group (years)		
25-34	10	6.1
35-44	52	31.9
45-54	62	38
55-64	35	21.5
≥65	4	2.5
Mean±SD	47.15±8.96	
Range (Minimum-Maximum)	25-70	
Education		
No formal education	44	27
Formal education	119	73
Primary school	30	18.40
Secondary school	35	21.47
Higher secondary college	26	15.95
Graduation/post-graduation	28	17.17
Occupation		
Homemaker	121	74.2
Service holder	41	25.2
Business	1	0.6
Monthly family income (BDT)		
≤20,000	69	42.3
21,000-40,000	37	22.7
41,000-60,000	16	9.8
>60,000	41	25.2
Mean±SD	46383.45±46130.604	
Range (Minimum-Maximum)	5000-200000	
Marital status		
Unmarried	2	1.2
Married	115	70.6
Widowed	33	20.2
Divorced	13	8
Family type		
Joint family	24	14.73
Nuclear family	139	85.27

one-third of them, and the postoperative duration was the same among four-fifths of them. Approximately 91.4% of the patients underwent unilateral mastectomy, where lumpectomy and bilateral mastectomy were each observed in 4.3% of the patients. Almost three-quarters of the patients were on post-surgery chemotherapy, while 18.4% were on radiotherapy and 6.7% were on hormone therapy. (Table 2).

Table 2: Medical history of the breast cancer survivors (n=163)

	n	%
Time since diagnosis of Breast Ca		
< 12 months	114	69.9
12-24 months	43	26.4
>24 months	6	3.7
Post-operative duration		
<1 year	134	82.2
1-5 year	27	16.6
>5 year	2	1.2
Mode of surgery		
Lumpectomy	7	4.3
Unilateral mastectomy	149	91.4
Bilateral mastectomy	7	4.3
Mode of post-operative treatment		
Chemotherapy	122	74.8
Radiotherapy	30	18.4
Hormone therapy	1	6.7

Breast Ca: Breast Carcinoma

According to the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire: Breast Cancer (EORTC QLQ BR-23) module, the mean scores of body image, sexual functioning and sexual enjoyment among the breast cancer survivors who underwent mastectomy were 74.69±32.25 (SD), 16.23±19.92 (SD), 38±11.68 (SD), respectively. (Table 3).

Table 3: Body Image, sexual functioning and sexual Enjoyment scores according to EORTC QLQBR-23 physical scale (n=163)

	Mean±SD
Body Image (n=163)	74.69±32.25
Sexual Functioning (n=115)	16.23±19.92
Sexual Satisfaction (n=50)	38±11.68

EORTC QLQ BR-23: European Organization for Research and Treatment of Cancer Quality of Life Questionnaire core: Breast cancer module

Missing data excluded

EORTC QLQ BR-23 scores could range from 1 to 100, where higher scores indicate higher quality of life and lower scores indicate lower quality in each functional scale.

The EORTC QLQ BR-23 score indicates that patients with an age of more than 40 years had a better body image. No relation of age group was observed with sexual function and sexual enjoyment. Body image and sexual enjoyment were both observed in higher scores in patients who had at least minimal formal education in comparison to the patients who did not receive any formal education. Both the employed patients (service holders or business women) and the patients with a family income of at least 20,000 BDT per month had significantly better body image, sexual functioning, and sexual enjoyment than the homemakers. Posttreatment modality showed a relation with body image, where patients with hormone therapy showed higher scores. (Table 4).

Table 4: Association of socio-demographic and clinical factors with body image, sexual functioning, and sexual enjoyment

	Body image	Sexual functioning*	Sexual enjoyment**
Age group			
≤40 years	64.43±37.08	19.13±19.99	38.09±12.10
>40 years	78.14±29.83 ^S	15.34±19.93	37.96±11.69
Educational status			

No formal education	64.20±38.48	9.80±15.65	33.33
Attended at least minimal formal education	78.57±28.83 ^S	17.34±20.43	38.51±12.21
Occupation			
Homemaker	70.17±33.69	11.25±16.93	34.61±6.53
Service holder/business	87.69±23.51 ^S	27.61±21.74 ^S	41.66±14.74 ^S
Monthly Income			
≤20,000 Tk	64.61±37.44	7.29±14	33.33
>20,000 Tk	82.09±25.60 ^S	19.67±20.84 ^S	38.75±12.45 ^S
Post operative treatment modality			
Radiotherapy	83.05±22.89	10.31±15.34	38.09±12.59
Chemotherapy	71.10±34.27	16.86±20.53	36.84±10.36
Hormone therapy	91.66±20.74 ^S	25±21.82	46.67±18.16

*Sexual functioning score was responded by 27 patients ≤40 years and 88 patients >40 years. **Sexual enjoyment score was responded by 5 patients ≤40 years and 45 patients ≥40 years. Missing data were excluded.

^S indicates a significantly higher score. Student t test and one way ANOVA was done to determine the level of significance.

IV. Discussion:

This study observed a negative impact of mastectomy on breast cancer survivors' body image, sexual functioning and sexual satisfaction according to the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire: Breast Cancer (EORTC QLQ BR-23) module. Among these, sexual function was observed with the lowest score, with a mean of 16.23 (SD 19.92). The means of sexual enjoyment and body image were 38 (SD 11.68) and 74.69 (SD 32.25), respectively.

A lower body image function was observed among patients who underwent mastectomy in various previous studies.¹³⁻¹⁷ A feeling of less attractiveness, not feeling as a whole person, asymmetrical breasts and scars result in lower body image scores.¹⁸ A lower body image was observed even after 2 years of mastectomy.¹⁸ In this study comparatively younger (≤40 years), illiterate, low income group (<20,000 BDT monthly family income), homemakers and the patients who are on chemotherapy had significantly lower body image. Sharma et al. and Toum et al. observed a relationship between lower body image and young age and lower income groups.^{19,20} A relationship between body image and post mastectomy radiotherapy was observed in another study.²¹

A significant worsening of sexual function and sexual satisfaction was observed in this study. In a prospective study, preoperative and postoperative sexual function was compared among women with early-stage breast cancer, and a deterioration of sexual function following surgery was observed.²² Similar findings were observed in a study conducted on 1,000 breast cancer patients, where patients were followed up for five years after breast surgery.¹⁸ Both sexual function and sexual satisfaction were significantly lower in homemakers and the lower income group. No relation of sexual function and sexual satisfaction was observed with age, education or mode of post-surgical treatment.

Most breast cancer patients were in the fourth or fifth decades of their life. The majority had at least minimal formal education (primary level of education) and were homemakers. Most of the patients were diagnosed with breast cancer and underwent surgery within less than one year. Post-surgery chemotherapy was the most common, followed by radiotherapy and hormone therapy in decreasing order. Body image, sexual function and sexual satisfaction were evaluated through the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire core: Breast cancer module (EORTC QLQBR-23).

In this study, surgical removal of the breast and post-surgery treatment adversely impacted body image, sexual function and sexual satisfaction among patients with breast cancer. Along with a low body image and sexual dysfunction, overall quality of life, interpersonal relationships, and social functioning tend to be disrupted. Professional support and a long-term multimodal treatment approach should be ensured for all breast cancer patients along with early detection and prompt surgical management. Regular follow-up after mastectomy and post-surgery treatment should be continued along with psychological support.

This study also had a few limitations. Although this study attempted to capture breast cancer patients attending three primary cancer care centers in Dhaka city, due to time and resource constraints, this study could not include a larger sample size. Sample patients did not have much variation in post mastectomy therapy. Therefore, the relation between the mode of therapy and functional scales of quality of life could be well evaluated in a generalized and larger sample population. Due to social taboo and lack of awareness, information

regarding sexual function and satisfaction could not be taken from all studied patients, which also created a bias. Moreover, longitudinal follow-up of the scoring over the period was beyond the scope of this study.

V. Conclusion

This study provides baseline information about body image, sexual function and sexual satisfaction among breast cancer survivors following mastectomy. Worsening of all three functional scales was observed, where sexual function was the worst followed by sexual satisfaction and body image. A deeper negative impact on the overall quality of life might occur among breast cancer survivors due to mastectomy. A multidimensional treatment approach involving an emotional and psychological support group should be constructed to ensure the highest comfort of breast cancer survivors.

Abbreviations

EORTC QLQ BR-23: European Organization for Research and Treatment of Cancer Quality of Life Questionnaire core: Breast cancer module

SPSS: Statistical Package for Social Sciences

SD: Standard Deviation

NICRH: National Institute of Cancer Research and Hospital

NIPSOM: National Institute of Preventive and Social Medicine

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Declaration

Ethical approval:

The study was approved by the Ethical Committee of National Institute of Preventive and Social Medicine (NIPSOM/IRB/2018/471) Mohakhali, Dhaka. Informed signed consent was obtained from all eligible participants who agreed to participate. The authors declare that the procedures followed the regulations established by the Helsinki Declaration of the World Medical Association.

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Availability of data and material

Data and material are available from the corresponding authors and could be shared upon reasonable request.

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