Original Article

Assessing the Impact of Mastectomy on the Quality of Life among Cancer Survivors: A Hospital-based Cross-sectional Study in Mysuru

Minu Maria Rose, Anil S. Bilimale, Ravi Krishnappa[1]

School of Public Health, JSS
Medical College, JSS AHER,
[1]Department of Surgical
Oncology, JSS Hospital,
JSS AHER, Mysuru,
Karnataka, India

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ABSTRACT

Introduction: While mastectomy a crucial procedure in preventing and treating breast cancer is essential, it significantly impacts the emotional well-being, dignity, and overall quality of life (QoL) of survivors. Dealing with the physical challenges of mastectomy is emotionally demanding as it requires adapting to the changes in one's body following breast cancer. **Objective:** The objective of this study was to assess the impact of mastectomy on the QoL among cancer survivors. **Subjects and Methods:** A hospital-based cross-sectional study was carried out in the outpatient departments of oncology at two tertiary care hospitals in Mysuru. Women diagnosed with breast cancer in the year 2021–2022 and who have undergone mastectomy of at least one breast were chosen for the study. The QoL was measured by the European Organisation for Research and Treatment of Cancer – C-30 and BR (breast specific) – 23 modules. **Results:** Emotional, physical, social, and cognitive functioning scores assigned a maximum number of participants in the average to good QoL category. The survivors scored lower in sexual enjoyment (10.758 ± 29.73), sexual functioning (32.024 ± 45.35), future perspective (57.419 ± 38.773), and body image (57.309 ± 32.51) and reported lower QoL which was also related to their menstruation status and age. However, a small group of participants had a positive body image despite their transformed bodies. Symptoms such as fatigue (80.43 ± 24.84), nausea/vomiting (116.39 ± 64.7), insomnia (73.43 ± 38.85), and financial difficulties (65.28 ± 45.46) negatively affected the QoL. The study also highlighted that poor QoL was associated with hair loss (85.48 ± 34.60), side effects of systemic therapy (42.08 ± 22.28), arm symptoms (83.16 ± 23.67), and breast symptoms (20.71 ± 30.45). **Conclusion:** Survivors face physical and psychological changes that significantly impact their QoL. QoL assessments offer insights into the impact of the disease during and after treatment.

KEYWORDS: *Breast cancer, cancer survivors, functional scales, mastectomy, quality of life, symptoms scale*

INTRODUCTION

Mastectomy represents a challenging choice that has profound impacts, altering one's life and evoking a range of emotions including fear, pain, and vulnerability. However, undergoing a mastectomy is a testament to one's bravery and resilience in the face of adversity, demonstrating the determination to live and fight against breast cancer.[1] The choice to undergo mastectomy is highly individualized and influenced by various factors including the stage of cancer, tumor characteristics, genetic mutations, and the patient's personal preferences and circumstances.[2]

The loss of one or both breasts can lead to physical changes that may affect body image, self-esteem, and

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Address for correspondence: Dr. Anil S. Bilimale,
School of Public Health, JSS Medical College, Mysore,
Karnataka, India.
E-mail: anilbilimale@gmail.com

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overall well-being. Some women may experience pain, discomfort, or numbness in the chest area following surgery which can impact their daily activities and quality of life (QoL).[3] Women experience feelings of grief, loss, and sadness over the removal of their breasts. Mastectomy also impacts a woman's sexual functioning and intimate relationships. Changes in body image, loss of sensation, and fear of intimacy can all contribute to decreased sexual desire, difficulties with body confidence, and challenges in maintaining a satisfying sexual relationship.

The loss of breasts to cancer can cause devastating psychological effects on women, leading to self-consciousness, insecurity, and undesirability.[4] The life-threatening nature of cancer prompts individuals to seek meaning in life, potentially improving their life quality despite reduced quantity.[5] Women fear breast cancer due to its impact on physical appearance and associated economic burden, resulting in significant psychosocial and emotional distress.[6] Postsurgery scars, bruises, hair loss, and regrowth further contribute to feelings of incompleteness and emotional instability.

It would be difficult to accept the fact initially, but those who cope with those gain self-confidence, says various researchers.[7] Independent working women gain pace at getting back to their feet compared to women who are dependent and financially insecure. Various social stigmas about cancer in societies make this process harder. Women who are ready to open up about their disease conditions recover faster than those who keep it hidden under their fear. It is natural for women to undergo a period of adjustment after experiencing such a profound transformation in their lives and how they approach coping mechanisms can make a significant difference. It is important to recognize and validate all emotional responses that arise during this process.[8]

SUBJECTS AND METHODS

This cross-sectional study followed the guidelines outlined by Strengthening the Report of Observational Studies in Epidemiology. The study was carried out within the outpatient department of two tertiary care hospitals in Mysuru. The study was undertaken subsequent to obtaining ethical clearance from the institutional review board and ethics committee. The study spanned from January 2022 to May 2023 consisting of 124 women diagnosed with histopathologically confirmed early breast carcinoma, who had undergone modified radical mastectomy (MRM) in the past year. Women with psychiatric disorders or neurological disorders or with a history of the same were not included in the study. The sample size was determined by considering the highest count of patients who had undergone MRM in the last year.

After taking the written informed consent, the following details were collected. Age, gender, income, education, socioeconomic status, marital status, etc., were collected in a pretested questionnaire by interview technique. The stage of breast cancer, treatment type, treatment received, and comorbidities were taken from the medical records of each subject. The European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ C-30 and BR-23) was used to assess the QoL. The questionnaire consists of 53 items which estimated the symptoms and functional scores for each subject. Permission was granted from the EORTC group to use the questionnaire for QoL assessment. The EORTC group's recommended scoring manual employed a 4-point Likert scale for rating items, spanning from 1 (not at all), 2 (a little), 3 (quite a bit), and 4 (very much). Following data collection from participants, the raw scores were computed and subsequently converted to a 0–100 scale alignment with the EORTC scoring manual guidelines. A higher score indicates improved QoL or heightened level of functionality. Conversely, for symptom scales, higher scores correspond to elevated presence of symptoms or poor QoL. Notably, scores of 33 or below on the functional scale along with scores of 66 or above on the symptom scale (Sprangers *et al*., 1996)[9] identify subjects with potential issues. Data were entered into MS Excel (Microsoft Corporation, Redmond, Washington, USA) and IBM SPSS software version 25, (Illinois, USA) were used for statistical analysis and interpretations. Mean and standard deviations were calculated for each domain based on their raw scores and standardized scores. A Chi-square test was used to find the association between the domain and sociodemographic factors. $P < 0.05$ was considered to be statistically significant.

RESULTS

Sociodemographic and medical characteristics

Among the 124 participants, a predominant proportion fell within the age group of 51–60 years (34.4%) and the majority hailed from rural areas (75%). Furthermore, a substantial number of women possessed only a primary level of education (37%) and a majority were unemployed (87.9%) with monthly income less than INR 9226 (59.7%) [Table 1]. In the study, we can observe that 48.4% of participants are suffering from Stage 3 cancer, 46% have Grade 2 tumor, lymph node involvement is seen in 73% of the study subjects, metastasis is present in 36% of study participants,

Table 1: Sociodemographic characteristics of the survivors (*n*=124)

Sociodemographic variables	Frequency, *n* (%)
Age (years)	
31–40	19 (14)
41–50	37 (27.2)
51–60	44 (32.4)
61–70	20 (14.7)
71–80	4 (2.9)
Place of residence	
Urban	31 (25)
Rural	93 (75)
Education level	
Illiterate	25 (20.2)
Primary school	37 (29.8)
Middle school	37 (29.8)
High school	12 (9.7)
Intermediate/diploma	13 (10.5)
Type of family	
Nuclear family	80 (54.5)
Three generation family	44 (35.5)
Monthly income	
>9226	74 (59.7)
9232–27,648	22 (17.7)
27,654–46,089	17 (13.7)
46,095–68,961	10 (8.1)
68,962–92,185	1 (0.8)
Occupation	
Unemployed	109 (87.9)
Elementary occupation	2 (1.6)
Skilled agricultural and fishery workers	6 (4.8)
Clerks	2 (1.6)
Professionals	5 (4)
Chronic disease conditions	
Hypertension	39 (31.4)
Diabetes	26 (20.9)
Heart diseases	6 (4.8)
Others	6 (4.8)
No chronic diseases	47 (37.9)

77% have undergone mastectomy with chemotherapy, 18% have undergone mastectomy with chemotherapy and radiotherapy, and 5% have undergone mastectomy without any other treatment [Table 2].

Quality of life scores

The mean score of functional scales ranges from 10.758 ± 29.73 to 125.427 ± 17.31 with cognitive functioning showing the highest value and sexual functioning followed by sexual enjoyment demonstrating the lowest values [Table 3]. The sexual functioning scale is significantly associated with age ($P < 0.02$) and menstrual status ($P = 0.00$) of the survivors [Table 4]. The mean score of the symptoms scale varies from 3.992 ± 15.51 to 116.39 ± 64.7 with upset by hair loss being the most experienced symptom followed by diarrhea and constipation being the least experienced symptoms [Table 5].

DISCUSSION

QoL is a crucial element in the lives of cancer survivors. After cancer diagnosis and treatment, patients encounter issues such as disrupted sleep, depression, and diminished QoL. Therefore, evaluating the QoL among these patients is important for developing interventions that can enhance their overall well-being. Assessing QoL aids in recognizing how treatment, the disease and overall health influence the QoL.

The current study and the study conducted by Edib and Kumarasamy found the highest scores in cognitive functioning (125.42 ± 17.31, 83.19 ± 22.26), and social functioning (99.323 ± 32.39, 80.63 ± 24.75). Emotional functioning scored the lowest at 50.855 ± 27.80, and 62.96 ± 26.39. The physical and role functioning scores were found to be 89.968 ± 21.40 in the current study and 75.33 ± 21.41 and 79.63 ± 27.25 in the other study.[8] A study by Alawadi and Ohaeri also revealed poor scores for emotional functioning with 60.3 ± 22.5.[10] These findings reveal that psychological distress in breast cancer patients, including anxiety, irritability, and depression is linked to lower emotional functioning scores.

In the current study and the study conducted by Maharjan *et al*., the future perspective scale had the highest scores (57.419 ± 38.773, 80.36 ± 16.48). On the other hand, the lowest mean score of 10.758 ± 29.73 and 2.95 ± 9.38 was observed on the sexual enjoyment scale.[11] The study conducted by Cherian *et al.* also revealed a poor mean score of 17.11 ± 33.77 on the sexual enjoyment scale.[12] In contrast, the study conducted by Shinde *et al*. found the sexual enjoyment scores to be 84.16 ± 17.48.[13] The dynamics of sexual functioning get altered in women undergoing breast cancer treatment due to treatment side effects, persistent fatigue, alterations in body image, and self-confidence or an overwhelming focus on the diagnosis and treatment. While performing inferential status, it was found that sexual enjoyment scores were associated with age ($P = 0.02$) and menstrual status ($P = 0.00$). This may be also due to the fact that the majority of the subjects belonged to the age group of 51–60 years (35.5%) which is the postmenopausal period.

The present study found that nausea and vomiting had the highest mean value of 116.39 ± 64.70 followed by a fatigue mean score of 80.43 ± 24.84 on the symptoms scale. Conversely, the lowest mean score of 3.992 ± 15.51 was observed on the diarrhea scale. The present study reported less prevalence of pain (26.47 ± 35.68) while in the study by Shinde *et al*., the pain was the most relevant symptom (33.49 ± 25.56).[13] While the study conducted by Damodar *et al*. identified higher mean scores for fatigue, dyspnea, and insomnia as 56.19 ± 23.53, 52.84 ± 19.05, and 51.62 ± 12.65 and the scoring for pain comes under the average category with a mean value of 40.64 ± 27.66.[14]

Table 2: Medical characteristics of the survivors (*n*=124)

Medical characteristics	Frequency, *n* (%)
Cancer stage	
Stage 1	22 (17.7)
Stage 2	9 (7.3)
Stage 3	60 (48.4)
Stage 4	33 (26.6)
Tumor grade	
T1	41 (33)
T2	57 (46)
T3	16 (13)
T4	10 (8)
Lymph node involvement	
Present	90 (73)
Absent	34 (27)
Metastasis	
Present	45 (36)
Absent	79 (64)
Treatment received	
Mastectomy	6 (5)
Mastectomy + chemotherapy	95 (77)
Mastectomy + chemotherapy + radiotherapy	23 (18)

The present study also found the highest mean score of 85.48 ± 34.60 for being upset by hair loss, followed by the arm symptoms mean score of 83.16 ± 23.67. The breast symptom scale found the lowest mean score of 20.71 ± 30.45. In the study conducted by Muhammed Ibrahim, hair loss (45.89 ± 39.66) and side effects of systemic therapy (42.08 ± 22.28) were identified as the most distressing symptoms followed by arm (38.18 ± 29.61) and breast symptoms (28.34 ± 26.86).[15] It is possible to believe that hair loss becomes a visible symbol to others that you are undergoing cancer treatment.

In this study, patients expressed that their anxieties manifest as posttraumatic stress, including hyperarousal triggered by reminders of cancer, avoidance of situations associated with treatment, or emotional detachment. Many survivors develop a sense of heightened

Table 3: Scores of survivors on the functional scales of the questionnaires

Variables	Number of items	Poor <33.3	Average 33.3–66.6	Good >66.6	Mean±SD
C-30 functional scales					
Physical functioning	5	-	21	103	89.968±22.40
Role functioning	2	-	53	71	68.565±32.99
Emotional functioning	4	-	97	27	50.855±27.800
Cognitive functioning	2	-	1	123	125.427±17.31
Social functioning	2	-	17	107	99.323±32.39
BR-23 functional scales					
Body image	4	76	-	48	57.309±32.51
Sexual functioning	2	81	-	43	32.024±45.35
Sexual enjoyment	1	112	1	11	10.758±29.73
Future perspective	1	86	-	38	57.419±38.773

SD: Standard deviation

Table 4: Association between age, and menstrual status with the sexual functioning scale

	Sexual Functioning Scale			Total	χ^2	*P*
	Poor (<33.3)	Average (33.3–66.6)	Good (>66.6)			
Age (years)						
31–40	7	12	0	19	0.033	0.02*
41–50	23	15	0	38		
51–60	39	4	0	43		
61–70	20	0	0	20		
71–80	4	0	0	4		
Total	93	31	0	124		
Menstrual status						
Present	30	38	0	68	0.00	0.00*
Absent	50	6	0	56		
Total	80	44	0	12		

*Chi-square, *P* value <0.05 was considered as significant

Table 5: Scores of survivors on the symptom scales of the questionnaires

Variables	Number of items	Good <33.3	Average 33.3–66.6	Poor >66.6	Mean±SD
C-30 symptoms scale					
Fatigue	3	10	34	80	80.43±24.84
Nausea/vomiting	2	31	7	86	116.39±64.7
Pain	2	95	9	20	26.47±35.68
Dyspnoea	1	99	20	5	10.75±24.61
Insomnia	1	20	25	79	73.43±38.85
Appetite loss	1	14	96	14	38.43±25.51
Constipation	1	114	3	7	9.37±25.64
Diarrhoea	1	117	-	7	3.992±15.51
Financial difficulties	1	37	18	69	65.28±45.46
BR-23 symptoms scale					
Systemic therapy side effects	7	10	29	85	73.34±20.68
Breast symptoms	4	100	8	16	20.71±30.45
Arm symptoms	3	11	39	84	83.18±23.67
Upset by hair loss	1	19	-	105	85.48±34.60

SD: Standard deviation

awareness of physical sensations, particularly before the tests scheduled for possible reoccurrence, leading to intermittent anxieties known as “fear of occurrence.”[16] These anxieties are reflected as high scores obtained in the future perspective scale and emotional scale. Despite finding ways to cope, women find them irrelevant and find it so hard to break the barriers caused by the disease.

CONCLUSION

Regarding the QoL, the study found that emotional functioning, physical functioning, social functioning, and cognitive functioning scores assigned a maximum number of participants in the average QoL category. None of the participants exhibited a poor QoL in the functional scales. In the good category, the majority scored well in cognitive functioning followed by social functioning. Most participants came into poor QoL due to lesser scores in sexual enjoyment, sexual functioning, future perspective, and body image. However, a small number of participants accepted their transformed bodies and scored well on the body image scale. Regarding symptoms, participants reported poor QoL in terms of fatigue, nausea/vomiting, insomnia, and financial difficulties. Those who did not suffer from the above-mentioned symptoms had a good QoL. Hair loss, side effects of systemic therapy, arm symptoms, and breast symptoms were the areas in which participants experienced poor QoL.

Recommendation

The study recommends that there is a significant demand for the implementation of a formal education system and the provision of counseling services immediately after the diagnosis of breast cancer as well as during the follow-up period. Future studies should aim to investigate and address cultural variations and stigma in matters pertaining to sexuality and body image. Health care professionals should try to address these issues through carefully planned rehabilitation programs and assistance and interventions. Health care professionals need to receive comprehensive multidisciplinary training to effectively support the rehabilitation of women with breast cancer and ensure the accessibility and availability of essential resources. Encourage the couple to seek professional support and information regarding breast cancer which can promote relaxation, and stress reduction and contribute to a healthier relationship.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Fernandes-Taylor S, Adesoye T, Bloom JR. Managing psychosocial issues faced by young women with breast cancer at the time of diagnosis and during active treatment. Curr Opin Support Palliat Care 2015;9:279-84.
2. Goethals A, Rose J. Mastectomy. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2023. Available from: https://

www.ncbi.nlm.nih.gov/books/NBK538212/. [Last accessed on 2023 Jun 26].

3. Howes BH, Watson DI, Xu C, Fosh B, Canepa M, Dean NR. Quality of life following total mastectomy with and without reconstruction versus breast-conserving surgery for breast cancer: A case-controlled cohort study. J Plast Reconstr Aesthet Surg 2016;69:1184-91.
4. Spencer KW. Significance of the breast to the individual and society. Plast Surg Nurs 1996;16:131-2.
5. WHOQOL – Measuring Quality of Life | The World Health Organization. Available from: https://www.who.int/tools/whoqol. [Last accessed on 2023 Mar 07].
6. Al Zahrani AM, Alalawi Y, Yagoub U, Saud N, Siddig K. Quality of life of women with breast cancer undergoing treatment and follow-up at King Salman Armed Forces Hospital in Tabuk, Saudi Arabia. Breast Cancer (Dove Med Press) 2019;11:199-208.
7. Health N. How to Spring Back to Life Post Breast Cancer Treatment? Narayana Health Care; 2019. Available from: https://www.narayanahealth.org/blog/how-to-spring-back-to-life-post-breast-cancer-treatment/. [Last accessed on 2022 Feb 15].
8. Edib Z, Kumaraswamy V. Quality of life among female breast cancer patients in a University Hospital in Malaysia. JAMMR 2015;7:453-62.
9. Sprangers MA, Groenvold M, Arraras JI, Franklin J, te Velde A, Muller M, *et al*. The European Organization for Research and Treatment of Cancer breast cancer-specific quality-of-life questionnaire module: First results from a three-country field study. J Clin Oncol Off J Am Soc Clin Oncol 1996;14:2756-68.
10. Alawadi SA, Ohaeri JU. Health – Related quality of life of Kuwaiti women with breast cancer: A comparative study using the EORTC quality of life questionnaire. BMC Cancer 2009;9:222.
11. Maharjan M, Thapa N, Adhikari RD, Petrini MA, Amatya KS. Quality of life of Nepalese women post mastectomy. Asian Pac J Cancer Prev 2018;19:1005-12.
12. Cherian K, Acharya NR, Bhargavan RV, Augustine P, Krishnan JK. Quality of life post breast cancer surgery: Comparison of breast conservation surgery versus modified radical mastectomy in a developing country. South Asian J Cancer 2022;11:183-9.
13. Shinde CS, Mahajan AA, Sonawane PP. Quality of life using EORTC QLQ C-30 and EORTC QLQ BR-23 Marathi version in post-operative breast cancer women from rural region of Maharashtra. Indian J Physiother Occup Ther. 2020;14:62-7.
14. Damodar G, Smitha T, Gopinath S, Vijayakumar S, Rao Y. Assessment of quality of life in breast cancer patients at a tertiary care hospital. Arch Pharma Pract 2013;4:15.
15. Imran M, Al-Wassia R, Alkhayyat SS, Baig M, Al-Saati BA. Assessment of quality of life (QoL) in breast cancer patients by using EORTC QLQ-C30 and BR-23 questionnaires: A tertiary care center survey in the Western region of Saudi Arabia. PLoS One 2019;14:e0219093.
16. Hatch R, Young D, Barber V, Griffiths J, Harrison DA, Watkinson P. Anxiety, depression and post traumatic stress disorder after critical illness: A UK-wide prospective cohort study. Crit Care 2018;22:310.