

# Life Beyond Surgery: Comparing Quality of Life after Breast Conservation and Modified Radical Mastectomy at a Selected Tertiary Care Hospital, Thrissur

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## ABSTRACT

Cancer poses numerous health risks for individuals, significantly diminishing their quality of life. Women all throughout the world die most often from breast cancer. There are two kinds of surgery for breast cancer: modified radical mastectomy (MRM) and breast conservation surgery (BCS). Health-related quality of life studies has been undertaken among diverse cohorts of breast cancer patients, due to their increased relevance regarding the loss of a vital organ, specifically the breast. The EORTC QLQ-C30 and EORTC QLQ-BR23 are standardized, comprehensive tools used to assess quality of life across a wide range of pertinent topics. The goal is to compare the quality of life of breast cancer patients who have breast conservation surgery with those who have modified radical mastectomy.

**Methods:** This descriptive analytical study included 45 breast cancer patients who received chemotherapy and surgical interventions, breast-conserving surgery or modified radical mastectomy, from October 17, 2023, to February 27, 2024. The primary

objective was to compare the quality of life between these two groups. The structured questionnaire collected clinical and socio demographic data. The Shapiro test evaluated the normalcy of the data. The results show that patients who had breast-conserving surgery had far better somatic and role functioning than those who had modified radical mastectomy. The group that underwent breast-conserving surgery also had far lower fatigue scores ( $U=48$ ,  $p=0.003$ ), which means they were less tired.

**Keywords:** Breast cancer, Quality of life, mastectomy, breast conservation surgery, chemotherapy

## INTRODUCTION

The National Cancer Registry Programme says that there will be 1,461,427 new cancer cases in India in 2022. Lung cancer in men and breast cancer in women was found to be the most common types of cancer. In India, breast cancer is the most common cancer among women, making up 28.2% of all female cancer cases.<sup>[1]</sup> By 2040, the number of people who die from breast cancer in Southeast Asia is expected to rise to

61.7%.<sup>[2]</sup> From 1990 to 2016, the age-standardized incidence of female breast cancer increased by 40.7%, a trend observed consistently across all states in India over the past 26 years.<sup>[3]</sup>

Breast conservation surgery has become a widely recognized alternative to modified radical mastectomy.<sup>[4, 5, 6]</sup> Multidisciplinary management has enhanced the survival outcomes of breast cancer patients across all stages. Early diagnosis and multimodal treatment have increased the likelihood that individuals will maintain satisfactory health over an extended period. Surgical treatment for breast cancer can alter a woman's perception of her physique and self-identity. It remains uncertain how these different surgical interventions compare in their impact on patient satisfaction and quality of life (QOL). Indian women differ from Western women in terms of ethnicity, social standing, cultural practices, and economic status. Limited data is available concerning treatment options for Indian women, whose preferences regarding cosmetic outcomes or other considerations may differ from those observed in Western settings. The present data are inconsistent, with numerous studies suggesting a diminished quality of life associated with breast conservation surgeries in India.<sup>[4, 7, 8]</sup> A comprehensive review indicates differences in quality of life associated with the type of surgery among Asian patients.<sup>[9]</sup> Women diagnosed with breast cancer may experience a detrimental impact on their sense of femininity following a mastectomy, which could influence their body image.<sup>[10]</sup> Chemotherapy may lead to various physical issues, such as hair loss, fatigue, decreased energy levels, pain, nausea, vomiting, and fluctuations in weight. A woman's breasts serve as a physical manifestation of her pride and identity, encompassing aspects such as her sexuality, motherhood, self-image, and self-esteem. Any injury inflicted upon her breast threatens her womanhood.<sup>[11]</sup> A study conducted in Turkey comparing quality of life indicates that BCS demonstrated better functional status and

encountered fewer symptoms than patients who underwent MRM.<sup>[12]</sup>

The type of surgery has impact on QoL after breast removal.<sup>[13-15]</sup> The choice of treatment can have a big impact on the quality of life for people who have survived breast cancer. For instance, mastectomy, especially immediate contralateral mastectomy, is associated with a reduced quality of life<sup>[16]</sup>. People have always doubt regarding mastectomy, whether it is a good surgical option. It happens more often in rural locations, mostly because radiation therapy isn't usually given after a mastectomy.<sup>[17]</sup> Breast conservation surgery is widely used in early-stage breast cancer, but its use in advanced disease remains controversial.<sup>[18]</sup>

### **The impact of cancer results in an overall decline in quality of life.**

Quality of life should be assessed, regularly monitored, and treated promptly at all stages of disease to optimize patient clinical outcomes. Health care professionals should be more aware about how to assess quality of life to meet their needs following acute treatment. As quality of life is most affected in women undergoing breast surgery and receiving chemotherapy, this study was prompted to compare the quality of life among patients with breast cancer undergoing breast conservation surgery and modified radical mastectomy.

### **Objective**

1. Compare the quality of life among patients with breast cancer undergoing breast conservation surgery and modified radical mastectomy

### **Hypothesis**

H1 – There will be significant difference in the quality of life of among patients with breast cancer undergoing breast conservation and modified radical mastectomy surgeries

### **MATERIALS & METHODS**

This descriptive analytical study performed in the oncology units of a selected tertiary

care hospital, Thrissur, Kerala, India. This study was performed subsequent to approval from the Institutional Review Board and Ethics Committee. The duration of the study was from 17/10/23 to 27/2/24. Women with pathologically proven breast carcinoma undergone MRM or BCS and received minimum 4 cycles of chemotherapy were recruited for the study according to the inclusion criteria. The primary objective of the study was to compare the quality of life among patients with breast cancer undergone breast conservation surgery and modified radical mastectomy. A total of 45 patients were enrolled in the study, comprising 37 who underwent modified radical mastectomy and 8 who underwent breast-conservation surgery. Written Informed consent was obtained from selected breast cancer patients who had undergone breast surgery and received a minimum of four cycles of chemotherapy. This was done following a detailed explanation of the study's aim, procedure, and the participants' role. The investigator collected the baseline data with the help of a structured questionnaire and the clinical data collected by the researcher using medical records and interview techniques. Everyone who took

part filled out the Quality-of-Life Questionnaire (EORTC QLQ-C30) and the QLQ-BR23. Data analysis was conducted by using SPSS software, Version 23, and R software, with scoring performed according to the scoring manual. Frequencies and their related percentages used to summarize categorical variables. Because the data didn't follow a normal distribution, the continuous variables were described in terms of their median and interquartile range.

### STATISTICAL ANALYSIS

Frequency and percentage used to summarize all the categorical variables. The Median and IQR [Q1, Q3] used to summarize quantitative variables because the data doesn't follow normality assumptions. Mann Whitney U-test is performed to compare the quality of life among patients with breast cancer undergoing breast conservation surgery and modified radical mastectomy, as data violates normality.  $p < 0.05$  is considered as statistically significant and the entire analysis is performed using SPSS 23 and R software.

### RESULT

**Table 1: Frequency and Percentage Distribution of Patients with Breast Cancer According to Selected socio demographic and clinical variables**

Sno	Variables	Categories	Frequency	Percentage
1	Age in years	18-30	2	4.44
		31-43	4	8.89
		44-56	17	37.78
		57-70	22	48.89
2	Education	Professional	5	11.11
		Graduate	8	17.78
		Intermediate/ diploma	11	24.44
		High school	14	31.11
		Middle school	3	6.67
		Primary education	4	8.89
3	Occupation	House wife	28	62.22
		Govt. job	2	4.44
		Private job	14	31.11
		Retired	1	2.22
4	Duration of disease	> 6months	29	64.44%
		< 6months	16	35.56%
5	Stages of cancer	Stage 1	7	15.56%
		Stage 2	23	51.11%
		Stage 3	15	33.33%

6	Type of breast surgery	MRM	37	82.22%	
		BCS	8	17.78%	
7	BMI	<25	22	48.89%	
		25-30	17	37.78%	
		>30	6	13.33%	
8	ECONOMICAL SUPPORT	yes	42	93.33	
		No	3	6.67	
	Emotional support	Yes	22	48.89	
		No	23	51.11	
	Physical support	Yes	28	62.22	
		No	17	37.78	
	Spiritual support	Yes	8	17.78	
		No	37	82.22	
9	Total number of supports	One	6	13.33	
		Two	26	57.78	
		Three	10	22.22	
		Four	3	6.67	
10	Type of Supporting Members	Spouse	Yes	30	66.67
			No	15	33.33
	Children	Yes	23	51.11	
		No	22	48.89	
	Friends	Yes	1	2.22	
		No	44	97.78	
	Relatives	Yes	5	11.11	
		No	40	88.89	

Table 1 shows that majority of breast cancer patients (48.89%) were between the ages of 57 and 70, that most of them had finished high school education (31.11%), and that most of them were housewives (62.22%). A larger percentage (64.44%) had been diagnosed for more than six months, and more than half (51.11%) were in Stage II of breast cancer. Most patients (82.22%) had

modified radical mastectomy, and over half (48.89%) had a BMI of less than 25. Economic assistance was abundant (93.33%), while emotional (48.89%) and spiritual (17.78%) help were scarce. More over half (57.78%) got two kinds of help, mostly from spouses (66.67%) and children (51.11%).

**Table 2: Comparison of QoL among patients with breast cancer undergoing breast Conservation surgery and modified radical mastectomy**

Domains of QoL	Type of Surgery						Mann Whitney U test	P value
	Modified Radical mastectomy			Breast Conservation surgery				
	Median	Q1	Q3	Median	Q1	Q3		
Physical Functioning	66.6	60.0	80.0	90.0	83.3	93.33	260	<0.001*
Role Functioning	66.67	50.0	66.6	83.33	66.6	91.67	214	0.037*
Emotional Functioning	66.6	50.0	66.6	70.8	54.1	100.0	187	0.23
Cognitive Functioning	16.6	16.6	33.3	0.00	0.00	33.33	111	0.25
Social Functioning	66.6	50.0	66.6	83.3	58.3	100.0	202	0.09
Fatigue	55.5	44.4	66.6	27.7	16.6	44.44	48	0.003*
Nausea and vomiting	16.6	0.00	50.0	25.0	8.33	50.00	159	0.73
Pain	16.6	0.00	33.3	8.33	0.00	33.33	121	0.415
Dyspnea	0.00	0.00	0.00	0.00	0.00	16.67	157	0.686
Insomnia	33.3	0.00	66.6	50.0	16.6	66.67	150	0.939
Appetite loss	33.3	33.3	66.6	16.6	0.00	33.33	90	0.072

Constipation	33.3	0.00	66.6	0.00	0.00	16.67	88	0.059
Diarrhea	0.00	0.00	33.3	0.00	0.00	66.67	158	0.731
Financial difficulties	33.3	33.3	66.6	66.6	16.6	83.33	160	0.710
Systemic therapy side effects	47.6	38.1	57.1	57.1	47.6	64.29	199	0.124
Upset by hair loss	0.00	0.00	33.3	16.6	0.00	66.67	173	0.390
Arm symptoms	77.7	66.6	100	77.7	61.11	100.00	150	0.951
Breast symptoms	8.33	0.00	16.6	16.6	0.00	25.00	173	0.430
Body image	66.6	58.3	83.3	79.1	70.8	91.67	188	0.231
Future perspective	66.6	33.3	66.6	83.3	33.3	100.0	184	0.247
Sexual functioning	16.6	0.00	33.3	33.3	0.00	33.33	127	0.195
Sexual enjoyment	0.00	0.00	33.3	33.3	0.00	33.33	123	0.230

Mann Whitney U-test is performed to compare other domains of scales between patients with breast cancer undergoing breast conservation surgery and modified radical mastectomy, as data violates normality. The comparison of Quality of Life (QoL) domains between the two types of surgery revealed statistically significant differences in certain functional and symptom scales. Domains such as Physical functioning, Role functioning and social functioning were found to be significantly different between the groups. Physical functioning and role functioning were significantly better among patients who underwent breast conservation surgery ( $U=260$ ,  $p<0.001$ ;  $U=214$ ,  $p=0.037$ ). Similarly, fatigue scores were significantly lower in the breast conservation surgery ( $U=48$ ,  $p=0.003$ ), showing reduced fatigue levels. Breast conservation surgery had greater median evaluations for emotional and social functioning, although these increases were not statistically significant ( $p > 0.05$ ).

## DISCUSSION

The present study reveals that comparison of Quality of Life (QoL) between the two types of surgery revealed statistically significant differences in certain functional and symptom scales. Physical functioning and role functioning were significantly better among patients who underwent breast conservation surgery ( $U = 260$ ,  $p < 0.001$ ;  $U = 214$ ,  $p = 0.037$ ). Similarly, fatigue scores were significantly lower in this group ( $U = 48$ ,  $p = 0.003$ ), indicating reduced fatigue levels. Although the median scores for

emotional and social functioning were higher in BCS, the differences were not statistically significant ( $p > 0.05$ ). Overall, the findings indicate that BCS was associated with better physical and role functioning and lower fatigue, suggesting improved quality of life outcomes in these specific domains.

Supporting this study finding, another prospective study conducted in the Regional Cancer Centre, Thiruvananthapuram, among 138 breast cancer patients, to compare the quality of life between the BCS and MRM groups at 6 months and 1 year post surgery, showed that BCS patients had improved physical functioning, dyspnea, fatigue, appetite loss, and body image at 6 months ( $p<0.05$ ) compared to MRM patients. [4]

Conversely, Enien et al. reported that patients undergoing BCS demonstrated better emotional functioning than those who underwent MRM. [19]

In the present study, patients who underwent BCS reported a more favourable body image compared to those who had MRM. This finding is consistent with existing literature, which similarly highlights improved body image perceptions among individuals following BCS. [20,21]

A limitation of the study is that data were collected at a single time point. It would have been preferable to collect data at multiple time points.

## CONCLUSION

Patients who have BCS do better than those who have MRM when it comes to physical and role functioning. Patients with early breast cancer should be given the option of

breast conservation if it is oncologically safe and cosmetically acceptable.

### **Declaration by Authors**

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