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ORIGINAL ARTICLE

Does Quality of Life Among Modified Radical Mastectomy and Breast Conservation Surgery Patients Differ? A 5-Year Comparative Study

Vivek Bhat[1] · A. P. Roshini[1] · Rakesh Ramesh[2]

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Abstract

Breast cancer is the most common cancer among females worldwide, of whom more than 80% survive for more than 5 years. Hence, ensuring a good quality of life (QOL) is essential to achieve holistic approach in treating patients. A cross-sectional study was conducted to compare the QOL in women who underwent modified radical mastectomy (MRM) and breast conservation surgery (BCS) for breast cancer in the last 5 years. QOL was evaluated based on the long-term quality of life–breast cancer (LTQOL–BC) questionnaire. A greater percentage of women who underwent MRM complained of difficulty in completing their house work compared with the BCS group (50% compared with 31%). Twenty-five percent (6) of the women who had undergone MRM reported feeling of being incomplete as women, along with a lack of femininity. However, more than 80% of the women in both groups said that they felt stronger as survivors and derived strength from their experience. There were significant differences in the quality of life of women from both groups in terms of physical function and body image, with the BCS group appearing to have a better QOL.

Keywords Quality of life · Breast cancer · Modified radical mastectomy · Breast conservation surgery

Introduction

Breast cancer ranks 2nd, affecting almost a quarter of cancer patients [1]. Published reports from different cancer registries in India indicate rising trends in breast cancer incidence [2–6]. With the help of increased early detection and improved treatment, more than 80% of breast cancer patients survive for 5 years beyond diagnosis [7].

Background

Cancer is a chronic disease that has physical inadequacies and psychological problems, which is in periods of remissions and exacerbations. The WHO defines the quality of life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns [8]. Various studies have evaluated differences in quality of life according to the method of breast cancer surgery. In many cases, breast-conserving surgery (BCS) presented a higher quality of life compared with modified radical mastectomy (MRM) [7, 9–15]. Using QLQ-BR23, independent factors improving the functional scales included BCS, higher level of education and marital status (married); in another study, independent factors improving symptoms were BCS, higher level of education, younger age and low and normal body mass index (BMI) [15]. In another study, among 407 patients, those with reconstruction after total mastectomy had better sexual scale and arm symptoms than those with only total mastectomy on the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire breast cancer–specific module [7]. Of the 109 patients prospectively followed up, they found that after mastectomy, they had difficulties with clothing and body image; however, they concluded that these did not affect the assessment of mood or quality [11]. Women with prominent breast asymmetry were significantly more likely to feel stigmatized as a result of their breast cancer treatment (odds ratio (OR) = 4.58, 95% CI 2.77 to 7.55). Another conclusion was that women with pronounced breast asymmetry were more likely to exhibit depressive symptoms (minimal asymmetry, 16.2%; moderate

✉ Rakesh Ramesh
srakesh99@yahoo.co.in

[1] St. John's Medical College and Hospital, Bengaluru, Karnataka, India

[2] Department of Surgical Oncology, St. John's Medical College and Hospital, Bengaluru, Karnataka, India

asymmetry, 18.0%; pronounced asymmetry, 33.7%, Wald's test = 16.6; $p = 0.002$) [13]. Among the elderly, it was found that those undergoing tumour excision and tamoxifen did not differ from those undergoing mastectomies in terms of fatigue, emotional functioning, fear of recurrence, social support, physical functioning and leisure time activities [14]. Survival rates with BCS are similar to mastectomy [16]. However, patients may be dissatisfied with their physical appearance and experience a lack of self-confidence, among other psychological issues. Our aim in this study was to analyse the difference, if any, in the quality of life of women following either MRM or BCS, in the setting of a tertiary hospital of India. The information obtained may contribute to optimal healthcare and better cooperation between patients and health care professionals.

Methods

For this purpose, we conducted a cross-sectional study with consecutive sampling. After ethical approval was obtained from the Institutional Ethical Committee, all women who had undergone BCS/MRM in the last 5 years were included. Patients with conditions that prevented them from understanding and answering the questionnaire (e.g. dementia) were excluded. We surveyed 40 women with a diagnosis of non-metastatic breast carcinoma, who had undergone either BCS or MRM, followed by a therapeutic cycle of chemotherapy and radiation in the period 2012–2017. The long-term quality of life–breast cancer (LTQOL–BC) questionnaire was administered which has 4 parts: part I, dealing with socio-demographic data; part II, physical function; part III, social support; part IV, body image and emotional function; part V, coping with breast cancer; part VI, cognitive function; part VII, impact of breast cancer. Descriptive and inferential statistics were analysed based on the objectives in terms of frequencies, percentage, mean and Chi-square and *t* tests. Regression analysis was performed to look at the influence of various predictors on QOL. All statistical analyses were performed using SPSS V 20.

Results

Out of the 50 patients contacted, 40 (80%) patients answered the questionnaire, 8 (16%) had passed away, and 2 (4%) were not willing to participate in the study. The mean age of the patients was 50.92 ± 7.85 years. Twenty-four (60%) of the patients had undergone MRM as the surgery for breast cancer. The mean number of years post-surgery was 2.62 ± 0.8 years. Thirty-nine (97.5%) of the women had undergone therapeutic cycles of chemotherapy and radiation.

Physical Function

An equal proportion of individuals in the 2 groups felt that they had not regained their physical function and complained of easy fatigability, which was statically significant ($p = 0.038$). Majority of the women in both groups experienced no digestive problems ($p = 0.051$), uncomfortable changes in the skin ($p = 0.882$), changes in taste and smell ($p = 0.244$), or problems with vision ($p = 0.526$). Twelve (50%) MRM patients had difficulty in doing housework, which could be attributed to numbness, pain or swelling of upper limb associated with restriction of movements (refer to Table 1).

Social Support

Eighty-seven point five percent (34–14 from the BCS group (87.5%) and 20 (83.3%) from the MRM group) of the women agreed that they had a support system consisting of their closest family ($p = 0.251$) (Fig. 1), with 62.5% (25) reporting that they had close friends to rely on ($p = 0.514$) while only 20% of the women reported feelings of loneliness ($p = 0.415$). Only 16.6% of women undergoing MRM reported difficulty in keeping a job, while no women who had undergone BCS reported this ($p = 0.357$).

Body Image and Emotional Function

Only 17.5% (7) of all the women reported feeling a lack of femininity, with 6 of them from the MRM group ($p = 0.084$). However, 6 women who had undergone MRM (25% of the group) reported feelings of being incomplete as women as opposed to none from the BCS group, and this was statistically significant ($p = 0.027$). Totally, only 3 women (7.5% of the total) reported problems with clothes fitting properly, and there was no significant difference between the 2 groups. Almost all the women were very alert regarding their health ($p = 0.417$), with a little more than half of the women in each group reporting anxiety upon any disturbance in their health ($p = 0.625$). Exactly half of the women in each group felt uncertain about the future ($p = 0.961$). Only 8.3% of the women who had undergone MRM (2) and 6.3% of the women who had undergone BCS (1) felt difficulty in maintaining intimate relationships ($p = 0.309$). A significant proportion of women did not comment (neither agreed nor disagreed) when asked if they felt their sexual interest had reduced (44% of the BCS group, 7 and 50% of the MRM group, 12), but among those that answered, a majority disagreed in both groups ($p = 0.243$) (Fig. 2). Seventy-five percent of the women in the BCS group (12) said that they were currently neither sad nor dissatisfied, while 54.2% of the women in the MRM (13) group said so. Only 1 woman who had undergone BCS (6.25%) and 3 (12.5%) who had undergone MRM said that they felt limited in the choice of clothes to wear ($p = 0.81$) (refer to Table 2).

Table 1 Response to questions on physical function by the 2 groups

Physical factors		Surgery		*p* value
		MRM	BCS	
Physical strength	Not regained	11 (46%)	7 (44%)	0.038
	Regained	11 (46%)	9 (56%)	
Skin changes	Present	3 (19%)	4 (25%)	0.882
	Absent	16 (67%)	12 (75%)	
Performing house work	Difficulty	12 (50%)	5 (31%)	0.582
	No difficulty	10 (42%)	10 (63%)	
Numbness, pain or swelling in upper limb	Yes	8 (33%)	12 (75%)	0.708
	No	16 (67%)	4 (25%)	
Restriction of arm movements	Yes	10 (42%)	3 (19%)	0.407
	No	13 (54%)	13 (81%)	

In both groups, 12.5% of the women (2 from BCS and 6 from MRM) reported difficulty in obtaining health insurance. However, this question was not answered by most of the women, 62.5% (10) of the BCS group and 58.3% (14) of the MRM group had no opinion. ($p = 0.632$). Similar results were obtained when queried about life insurance and long-term care—16.7% (4) of the MRM group reported difficulty with none from the BCS group; 54.2% (13) of the MRM group and 62.5% (10) of the BCS group had no opinion.

Coping

Very few of the women said that they made frequent visits to the doctor ($p = 0.276$), while almost all of them reported making active decisions regarding their own health ($p = 0.468$). Seventy-five percent of the women in the BCS group (12) and 66.7% (16) of the women in the MRM group felt that they lived in the present, now more than before ($p = 0.676$) (Fig. 3).

Cognitive Function

Almost half of the women in either group reported difficulty in remembering things ($p = 0.967$), 43.8% of the BCS group and 29.1% of the MRM group felt that they could not concentrate easily ($p = 0.579$), while 25% of the BCS group and 37.5% of the MRM group reported difficulties in thinking clearly ($p = 0.708$) (Fig. 4).

Impact of Breast Cancer

A clear majority of women who had undergone BCS (68.8% (11)) felt that they were blessed, but only 45.8% (11) of the MRM group expressed such sentiment ($p = 0.320$). Sixty-seven percent (16) of the MRM patients felt neither cheated nor resigned, with the proportion being 93.75% (15) of the BCS patients. What was statistically significant was the proportion of women who reported a feeling of being incomplete—none of the BCS patients felt so, while 41.6% of the MRM patients did ($p = 0.043$). A clear majority of women, 81.3% of the BCS patients and 87.5% of the MRM patients, reported greater emotional strength and a belief that they had conquered their breast cancer ($p = 0.186$). Close to half of the women in either group reported that their cancer was a daily object of thought ($p = 0.587$) (Fig. 5), and a majority (68.8% of the BCS group and 62.5% of the MRM group) could not discount it as ancient history ($p = 0.755$). Forty-three point eight percent (7) of the BCS patients and 33.3% (8) of the MRM patients felt that breast cancer had

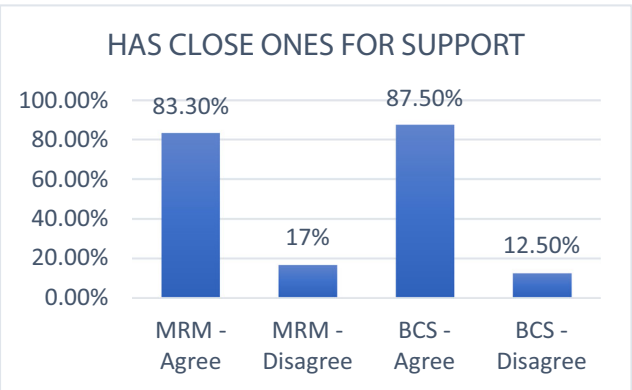

Fig. 1 Support of close ones

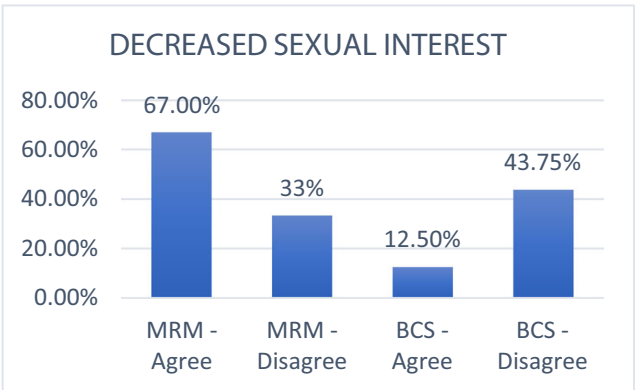

Fig. 2 Response to question on sexual interest

Table 2 Response to questions on emotional function by the 2 groups

Emotional factors		Surgery		*p* value
		MRM	BCS	
Feel incomplete as a woman	Yes	6 (25%)	–	0.027
	No	18 (75%)	15 (94%)	
Limitations with respect to clothes	Yes	3 (12%)	1 (6%)	0.808
	No	21 (88%)	15 (94%)	

caused them to change their personal goals, but this was not statistically significant (refer to Table 3).

Discussion

The breast is of great importance for female sexuality, body image and reproductivity. Demir et al. showed that patients who receive surgical intervention for breast cancer encounter many physical, psychological and social problems which in turn affect their quality of life negatively [17]. Ozkan and Alcalar wrote about how surgical intervention, which has an important role in the treatment of breast cancer, affects the body image, self-confidence, psychological status, sexual life and interpersonal relationships of the patient negatively [18]. Mastectomy may result in emotional issues such as pain and rage, trouble finding appropriate clothing, problems related to a distorted body image and cause problems in the marriage and intimate relationships of the patients [19]. The results of our study provide further insight into the long-term QOL of women depending on the type of surgery undergone. Although numerous studies have been conducted to assess the QOL in these patients, our knowledge is very limited as a significant proportion of these studies involve a follow-up of 2 years or less. While a few studies found no significant differences in the QOL [7, 9–14], ours had significant differences in terms of physical functioning and body image. In most physical aspects of the QOL, the proportion of women who had undergone BCS and had complaints was smaller than from the MRM group. For example, a greater proportion of women from the MRM group stated that they had not regained their strength and had difficulty carrying out their household work. This is in line with most studies conducted on the topic [7, 9–15].. What was interesting, though not significant, was that a greater proportion of women who had undergone BCS complained of upper body aches or pains compared with the MRM group. In contrast with the findings of Steinberg et al. [20] and He et al. [12], we found no difference in the social support received. A large majority of women in both groups stated that they had very strong support groups for emotional help. While the BCS group reported a better body image perception, the number of women in the MRM group who reported feelings such as a loss of femininity was by no means large (25% of the women (6)). This is unique and perhaps a reflection of the mentality of the average Indian woman—her overall health and wellbeing is a clear priority over her physical appearance. The difference between groups is, however, consistent with other studies conducted [7, 16, 21]. What was interesting was how almost none of the women reported difficulty in picking out clothes to wear. This was in clear contrast to the findings of Okanli in 2008.

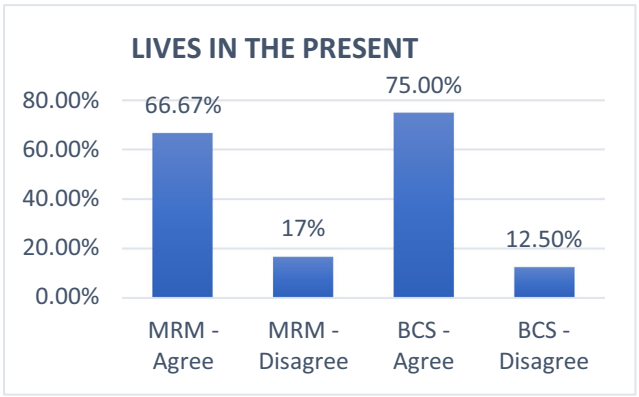

Fig. 3 Current state of mind

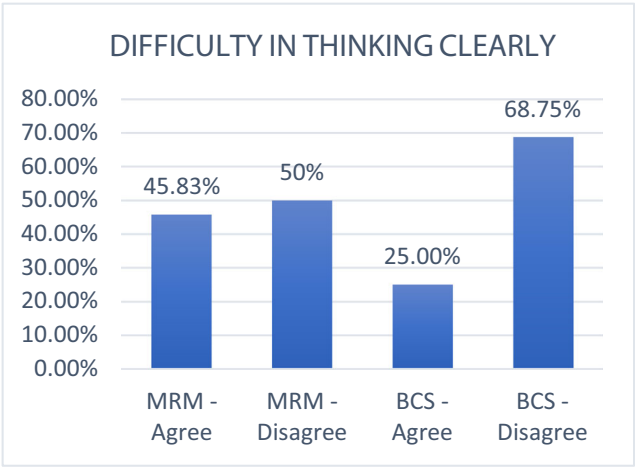

Fig. 4 Ability to think clearly

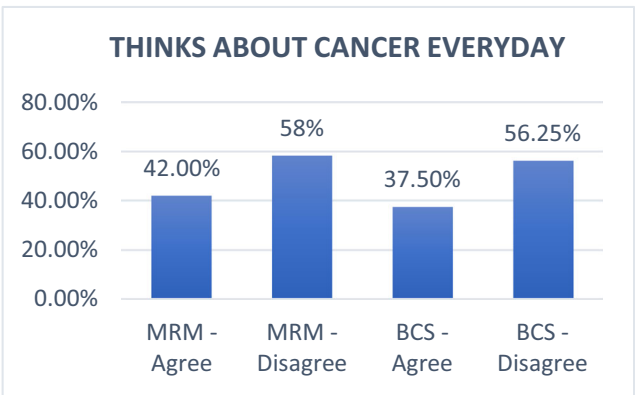

Fig. 5 Response to the question, "Do you think about your cancer everyday?"

Table 3 Response to questions assessing impact of cancer by the 2 groups

Impact of cancer		Surgery		*p* value
		MRM	BCS	
Feel blessed	Yes	11 (46%)	11 (69%)	0.320
	No	12 (50%)	5 (6%)	
Feel incomplete	Yes	10 (42%)	1 (6%)	0.043
	No	9 (38%)	15 (94%)	
Belief of conquering breast cancer	Yes	21 (87%)	13 (81%)	0.186
	No	3 (13%)	2 (13%)	

A large proportion of women declined to comment on their levels of sexual interest and ease of sexual intimacy. This can be drawn up to the intrinsic conservative nature of the Indian society, notwithstanding the fact that a large proportion of women were well into their fifth decade, when this factor is of less importance. Furthermore, we could not estimate any effect on the QOL in terms of obtaining life or health insurance. This is probably because a majority of the women belong to the lower middle to lower socioeconomic strata and paid only with their savings or through loans. The continuing effect of breast cancer on the lives of these women was less prominent in the women who had undergone BCS. While most of the women in both groups had positive, strong sentiments about being survivors of cancer, nearly half of the MRM women still reported a feeling of being incomplete. This is mostly in line with the findings of He et al., who reported a sense of enjoying life more in women who had undergone BCS. What was also telling was the sense of being blessed among BCS patients, which was not reported by a majority of MRM patients. Choosing the appropriate treatment is based primarily on patient preference and QOL [22]. QOL is understood as a multilevel concept, with numerous definitions. What is clear is that the patients' attitudes to their priorities in life and their ability to set and achieve their goals and needs are inseparably related to this. What is also clear is the role of the medical staff to try their best in ensuring the highest possible QOL for their patients. One limitation of this study was the relatively small sample size. Also, the sample comprises a mix of short- and long-term survivors, and if patients adjust over time with the cosmetic result of breast cancer surgery, this mix of survivors may dilute some effects. Despite these limitations, the data reflects the cultural and societal beliefs of Indian women and can help to guide treatment for the best overall outcome for patients.

Conclusions

Overall, we found the QOL of women who had undergone BCS to be greater, though not by much, than that of those who had undergone MRM. Counselling and rehabilitation of patients requiring breast surgery must be given importance in our clinical practice. We recommend that support groups be formed in all individual hospitals treating patients with breast disease.

Compliance with Ethical Standards

Ethical approval was obtained from the Institutional Ethical Committee.

Conflict of Interest The authors declare that they have no conflict of interest.

References

1. GLOBOCAN 2012 Retrieved from - http://globocan.iarc.fr/Pages/fact_sheets_cancer.aspx
2. Murthy NS, Agarwal UK, Chaudhry K, Saxena S (2007) A study on time trends in incidence of breast cancer—Indian scenario. Eur J Cancer Care (Engl) 16:185–186
3. Yeole BB (2008) Trends in cancer incidence in female breast, cervix uteri, corpus uteri, and ovary in India. Asian Pac J Cancer Prev 9:119–122
4. Takiar R, Srivastav A (2008) Time trend in breast and cervix cancer of women in India—(1990-2003). Asian Pac J Cancer Prev 9:777–780
5. Dhillon PK, Yeole BB, Dikshit R, Kurkure AP, Bray F (2011) Trends in breast, ovarian and cervical cancer incidence in Mumbai, India over a 30-year period, 1976-2005: an age-period cohort analysis. Br J Cancer 105:723–730
6. Malvia S, Bagadi SA, Dubey US, Saxena S (2017) Epidemiology of breast cancer in Indian women. Asia-Pac J Clin Oncol 13:289–295. https://doi.org/10.1111/ajco.12661
7. Sun Y, Kim S-W, Heo CY, Kim D, Hwang Y, Yom CK, Kang E (2014) Comparison of quality of life based on surgical technique in patients with breast cancer. Jpn J Clin Oncol 44(1):22–27. https://doi.org/10.1093/jjco/hyt176
8. World Health Organization. Report of WHOQOL Focus Group Work. World Health Organization, 1993; Geneva
9. Arndt V, Stegmaier C, Ziegler H, Brenner H (2008) Quality of life over 5 years in women with breast cancer after breast-conserving therapy versus mastectomy: a population-based study. J Cancer Res Clin Oncol 134:1311–1318
10. Kiebert GM, de Haes JC, van de Velde CJ (1991) The impact of breast-conserving treatment and mastectomy on the quality of life of early-stage breast cancer patients: a review. J Clin Oncol 9:1059–1070
11. Ganz PA, Schag AC, Lee JJ, Polinsky ML, Tan SJ (1992) Breast conservation versus mastectomy. Is there a difference in psychological adjustment or quality of life in the year after surgery? Cancer 69:1729–1738
12. He ZY, Tong Q, Wu SG, Li FY, Lin HX, Guan XX (2012) A comparison of quality of life and satisfaction of women with early-stage breast cancer treated with breast conserving therapy vs. mastectomy in southern China. Support Care Cancer 20:2441–2449. https://doi.org/10.1007/s00520-011-1364-9
13. Waljee JF, Hu ES, Ubel PA, Smith DM, Newman LA, Alderman AK (2008) Effect of esthetic outcome after breast-conserving surgery on psychosocial functioning and quality of life. J Clin Oncol 26:3331–3337
14. de Haes JC, Curran D, Aaronson NK, Fentiman IS (2003) Quality of life in breast cancer patients aged over 70 years, participating in

the EORTC 10850 randomised clinical trial. Eur J Cancer 39:945–951
15. Zanapalioglu Y, Atahan K, Gur S, Cokmez A, Tarcan E (2009) Effect of breast conserving surgery in quality of life in breast cancer patients. J Breast Health 5:152–156
16. Acil H, Cavdar I (2014) Comparison of quality of life of Turkish breast cancer patients undergoing breast conserving surgery or modified radical mastecomy. Asian Pac J Cancer Prev 15(13): 5377–5381. https://doi.org/10.7314/APJCP.2014.15.13.5377
17. Demir SG (2008) Self-management of lymphedema in patients operated on for breast cancer. J Breast Health 4:62–69
18. Ozkan S, Alcalar N (2009) Psychological reactions to surgical treatment in breast cancer. J Breast Health 5:60–64
19. Okanli A, Ekinci M (2008) The comparison of marital adjustment, emotional control level and life satisfaction of the patients with breast cancer and their husbands after and before mastectomy. New Symposium Journal 46:9–14
20. Steinberg MD, Juliano MA, Wise L (1985) Psychological outcome of lumpectomy versus mastectomy in the treatment of breast cancer. Am J Psychiatry 142:34–39
21. Akça M, Ata A, Nayır E, Erdoğdu S, Arıcan A (2014) Impact of surgery type on quality of life in breast cancer patients. The Journal of Breast Health 10(4):222–228. https://doi.org/10.5152/tjbh.2014.1919
22. WHOQOL Group. Study protocol for the World Health Organization (1993) Project to develop a quality of life assessment instrument. Qual Life Res 2(2):153–159