



# A Comparison between Breast-Conserving Surgery and Modified Radical Mastectomy Concerning the Female Sexual Function in Breast Cancer Patients under 50 Years of Age

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## OBJECTIVE

This study aims to compare the female sexual function in breast cancer patients, who have been administered breast-conserving surgery to the patients having undergone modified radical mastectomy.

## METHODS

Forty-four breast-conserving surgery and 27 modified radical mastectomy patients were included in this study. All patients completed chemotherapy and radiation therapy after surgery. Modified radical mastectomy patients, who received breast reconstruction surgery afterwards, patients whom experienced local recurrence or distant organ metastases or patients over 50 years of age were excluded from this study. Each patient's sexual function was evaluated using the Female Sexual Function Index, six months after the completion of their treatment.

## RESULTS

Between breast-conserving surgery and modified radical mastectomy groups, no significant difference of age, height, weight, and body mass index was observed. Although mean sexual desire (4,13 vs 3,97), arousal (3,72 vs 3,16), lubrication (3,76 vs 3,44), orgasm (3,90 vs 3,38), satisfaction (3,07 vs 2,50), pain (4,07 vs 3,82) and total scores (22,65 vs 20,27) were all higher in patients with breast-conserving surgery, only arousal, orgasm and total scores were significantly higher (p: 0,025, p:0,017 and p: 0,017, respectively).

## CONCLUSION

In the treatment of breast cancer, the conservation of patients' sexual function is an important issue. Our study demonstrates higher female sexual function in breast-conserving surgery patients, highlighting the statistical difference of the arousal, orgasm and total scores of the Female Sexual Function Index, comparing with modified radical mastectomy patients.

**Keywords:** Breast cancer; breast-conserving surgery; female sexual function; mastectomy.

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## Introduction

Breast cancer in women is not only the most common type of cancer but also the second most leading cause

of cancer deaths.[1] The diagnosis of cancer alone has the ability to increase levels of psychological stress in patients to as high as 75%, which, in turn, leads to a decrease in quality of life.[2] Sexuality, as a part of the

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quality of life, has been an issue to be particularly considered in breast cancer patients.[3] Losing a part of or whole breast tissue as a secondary sex organ causes a variety of psychological changes and sexual complaints, such as loss of attractiveness, depression, decreased sexual interest, arousal, orgasm and desire during treatment and follow-up process.[4-8]

Curative breast cancer surgery is divided into two types as follows: breast-conserving surgery (BCS) and the modified radical mastectomy (MRM). Both methods may affect the quality of sexual function after surgery. Generally, BCS is considered to be the first choice of treatment, however for many reasons, performing MRM may be required. For example, if the tumor/breast ratio is unsuitable for performing BCS, a contraindication exist for radiation therapy (RT), multicentric mass occurrence, the surgical margin cannot be provided through BCS or due to patient preference..

Over the years, certain strides and progresses in the field of breast cancer research allowed for a longer lifespan in patients, therefore improving their sexual function has grown more consequential. The “Female Sexual Function Index“ (FSFI) is a survey with 19 questions grouped in six subscales, which enables researchers to evaluate patients’ sexual function using desire, arousal, lubrication, orgasm, satisfaction, and pain domains.[9] The Turkish version of the FSFI was reported to be a valid survey among Turkish women. [10] FSFI was also found to be an acceptable, reliable, and valid survey in women with breast cancer.[11] Our study aims to compare the differences in the sexual function of breast cancer patients undergoing BCS and MRM followed by chemotherapy (ChT) and RT.

## Materials and Methods

This prospective study was carried out within our Health Research and Application Center’s Radiation Oncology Clinic, between January 2017 and December 2018, including post-surgery breast cancer patients, who received the same ChT regimens and RT treatments. Among 71 patients, who were in complete remission, had a sexual partner and have agreed to take part in the study, 44 underwent BCS and 27 underwent MRM. All patients included in the survey were subject to sentinel lymph node sampling during the period of surgery. Excluded from this study were the patients conveying the following attributes: breast reconstruction after MRM, patients developing local recurrence or metastases, history of psychiatric illness like schizophrenia or depression, and patients over 50 years of age.

Characteristics of patients, such as age, smoking and employment status, alcohol use, weight, height and body mass index (BMI), were recorded.

The sexual functions of the 71 patients included in this study were assessed using the FSFI six months after completion of ChT or RT treatments. The forms were filled out during patients’ routine control sessions in a private manner and under the careful supervision of their physicians. The results distinguished between BCS and MRM and were evaluated according to the surgery method used to shed light into differences in sexual function.

Our research was approved by the Bulent Ecevit University Faculty of Medicine’s ethics committee and all patients included were thoroughly informed and asked to sign a consent form.

## Statistical Analysis

All statistics were performed using SPSS 19.0 for Windows (SPSS Inc., Chicago, Illinois, USA) software. The numeric variables’ suitability for normal distribution was examined using the Shapiro-Wilk test. The statistics illustrating the numeric variables are the arithmetic mean±standard deviation, results in the verbal form were expressed by numeric values and percentages. Concerning numeric variables, when comparing the two groups, a Student’s t-test was conducted – if a parametric test hypothesis was proposed – to analyze the differences between two averages. If no hypothesis was proposed, the Mann-Whitney U test was used. Verbally expressed variables were analyzed further using the Chi-square and Fisher’s exact Chi-square test, accepting the value of  $p < 0.05$ .

## Results

The median age of participants was 43 (range 27-50). In the BCS group, the median age was 44 (range 31-50), while 41 (range 27-49) was the median age within the MRM group. Forty-four of the patients (62%) underwent BCS and 27 (38%) MRM. Out of 71 patients, all were married, 65 (91.5%) were unemployed, 50 (70.4%) were non-smokers, and none of them practiced alcohol use. Statistically significant differences in median age (44 vs 41), weight (71,5 vs 75,0 kg), height (165 vs 165 cm), and BMI (27,18 vs 27,55 kg/m<sup>2</sup>) were not observed between BCS and MRM groups (Table 1). Drugs like antidepressants and antihormonal therapies used by the patients during our survey are presented in Table 2.

Considering the type of surgery, there were statistically significant differences in some of the FSFI param-

	BCS group	MRM group	p
Median age	44 (31-50)	41 (27-49)	0.07
Employment status			1.000
Employed	4 (9.1%)	2 (7.4%)	
Unemployed	40 (90.9%)	25 (92.6%)	
Smoking			0.795
Never	30 (68.2%)	20 (74.1%)	
Quit	14 (31.8%)	7 (25.9%)	
Median weight	71.5 kg (50-107)	75 kg (55-114)	0.500
Median height	165 cm (153-172)	165 cm (150-175)	0.419
Median BMI	27.18 kg/m <sup>2</sup> (19.72-39.9)	27.55 kg/m <sup>2</sup> (20.44-41.02)	0.629

BCS: Breast-conserving surgery; MRM: Modified radical mastectomy; BMI: Body mass index

Drugs	BCS group	MRM group
Letrozole/Anastrozole	6 (13.6%)	3 (11.1%)
Tamoxifen citrate	16 (36.4%)	9 (33.3%)
Tamoxifen citrate+LHRH agonist	19 (43.2%)	11 (40.8%)
No antihormonal therapy	3 (6.8%)	4 (14.8%)
Antidepressants	3 (6.8%)	2 (7.4%)

BCS: Breast-conserving surgery; MRM: Modified radical mastectomy

Parameter	BCS group	MRM group	p
Sexual desire	4.13±1.19	3.97±0.91	0.400
Arousal	3.72±1.18	3.16±1.20	0.025
Lubrication	3.76±1.12	3.44±1.22	0.337
Orgasm	3.90±1.00	3.38±1.16	0.017
Satisfaction	3.07±1.32	2.50±1.13	0.058
Pain	4.07±1.59	3.82±1.60	0.536
Total	22.65±4.77	20.27±5.12	0.017

BCS: Breast-conserving surgery; MRM: Modified radical mastectomy

eters (Table 3). Mean FSFI scores of arousal (3.72±1.18 vs 3.16±1.20) and orgasm (3.90±1.00 vs 3.38±1.16) were significantly higher in BCS group comparing with MRM group (0.025 and 0.017, respectively). Although mean scores of sexual desire (4.13±1.19 vs 3.97±0.91), lubrication (3.76±1.12 vs 3.44±1.22), satisfaction (3.07±1.32 vs 2.50±1.13) and pain (4.07±1.59 vs 3.82±1.60) were higher in BCS group than in MRM group, the difference was not statistically significant (0.400, 0.337, 0.058, and 0.536, respectively).

Compared with the MRM group, the mean total FSFI score of the BCS group was also significantly higher (22.65±4.77 vs 20.27±5.12, p=0.017).

## Discussion

Diagnosis of cancer is an important factor that affects a patient's psychology and quality of life. Especially, female cancer survivors are affected sexually during or after the cancer treatment process [12,13], which is seen more often in breast cancer patients because of the removal of a part or the whole breast given that the breast is an important organ for female sexuality and femininity. The loss of the breast is frequently correlated with depression, decreased sexual desire and satisfaction, perception of loss of femininity and feeling of inadequate sexuality.[4,14-16]

There are conflicting data about the correlation of type of breast cancer surgery with sexual functions in the literature. Panjari et al. evaluated the sexual function of breast cancer patients after surgery (BCS and MRM) and reported that sexual function was not correlated with the type of surgery.[17] Also, Slowik et al. who examined the sexual satisfaction and quality of life in women with breast cancer, observed that type of surgery did not affect sexual satisfaction, while Harirchi et al. showed FSFI scores of female breast cancer patients significantly deteriorated after surgery compared with pretreatment scores. However, there was no association between surgery type and sexual function.[18,19] Ozturk et al. assessed the relationship between the type of surgical procedure and FSFI scores in women with breast cancer, and pointed out that BCS patients had higher arousal, satisfaction, desire, orgasm, pain and total FSFI scores than MRM patients.[4] In our study, we found statistically significant difference between surgery type (BCS and MRM) and mean scores of arousal and orgasm subscales and mean total FSFI scores; that mean scores of arousal, orgasm and mean total FSFI scores in patients treated with BCS

were higher than MRM patients, which was consistent with the literature.[20,21]

Given that sexual life is more active in younger, we designed the patients' selection criteria as younger than 50 years old. It has been reported in many studies that the ratio of sexual dysfunction, including arousal, orgasm, pain, desire, lubrication and satisfaction, decreases with age [22-24], which does not mean that sexual life of older breast cancer patients may be ignored, but we thought that the effects of surgery type on sexual life could be demonstrated better in patients with a more active sexual life.

BMI is also a factor associated with sexual function. Paiva et al. showed the negative correlation between BMI and sexual function.[25] However, in a recent study, it is mentioned that there is no statistically significant correlation between FSFI scores and BMI. [26] In the present study, the BMI of BCS and MRM patients were similar. Thus, we excluded the potential effects of BMI on sexual function.

Patients with breast cancer experience the most emotional effects of cancer within the first year that also affects sexual life. In this period of time, interventions beginning before surgery and continuing psychotherapeutic approaches regularly are helpful for patients to adopt the disease and effects on sexual life. [27,28] Many of the problems may be sorted out with education, psychotherapy and medical treatments.

### Limitation of the Study

There are several limitations to this study. The sample size of this study could have been larger. This was a little bit due to a small number of MRM patients, as BCS is performed more than MRM. Also, we did not evaluate pre-posttreatment menopause status of the participants which may affect female sexual function.

### Conclusion

Our findings are consistent with the previously published data indicating that sexual function is preserved better and more satisfactory with BCS than MRM in female breast cancer patients. More detailed attention should be offered to women with breast cancer to improve their sexual function and quality of life.

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**Ethics Committee Approval:** The study has been approved by Zonguldak Bulent Ecevit University Faculty of Medicine's ethics committee.

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