


# The Effect on Quality of Life and Body Image of Mastectomy Among Breast Cancer Survivors

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## ABSTRACT

**Objective:** The objective of the present study was to determine effect on quality of life (QoL) and body image level following mastectomy among breast cancer (BC) survivors.

**Materials and Methods:** In this descriptive study was carried out between February 2015 and December 2016 with 57 women with modified radical mastectomy and who in stage II and stage III. Data were collected using the socio-demographic and body cathexis scale, Functional Assessment of Cancer Therapy-Breast (FACT-B) to determine QoL. The study was carried out in home environment in which women lived.

**Results:** The average age of the women was 49.34 years (ranged 28-78 years). Most of the women had undergone mastectomy for more than 6 months.. Most of the women also received adjuvant chemotherapy and radiotherapy. The study showed that the mean FACT-B total score of the women was 68.47 (SD=22.44), and the body image score was 121.61(SD=21.96). According to the results of linear regression analysis, except for the social/family well-being of FACT-B, positive correlations were calculated among the other sub-dimensions of FACT-B and the FACT-B total score and the body image total score respectively ( $\beta=0.822$ ,  $p=0.000$ ). In the multiple linear regression model, there was medium correlation between education and work status with QoL, no correlation between QoL and other features of women. There was important positive relationship between body image with time after mastectomy and chemotherapy and no correlation between body image and other features of women.

**Conclusion:** The results of this study showed that the mastectomy has a negative impact on body image and QoL of women and there was a strong positive correlation between body image and QoL.

**Keywords:** Breast cancer, mastectomy, body image, quality of life, nursing

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## Introduction

Breast cancer (BC) is the most common cancer in worldwide and is the second cancer that leading cause of death in women (1). Also, BC is the most common cancer in Turkish women at an incidence of 43.0 in 100.000 and at a prevalence of 24.9% (2). Fortunately, five-year survival rate reaches 97% for women who diagnosed at an early stage of BC (3).

Mastectomy is an important treatment method in BC. But, mastectomy has a deep and stable negative impact on a woman because, mastectomy as a treatment option, can result in a sense of mutilation and diminished self-worth and may threaten perceptions of femininity (4). Body image of a woman includes the symbolic meaning and importance of her breasts. The more she values her breasts, more devastating effects of having a mastectomy can be. In previous studies, it has been reported that cutting off/amputating one or both breasts was associated with several problems in women such as loss of femininity, fertility, charm and sexuality, fear of recurrence (5, 6).

Particularly debilitating upon body image are the alterations of breasts and hair loss. The removal of the entire breast causes loss of symmetry, an obvious change in physical appearance particularly because they are out of the individual's control can therefore adversely impact upon body image, feelings of femininity, sexuality and sense of self, especially women with a high expectation of physical beauty (7, 8). The loss of hair is often experienced more negatively than the loss of a breast, because of considering hair as an integral in the sense of identity and its loss representing a visible reminder of the cancer, leaving the person to feel like a "cancer patient" (9). Furthermore, skin changes associated with radiotherapy and weight gain, sensory differences like pain and numbness caused by systemic therapies such as hormone or chemotherapy contribute to adverse body image. Disturbance of body image in women with BC has been reported as 15-30% in the literature (10-12). However, changes are not limited to these, but may vary from person to person.

Negative body image can inevitably affect mood of the woman and her interpersonal relationships, lead to social stigmatization, and consequently social isolation (13). Also, body image disturbance following treatment of cancer may be associated with a variety of changes that can have a significant impact on quality of life (QoL) (e.g., psychological distress, anxiety, reduced physical health, sexual dysfunction) (14). Therefore, perception of body image can be seen as a potentially key determinant of QoL. Because of all these reasons, all women have concerns regarding body image and QoL as a result of mastectomy and, the impact continues for many years even after successful treatment (15, 16). Therefore, it is important to recognize range of bodily changes in a woman after mastectomy that can affect her biopsychosocial functioning. But, those women had never discussed these concerns with their healthcare professionals (17).

In Turkey, there have been research studies and compiled publications on sexuality and body image, self-esteem and spouse harmony in women who had mastectomy. However, no research has been done to evaluate the effect of mastectomy on body image and QoL. Women with mastectomy have specific needs and concerns, which can remain for many years after mastectomy. In this context, this study was conducted with the aim of determining the effect of mastectomy on the body image and QoL of women and the relationship between body image and QoL. Evidence obtained from this research may contribute for planning care to improve impaired body image and QoL after mastectomy.

## Materials and Methods

### Study design

A descriptive type design was used in this study. Data were collected from February 2015 to December 2016. Population of the study consisted of 161 women enrolled in archives of the hospital's oncology center in January 2015. However, of all the women in the list that were included by scanning the archives, 30 were enrolled in the archives of two hospitals, 6 women died, 7 women refused to participate in the study, 2 women could not be contacted, 17 women could not be reached by telephone and 42 women were excluded from the study because they did not meet the inclusion criteria. The study was completed with 57 women who had mastectomy. They were selected on the basis of the following inclusion criteria: 1) who were residents in the center of Sivas, 2) who agreed to participate in the study, 3) who were 20 years of age and above, 4) who had undergone modified radical mastectomy 1-12 month ago, and 5) who were in stage II and stage III of BC.

### Instruments

Three tools were used for data collection in this study: 1) A demographic data questionnaire created for this study by researchers obtained information about the women's sociodemographic characteristics; 2) the Functional Assessment of Cancer Therapy-Breast (FACT-B) scale to determine the QoL; 3) the Body Cathexis Scale.

### Questionnaire

The questionnaire was designed as a total of 15 questions related to identification characteristics of women in order to determine their age, marital status, educational status, working status, with whom they live, their income level, age at the time of diagnosis, metastasis status of the disease, treatments received, duration after mastectomy, smoking and alcohol use, duration of their marriage and the stage of the disease.

### Functional Assessment of Cancer Therapy-Breast (FACT-B)

The FACT-B is a BC-specific QoL instrument of the FACIT system developed by Cella et al. (18) and with validity-reliability study, is a survey collection translated into 24 languages. The 37-item Eng-

lish and (simplified) Turkish FACT-B version 4 are divided into five subscales, namely physical (PWB), social/family (SWB), emotional (EWB), functional well-beings (FWB), and the additional concerns for BC. Each item is rated on a 5-point Likert scale. FACT-B was identified as a valid and reliable tool for assessing QoL in BC patients, and the Cronbach  $\alpha$  value was found to be 0.79-0.90 (19). The score of each item were ranged from 0 to 4 and had answer options as "not at all," "a little bit," "somewhat," "quite a bit," and "very much." In this study, the FACT-B Cronbach- $\alpha$  subscales ranged from 0.67 to 0.90, with a total of 0.93.

Online written permission was obtained for using in this study.

### Body cathexis scale

Secord and Jourard developed this scale in 1953 (20). In Turkey, Hovardaoglu made its validity and reliability in 1989. Hovardaoglu (21) found the Cronbach alpha value as 0.91. It is a scale that determines one's satisfaction of the body part or function of the body. The Turkish version of this scale is a five-point Likert-type measuring instrument consisting of 40 items. The scale scores ranges from 1 = I like it very much to 5 = I don't like it all. Accordingly, points can be taken range from 40 to 200. The cut-off score for the scale is 135 and those below 135 are defined as a group with low body image. In this study, Cronbach- $\alpha$  was found as 0.88.

### Data collection

In the study, women who had mastectomy were identified among those with BC on the patient list determined by screening institutional archives. Telephone numbers and home addresses of the women on the list who met the research criteria were retrieved and telephoned. The purpose of the research was announced on the phone, and an appointment was made for the women who agreed to participate in the study. At the appointment time, questionnaires were performed to them in their homes. The data collection forms were filled out by the researchers during face to face interviews with the women. Each interview took about 20-25 minutes.

### Ethical Considerations

Prior to data collection, approval was obtained from the Ethics Committee of Cumhuriyet University (2015-12/18) and from the management of the institutions where the study would be conducted. All women were informed of the study's purpose and the methods that would be used; written permission was obtained from all women and the forms were performed to those who agreed to participate in the study.

### Statistical analysis

Statistical analyses of the data were conducted using the Statistical Package for the Social Sciences (SPSS) for Windows, version 22.0 (SPSS Inc.; Chicago, IL, USA), and descriptive tests were used for demographic data, average was used for the calculation of scale scores, and Pearson Product Moment, Linear regression and multiple regression analysis, Mann-Whitney U test and Kruskal Wallis-H test were used to compare scale score averages with some variables. Significance level was accepted as  $p < 0.05$ .

### Limitations of the study

There are a number of limitations in the current research that need to be consider. Firstly, data were only collected via self-report measures of the women, and secondly sample size of the women only who had undergone mastectomy was small because most of the patients prefer to go to the hospitals in the big cities like Kayseri and Ankara near the province of Sivas/Turkey.

**Table 1.** Characteristics of women (n=57)

Characteristics		n	%
Age	45<	21	36.8
	45≥	36	63.2
Marital status	Married	48	84.2
	Single	9	15.8
Education status	Illiterate	7	12.3
	Primary education	36	63.2
	High school	10	17.5
	University	4	7.0
Income rate	Lower	6	10.5
	Medium	51	89.5
Chemotherapy	Yes	54	94.7
	No	3	5.3
Radiotherapy	Yes	38	66.7
	No	19	33.3
Time since mastectomy	1-6 month	9	15.8
	6-12 month	48	84.2
Duration of marriage	1-10 years	3	6.4
	11-20 years	14	29.8
	21≥	30	63.8

**Table 2.** Quality of life and body image of women

QoL sub-dimensions	Scale Min-Max	Mean±SD	Women Min-Max
Physical well-being	0-28	11.95±6.50	(0-28)
Functional well-being	0-28	16.47±6.02	(6-28)
Emotional well-being	0-24	9.26±5.00	(2-21)
Social/family well-being	0-28	19.84±4.66	(8-27)
Additional concerns	0-40	10.95±6.13	(2-30)
<b>Total QoL</b>	<b>0-148</b>	<b>68.47±22.44</b>	<b>(28-117)</b>
<b>Total body image</b>	<b>40-200</b>	<b>121.61±21.96</b>	<b>(72-168)</b>

QoL: Quality of life; SD: standard deviation

## Results

The characterization of the studied population was shown in Table 1. The average age of the women was 49.34, 63.2% were over 45 years old, 84.2% were married, 63.2% had primary education, 94.7% had chemotherapy, 66.7% had radiotherapy, 84.2% had undergone modified radical mastectomy 6-12 month ago, 59.6% had surgery once.

As shown in Table 2, it was found out that the FACT-B physical well-being average was 11.95 (SD=6.50), the functional well-being score average was 16.47 (SD=6.02), the emotional well-being score average was 9.26 (SD=5.00), the social/family well-being score average was 19.84 (SD=4.66), the additional concerns score average was 10.95 (SD=6.13), FACT-B total score average was 68.47 (SD=22.44), and body image total score average was 121.61 (SD=21.96).

According to the results of the linear regression analysis, it was revealed that there was a highly significant relationship among FACT-B physical well-being, functional well-being, emotional well-being, additional concerns sub-scales, total FACT-B and body image, and there was not a significant relationship between social/family well-being subscales and body image (Table 3).

Multiple linear regression results were given in Table 4. As seen in the table, multiple linear regression analysis showed that, the relationship between FACT-B and age of the patients, income rate, time after mastectomy, duration of marriage, variables of chemotherapy and radiotherapy status were not significant, and there was a moderate level relationship between education level, working status and FACT-B. As a result of multilinear regression carried out between body image mean score and variables of patients, there was no significant relationship between patients' variables time after surgery and chemotherapy (Table 4).

## Discussion and Conclusion

Present study was carried out to determine the effect of mastectomy on body image and QoL in women with BC, their body image was found at moderate level. It has been reported that mastectomy has negative effects on body image and QoL compared to other treatment types. A previous study on the body image level of women after mastectomy showed that 44.4% of women had a moderate level of body image (22). This outcome of prior study was consistent with the present study. The other studies showed lower body image in women who had mastectomy (11, 23-25). In study conducted by Engel et al. (26) also showed that, women with mastectomy have been found to have lower body image scores (they felt less attractive, did not like their appearance, did not feel whole, were unhappy with their breast and scar), even 2 years after cancer diagnosis. Similar findings were obtained by Duggal et al. (27) in a sample of BC women who were scheduled for mastectomy, depicting that fear of negative body image. Wilmoth (28) two identified components were related to body image after mastectomy. The first component involved changed appearance that resulted from mastectomy, removal of the entire breast or alteration in appearance of the breast, and influenced both nude and clothed body. The second component involved women's perception that their womanhood was threatened by the cancer experience and making them feel less as a woman. These results suggest that both the QoL and the body image of women after mastectomy were negatively affected at important levels. In a study, found that low body image, attractiveness, and femininity positively correlated with depression and negatively with overall QoL (29). In another study, also found that, body image in BC survivors was associated with the types of surgery and radiotherapy, mental distress, reduced health, and impaired QoL (8).

Quality of life in patients with BC is an important outcome. The results of this study showed that the QoL of women was very low. This finding was consistent with emerging evidence from other studies. For examples, a study reported by Rabin et al. (30) found that, lowest QoL score in physical and psychological domains for women who had undergone

**Table 3.** Linear regression analysis between body image and quality of life

QoL sub-dimensions	Independent variable	B	SE	$\beta$	t	p	F	Model (p)
Physical well-being	Invariant	13.917	3.428		4.060	<b>0.000</b>	58.767	0.000
	Body image	0.213	0.028	<b>0.719</b>	7.666	<b>0.000</b>		
Functional well-being	Invariant	10.573	2.667		3.964	<b>0.000</b>	106.110	0.000
	Body image	0.222	.022	<b>0.812</b>	10.301	<b>0.000</b>		
Emotional well-being	Invariant	11.675	2.484		4.700	<b>0.000</b>	73.320	0.000
	Body image	0.172	.020	<b>0.756</b>	8.563	<b>0.000</b>		
Social/family well-being	Invariant	14.207	3.449		4.119	<b>0.000</b>	2.756	0.103
	Body image	0.046	.028	0.218	1.660	0.103		
Additional concerns	Invariant	11.688	3.469		3.369	<b>0.001</b>	43.937	0.000
	Body image	0.186	0.028	<b>0.666</b>	6.629	<b>0.000</b>		
Total QoL	Invariant	33.647	9.701		3.468	<b>0.001</b>	114.356	0.000
	Body image	0.840	0.079	<b>0.822</b>	10.694	<b>0.000</b>		

QoL: Quality of life

**Table 4.** Multiple linear regression analysis between QoL and body image with some features of women

Independent variable	B	SE	$\beta$	t	p	B	SE	$\beta$	t	p
Invariant	11.205	49.217		0.228	0.821	67.701	49.949		1.355	0.183
Age	0.120	0.537	0.048	0.224	0.824	-4.446	9.577	-0.103	-.464	0.645
Education status	9.990	4.543	0.325	<b>2.199</b>	<b>0.034</b>	2.262	4.586	0.080	.493	0.625
Working status	-23.864	10.139	-0.303	<b>-2.354</b>	<b>0.022</b>	-14.157	10.750	-0.184	-1.317	0.194
Income rate	13.566	12.665	0.164	1.071	0.291	10.354	13.066	0.137	0.792	0.433
Time after mastectomy	11.681	10.889	0.180	1.073	0.290	13.093	10.890	0.221	1.202	0.237
Duration of marriage	-4.162	7.653	-0.110	-.544	0.590	-0.298	7.382	-0.009	-0.040	0.968
Chemotherapy	-4.128	20.158	-0.036	-.205	0.839	24.423	19.456	0.234	1.255	0.217
Radiotherapy	9.690	7.525	0.196	1.288	0.206	-0.698	7.527	-0.015	-0.093	0.927
R*	0.501a					0.322a				
F	1.594					0.548				
P	0.159					0.813				

R\*correlation  
 Dependent variable: FACT-B  
 QoL: Quality of life

mastectomy. Mastectomy, which caused greater disfigurement than other forms of surgery, including lumpectomy, would lead to a poorer body image and a deterioration in their QoL (31). In the present study, the women had a mean score for general physical well-being score of QoL which it was very low. Similarly, in a previous study general physical well-being score found out very low with using FACT scale (32). In the present study, emotional well-being and additional concerns scored of women was found worse, however social/family well-being score was best. In a study conducted to determine the QoL of women with BC, the social well-being dimension of the women's QoL was the highest and the emotional function dimension was the lowest (33). It has

been suggested that cancer and loss of breast had a negative effect on emotional well-being of woman. These findings might be explained by negative feelings such as the fear of disability due to loss of breast. Also, it is important in Turkish society that persons with an illness who have planned surgery receive visits from family and friends. This may be interpreted as the reason for best result of social/family well-being score.

In present study, according to linear regression analysis between body image and QoL, it was seen that important relationship between all dimensions of QoL and body image was significant, except social/family well-being

( $p < 0.05$ ). Bagheri and Mazaheri (13), also showed that there was a significantly direct relationship between the QoL and the body image in women who had unilateral mastectomy. Gardikiotis et al. (34) also, found that the QoL of mastectomized women was influenced by the level of satisfaction with body image.

In current study, according to multiple linear regression analysis there was a positive and moderate level significant relationship between QoL and higher education level and this relationship was statistically significant ( $p < 0.05$ ). Research conducted by Zhang et al. (35) yielded similar results to this study, in which education level was identified as a significant demographic covariate in the multiple regression model, in women with a college diploma compared to women with lower levels of education. It can be said that education encourages searching and learning the treatment of the diseases and strengthens to deal with it.

In this study there was a significantly negative relationship between QoL and working status. But, there was no correlation between other features and QoL ( $p > 0.05$ ). The findings of this study were in keeping with the literature. For instance, Ganesh et al. (36) found that women who were employed had better QoL than women who were unemployed. So, work can be interpreted as an important effect for people to meet their needs and therefore because meeting their needs without difficulty will make them feel better, it increases their QoL.

The findings of this study showed that there was slightly significant correlation between body image and time after mastectomy and chemotherapy, but there was no statistical significance. There was no correlation with other features of women and body image ( $p > 0.05$ ). In one study, the body image of the women, at least one of whose breasts was taken and who received chemotherapy, was found to be lower than healthy women (37).

In conclusion, in BC, different treatments may be applied, generally a combination of mastectomy, radiotherapy, chemotherapy, endocrine therapy and/or targeted therapy. The goal of these treatments is reduction in mortality. However, BC and its treatments are causing many psychological, physical, and social side effects, not only early but also late. Thus, in this study it was determined that the body image and QoL of women who had mastectomy were negatively affected, and there was an important correlation between their body image and QoL. According to the results of the study, it can be suggested that the body image and QoL of women who had mastectomy be assessed regularly, and there should be planning interventions to improve their body image and quality of life of healthcare professionals. The study was recommended to be done with larger groups and would need further investigation.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the Ethics Committee of Cumhuriyet University (2015-12/18).

**Informed Consent:** Written informed consent was obtained from patients who participated in this study.

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