



# The Effects of the Training Program and Counseling Program Given to Women Who Underwent a Mastectomy and Spouses

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## Abstract

Following breast cancer treatment, many families are negatively affected following the treatment for breast cancer of their women members. This study focused on assessing the effects of the training program and counseling program given to women who underwent a mastectomy and their spouses. Sixty women and 60 spouses were recruited for this study. The women in the experimental group and their spouses were provided with a four-session training program, once a week. Following this training, a 3-month follow-up and counseling were given and an assessment made. There was significant difference between average post-test scores of spouses in the experimental and control groups, in terms of problem solving ( $p = .003$ ), communication ( $p = .033$ ), and roles ( $p = .000$ ) dimensions of family assessment device (FAD). Noting that women in the experimental and control groups demonstrated significant differences among average post-test scores in terms of role emotional ( $p = .045$ ) and mental health ( $p = .017$ ) dimensions of Quality of Life Scale (SF-36), a significant difference existed among average post-test scores of spouses in the experimental and control groups in terms of general health ( $p = .017$ ), role physical ( $p = .011$ ), role emotional ( $p = .003$ ), and mental health ( $p = .005$ ) dimensions of Quality of Life Scale. These results indicated that training and counseling program provided to this population produced positive effects upon family functioning and quality of life.

**Keywords** Family functioning · Training · Nursing · Breast cancer · Health promotion model · Quality of life

## Introduction

The recent increased rate of survival of breast cancer patients is thought to be due to early diagnosis or screening mammography, or to improved treatment protocols [1].

Following breast cancer treatment, patients and family members who actively participated in the care process may have experienced domestic problems due to the side effects resulting from the treatment and anxiety about recurrence risk. Individuals' and their families' strength to cope with a serious disease like cancer is directly proportional to a healthy family functioning [2, 3]. Family members who participate in healthy family functioning are able to care for each other sincerely,

provide appropriate emotional reactions through their behavior, have a fair distribution of roles, solve existing problems within the family, and develop a constructive and mutual communication that covers all these issues [4].

In order to accept breast cancer treatments as being successful, the target is to improve and maintain the quality of life in addition to treatment success [5]. Therefore, it is crucial to focus on improving family functioning and quality of life through health services. One of the most effective ways to improve family functioning and quality of life is to provide training concerning such subjects as diet, exercise, methods to cope with stress, problem-solving skills, communication, and mental health well being [6].

One of the basic roles of nurses, who are important members of a health team, is to provide training that will protect and improve individuals' and their families' health, heal them if they are sick, and help them adapt to new situations and adopt positive health behaviors [7]. Nurses, who have a role to provide training, require a model that will guide them during each phase—from determining educational needs of individuals and family to assessing training outputs.

Excellent health promotion models emphasize healthy life style behaviors so that individuals themselves can improve

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their health and increase the control over their own health [8]. Therefore, one of the most suitable models that can be used by women and spouses so that each can have the opportunity to acquire effective positive health behaviors that will improve their family functioning and quality of life after breast cancer treatment.

This study aimed at assessing the effect of training and counseling program designed according to a health promotion model and provided to women who received mastectomy and their spouses, at home, upon family functioning and quality of life.

## Methods

### Study Type

The study was carried out between September 2013 and January 2016, by using an experimental model with pre-test and post-test design and control group in order to discover the effect of training and counseling program structured, according to a health promotion model, and provided to women who were monitored, underwent a mastectomy, and completed chemotherapy and/or radiotherapy treatments at an oncology polyclinic in a training and research hospital, plus their spouses at home upon family functioning and quality of life.

### Study Population and Sample

The population of the study was composed of 94 women who had a mastectomy and were registered at the polyclinic and their spouses. In the study, no sampling occurred and 63 women who met the inclusion criteria and accepted to join the study, with their spouses, were recruited for the study. The participating women and their spouses were randomly sorted into two groups. A random number table was used for randomization and as a result, 31 couples made up the experimental group, while 32 couples made up the control group. However, since one of the spouses in the experimental group did not want to continue the training program, one of the spouses in the control group did not want to continue the study, and one of the spouses had to leave the city due to business reasons, they were dropped from the study. As a result, the study was completed with 120 participants, with 30 couples assigned to the experimental group and 30 couples assigned to the control group.

Women who completed the chemotherapy and/or radiotherapy treatments after breast cancer, who had no metastasis, were able to communicate orally, were aged  $\geq 18$  years, were married, were informed of the cancer diagnosis, and had no psychiatric history were included in the study. Spouses who were able to communicate orally, were aged  $\geq 18$  years, were

informed of the cancer diagnosis of their wives, and had no psychiatric history were included in the study.

### Data Collection Methods

Study data were collected by the researcher through face-to-face interview technique during home visits to women and their spouses. During the data collection in the pre-test phase, descriptive form of women and spouses including control variables such as age, education, number of children, stage of cancer diagnosis, duration since diagnosis, completed treatment, and post-breast cancer education were applied to both the women and their spouses in the experimental and control groups. The Family Assessment Device and the SF-36 Quality of Life Scale are dependent variable which were applied in the experimental and control groups at the same time. After collection of the pre-test data, a training and counseling program was given to the women and their spouses in the experimental group while women and spouses in the control group received no intervention. Upon completion of the training and counseling program, Family Assessment Device and SF-36 Quality of Life Scale were administered to the women and their spouses in the experimental and control groups in order to gather post-test data. Training program designed according to health promotion model is the independent variable of the study.

### Instruments

In order to assess family functioning of women who had completed breast cancer treatments and their spouses, Family Assessment Device was employed. This device is consisted of seven sub-dimensions: problem solving, communication, roles, effective responsiveness, effective involvement, behavior control, and general functioning. Validity study for English language was performed by Epstein and Bishop in 1983 [9]. Validity and reliability tests for Turkish language were carried out by Bulut in 1990 [4].

In order to assess quality of life, SF-36 Quality of Life was used. This device is composed of eight sub-dimensions: physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health. The SF-36 short form was developed by Rand Corporation in 1992 in order to evaluate quality of life and has been in use since then [10]. Turkish adaptation, validity, and reliability tests were performed by Pınar in 1995 [11].

### Nursing Intervention: Training and Counseling Program

Nursing interventions that were performed at home for those women who completed breast cancer treatments and spouses consisted of training and counseling program (follow-up home visits and phone calls) in order to improve family

functioning and to enhance quality of life. Home visits of the training program were undertaken in four sessions, once a week, and these sessions lasted nearly 50–60 min. One month later following training program, one phone call and one home visit were carried out thus providing a 3-month counseling procedure.

A guidebook named “Healthy Life after Breast Cancer,” which was structured according to health promotion model, was distributed to the women in the experimental group after pre-test data were collected. The training program included regular physical activities/exercises, healthy diet, effective communication, methods to cope with stress, and problem-solving skills.

### Statistical Analysis

The data obtained in this study were analyzed using SPSS (Statistical Package for Social Sciences for Windows 22.0) program. In order to compare mean scores and intergroup differences of family functioning of the women and their

spouses in the experimental and control groups, Mann-Whitney U test was employed. In order to compare intergroup average pre-test and post-test scores of FAD, Wilcoxon paired *t* test was used.

However, in order to compare intergroup quality of life score of the women and their spouses in the experimental and control groups, Mann-Whitney U test was used while in order to compare intra-group average pre-test and post-test scores of quality of life scale, Wilcoxon paired *t* test was used. Results were considered significant at  $p < 0.05$  for all analyses.

## Results

### Family Functioning of the Women in the Experimental and Control Groups

In Tables 1 and 2, women in the experimental and control groups were assessed according to family functioning. In

**Table 1** Comparison of descriptive characteristics of women in the experimental and control groups

Women	Experimental group ( <i>n</i> = 30)		Control group ( <i>n</i> = 30)		Test and <i>p</i> values	
	S	%	S	%		
Age	30–49 years	10	33.3	13	43.3	$\chi^2 = 0.636$ $p = 0.728$
	50–59 years	14	46.7	12	40.0	
	60+ years	6	20.0	5	16.7	
Education	Literate	8	26.7	3	10.0	$\chi^2 = 3.196$ $p = 0.202$
	Primary school degree	18	60.0	20	66.7	
	High school degree	4	13.3	7	23.3	
Number of children	1	2	6.7	2	6.7	$\chi^2 = 0.417$ $p = 0.937$
	2	11	36.7	13	43.3	
	3	9	29.9	7	23.3	
	≤ 4	8	26.7	8	26.7	
Stage at the time of diagnosis	Stage I	7	23.3	5	16.7	$\chi^2 = 1.111$ $p = 0.574$
	Stage II	16	53.4	20	66.7	
	Stage III	7	23.3	5	16.7	
Time since diagnosis	0–4 years	19	63.3	20	66.7	$\chi^2 = 0.073$ $p = 0.787$
	5+ years	11	36.7	10	33.3	
Completed treatment	Only operation	3	10.0	2	6.7	$\chi^2 = 1.418$ $p = 0.701$
	Operation +CT	4	13.3	7	23.3	
	Operation +RT	6	20.0	4	13.3	
	Operation +CT + RT	17	56.7	17	56.7	
Receiving education after breast cancer	Yes	0	0.0	2	6.7	$\chi^2 = 2.069$ $p = 0.246$
	No	30	100.0	28	93.3	
Spouses	Experimental		Control		P	
	<i>n</i>	%	<i>n</i>	%		
Age	30–49 years	7	23.3	7	23.3	$\chi^2 = 0.783$ $p = 0.676$
	50–59 years	10	33.3	13	43.3	
	60+ years	13	43.3	10	33.3	
Education	Primary school degree	18	60.0	16	53.3	$\chi^2 = 0.271$ $p = 0.602$
	High school degree	12	40.0	14	46.7	

**Table 2** Inter-group and intra-group comparisons of women in the experimental and control groups according to average pre-test and post-test scores of FAD sub-dimensions

FAD Scale	Experimental group (S = 30)		Control group (S = 30)		Inter-group comparison pre-test-post-test	
	X ± SD	Intra-group comparison Pre-test-post-test	X ± SD	Intra-group comparison Pre-test-post-test	U	p
Problem solving	Pre-test	1.42 ± 0.40 Z = -2.291	1.34 ± 0.36 Z = -0.264		394.00	0.393
	Post-test	1.28 ± 0.29 p = 0.022	1.34 ± 0.34 p = 0.792		413.50	0.578
Communication	Pre-test	1.70 ± 0.45 Z = -3.941	1.59 ± 0.44 Z = -1.418		386.00	0.342
	Post-test	1.46 ± 0.38 p = 0.000	1.54 ± 0.43 p = 0.156		413.50	0.587
Roles	Pre-test	1.98 ± 0.42 Z = -1.991	2.05 ± 0.38 Z = -1.323		389.00	0.365
	Post-test	1.90 ± 0.35 p = 0.047	2.04 ± 0.42 p = 0.186		355.50	0.160
Affective responsiveness	Pre-test	1.96 ± 0.60 Z = -3.246	1.72 ± 0.56 Z = -1.147		337.00	0.092
	Post-test	1.66 ± 0.49 p = 0.001	1.68 ± 0.53 p = 0.251		447.00	0.964
Affective involvement	Pre-test	2.44 ± 0.39 Z = -2.144	2.37 ± 0.35 Z = -0.225		385.50	0.336
	Post-test	2.30 ± 0.25 p = 0.032	2.36 ± 0.34 p = 0.822		395.00	0.408
Behavior control	Pre-test	2.26 ± 0.40 Z = -3.126	2.26 ± 0.41 Z = -0.956		441.00	0.894
	Post-test	2.13 ± 0.34 p = 0.002	2.23 ± 0.42 p = 0.339		369.00	0.229
General functioning	Pre-test	1.66 ± 0.43 Z = -4.023	1.58 ± 0.51 Z = -0.070		380.00	0.299
	Post-test	1.43 ± 0.41 p = 0.000	1.59 ± 0.48 p = 0.944		352.50	0.148

terms of intergroup comparisons of the women in the experimental and control groups, identification showed that average pre-test scores of all FAD sub-dimensions of the women in the experimental group decreased after training/counseling program and the difference between pre-test and post-test was found statistically to be significant ( $p < 0.05$ ).

### Family Functioning of the Spouses in the Experimental and Control Groups

In Table 3, the spouses in the experimental and control groups were assessed in terms of family functioning. As far as inter-group comparisons of the spouses in the experimental and

**Table 3** Inter-group and intra-group comparisons of spouses in the experimental and control groups according to average pre-test and post-test scores of FAD sub-dimensions

FAD Scale	Experimental group (S = 30)		Control group (S = 30)		Inter-group comparison Pre-test-post-test	
	X ± SD	Intra-group comparison Pre-test-post-test	X ± SD	Intra-group comparison Pre-test-post-test	U	p
Problem solving	Pre-test	1.52 ± 0.44 Z = -3.952	1.41 ± 0.33 Z = -1.081		401.00	0.463
	Post-test	1.18 ± 0.23 p = 0.000	1.39 ± 0.29 p = 0.279		255.50	0.003
Communication	Pre-test	1.71 ± 0.48 Z = -4.214	1.60 ± 0.44 Z = -0.850		382.00	0.313
	Post-test	1.35 ± 0.27 p = 0.000	1.58 ± 0.42 p = 0.395		307.00	0.033
Roles	Pre-test	1.89 ± 0.39 Z = -4.343	1.98 ± 0.33 Z = -0.791		392.00	0.389
	Post-test	1.62 ± 0.31 p = 0.000	1.96 ± 0.31 p = 0.429		195.50	0.000
Affective responsiveness	Pre-test	1.94 ± 0.60 Z = -3.790	1.84 ± 0.59 Z = -0.368		406.00	0.514
	Post-test	1.7 ± 0.49 p = 0.000	1.85 ± 0.58 p = 0.713		359.00	0.176
Affective involvement	Pre-test	2.32 ± 0.43 Z = -2.939	2.33 ± 0.47 Z = -1.387		446.50	0.958
	Post-test	2.19 ± 0.35 p = 0.003	2.31 ± 0.45 p = 0.165		388.00	0.355
Behavior control	Pre-test	2.14 ± 0.32 Z = -3.835	2.00 ± 0.34 Z = -1.613		337.50	0.094
	Post-test	1.89 ± 0.25 p = 0.000	1.98 ± 0.33 p = 0.107		380.50	0.298
General Functioning	Pre-test	1.68 ± 0.50 Z = -4.496	1.53 ± 0.42 Z = -0.342		378.50	0.289
	Post-test	1.34 ± 0.32 p = 0.000	1.52 ± 0.42 p = 0.733		335.50	0.089

control groups were concerned, it was ascertained that average pre-test scores of all FAD sub-dimensions of the spouses in the experimental group reduced after training/counseling program and the difference between pre-test and post-test was statistically significant ( $p < 0.05$ ).

When average FAD scores were compared in intergroup comparisons, it was showed that in FAD post-test measurements, the spouses who participated in the training/counseling program had lower scores in problem solving, communication and roles sub-dimensions than those spouses in the control group and the difference between groups was statistically significant ( $p < 0.05$ ).

### Quality of Life of the Women in the Experimental and Control Groups

In Table 4, the women in the experimental and control groups were assessed in terms of quality of life. In terms of intergroup comparisons of the women in the experimental and control groups, it was shown that average pre-test scores of all FAD sub-dimensions of the women in the experimental group increased after training/counseling program and the difference between pre-test and post-test was found statistically to be significant ( $p < 0.05$ ).

When average QoL scores were compared in intergroup comparisons, it was shown that in QoL post-test measurements, the women who participated in the training/counseling program had higher scores in role emotional and mental health sub-dimensions than those women in the control group, and the difference between groups was statistically significant ( $p < 0.05$ ).

### Quality of Life of the Spouses in the Experimental and Control Groups

In Table 5, the spouses in the experimental and control groups were assessed in terms of QoL. According to intergroup comparisons of the spouses in the experimental and control groups, it was found that average pre-test scores of all QoL sub-dimensions of the spouses in the experimental group increased after training/counseling program and the difference between pre-test and post-test scores was statistically significant ( $p < 0.05$ ).

When average QoL scores were compared in intergroup comparisons, it was found that in QoL post-test measurements, the spouses who participated in the training/counseling program demonstrated higher scores in role physical, role emotional, mental health and general health than those spouses in the control group and the difference between groups was statistically significant ( $p < 0.05$ ).

### Discussion

Upon the review in the relevant literature, it was noted that there were studies that evaluated family functioning and quality of life of women and their spouses after breast cancer treatment. There were also studies that proved positive effects of training program that covered physical activities/exercises, diet, and stress management upon quality of life [3, 12, 13]. However, in this study, the training and counseling program included the following subjects of regular physical activity/exercises, healthy diet, effective communication, methods to

**Table 4** Inter-group and intra-group comparisons of women in the experimental and control groups according to average pre-test and post-test scores of QoL sub-dimensions

SF-36 Scale		Experimental group ( <i>S</i> = 30)		Control group ( <i>S</i> = 30)		Inter-group comparison Pre-test-post-test	
		X ± SD	Intra-group comparison Pre-test-post-test	X ± SD	Intra-group comparison Pre-test-post-test	U	<i>p</i>
General Health	Pre-test	66.93 ± 24.66	<i>Z</i> = - 3.575	72.60 ± 28.73	<i>Z</i> = 1.973	357.50	0.169
	Post-test	81.97 ± 20.31	<i>p</i> = 0.000	74.67 ± 27.53	<i>p</i> = 0.049	408.00	0.532
Physical functioning	Pre-test	63.33 ± 28.54	<i>Z</i> = - 3.185	69.17 ± 28.35	<i>Z</i> = - 0.423	386.50	0.346
	Post-test	71.00 ± 24.30	<i>p</i> = 0.001	69.50 ± 27.55	<i>p</i> = 0.672	446.00	0.953
Role physical	Pre-test	35.83 ± 41.36	<i>Z</i> = - 3.653	39.17 ± 40.83	<i>Z</i> = - 2.922	420.00	0.639
	Post-test	75.00 ± 37.14	<i>p</i> = 0.000	63.33 ± 40.86	<i>p</i> = 0.003	385.00	0.298
Role emotional	Pre-test	55.56 ± 44.92	<i>Z</i> = - 2.666	53.33 ± 45.99	<i>Z</i> = - 1.040	440.00	0.874
	Post-test	84.44 ± 34.72	<i>p</i> = 0.008	61.11 ± 47.21	<i>p</i> = 0.298	339.00	0.045
Social functioning	Pre-test	74.17 ± 35.50	<i>Z</i> = - 2.812	83.75 ± 27.88	<i>Z</i> = - 1.615	391.00	0.318
	Post-test	90.00 ± 23.07	<i>p</i> = 0.005	91.67 ± 16.19	<i>p</i> = 0.106	442.50	0.878
Bodily pain	Pre-test	55.27 ± 33.69	<i>Z</i> = - 3.261	68.53 ± 25.62	<i>Z</i> = - 2.402	356.00	0.149
	Post-test	71.80 ± 24.79	<i>p</i> = 0.001	75.13 ± 22.24	<i>p</i> = 0.016	434.00	0.794
Vitality	Pre-test	59.67 ± 25.08	<i>Z</i> = - 3.749	66.83 ± 25.71	<i>Z</i> = - 0.899	370.50	0.237
	Post-test	73.83 ± 16.28	<i>p</i> = 0.000	68.50 ± 20.73	<i>p</i> = 0.368	378.50	0.287
Mental health	Pre-test	66.80 ± 21.14	<i>Z</i> = - 4.159	67.47 ± 23.53	<i>Z</i> = - 2.656	433.00	0.801
	Post-test	83.33 ± 12.78	<i>p</i> = 0.000	70.13 ± 21.37	<i>p</i> = 0.008	289.00	0.017

**Table 5** Inter-group and intra-group comparisons of spouses in the experimental and control groups according to average pre-test and post-test scores of QoL sub-dimensions

SF-36 Scale		Experimental group (S = 30)		Control group (S = 30)		Inter-group comparison Pre-test-post-test	
		X ± SD	Intra-group comparison Pre-test-post-test	X ± SD	Intra-group comparison Pre-test-post-test	U	p
General health	Pre-test	74.60 ± 20.10	Z = - 4.543	83.57 ± 20.68	Z = - 0.271	289.50	0.017
	Post-test	92.97 ± 8.59	p = 0.000	83.80 ± 19.66	p = 0.786	335.50	0.084
Physical functioning	Pre-test	88.67 ± 12.31	Z = - 2.220	88.83 ± 22.96	Z = - 1.134	323.50	0.050
	Post-test	91.33 ± 10.58	p = 0.026	88.00 ± 22.42	p = 0.257	381.50	0.289
Role physical	Pre-test	83.33 ± 33.05	Z = - 2.546	84.17 ± 35.04	Z = - 0.447	427.00	0.646
	Post-test	100.00 ± 0.00	p = 0.011	83.33 ± 35.56	p = 0.655	360.00	0.011
Role emotional	Pre-test	70.00 ± 35.40	Z = - 3.460	78.89 ± 37.63	Z = - 1.134	369.00	0.169
	Post-test	100.00 ± 0.00	p = 0.001	74.44 ± 43.49	p = 0.257	330.00	0.003
Social functioning	Pre-test	81.25 ± 28.76	Z = - 2.706	86.25 ± 24.20	Z = - 2.032	412.00	0.525
	Post-test	94.58 ± 14.56	p = 0.007	90.83 ± 18.84	p = 0.042	393.00	0.228
Bodily pain	Pre-test	73.40 ± 22.70	Z = - 3.304	80.43 ± 18.31	Z = - 0.730	343.00	0.074
	Post-test	82.70 ± 15.18	p = 0.001	78.53 ± 20.53	p = 0.465	413.00	0.482
Vitality	Pre-test	72.33 ± 16.96	Z = - 3.365	77.17 ± 19.81	Z = - 0.120	360.00	0.181
	Post-test	81.83 ± 11.78	p = 0.001	77.00 ± 20.99	p = 0.905	414.50	0.597
Mental health	Pre-test	72.80 ± 15.49	Z = - 4.221	76.00 ± 15.62	Z = - 1.065	398.50	0.445
	Post-test	87.33 ± 9.92	p = 0.000	76.53 ± 15.07	p = 0.287	259.50	0.005

cope with stress, and problem-solving skills and these subjects were structured according to health promotion model. The effect of training and counseling program upon family functioning and quality of life were assessed together. Also, the training program was simultaneously provided to the women and their spouses after breast cancer treatment. In this respect, the current study was different from the others in the literature.

### Family Functioning in Patients

Following breast cancer treatment, most of the patients and their family members experienced health problems (fatigue, bodily pain, sleep disorders, anxiety, etc) and domestic problems (role ambiguity, ineffective communication, difficulty in problem solving, etc.). These problems may lead to some kinds of changes in family life system and affect family functioning negatively [14, 15].

In this study, it was seen that family functioning of the women in the experimental group improved following the training and counseling program. In order to consider family functioning, a healthy FAD score should be lower than 2 [4], and functioning of women in the experimental group was considered to have a healthy family functioning in terms of problem solving, communication, roles, effective responsiveness, and general functioning sub-dimensions. These findings suggest that training and counseling program structured with health promotion model positively influenced the ability to

solve financial and moral problems, to develop an open communication, to have an equal distribution of roles, and to show proper reactions against stimuli among the women in the experimental group. Although there was a positive decrease in family functioning sub-dimensions, consensus of the opinion suggests that the fact that the difference between the experimental and control groups was not significant was due to short time of training process.

Similar to the literature findings [3], the current study discovered that women in the experimental group perceived effective involvement and behavior control unhealthy. Nonetheless, the decreased average post-test scores in these two sub-dimensions pointed out a shift towards a healthy functioning and effectiveness of the training and counseling program. Effective involvement sub-dimension of FAD measures family members’ mutual affection, love, and care, as well as excessive care, interference, and ignorant behavior [4]. Consequently, a worsening in women’s effective involvement sub-dimension may indicate a family member’s excessive care/affection or an uninformed behavior towards women during illness.

Behavior control sub-dimension of FAD describes applying standardization and bringing a discipline to family members’ behavior and their reactions in case of psychological and social threats and dangers [4]. This study indicates that women in the experimental group perceived behavior control sub-dimension unhealthy was due to Turkish family structure.

Traditionally, women are—from childhood—taught to be submissive, self-sacrificing, and altruistic in meeting others' needs, silently and obediently; as a result, an image of a traditional woman who agrees with others' decisions, hides emotions, and avoids conflicts is created [16] and therefore women's behavior control sub-dimension is negatively affected.

### Family Functioning in Husbands

In general, the literature emphasizes that spouses of women with a chronic disease like breast cancer perceive effective involvement and effective responsiveness sub-dimensions of FAD unhealthy [3, 17]. In the current study, it was considered that spouses perceived effective involvement sub-dimension unhealthy too because they took the responsibility and role of sick individuals and changed working conditions, working hours, and habits to spend leisure time, all of which influenced effective involvement sub-dimension. Additionally, consider that a diagnosis of cancer increases closeness among some family members but withdrawal among others.

In this study, pre-test scores of spouses were assessed as unhealthy while post-test scores healthy and therefore the training and counseling program was interpreted as producing awareness among spouses and caused them to have a positive emphatic behavior.

Furthermore, this study identified that there was a significant difference between average post-test scores among spouses in the experimental and control groups in terms of problem solving, communication, and roles sub-dimensions of FAD. These results emphasized that education and counseling program given to spouses enabled them to use problem-focused coping methods; establish an open, direct, and effective communication; and distribute domestic roles clearly and equally.

### Quality of Life in Patients

Long survival expectations following breast cancer treatment supports the concept of quality of life among individuals. The studies conducted state that not only a long disease-free survival period combined with successful treatment but also an improved quality of life are necessary in order to accept breast cancer treatments as successful [18, 19].

Demonstrably, moderate to severe exercises performed weekly and a healthy diet (Mosher et al.) [20], 10-week stress management intervention [21], 8-week health education, and interpersonal counseling that was carried out with phone interviews and video chat and included interpersonal communication and relations, social support subjects [22] were reported to have had a positive influence upon the quality of life. Similar to the relevant literature, the current study identified that quality of life of women in the experimental group

enhanced after education and counseling program. Yet, women in the control group had improvements in general health, role physical and bodily pain sub-dimensions of QoL. This outcome may have resulted from the possibility that after breast cancer diagnosis, these women may have received support and a general training regarding treatment and care from clinical personnel during medical examinations and made some life style changes against a vital disease on their own.

In the experimental study by Kwiatkowski et al. [23] on assessing the effect of a 2-week education program that covered physical activity and diet upon quality of life among women who completed cancer treatments, it was discovered that women in the experimental group presented higher scores in the subscales of physical functioning, role physical, general health, vitality, social functioning, mental health, and physical and mental quality of life as compared to the control group. Morey et al. [24] reported that a 12-month phone counseling delivered regarding diet and exercises created a significant difference in general health and mental health sub-dimensions among women in the intervention group as compared to the control group. Arafa and Hassan [25] pointed out that a 4-week psycho-education program that contained daily walking and physical exercise subjects affected women's physical quality of life (physical functioning, role physical, bodily pain, general health) and mental quality of life (vitality, role emotional, mental health, social functioning) considerably. This study explored an important difference between the average post-test scores of women in the experimental and control groups in terms of role emotional and mental health subscales of QoL. Similar to the literature, this result proved the effect of education and counseling program delivered to women after breast cancer treatment upon their quality of life.

### Husbands' Quality of Life

Studies report that diagnosis, treatment, and survival process of breast cancer affects not only patients/survivors but also their family members, and the most affected members are their spouses who carry out the primary caregiving role [26, 27]. Therefore, cancer is generally recognized as a family disease. The result of the study of Wagner et al. [28] showed that spouses of breast cancer patients had lower quality of life than spouses of healthy individuals.

In a meta-analysis study undertaken by Badr and Krebs [29], interventions provided to both spouses were effective in improving quality of life. The findings of the current study concurred with the literature and detected that quality of life of the spouses in the experimental group increased after education and counseling program.

In the systematical review study in which Li et al. [30] examined effect of interventions given to both cancer patients and their partners, it was argued that these interventions given

to both spouses exerted a positive effect upon women and partners' quality of life. In this study, spouses in the experimental and control groups differed significantly in terms of QoL sub-dimension post-test scores of role physical, role emotional, and mental health and the difference between the experimental and control groups was statistically significant.

The findings indicated positive effects of couple-centered training and counseling programs upon family functioning and quality of life among women who underwent a mastectomy and their spouses. These encouraging results will be a guide in creating effective and extensive policies that will improve family functioning and quality of life first among this population and then society's family functioning and quality of life.

## Conclusion

Breast cancer not only reduces the family functioning and quality of life of the affected woman but also decreases the family functioning and quality of life of their spouses. In order to remove these negatives, education and counseling programs that improve family functioning and quality of life for women and their spouses are carried out as public policy. It is believed that the data obtained in this direction will guide the public policy and the curriculum of the education and counseling program to be prepared; their spouses are carried out as public policy.

The use of the health promotion model in the education and counseling services of the nurses is thought to be beneficial in increasing the quality of education and counseling services in this population.

## Compliance with Ethical Standards

Ethical approval of this study was obtained from Atatürk University Faculty of Nursing Ethics Council. Informed consent was obtained from all individual participants included in the study.

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

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