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Couple's Educational Program Reduces Depression, Anxiety, and Stress in Breast Cancer Patients Undergoing Mastectomy: A Randomized Controlled Clinical Trial

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Quantitative Study

Abstract

Background: Breast cancer is the most common neoplasm in women, significantly leading to depression, anxiety, and stress. This study was conducted to investigate the effect of a couple's educational program on anxiety, depression, and stress in breast cancer patients with mastectomy.

Methods: This randomized, controlled clinical trial was conducted in Isfahan, Iran, in 2017. The study participants included 45 breast cancer patients which were divided into an intervention (n = 21) and a control group (n = 24). The intervention group received 3 educational sessions on dealing with post-mastectomy complications, coping with difficult emotions, and maintaining sexual relationships. Their depression, anxiety, and stress scores were evaluated using the Depression, Anxiety, and Stress Scale (DASS) on the screening session, and then, 12 weeks after the intervention. In the control group, patients were given general education about breast cancer. Data analysis was performed using SPSS software. Repeated measures ANCOVA and Independent t-test were used to compare the quantitative variables between the two groups.

Results: In the intervention group, depression, anxiety, and stress scores significantly decreased after the education ($P < 0.01$). In the control group, there was no significant difference in the depression, anxiety, and stress scores between the screening session and 12 weeks after the intervention ($P < 0.05$).

Conclusion: Specific education on maintaining sexual relationships and coping psychologically following a mastectomy can help decrease depression, anxiety, and stress in breast cancer patients and their partners.

Keywords: Breast neoplasms; Mastectomy; Depression; Anxiety; Psychological stress

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Introduction

Breast cancer is the second most common malignancy globally and the leading cause of death due to cancer amongst women (Akram, Iqbal, Daniyal, & Khan, 2017). Breast cancer is also one of the most common malignancies in Iranian women, and is most prevalent between the ages of 40 and 49 (Akbari et al., 2017; Zarei et al., 2017). Numerous studies have shown that in addition to physical complications, breast cancer patients are also exposed to many psychological pressures, which can cause many psychosocial issues in their own and their family's lives (Jafari, Goudarzian, & Bagheri, 2018). Factors contributing to the deterioration of mental health include pain, physical disability, and anxiety about the future, fear of death, treatment side effects, disturbed body image, and sexual problems (McCall, 2018).

Today, numerous treatments such as lumpectomy, mastectomy, chemotherapy, radiotherapy, and combination therapies are available to patients with breast cancer, all of which have increased survival in these patients (Ribnikar, Ratosa, Perhavec, & Amir, 2017). However, patients with breast cancer face a wide range of psychological problems, which may be due to the disease itself or the consequences of the treatments, including sexual issues (Zainal, Ng, Wong, Andrew, Mohd Taib & Low, 2021). The treatment of cancer, its complications, and the trauma of experiencing the condition can significantly affect various aspects of sexual activity in these patients (Jonsdottir, Jonsdottir, & Klinke, 2018). Studies of women with breast cancer show that 68% to 70% have experienced sexual problems at least once (Keshavarz, Karimi, Golezar, Ozgoli, & Nasiri, 2021; Faghani & Ghaffari, 2016). Mastectomy is one of the main treatments for breast cancer, but it can cause feelings of imperfection, weakness, sadness, extreme anxiety, inappropriate body image, and/or lack of attractiveness. Therefore, it can lead to sexual dysfunction in women, and thereby, cause more psychological disorders such as anxiety and depression (Faghani & Ghaffari, 2016).

Depression after mastectomy in breast cancer patients can have a devastating effect on the quality of life (QOL) of these patients (Abbasi et al., 2018). Various studies have shown that depression and its symptoms can decrease QOL, reduce interaction with treatment, and ultimately reduces the chances of survival through its effects on multiple aspects of health (Juhl, Christensen, Zachariae, & Damsgaard, 2017). Various pharmacological and non-pharmacological strategies have been proposed to improve the mental status of patients and increase their QOL (Lee, Lee, & Chang, 2022). Since mastectomy is considered a threat to appearance, mental health of the patient and her partner, and her sexuality, studies have been conducted on its adverse effects on couples' QOL. The results suggest that a combination of various sexual psychotherapies for couples is an effective alternative to individual and group psychotherapy (Jonsdottir et al., 2018). Many other studies have also emphasized the role of educational and counseling interventions in the reduction of the physical and psychological symptoms of the disease, improvement of sexual relationships, and ultimately improvement of patients' QOL (Gudenkauf & Ehlers, 2018; Zangeneh, Savabi-Esfahani, Taleghani, Sharbafchi, & Salehi, 2022). In general, previous studies have often looked at the impact of the consequences of mastectomy on QOL or examined the effect of other educational and counseling methods on it. In this study, we discussed the effect of couples training sessions to decrease anxiety, depression, and stress score on family and sexual relationships.

Methods

This randomized, controlled clinical trial was conducted in 2017 at Omid Hospital

and the Iranian Cancer Control Center (MACSA) in Isfahan, Iran. The statistical population included women with breast cancer who had undergone mastectomy. This study was based on the Helsinki Declaration on Biomedical Research on Humans and approved by the Ethics Committee of Isfahan University of Medical Sciences. Sampling was performed in a randomized way.

The inclusion criteria were: being a women of 18-65 years of age; having a diagnosis of stage 1, 2, or 3a breast cancer; being in the interval before mastectomy to less than 4 weeks after mastectomy or chemotherapy; having no history of psychotic disorders, depressive disorders, or bipolar disorder according to DSM-V diagnostic criteria; not being on antidepressants and/or anxiolytic drugs at the time of enrollment until 2 weeks before; no participation in individual or group psychotherapy sessions at the time of enrollment until 4 weeks before; no permanent impaired verbal communication; no uncontrolled pain at the time of enrollment; and no serious suicidal thoughts or attempts. The exclusion criteria included unwillingness to continue the study and need for other psychiatric interventions during the study. Patients were given sufficient information about the study conditions, their possible benefits, and harms, how to hold meetings and follow-up visits, the duration of the study, and other necessary details. Informed written consent was obtained from the patients. This study has been approved by the Ethics Committee in Medical Sciences Research of Isfahan University of Medical Sciences.

Measuring tools: The Depression, Anxiety, and Stress Scale (DASS) consists of 3 scales designed to measure negative emotional states in depression, anxiety, and stress. Each of the 3 scales contains 14 items divided into 2-item to 5-item subsets with similar content. The short form of this questionnaire with 21 items includes 7 items in each category, and the scores calculated in each section are calculated by a coefficient of 2. The questions are scored based on a 4-point scale, which shows an increased rate of exposure to the questioned experience in the past week. The depression, anxiety, and stress scores are calculated based on the sum of the scores of the questions of each section. The depression scale ($\alpha = 0.88$), anxiety scale ($\alpha = 0.82$), and stress scale ($\alpha = 0.90$) of the 21-question form of this questionnaire has high internal reliability ($\alpha = 0.93$) (Henry & Crawford, 2005). The 21-question form of this questionnaire was translated into Persian and the Persian version was validated by Sahebi, Asghari, and Salari (2005). They also determined the reliability of the depression scale ($\alpha = 0.77$), anxiety scale ($\alpha = 0.79$), and stress scale ($\alpha = 0.78$) of the Persian version of this questionnaire (Sahebi, Asghari, & Salari, 2005).

Procedure: Psychiatric disorders screening was performed under the supervision of a psychiatrist and according to the DSM-V criteria. For this study, 64 patients were initially selected. The patients were then assessed in terms of the inclusion and exclusion criteria, and 48 people were identified as eligible, who were then divided into intervention (24 people) and control (24 people) groups (Figure 1).

Patients were divided into groups using a table of random numbers and both patients and researchers were blinded to the type of intervention that the participants received. Patients were informed of the study's goals, and informed consent was obtained from them. Moreover, their demographic information and past medical history were obtained and recorded. In the intervention group, couples underwent a training program on post-mastectomy conditions, maintaining sexual relations, and ways to express mutual feelings and maintain intimacy. There were 3 weekly sessions in total, each lasting 1 and a half hours. A psychiatrist performed the sessions.

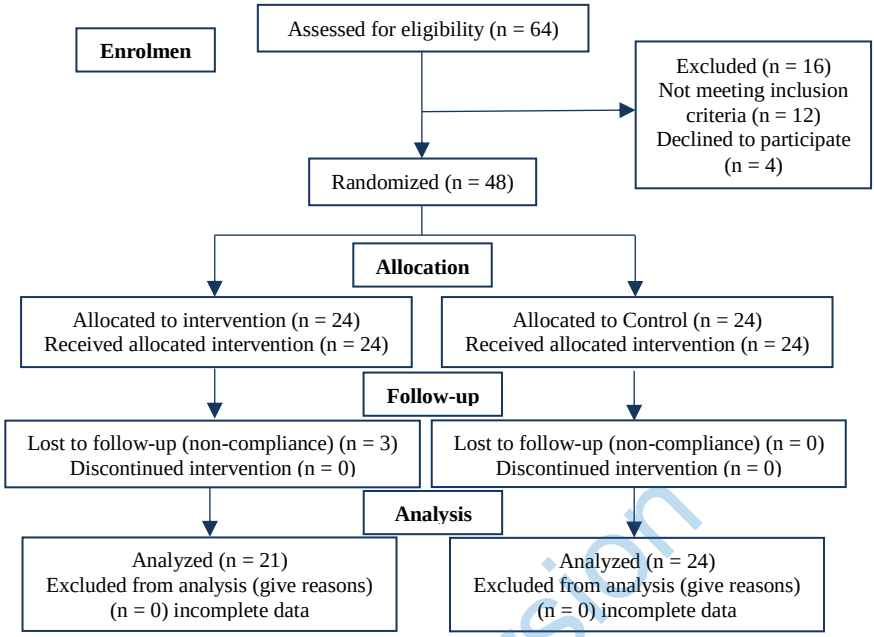

Figure 1. Consort Statement

The content of the sessions included learning about communication, the importance of family support and understanding cancer facts, the effects of cancer on the patient, her partner, and their relationship, recognizing stress symptoms, recognizing and respecting couples' differences in coping with stress, learning relaxation skills, discussing sexual desires and any concerns surrounding these, the effects of cancer on intimacy, discussing the types of support the patients and their partner need and their goals for the future.

In the control group, a one-and-a-half-hour session was held on general cancer education. The anxiety, depression, and stress scores were evaluated at the screening session, and then, at week 12 using the DASS.

Data analysis: Data analysis was performed using SPSS software (version 19; SPSS Inc., Chicago, IL, USA). Quantitative and categorical data were presented as mean ± standard deviation and frequency (percentage), respectively. Basic quantitative and categorical data were compared between the two study groups using the independent samples t-test and chi-square test, respectively. We used paired sample t-test and ANCOVA for the analysis of within and between-group differences. A P-value of less than 0.05 was considered significant.

Ethical considerations: Patients were assured that their information would only be used for research purposes and would remain confidential. This study followed the Declaration of Helsinki on Biomedical Research Involving Human Subjects and was approved by the Ethics Committee of Isfahan University of Medical Sciences (IR.MUI.REC.1395.3.670). There was no interference in providing services to patients.

Results

The study was completed by 21 patients in the intervention group and 24 patients in

the control group (Figure 1). The mean age of the participants was 47.52 ± 99.58 years in the intervention group and 48.04 ± 10.39 years in the control group, which did not show a significant difference between the two groups (P = 0.864). In the intervention group, 6 patients (28.6%), 5 patients (23.8%), and 10 patients (47.6%), and in the control group, 7 patients (29.2%), 4 patients (16.7%), and 13 patients (54.2%) had regular menstruation, had irregular menstruation, and were menopausal, respectively (P = 0.82). Furthermore, there was no significant difference between the two study groups in terms of occupation, number of children, and other underlying diseases (Table 1).

The mean score of depression in the intervention group at the screening session was 18.57 ± 9.38 and on the twelfth week was 6.95 ± 4.92, which shows a significant difference. The mean score of anxiety in the intervention group on the twelfth week was 8.85 ± 3.85, which was significantly lower than that at the screening session (17.14 ± 6.11). Similarly, the mean stress score in the intervention group at the screening session was 21.04 ± 7.63 and at the twelfth week was 11.52 ± 6.03, which shows a significant decrease. However, in the control group, the comparison of the mean score of anxiety, depression, and stress did not show a significant difference between the screening session and the twelfth week. The results show that the mean reduction in anxiety, depression, and stress scores in the intervention group was significantly more than that in the control group (Table 2).

Discussion

Breast cancer survivors are at an increased risk of difficulties in psychological adjustment and their partners are also likely to feel unsupported by the patient and feel down or depressed (Kauffmann, Bitz, Clark, Loscalzo, Kruper, & Vito, 2016; Reese et al., 2022). This study investigated the effect of a couples training program on anxiety, depression, and stress scores in breast cancer patients following mastectomy.

Table 1. Demographic characteristics of patients in the intervention and control groups

Demographic profile	Intervention group (n=21) Mean ± SD	Control group (n=24) Mean ± SD	P-Value*
Age (years)	47.52±9.58	48.04±10.39	0.864
Number of children	2.38±1.28	2.30±1.66	0.866
Education			
Illiterate	3 (14.3)	3 (12.5)	
Primary	8 (38.1)	5 (20.8)	
Diploma	6 (28.6)	10 (41.7)	0.736
Bachelor's	3 (14.3)	5 (20.8)	
Master's	1 (4.8)	1 (4.2)	
Menstruation			
Regular	6 (28.6)	7 (29.2)	
Irregular	5 (23.8)	4 (16.7)	0.827
Menopause	10 (47.6)	13 (54.2)	
Occupation			
Housewife	18 (85.7)	16 (66.7)	0.177
Employee	3 (14.3)	8 (33.3)	
Underlying disease			
Hypertension	3 (14.3)	5 (20.8)	
Renal stone	1 (4.8)	1 (4.2)	0.489
Hypothyroidism	1 (4.8)	4 (16.7)	
Asthma	0 (0)	1 (4.2)	

SD: Standard deviation

*Resulted from independent samples t-test and chi-square for continuous and categorical data, respectively.

Table 2. Comparison of the subscales of the Depression, Anxiety, and Stress Scale between case and control groups at the screening session and on week 12

Subscale		Screening session	12th-week visit	Difference	P-value**
Depression	Intervention	18.57 ± 9.38	6.95 ± 4.92	11.6 ± 17.76	< 0.01
	Control	21.25 ± 8.18	22.4 ± 18.74	-1.10 ± 66.64	0.39
	P-value*	0.31	< 0.01	< 0.01	
Anxiety	Intervention	17.14±6.11	8.85 ± 3.82	8.28 ± 5.48	< 0.01
	Control	15.58±7.17	13.16 ± 7.71	2.41 ± 6.04	0.06
	P-value*	0.41	0.02	0.02	
Stress	Intervention	21.04±7.63	11.52 ± 6.03	9.52 ± 4.72	< 0.01
	Control	21.83±7.22	21.41 ± 7.02	0.41 ± 6.80	0.76
	P-value*	0.72	< 0.01	< 0.01	

*Resulted from ANCOVA; **Resulted from paired sample t-test

The sessions included education on communication skills, cancer facts, the effects of cancer on relationships, stress symptoms and differences in coping, relaxation skills, sexual desires and intimacy, and future life goals. The results show that the mean scores of depression, anxiety, and stress significantly decreased in the intervention group following the educational sessions relative to the control group, who received general cancer education.

Some other studies also tried to show the effect of couple-based interventions on the psychological distress and QOL of cancer patients. Reese et al. (2019) used an intimacy enhancement program in breast cancer patients, which resulted in a reduction in survivors' general feelings of distress including depression and anxiety. Fergus et al. (2022) implemented an online intervention among young couples facing breast cancer. They found modest improvements in positive dyadic coping and the treatment group demonstrated a significant decrease in anxiety, but not depression from baseline to follow-up (Fergus et al., 2022). However, in our study, the mean score of both depression and anxiety significantly decreased.

In a systematic review, it was concluded that interventions that combined lecture-based, practical skills training, discussion, and counseling, effectively increased QOL and sexual functioning, and improved both depression and anxiety in women with gynecological cancer (Ma'rifah, Afiyanti, Huda, Chipojola, Putri, & Nasution, 2022). This result shows the importance of psychoeducation in cancers that affect the sexual life of patients. Nevertheless, another systematic review concluded that the effects on the sexual self-concept, sexual activity, and mental health of couples were not notable (Li, Chan, Chow, Xiao, & Choi, 2020).

In a study conducted by Faghani and Ghaffari (2016), breast cancer patients who underwent mastectomy were studied in 2 intervention and control groups. In the intervention group, patients received 90 minutes of sexual counseling and training in 4 sessions. The results revealed that the quality of sexual life and sexual activity index of patients improved significantly after receiving counseling and taking part in the training sessions. One of the differences between our and their study is the type of measures used to assess the effectiveness of the education sessions. In our study, anxiety, depression, and stress scores were examined, while in their study, sexual life quality and the sexual activity index were assessed using different questionnaires. Moreover, the present study used education to prevent the exacerbation or occurrence of symptoms, which may explain the improvement in sexual life and sexual function of patients after receiving intervention to reduce depression, stress, and anxiety.

Another study examined the effect of training sessions on the QOL of cancer

patients after undergoing mastectomy (Sharif, Abshorshori, Tahmasebi, Hazrati, Zare, & Masoumi, 2010). In this study, 4 training sessions were held on relaxation methods, post-mastectomy complications, and the concept of cancer and its treatment methods for subjects in the intervention group. Sharbafchi, Rajabi, Sheshboluki, Ghaderi, Fayazi, and Mousavi (2019) found that educational sessions on reciprocal emotions, sexual relations, and post-mastectomy situations, increased QOL after 12 weeks of intervention.

Amiri, Mostafapour, Nassabeh, and Rostami (2020) performed a study to determine whether spiritual education can reduce stress, anxiety, and depression in patients with breast cancer. The intervention group received 4 training sessions, while the control group did not receive any intervention. The subjects in both groups completed the DASS-21 before the intervention and 2 months after the intervention. The results showed a significant decrease in mean stress, anxiety, and depression after training in the intervention group.

Another study by Christensen (1983) assessed a structured therapy for couples on psychosocial distress after a mastectomy. Christensen (1983) assessed changes in sexual satisfaction, marital happiness, self-esteem, depression, helplessness, alienation, anxiety, and emotional discomfort before and after treatment. The results showed that the treatment reduced emotional discomfort in both partners, reduced depression in the patient, and increased sexual satisfaction for both spouses.

A meta- analysis conducted by Matthews, Grunfeld, and Turner (2017), on the efficacy of interventions on a range of psychosocial outcomes following breast cancer surgery, highlighted that cognitive-behavioral therapy (CBT) was consistently the most effective psychosocial intervention promoting improvements in anxiety, depression, and QOL. Moreover, Younis, Norsa'adah, and Othman (2021) found that their psycho-education intervention program was effective on the selection of better coping strategies in women with breast cancer, which may result in reduced psychological distress.

Kashani, Babaee, Bahrami, and Valiani (2012) investigated the benefits of relaxation therapy in breast cancer patients who had undergone a mastectomy. They compared patients treated with standard medical treatment to a group treated with combined medical-relaxation therapy. The DASS was used to measure anxiety, depression, and stress, and the results revealed that relaxation therapy reduced depression, anxiety, and stress (Kashani et al., 2012). Furthermore, preventing and controlling depressive symptoms using medication may increase the QOL of patients with breast cancer (Rajabi, Sharbafchi, & Zeinolabedini, 2018).

Conclusion

In cancer survivors, sexual health concerns are underrecognized and undermet. Sexual dysfunction and decreased sexual intimacy are essential causative factors in depression and anxiety in couples. This is particularly important and challenging when one of the couples has an illness. In breast cancer, following a mastectomy, women experience significant feelings of impairment and rejection, and their husbands may have difficulty in having the same level of intimacy (Sopfe, Pettigrew, Afghahi, Appiah & Coons, 2021). Our study shows that education about sexual intimacy and post-mastectomy complications can reduce anxiety, depression, and stress in patients with breast cancer after mastectomy, but lack of training can increase these components. Facilitated access to sexual health care through such interventions is essential to improving health equity in all cancer survivors. A

limitation of our study was the small sample size. Moreover, we did not determine whether the number of educational sessions influences outcomes. More studies are needed to examine the various methods of education and counseling for the reduction of anxiety, depression, and stress in these patients.

Conflict of Interests

Authors have no conflict of interests.

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