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Original Article

The efficacy of cognitive behavioral therapy on sexual satisfaction of women with breast cancer after mastectomy

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ABSTRACT

Background & Aim: Breast cancer is the most prevalent cancer and the most concerned health issue among women. Mastectomy that is used in the treatment of breast cancer, causes physical and mental stress and may lead to fundamental changes specially body image problems and sexual satisfaction that are important part of quality of life of cancer survivals. Thus, the present study was conducted with the aim of investigating the effect of cognitive behavioral therapy on sexual satisfaction of women with breast cancer after mastectomy. Methods & Materials: This interventional study was conducted on 21 eligible women with breast cancer referred to the oncology department of Golestan Hospital of Ahvaz who underwent mastectomy and had low sexual satisfaction. Cognitive behavioral therapy was implemented in eight group sessions of 90 minutes once per week for 3 groups based on the researcher-made package (Cognitive-behavioral therapy in women with breast cancer) under the supervision of psychology professor. Data analysis was performed using SPSS version 22 software and independent T-Test and paired t-test at 95% confidence level. Results: There was no significant difference between the control and experimental groups in terms of mean scores of demographic variables ($p > 0/05$). A significant difference was observed in the mean scores of sexual satisfaction in the experimental group before and after intervention ($p<0.001$). However, there was no significant difference between mean scores of sexual satisfaction in the control group before and after intervention ($p=0.34$). Conclusion: Cognitive-behavioral therapy has a desirable effect on sexual satisfaction in women with breast cancer after mastectomy. Therefore, it is recommended for clinics and centers providing service to these patients to use this method of treatment.

Keywords: Breast Cancer, Sexual Satisfaction, Mastectomy, Cognitive-Behavioral Therapy

Introduction

Breast cancer is the most important health concern in women and is the second leading cause of cancer-caused death in women after lung cancer [1]. In the United States, breast cancer is the second most common type of cancer in women [2, 3]. It is estimated that the annual incidence of breast cancer in women in Europe to be about 109 per 100000 women [4]. It is estimated that 1.7 million people will be diagnosed with the disease in 2020, which means that there will be a 26 percent increase in breast cancer, and most cases will be reported in developing countries [5]. Breast cancer is a major health problem for women around the world, including Iran. More than 502000 women die from the breast cancer annually. The prevalence of this disease is increasing among Iranian women [6]. Annually, about 8500 new cases of breast cancer occur throughout of Iran, of which 650 are related to Khuzestan province [7]. In this disease, the only concern of physicians is to save the patient's life, and they have little interest in understanding women feelings, but given the young age of breast cancer in Iran, selecting the type of treatment is crucial [8].

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Cancer treatments can severely affect sexual physiology, sexual satisfaction, mental image of the body, and sexual relations for years after treatment. These concerns are particularly evident in women with breast cancer [9]. At present time, there are four types of treatments available for breast cancer patients, including radio therapy, chemotherapy, hormone therapy, and surgery. Among these methods, surgery is the first treatment for breast cancer [10]. Mastectomy, chemotherapy, and radiotherapy used in treatment of breast cancer cause mental, physical, and major changes, especially mental health problems and sexual satisfaction, which are an important part of the quality of life of breast cancer survivors. The patient may lose his or her social role and the risk of mental disorders, especially depression and anxiety, increases in the patient [11]. Sexual problems are one of the largest problems that affect human individual and social life more than anything else, and satisfying sexual desires in a desirable way has a decisive role in the development of human personality, and the separation of these desires from behavior of every person is inevitable [12]. One of the aspects of women sexual problems is sexual satisfaction, which refers to each person judgment of his or her sexual behavior and their perception of pleasure [13]. In Iran, 81% of breast cancer surgeries are mastectomy. Mastectomy can cause a feeling of disability, impaired mental image of the body, reduced attractiveness and impaired sexual satisfaction, and can result in mood disorders and subsequently can leave negative impact on marital relationships [14]. Studies suggest that marital satisfaction is low in women with breast cancer, and chemotherapy accounts for most of the sexual problems caused by cancer, such as loss of desire, mental motivation, vaginal dryness and painful intercourse [10]. Karrabul stated that sexual desire of women is reduced after mastectomy and they are less satisfied with their sexual lives, so they need support [15]. When a person does not have a positive mental image of their body and considers their appearance to be lower than the desired or ideal criteria of the community, they might experience inappropriate feelings and attitudes such as low self-esteem and depression [16].

Reduced mental image of the body and increased dissatisfaction with their appearance are associated with decreased self-confidence and reduced quality of life, and all of these can lead to sexual dysfunction and adverse psychosocial side effects in women [17]. Several therapies have been used to treat sexual dysfunction in women with breast cancer [18]. With increasing the population of breast cancer survivors, effective psychological interventions are needed to solve their sexual problems [19]. Cognitive-behavioral therapy is one of the most commonly known techniques used in treating sexual dysfunction [20]. It leads to a more positive attitude towards sex and improves the couple's sexual dysfunction [21]. Results of the studies show that some maladaptive thoughts, attitudes, and beliefs about various aspects of sex can affect one's sexual activity and his or her response to the stages of the sexual cycle [20]. Negative thinking about sexual activity exacerbates and perpetuates symptoms, so detecting these thoughts helps to successfully analyze sexual problems [22]. McCabe et al found that cognitive-behavioral therapy led to a more positive attitude and thinking about sex, a more enjoyable sexual experience, and improved sexual dysfunction in both men and women, and it reduced the probability of failure in sexual intercourse [21]. Studies show that cognitive-behavioral counseling for couples is effective in improving cold temper of women and all its dimensions, including behavioral, cognitive, emotional and physical dimensions. This type of counseling is also effective in improving sexual knowledge, sexual self-confidence and sexual self-expression [23]. As mastectomy is commonly used as a treatment for breast cancer surgery in Iran and lack of attention to the psychosocial consequences and rehabilitation of patients after surgery, it is essential to conduct studies to examine the sexual satisfaction of these patients in Iran. Since the goal of breast cancer treatment in recent decades is to improve quality of life of the patients and one of the duties of the midwives is to provide counselling on women sexual health and as concerns about the impact of breast cancer surgery, especially mastectomy, on the sexual satisfaction of patients are increasing, the present study was to evaluate the effect of cognitive-behavioral therapy on sexual satisfaction of women with breast cancer.

Materials and Methods

This study is an interventional study, clinical trial type. The statistical population of the present study included all women referring to the oncology department of Golestan Hospital in Ahvaz with breast cancer who underwent mastectomy and had low or no sexual satisfaction. The study sample consisted of 42 women with breast cancer who underwent mastectomy, and had low or no sexual satisfaction or satisfaction. Using the following formula, the sample size was estimated to be 19 people in each group, but considering the probability of dropout in samples, 21 samples were considered in each group (intervention and control)

$$n = \frac{(z_1 - x/2 + z_1 - \beta)^2 (s_1^2 + s_2^2)}{(\bar{x}_1 - \bar{x}_2)^2}$$

$z_1 - \alpha.2 = 1.96$ 95% for confidence

$z_1 - \beta = 0.84$ 80% for power

Randomly

$$\begin{cases} s_1 = 1.41 \\ s_2 = 0.82 \end{cases} \qquad \begin{cases} \bar{x}_1 = 2.94 \\ \bar{x}_2 = 1.87 \end{cases}$$

Sample size in each group

$$n = \frac{(1.96+0.84)^2 \, (1.41^2 + 0.82^2)}{(2.94-1.87)^2} = 19$$

Considering 10% dropout in each group

$$19 \times 1.1 = 21$$
$$2 \times 21 = 42$$

Inclusion criteria included being married, women aged 18-49, having sex with a spouse, having at least one child, women with breast cancer who have had a mastectomy, completing a course

of chemotherapy, breast cancer diagnosis 6 months to 5 years before the study, the ability to attend a group therapy session with at least elementary school level of education, score lower than 75 on the Larson Sexual Satisfaction Questionnaire. Exclusion criteria of the study included pregnancy and lactation, chronic diseases such as hypertension, diabetes and thyroid and autoimmune diseases, menopause, taking antipsychotic drugs in the last 6 months, active psychotic disorders, taking hormone replacement therapy (HRT) drugs, addiction to alcohol or psychotropic substances based on one's personal opinion, treatment of another type of cancer, participation simultaneously in other treatment programs to increase sexual satisfaction and reduce psychological problems, an adverse event in past 6 months, hysterectomy, and absence in two training sessions in the intervention group.

Data collection tools included demographic questionnaire and Larson standard sexual satisfaction questionnaire. Demographic questionnaire included age of spouse, level of education of spouse, job of spouse, number of children, duration of marriage, economic status, bedroom status, housing status and history of breast cancer treatment including: history of radio therapy, chemotherapy, and hormone therapy. The validity of the demographic questionnaire was examined by content validity. Accordingly, it was submitted to 10 professors of Jundishapur School of Nursing and Midwifery and approved by them. Larson Sexual Satisfaction Questionnaire consists of 25 questions and each questions includes 5 options of never, rarely, sometimes, often, and always, and a score of one to five is given to each question, so that in questions 1, 2, 3, 10, 12, 13, 16, 17, 19, 21, 22, 23, the option of never takes the score 1, option of rarely takes the score 2, option of sometimes takes the score 3, option of often takes the score 4, and the option of always takes score 5. In rest of the questions, the option of always takes score 1, option of often takes score 2, option of sometimes takes score 3, option of rarely takes score of 4, and option of never takes score 5. By summing up of these scores, the subjects were finally divided into 4 groups. The scale considered for data analysis was a score between 25 and 125. According to the score obtained, the dependent variable was classified in this way: Lack of sexual satisfaction (score less than 50), low sexual satisfaction (51-75), moderate satisfaction (76-100-) and high satisfaction (more than 100).

The sexual satisfaction questionnaire was presented by Larson et al in 1998 with a Cronbach's alpha coefficient of 0.9. Its reliability was obtained at 0.93 through test retest method and its validity was obtained at 0.76 [24]. In Iran, the validity and finality of this questionnaire has been standardized by Shams Mofram in 2001 using face and content validities, and its reliability was examined through test retest method. The validity and reliability of this questionnaire were reported to be 90% and 86%, respectively [25]. After obtaining permission from Research Deputy of School of Nursing and Midwifery and obtaining a letter of introduction to collect samples, the researcher referred to the Golestan Educational and Medical Center. The research samples were selected among the women who referred to the oncology department of Golestan Hospital for follow-up and were selected based on information of their medical file and the type of surgery (mastectomy). Samples were selected according to entry and exit criteria. Initially, the research objectives and how to intervene were given to each individual. Completion of the Larson Demographic Questionnaire and the Larson Sexual Satisfaction Index were performed by samples that were eligible for study and individuals who scored less than 75 of the Larson Questionnaire. they started studying. The address and time of referral for counseling was notified to the clients by telephone by the researcher. The counseling was done by the researcher under the supervision of the counselor and in Golestan Hospital of Ahvaz.

This study was conducted with the approval of the Ethics Committee of Ahwaz Jundishapur University of Medical Sciences and has been registered in the Clinical Trials Registration Center of the Ministry of Health under the code of IRCT20180616040113NI. Also, to observe the ethical considerations, after explaining the research objectives for qualified samples and receiving informed and written consent from them, information was collected and they were ensured that their information would remain confidential and withdraw the study at any stage. Cognitive-behavioral therapy was performed in 8 group sessions of 90 minutes in 3 groups (7 subjects in each group) and once a week based on the researcher-made package of "Cognitive-behavioral therapy in women with breast cancer" under the supervision of psychology professor. Scheduling of each session includes setting a schedule for the present session (5 minutes), assessing progress in treatment up to that date (10 minutes), reporting assignments (15 minutes), new assignments including introducing new topics or skills (45 minutes) and determining assignments up to the next session (15 minutes). The educational content of the sessions was as follows: Session 1: Familiarity of members with each other, stating the conditions and rules of the group and general familiarity with the physical and mental symptoms of the period of breast cancer and its treatment. Session 2: Cognitive-behavioral therapy model was explained and examples were given to understand the model and its effect on sexual satisfaction. Finally, members were taught to identify their thoughts, emotions, and behaviors, write them down in a notebook prepared by the researcher, and bring it with themselves in future sessions. Session 3: sexual intercourse during and after treatment. Session 4: Body image and its changes during chemotherapy and mastectomy and exercises to adapt to changes in body image. Session 5: Types of sexual disorders and their impact on married life. Session 6: Teaching communication skills and problem solving, recognizing irrational beliefs and thoughts, cognitive reconstruction, and changing negative attitudes toward sexual issues. Session 7: Teaching cognitive skills (teaching relaxation, imaging, concentration and attention skills), coping with negative emotions. Session 8: In addition to a general overview of previous sessions, solutions for not returning to unhealthy thoughts of the past were provided, the level of achieving to therapeutic goals was examined, various used techniques were evaluated, feedback was provided on the

effectiveness of treatment, the existing problems were resolved, positive results of the treatment plan was evaluated, and patient satisfaction with treatment and post-test implementation was evaluated. At all sessions, assignments were checked at the beginning of the session and the members' questions were answered, and then, new skills were introduced and taught. At the end of 8 sessions, the Larson Sexual Satisfaction Questionnaire was completed by the intervention group and during 8 sessions of follow-up, the control group was followed up by telephone. After 2 months, the control group was re-asked to complete the Larson Sexual Satisfaction Questionnaire. One training session was given to them and referred to a counselor if they were willing. Data analysis was performed using SPSS version 22 software and independent T-test, paired t test, and at a confidence level of 0.05.

Results

Two groups were not significantly different in terms of demographic findings (age, age of spouse, duration of last session of chemotherapy, duration of disease, history of radiology and its duration, history of chemotherapy, history of hormone therapy, history of drug use and duration of breast removal, education, job of spouse, economic status, private room, housing status and education of spouse) (P <0.05) (Table 1)

Table 1- Demographic characteristics of the subjects for two groups of intervention and control

Group Demographic characteristics	Intervention	Control	P value
	mean ± SD		
age	37.83 ± 6.112	35.44 ± 5.22	0.283
age of spouse	49.73 ± 6.25	51.26 ± 5.32	0.339
duration of disease	3/38 ± 0.49	3.28 ± 0.64	0.595
duration of breast removal (year)	2/90 ± 0.62	3/19 ± 0.67	0.164
duration of last session of chemotherapy (year)	1.71 ± 0.62	1.64 ± 0.65	0.719
history of radiotherapy and its duration (year)	1.04 ± 1.16	1 ± 1.17	0.895
history of chemotherapy (year)	1.59 ± 0.53	1.64 ± 0.42	0.752
history of hormone therapy (year)	2.02 ± 0.78	1.88 ± 0.58	0.508
History of drug use (year)	2.26 ± 0.60	2.14 ± 0.45	0.474

		N (%)		P value
education	Illiterate	-	-	0.153
	Literate	21(100)	21(100)	
Education of spouse	Illiterate	5(23.8)	6(28.6)	0.726
	Literate	16(76.2)	15(71.4)	
job	housewife	15(71.4)	18(85.7)	0.475
	Employed	-6(28.57)	3(14.3)	
Economic status	poor	1(4.8)	1(4.8)	0.631
	moderate	31(61.9)	10(47.6)	
	good	7(33.3)	10(47.6)	
Private room	yes	9(42.9)	11(52.4)	0.537
	no	12(57.1)	10(47.6)	
Housing status	Personal	14(66.7)	11(52.4)	0.346
	leased	7(33.3)	10(47.6)	
Job of spouse	employed	16(74.4)	17(75.2)	0.194
	unemployed	5(25.6)	4(24.8)	

Table 2: Comparison of mean and standard deviation of sexual satisfaction score before and after treatment in two groups of intervention and control in women with breast cancer

Group		Control	Intervention	P value
		mean ± SD		
Sexual satisfaction	Before treatment	46.53 ± 5.78	47.39 ± 5.32	0.22
	After treatment	46.22 ± 6.87	54.19 7±0.42	<0.001
P value		0.34	< 0.001	

Based on Table 1, the mean age of women with breast cancer was 37.83 and 35.44 in the intervention and control groups, respectively. In a study conducted by Vajtina et al., the mean age of women with breast cancer was 52.96 in the control group and 53.31 in the intervention group, and the two groups were not significantly different in terms of age [11]. As found in the present study, the age of women is lower compared to the above-mentioned studies. It can be justified by the fact that incidence of breast cancer in Iranian women is at younger ages. In a study conducted by Lianjun et al in China in 2011, lower education of couples was considered a risk factor for sexual dysfunction and sexual satisfaction, and women who had satisfactory sexual activity had higher education [26]. In a study conducted by Fahami et al in Iran in 2005, women employment, family income, and living place were significantly associated with women performance and sexual satisfaction [27]. Given the effect of the above-mentioned demographic factors, the necessity of homogeneity of groups is revealed in this regard and two groups were homogenous in the present study. Sexual satisfaction before treatment was not significantly different between the two groups of intervention and control (P = 0.22). However, after treatment, significant differences were observed in the two groups of intervention and control in this regard (P = 0.001) (Table 2). Sexual satisfaction was not significantly different before and after treatment in the control group (P = 0.34), but in the intervention group, a significant difference was observed before and after treatment (P = 0.001) (Table 2).

Discussion and Conclusion

Breast cancer and its treatments have harmful effects on the sexual satisfaction of women with this disease, so the present study was conducted to evaluate the effect of cognitive-behavioral therapy on the sexual satisfaction of women with breast cancer after mastectomy. The results showed that after the intervention, sexual satisfaction increased significantly in the intervention group. In this regard, the study conducted by Musazadeh et al showed that supportive interventions of therapy

improved sexual satisfaction in women with breast cancer [28]. Rowland et al also reported an improvement in sexual satisfaction of women with breast cancer by designing educational psychological intervention [29].

Implementing group counseling intervention, Heravi et al reported positive effect of the intervention on the sexual satisfaction of women with breast cancer [30]. A study conducted by Vojtina et al with the aim of examining the effectiveness of cognitive-behavioral therapy on the quality of life and self-confidence of women with breast cancer in Poland revealed that intervention increased their quality of life and self-confidence and they concluded that cognitive-behavioral therapy could be a complementary treatment to improve the physical and mental symptoms of women with breast cancer [11]. Performing Benson's relaxation intervention, Shariati et al reported its positive effects on their sexual satisfaction of the subjects [31]. In a clinical trial conducted by Hummel et al (2015) to examine the effectiveness of Internet-based cognitive-behavioral therapy in sexual dysfunction in treated women with breast cancer in the Netherlands, results revealed that internet-based cognitive-behavioral therapy significantly improved majority of domains of sexual function and sexual satisfaction of the subjects [32]. A study conducted by Brotto et al (2012) also showed that mindfulness-based cognitive-behavioral therapy reduced sexual dysfunction and increased sexual satisfaction of women with a history of endometrial or cervical cancer [33]. Breast cancer can endanger the sexual satisfaction of infected women. Impaired sexual satisfaction changes a person's quality of life and makes a person prone to all kinds of physical and mental disorders. Hence, health care providers as supporters of these patients play vital role. Midwives can help reduce sexual problems and improve the quality of life of patients by providing therapeutic supportive services such as cognitive-behavioral intervention [28]. Cognitive-behavioral therapy tries to find the problems that have caused mental disorders in a person [34]. Thus, these women experience less stress by receiving counseling and support services, and it help the patients enhance their knowledge about breast cancer, diet and coping skills, which can increase sexual satisfaction and reduce sexual problems [28]. Hence, given the positive effect of cognitive-behavioral therapy on sexual satisfaction of women with breast cancer and confirmation of results in similar studies, it is recommended to use this intervention as a complementary treatment to improve sexual satisfaction of the people. Conducting further studies on cognitive-behavioral therapy in other women with other types of cancer with larger sample sizes will be helpful. One of the strengths of the present study is the homogeneity and similarity of the two studied groups in terms of demographic factors and also their mean score in Larson sexual satisfaction questionnaire, which reduces their intervening effect on study results. One of the limitations of the study was the time and place of the study that led to the project to be conducted in 8 weekly sessions of 90 minutes, and given the wide range of problems of patients with sexual dysfunction, the treatment protocols that use more sessions, may be more effective.

Conclusion:

The results showed that sexual satisfaction increased significantly in the intervention group after the intervention, so cognitive-behavioral therapy can improve the sexual satisfaction of women undergoing mastectomy.

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