

## *The Effect of Stress Management Counseling on General Health and Coping Strategies for Women with Breast Cancer*

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### **Abstract**

**Background:** Breast cancer is the most common cancer that endangers the women's mental health.

**Objectives:** The purpose of this study is to evaluate the effectiveness of stress management consulting on coping strategies in women with breast cancer.

**Methods:** This is a quasi-experimental, with pre- and post-test design and follows up with control and intervention groups. 104 women with breast cancer referring to MRI Center of Mahdiah in Hamadan-Iran in 2015 were divided randomly into two groups that the number of each group using permutation blocks was 52. The intervention group received the stress management counseling sessions through. Data collection tools were demographic questionnaire and general health questionnaire and the questionnaire of coping strategies of Lazarus & Folkman. For data analysis, the descriptive statistics and repeated measures analysis were used.

**Results:** The results of this study showed that the intervention can improve the general health and its sub-scales in intervention group. After intervention, a significant difference in average scores of the general health in two groups was observed ( $P < 0.000$ ). Also, there was a remarkable difference in average scores of the coping strategies in two groups before and after intervention ( $P < 0.000$ ), the problem-focused coping strategies in intervention group through post-test and follow up steps increased but the emotion-focused coping strategies in intervention group decreased.

**Conclusion:** The cognitive-behavioral group therapy of stress management can improve general health and increase coping strategies in patients with breast cancer, so this method can be used in oncology centers as the complementary therapy alongside the medical treatments.

**Key words:** *cognitive-behavioral therapy group, stress management, general health, Coping strategies, breast cancer*

### **Introduction**

Cancers are a wide range of diseases each of which has its own special pathology, therapy and

prognosis. Cancer, after cardiovascular disease, is the second leading cause of death in human societies. Breast cancer is the most common and

the most influential type of cancer in terms of sexual function among women [1]. Meanwhile, breast cancer encompasses one third of cancer cases in women [2]. Every year about one million patients with breast cancer are recognized in the world while the cause of death in about 370 thousand of women is breast cancer. Breast cancer is the second most common cause of death after lung cancer [3]. These tumors constitute about 33 percent of cancer among women and its prevalence in the general population in different countries of the world estimated to be between 8% and 10%. Breast cancer for Iranian women is reported about 31 per 100,000 women and the highest rate of cancer is in age groups of 42-49 [4]. Breast cancer as a life crisis leads to imbalance in life. Because of the importance of breast in formation of sexual identity in women, the response to this disease can include fear, anxiety and depression [5]. Some of reasons for these problems are implications of this diagnosis in the patient's mind including possibility of physical deformity, pain, lack of financial and social support, loss of female identity and sexual desire, decreased social activity, concerns about the uncertain future, relapse, death [6]. Patients usually are shocked after hearing the word cancer or experience psychological problems such as fear, isolation, anger, irritability, confusion, and many symptoms of mental health problems. However, depression and anxiety are among the psychological problems that eventually appear in most patients. Studies suggest that these two disorders are the most common problems in cancer patients [7]. Health Psychology pays close attention to the important role of coping strategies in the physical and mental health and considers it as the most extensive subject of study in contemporary psychology, and also considers the relationship between stress and disease as one of the most important social and psychological factors. Studies on stress emphasize that what threatens the health of behavior is not stress itself, rather it is related to individual assessment of stress and coping methods. If the individual s are effective, efficient and adaptive, then it will be less stressful and stress responses will be in line with reduction of its negative consequences [8]. In Kissane et al (2010) study on women suffering

from breast cancer in psychology institute of Melbourne University, the prevalence of major depression (10%), mild depression (27%) and anxiety disorders (9%) was observed in 2010 [9]. In several studies, 39% of patients with breast cancer experienced major depression [10]. One of the most effective psychological treatments which has a strong theoretical foundation is cognitive-behavioral stress management. Cognitive-behavioral stress management intervention refers to a family of stress management interventions that focuses on cognitive-behavioral approach. Stress management increases a person's ability to reduce stress and suitable adaptation to stressful situations [11]. This intervention consists of elements such as raising awareness, various trainings of relaxation, identification of dysfunctional thoughts, cognitive restructuring, problem solving skills training tools, anger management and planning of activities [12]. According to Lazarus & Folkman (1984), two main methods of coping include problem-focused and emotion-focused methods, but most people use both of them in dealing with stress. The internal control, the positive beliefs, the sense of humor, having a supportive system and religion are among personal resources to cope with stress [13]. The cognitive-behavioral stress management intervention has been used successfully to improve the quality of life for people with asthma, hypertension, alopecia areata. It can also control the blood pressure in patients with diabetes, depression and anxiety reduction, emotional stress and improve the quality of life and well-being in cancer patients [4]. Due to the increasing number of patients with cancers in Iran and the world and its impact on different aspects of their lives, the ability to cope and manage mental health in patients is important; therefore, this study aimed to investigate the effect of behavioral intervention and stress management on public health and coping strategies for women with breast cancer referring to the MRI Center of Mahdiah in Hamadan-Iran.

### Methods

The present research is a two-group experimental study with pre and post-tests plan (intervention and control groups) in order to investigate the

effect of stress management consulting on general health and coping strategies for women with breast cancer. Convenience sampling was used to select 104 patients suffered from breast cancer referred to MRI centers in Hamedan-Iran. After obtaining informed consents, samples were allocated in two intervention and control groups each including 52 individuals by using permutation blocks.

$$n = \frac{2(z_{1-\alpha/2} + z_{1-\beta})^2 \sigma^2}{(\mu_2 - \mu_1)^2}$$

$$\sigma = 9 \quad \mu_2 = 8.5 \quad \mu_1 = 13.6$$

The inclusion criteria included the age range of 20-60 years, being married, women with breast cancer lower than Grade 3 and after having breast cancer surgery (regardless of the type of surgery), with the education level of above secondary school with having 1 other chronic illnesses. The exclusion criteria included a significant history of physical and mental illness such as psychotic

disorders including schizophrenia and depression and the need for medication or special diets, lack of participating in more than one training session, the occurrence of stressful events (death of someone close, divorce, etc.) During the study, substance abuse. Intervention group attended in 9 60-minute sessions in continuous weeks in a class of stress management that the number of each class was 10, and the psychological interference was not performed for the control group, they just received the medical therapy. Two groups were entirely separate from each other and did not communicate and exchange any information with each other. In this study we tried two groups to synchronize in terms of age range, disease step and other demographic characteristics and also not participating in previous educational courses. Sessions were held by a trained psychologists. The purposes of the educational sessions were planned before and they are as follows:

**Table 1: The contents of Stress Management Education**

Sessions	The Contents of Sessions
First session: (logic & necessity of stress Management)	Pre-test, introduction to stress and stress reactions, gradual relaxation of muscles for seven of them including: diaphragmatic breathing, the importance of management and supervision on stress level.
Second session: (stress & awareness)	Exercises related to increasing awareness about stressful factors, physical symptoms of stress and effect of stress, introduction to evaluation of person toward situation with stress, relaxation of seven groups of muscular, diaphragmatic breathing, imagination.
Third session (automatic thoughts and cognitive distortions)	The connection of thoughts and emotions, introduction to automatic thoughts and self-talk, introduction to types of cognitive distortions, introduction to negative thoughts, cognitive restructuring, progressive muscle relaxation for 7 groups, imagination, diaphragmatic breathing.
Fourth session ( replacing automatic thoughts)	More introduction to cognitive distortions and negative thoughts, introduction to types of self-talk, introduction to steps of replacing logical thoughts, progressive muscle relaxation for four muscle groups, mixture of imagination and diaphragmatic breathing
Fifth session (confronting-part one).	Presenting more exercises about replacing negative thoughts, introduction to the concept of confronting, introduction to matching confronting styles with situation, progressive muscle relaxation for four muscle groups, imagination, diaphragmatic breathing
Sixth session (confronting-part two)	Introduction to matching steps of confronting situation, relaxation by reminding, diaphragmatic breathing, imagination, education of autogenic for heavy and heat

Seventh session (social support)	Introduction to description and benefits of social support, introduction to different resources of social support, meditation practice, relaxation by reminding, imagination, diaphragmatic breathing, education autogenic by imagination and inductance.
Eighth session (anger management and the expressiveness of education)	Developing the knowledge of anger, its different symptoms, and different patterns of expressing anger, identifying the reasons of anger and strategies of anger management, relaxation by reminding, mantra meditation, introduction to communication styles between people, expressiveness styles, introduction to hinders of expressiveness, relaxation by reminding, meditation of accounting breathing and conclusion.
Ninth session	Performing the individual stress management plan including: reviewing all plans, planning home relaxation, creating an individual stress management plan, executing a post-test (doing mantra meditation exercises).

Demographic questionnaire, general health and coping strategies were completed before and after the sessions and two weeks later to follow up by the intervention and control groups. Before starting the therapy, the intervention and control groups were tested by a questionnaire and two groups were post-tested after ending the sessions and two weeks later in order to continue. The therapist determined the exercises for the intervals of sessions at the end of each session and patients must do the exercises in these intervals and express the process of doing the exercise in each session. The intervention group would be asked to apply principles educated during their therapy, and in starting each educational session, people would be asked to express the previous educations to remove the probable confusion notes, this process would cause to more exercise and stability of new mentality about the raised subjects. During follow up, all consultations about stress management were educated to the control group. The study instruments included Demographic Characteristics Questionnaire, General Health Questionnaire (GHQ-28), Lazarus & Folkman (1982) and the Coping Strategies Questionnaire.

#### **The Characteristics of Questionnaire Demographic**

This questionnaire includes age, education, the employment status, using drug and tobacco, the age of first menstruation (menarche), menopausal

status, the marital status, the method of contraception, grade (breast cancer grade), having or not having a surgery.

#### **The General Health Questionnaire**

General Health Questionnaire (GHQ-28): This questionnaire developed by Goldberg & Helyer and this questionnaire, as a valid tool, can determine a person's likelihood of a mental disorder. This questionnaire consists of 4 subscales: physical symptoms, anxiety and insomnia, social dysfunction and depression subscales. The average period of test is about 10 to 12 minutes. There are four subscales obtained by statistical analysis of the responses (factor analysis). Subscale (A) includes items of individual feelings about his health condition and his sense of fatigue associated with physical symptoms. The subscales items in the questionnaire are specified in questions 1–7. Subscale (B) includes items related to anxiety and insomnia. Seven items of this subscale are identified in questions 8 -14. The Subscale [4] evaluates the extent of the ability of people to cope with job needs and indicates their problems in everyday life and their feelings about how to deal with common situations of life. Seven items related to this subscale are identified in questions 15-21. Subscale (D) includes items related to depression and suicidal tendency and its seven distinctive items in the questionnaire are given in questions 22-28. Each question has four options

and scores from one to four. The basis of the detection of positive cases in the questionnaire is the cut off point of 24/23 in GHQ-28 A guideline. Those who score above 24 are in the group of women with mental health problems. The reliability of the questionnaire was obtained through internal consistency (Cronbach's alpha) for scales of physical symptoms (85%), anxiety and insomnia (78%), social dysfunction (79%), critical depression (91%) and the total questionnaire (78%). Taghavi (2001) also obtained through the internal consistency using Cronbach's alpha for the total scale (90%) and for the subscales of physical symptoms, the factors of anxiety and insomnia, investigation of social dysfunction and depression and suicidal tendencies were: 76%, 84%, 61% and 88%, respectively [14]. The reliability coefficient for each of the relevant dimensions of Saadati et al (2016) study estimated as 0.893, 0.844, 0.871 and 0.866, respectively [15].

#### **Lazarus & Folk man Coping Strategies Questionnaire**

Lazarus Coping Strategies Questionnaire created based on the list of coping strategies provided by Lazarus and Folk man in 1980 and it was revised in 1985. The coping strategies are a set of individual's cognitive and behavioral efforts to interpret and modify a stressful situation at work and reduce the suffering caused by it. This questionnaire evaluates a wide range of thoughts and actions used by people in situations of

internal or external pressure. These two psychologists (Lazarus & Folk man) developed Lazarus & Folk man's Coping Strategies Questionnaire in 1988 to measure coping strategies based on Lazarus & Folk man theory. This questionnaire has 66 questions scored based on a 4-point Likert scale and measures thoughts and actions of people to cope with stress reactions to stressful situations. The coping Strategies Questionnaire includes 8 subscales: 1) direct coping; 2) schizoid or distancing; 3) self-restraint; 4) seeking for social support; 5) liability 6) escape-avoidance, 7) planned problem-solving 8) positive reappraisal. Lazarus (1993) reported the subscales' internal consistency using Cronbach's alpha for the sub-scales of problem-oriented strategies (0.66) and for emotion-focused strategies (0.79). The reliability of the test was reported as 0.85 [16].

The data was analyzed using a statistical software SPSS/21 and also by using the descriptive statistics, the analysis of repeated measures. Meaningful level was considered less than %0.05 in this research.

#### **Results**

This study was done on 104 women suffered from breast cancer who referred to Mahdیه MRI center in 2015. Average and standard deviation of age for intervention and control groups were  $50.02 \pm 12.07$  and  $46.65 \pm 10.18$  respectively. The results showed that two groups were the same in demographic characteristics (Table 2).

**Table 2: Demographic characteristics of patients and their comparison in the two experimental and control groups**

Variable	Variable	Intervention group		Intervention group		Chi-square test
		Number	percent	Number	percent	
Education	Illiterate	20	38.5	10	19.2	0.091
	under the diploma	17	32.7	24	46.2	
	Diploma and higher	15	28.8	18	34.6	
Prevention history	Yes	47	90.4	40	76.9	0.063
	No	5	9.6	12	23.1	
Prevention type	Lack for prevention	5	9.6	12	23.1	0.109
	Natural	16	30.8	8	15.4	
	Condom	24	46.2	27	51.9	
	Others	7	13.5	5	9.6	
Menopause	Yes	23	44.2	16	30.8	0.156
	No	29	55.8	36	69.2	

<b>Cancer level</b>	1	6	11.5	10	19.2	0.197
	2	11	21.2	16	30.8	
	3	35	67.3	26	50.0	
<b>Chemotherapy</b>	Yes	49	94.2	44	84.6	0.111
	No	3	5.8	8	15.4	
<b>Radiation therapy</b>	Yes	4	7.7	11	21.2	0.060
	No	48	92.3	41	78.8	

According to Table 3 and using the analysis design of repeated measures, there was a

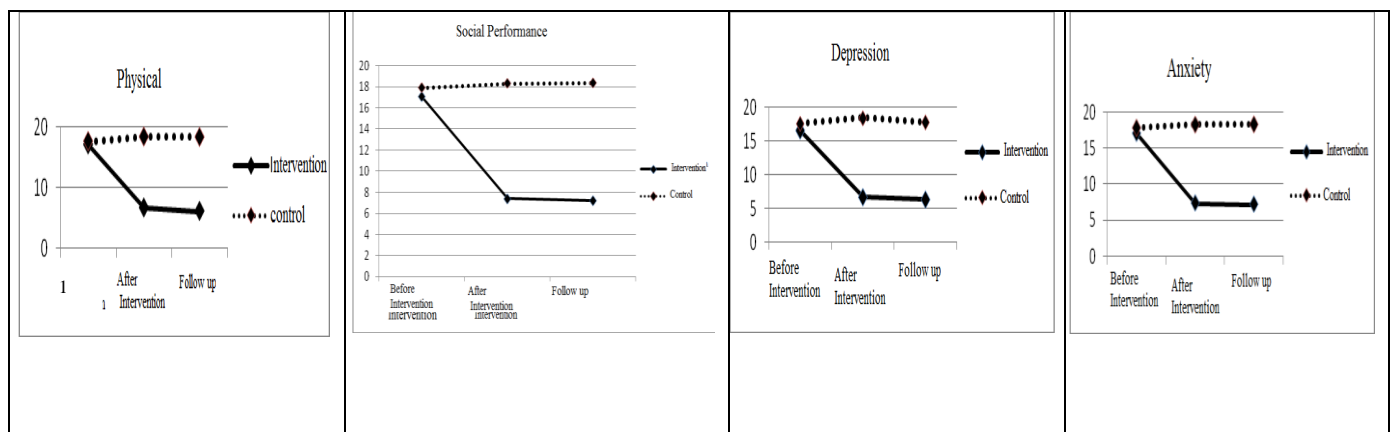
significant difference between two groups. ( $p < 0.005$ ).

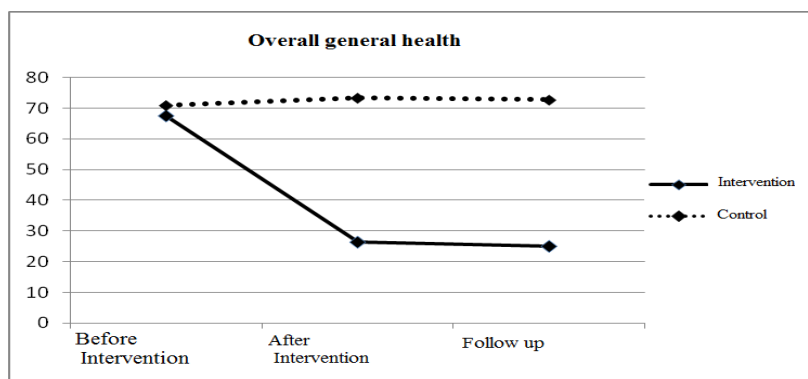
*Table 3: Effects among Subjects*

Variable	Source	Set of changes	Free Rank	Square	F	Meaningful Level	Effect Measure
<b>Physical status</b>	Group	5177.696	1	5177.696	1069.204	0.000	0.913
	Error	493.94	102	4.843			
<b>Anxiety</b>	Group	4554.051	1	4554.051	981.393	0.000	0.906
	Error	473.321	102	4.640			
<b>Social Performance</b>	Group	5919.490	1	5919.490	960.554	0.000	0.904
	Error	628.583	102	6.163			
<b>Depression</b>	Group	5120.821	1	5120.821	898.275	0.000	0.898
	Error	581.474	102	5.701			
<b>Overall general health</b>	Group	82908.321	1	82908.321	2884.89	0.000	0.966
	Error	2931.35	102	28.73			

According to the analysis of repeated measures, the intra-group effects of variables under consideration at the time of 1 (pre-test), 2 (post-test) and 3 (follow up), in the two groups had a significant effect ( $p < 0.005$ ) in the intervention group over time. By considering the averages, it was showed the impact of time to reduce the total score of general health and its subscales in the

post-test and follow-up steps. Regarding this point that the cut-off point of GHQ is the score 24, and the score higher than 24 is considered as mental disorders, in the intervention group, after receiving training, an improvement was observed in the post-test and follow-up steps of general health in all directions (Figure1).

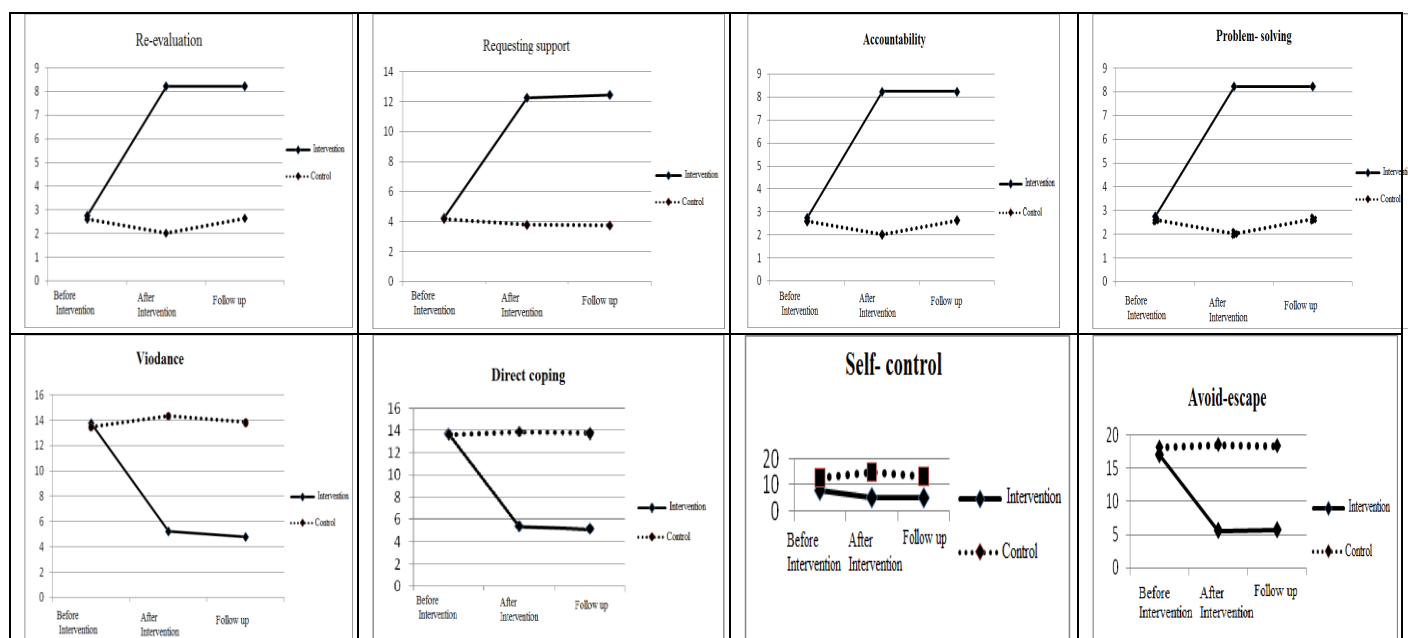




**Figure 1: Time changes impact on general health and its subscale scores**

Based on the analysis and the design of repeated measures, the effects of intra-group showed that the effect of time in order to increase the coping style of problem-focused and coping strategies requests a social support, accountability, problem solving, reevaluation, and lower scores on a scale

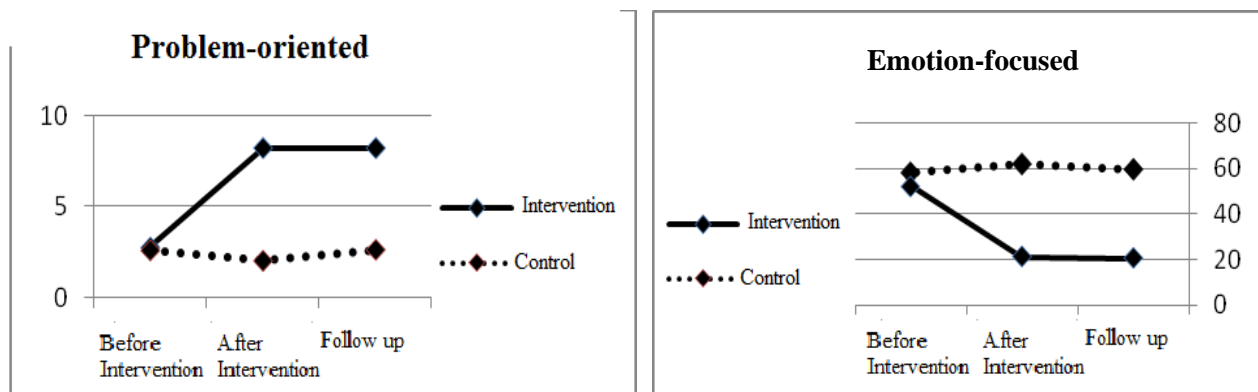
of symptoms as well as the style of emotion-focused coping and coping strategies to deal, to refrain, voidance, avoid- escape and self- control in the post-test and follow-up in the intervention group (Figure 2).



**Figure 2: Time changes impact on different coping styles and their coping strategies**

Based on the analysis of repeated measures design, the effects of intergroup shows the effect of time to promote the score of coping style, emotion-focused coping style, scores in the

intervention group was reduced. The effect sizes are very large and all the variables had a significant influence on the time variable in the experimental group (Figure 3).



*Figure 3: Time changes impact on problem – focused and emotion – focused coping styles*

### Discussion

The results of the current study shows that the stress management consulting can increase the general health and its components and improve the coping skills in people with breast cancer. The study of McGregor et al (2015) showed that the stress management consulting can increase the general health and its components and improve the coping skills in the patients suffer from breast cancer and their results are completely consistent with the results of the current study [17].

The cognitive - behavioral intervention can reduce the depressed mood of people with cancers by challenging the negative automatic thoughts and encouraging the patients to do the enjoyable activities and having plans that can lead to an increase in the daily activities. As a whole, it can be stated that the cognitive components of this intervention are effective in performance and behavioral components, improvement of physical signs and improvement of general health in these patients [13].

Results of this study showed that 9 sessions of stress management therapy can lead to an improvement in psychiatric symptoms and coping strategies of the amount accepted, while women in the control group showed no decrease in the level of stress experienced during this period, thus the stress reduction during the 9weeks can be attributed to the intervention instead of over time. Cohen et al (2007) in their study found that the cognitive-behavioral therapy, the overall rate of perceived stress reduces this effect was sustained

over a period of 4 months [18]. The study khodai et al (2011) cognitive behavioral therapy, particularly cognitive behavioral group therapy led to a significant reduction in depression, anxiety and stress in cancer patients [19], all of which was in accordance with the results and strongly confirms them. The results of the current study shows that the management of consulting intervention can be effective in increasing the problem-focused coping strategies and decreasing the emotion-focused strategies. Cognitive reconstruction, as one of the components of cognitive-behavioral therapy with problem solving skills training, leads to increasing the active encountering, positive reappraisal, opposition to auto-dysfunctional thoughts, and planed problem solving. The results of the study of Behzadipour et al (2013) show that this intervention can decrease the escape- prevention and avoidance of problematic situations that are consistent with the results of the current study [20]. Also, Coaster, Racin, Krumiz and Nering in their study showed that the attempt to suppress or fear can be destructive; increasing the anxiety and stressful thoughts to suppress it again. These issues can make the problematic situations to the pain and control of the success. So, the cognitive behavioral intervention leads to increasing the use of coping strategies and decreasing the efficient coping [20] and it confirms the results of the current study in order to improve the effectiveness of consulting in improvement of coping strategies. The evaluation of coping styles, by taking into



account the personal characteristics, helps the physicians to treat patients with cancer, so that timely treatment of patients can increase the compatibility with pain in patients [21].

The results of Karamoozian et.al (2014), which was conducted in Kerman showed that stress management can lead to improving the general health and coping strategies in women with breast cancer, which the results confirms this. [22]. It can be pointed that are limitations of the present study are items such as: non-doing 3 or 6-month follow, non-comparison with patients suffered from types of cancers and being limited sampling in women society. In general, this study showed that cognitive behavioral therapy of stress management plays an important role in improving mental health and coping strategies of women suffer from breast cancer.

According to the effect of cognitive behavioral therapy of stress management on mental health and coping strategies of people, this therapy can be presented as one of the suggested therapy alongside medical therapy in oncology centers and hospitals. It is suggested that in specialized centers of cancer therapy, a section is allocated to present psychological services, especially treatment group and done on other kinds of patients.

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### References

1. Shayan A, Khalili a, Rahnavardi M, Masoumi SZ. The relationship between sexual function and mental health of women with breast cancer. *nmj*. 2016; 24(4): 221-228.
2. Siegel R, Naishadham D, Jemal A. Cancer statistics. *CA Cancer J Clin*. 2012; 62(1): 10-29.
3. Anagnostopoulos F, Myrghianni S. Body Image of Greek Breast Cancer Patients Treated with Mastectomy or Breast Conserving Surgery. *J Clin Psychol Med Settings*. 2009; 16(4): 311-21.
4. Lawson DA, Bhakta NR, Kessenbrock K, et al. Single-cell analysis reveals a stem-cell program in human metastatic breast cancer cells. *Nature*. 2015; 526(7571): 131-35.
5. Taira N, Shimozuma K, Shirowa T, et al. Associations among baseline variables, treatment-related factors and health-related quality of life 2 years after breast cancer surgery. *Breast Cancer Res Treat*. 2011; 128(3): 735-47.
6. Snoj Z, Licina M, Pregelj P. Depression and anxiety in Slovenian female cancer patients. *Psychiatr Danub*. 2008; 20(2): 157-61.
7. Antoni MH, Lechner S, Diaz A, et al. Cognitive behavioral stress management effects on psychosocial and physiological adaptation in women undergoing treatment for breast cancer. *Brain Behav Immun*. 2009; 23(5): 580-91.
8. Hampel P. Brief report: coping among Austrian Children and adolescents. *J adolescenc*. 2007; 30(5): 885-90.
9. Kissan DW, Bloch S, Simth GC, et al. Cognitive existential group psychotherapy for women with primary breast cancer. *Psycho-oncology*. 2010; 12(6): 532-46.
10. Aghebati N, Mohammadi E, Pour Esmaeil Z. The effect of relaxation on anxiety and stress of patients with cancer during hospitalization. *Iran J Nurs*. 2010; 23(65): 15-22. [In Persian]
11. Mehnert A, Berg P, Henrich G, Herschbach P. Fear of cancer progression and cancer related intrusive cognitions in breast cancer survivors. *Psychooncology*. 2009; 18(12): 1273-80.
12. Groarke A, Curtis R, Kerin M. Cognitive-behavioural stress management enhances adjustment in women with breast cancer. *Br J Health Psychol*. 2013; 18(3): 623-41.
13. Hoffman CJ, Ersser SJ, Hopkinson JB, Nicholls PG, Harrington JE, Thomas PW.

Effectiveness of mindfulness-based stress reduction in mood, breast and endocrinerelated quality of life, and well-being in stage 0 to III breast cancer: a randomized, controlled trial. *J Clin Oncol*. 2012; 30(12): 1335-42.

14. Taghavi M. Assessment of the Validity and reliability of the General Health Questionnaire. *J Psychology*. 2001; 5(20): 381-89. [In Persian]

15. Saadati M, Mohammadi SA, Mehraien MR, Abasi E, Narimani S. The Study of Relationship between Social Capital and Mental Health (Case Study: High School teachers of first and second region of arak city. *J management system*. 2016; 7(1): 153-77. [In Persian]

16. Chandwani K, Perkins G, Nagendra H, Raghuram N, Spelman A, Nagarathna R. Randomized, controlled trial of yoga in women with breast cancer undergoing radiotherapy. *J Clin Oncol*. 2014; 32(10): 1058-65.

17. McGregor BA, Dolan ED, Murphy KM, et al. Cognitive behavioral stress management for healthy women at risk for breast cancer: a novel application of a proven intervention. *Ann Behav Med*. 2015; 49(6): 873-84.

18. Cohen M, Fried G. Comparing relaxation training and cognitive-behavioral group therapy

for women with breast cancer. *Res Soc Work Pract*. 2007; 17(3): 313-23.

19. Khodai S, Dastgerdi R, Haghighi F, Sadatjoo SA, Keramati A. The effect of cognitive-behavioral group therapy on depression in patients with cancer. *J Birjand Univ Med Sci*. 2011; 18(3): 183-90. [In Persian]

20. Behzadipur S, Sepahmansur M, Keshavarzi arshad F, Farzad V, Naziri GH, Zamanian S. The effectiveness of cognitive behavioral stress management intervention on quality of life and Coping strategies in women with breast cancer. *J management system*. 2013; 3(12): 29-46. [In Persian]

21. Prasertsri N, Holden J, Keefe F, Wilkie D. Repressive coping style: Relationships with depression, pain, and pain coping strategies in lung cancer out patients. *Lung cancer*. 2011; 71(2): 235-40.

22. Karamoozian M, Bagheri M, Darekordi A, Aminizadeh M. Impact of Cognitive – Behavioral Group therapy Stress Management Intervention on mental health and pain coping strategies breast cancer patients. *Iran J Breast Dis*. 2014; 7(2): 56-67.