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Original Article

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## Coping Skills Improve Quality of Life in Women with Breast Cancer and Maladaptive Coping Style

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### Abstract

**Background:** Breast cancer (BC) is a common malignancy among women. BC is a stressor in life that affects coping strategies and quality of life. This study performed to improve the quality of life in women with maladaptive coping style.

**Methods:** A randomized clinical trial, held in 2011. Patients with maladaptive coping strategy were included in the study. 62 patients were randomized into two groups. Before and after 8 weeks of coping therapy, the quality of life was measured. General linear model was used for analysis.

**Results:** The mean age in the intervention and control group was 45.10±7.34, 46.52±6.20 respectively (P-value>0.5). Functional health significantly improved after the intervention (p-value<0.005), but in the control it decreased (p-value=0.029). Symptom health between the two groups demonstrated no difference before and after intervention. General health improved in the intervention group (p-value=0.017). However, in the control group it was not significant (p-value=0.128). Problem-focused coping strategies in the intervention group improved markedly (p-value= 0.003) whereas, the control group did not reveal significant differences (p-value=0.196).

**Conclusion:** The results showed that the coping skill training program can improve the overall quality of life of breast cancer in women, and indicated that the care of breast cancer should address psychological issues and the finding points to the importance of taking individual coping strategies into account when evaluating the impact of breast cancer on psychosocial well-being.

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**Keywords:** Coping skill, Quality of life, Breast cancer

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### Introduction

Breast cancer is the most prevalent cancer, the second cause of death due to cancer and the main reason of death at the age of 40-59 in women (1). Breast cancer incidence in Iranian women is about 22 per 100000.

During the past four decades, the incidence of breast cancer has increased in Iran (2), which may be due to higher life expectancy, urbanization and lifestyle changes (1). Iranian women get involved with breast cancer at least one decade earlier in comparison with their counterparts in western countries (2).

Breast cancer survival rate varies widely in different countries, from 80% in North America, Sweden, and Japan to 60% in middle-income countries and less than 40% in low-income countries (3).

Studies showed about 30% of patients had some degrees of anxiety and depression during the first year of their diagnosis, which is 3-4 times more than the general population (4). Moreover, cancer diagnosis is accompanied by various problems such as social, emotional, psychological, and financial problems (5). During the past 30 to 40 years a couple of interventions and strategies have been used to improve coping with this cancer and prevent negative psychological effects. Studies showed that the survival of patients with breast cancer or malignant melanoma increased significantly with these interventions and led to this general idea that psychological support can improve the prognosis of these patients. Although the results of these studies are reliable, the underlying mechanisms leading to survival improvement is not completely understood. Several hypotheses have been developed: psychological stress directly disturbs the immune system function and stress and/or depression may cause DNA damage and apoptosis. These negative effects are avoidable by appropriate psychological interventions. One of the indirect effect can be healthier behaviors after those interventions like stopping or reducing the consumption of cigarettes and alcohol, improvement of sleep and nutrition patterns, doing more physical activity and adherence to treatment (6).

Studies showed that cancer in women, young people, those who are older than 70 years, and those in lower socioeconomic classes can create more psychosocial distresses but only 10% of them receive psychosocial therapies. Educational interventions can help breast cancer women in order to cope with stressful conditions, improve their mood and ultimately can lead to better quality of life. There are five effective interventions that can lead to better results: 1. education about their

disease, 2. behavioral training like relaxation and yoga, 3. stress management, 4. cognitive behavioral therapy including coping skills training, and 5. supporting groups like peer group.

At different stages women need different interventions. For example, those who are newly diagnosed with cancer may benefit more from interventions that last about 6 to 10 weeks. In addition, patients with more survival can benefit more from monthly and patient-centered interventions. Compliance with new condition and prepare for returning to normal life can be increased by training, supporting groups, counseling, psychotherapy, drug-therapy or an appropriate combination of these interventions. It is unknown that how coping will affect the disease outcome. The main ways of dealing with stress are problem-focused and emotion-focused coping strategies. Problem-focused strategies include direct actions for changing or correcting conditions that is considered threatening and emotion-focused coping strategies include actions or thoughts to control undesirable feelings that caused by stressful conditions. Emotion-focused strategies have a negative effect on quality of life and make psychological distresses (7, 8).

Because of the lack of information about the quality of life in breast cancer women with the maladaptive coping strategy, we performed this study, and our goal was to assess the role of coping skills training for improving the quality of life of breast cancer women with maladaptive coping strategy.

## Materials and Methods

This was a randomized clinical trial. Eligible patients were selected by using patients list. These patients were referred to Seyed-Alshohada hospital and two private offices in Isfahan 2011. The convenience sampling method was used. The sample size was 31 patients in each group with  $\alpha=0.05$  and  $\beta=0.2$ . The inclusion criteria confirmed the diagnosis of breast cancer in women in a

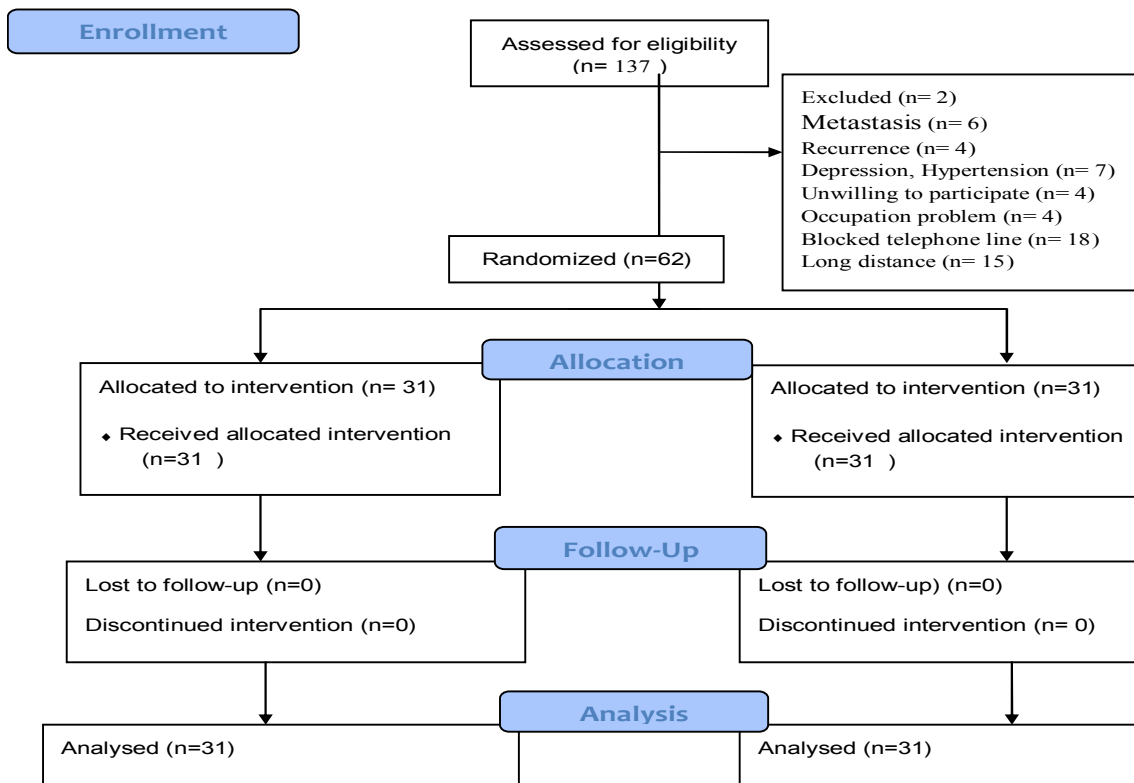
recent year and the age was between 18 to 60 years old.

Recurrent or metastatic cases, those with previous or current other cancers and women with a history of psychiatric disorders, chronic systematic diseases were not recruited in this study. Those who were not willing to accept participation in the study, suffered from mental retardation, severe or not treated mental disorders, dementia, and severe neurological disorders were excluded.

All 147 eligible patients were contacted by telephone. Of 147 patients, 42 cases were collected from private offices. We realized that 10 patients were dead, 6 patients had metastases, 4 patients had recurrent breast cancer, 3 people had moved out and 10 phone

numbers were blocked. Despite several phone calls, 8 people didn't answer the phone. 12 people lived in other cities of Isfahan province or in towns far from Isfahan. Four people were unable to participate due to having a busy schedule. Four people didn't tend to participate and 7 patients had depression or high blood pressure or diabetes. Finally, 79 patients remained. These patients were invited to the research center at Seyed-Alshohada hospital. In the first session researchers introduced themselves and the purpose of the study was explained to participants and informed consent was obtained. Then, participants filled out a brief coping strategies questionnaire.

**Figure 1. Study profile**



Those who scored more than 18 in emotion-focused coping strategy considered taking

maladaptive coping strategy and were included in the study. Sixty-four patients were

included. The subjects were also given a quality of life questionnaire: QLQ-C30. Two patients were excluded because they had filled out less than 50% of the questions. Finally, 62 patients were studied. The ethical issues of this study were approved in the Vice Chancellor for Research Affairs of Faculty of Medicine, Isfahan University of Medical Science. Each participant was informed, prior the interview, about the purpose of the study and written informed consent was obtained from all participants. Also, the confidentiality of information was managed carefully by researchers.

Demographic characteristics like age, education, marital status, occupation and stage of disease were recorded by a trained interviewer. For random allocation, randomized block design was done by someone other than researchers. After identifying the intervention and the control groups, eight sessions of coping training held for the intervention group. A clinical psychologist trained the intervention group. The weekly one-hour training sessions were held in the research center of Seyed-Alshohada hospital. To remind for attendance, all patients were contacted the day before each session. At the end of the eighth session, participants were asked to complete the questionnaires again. Most patients filled out the questionnaires themselves and in a few cases it was filled out with the help of trained interviewers or patient attendant. In the control group questionnaire were completed by referring to their homes. Similar to the intervention group, most of the patients filled out the questionnaire themselves and in a few cases interviewer helped them. Coping and quality of life was considered as independent and dependent variables respectively. Age, sex, stage of disease, occupation and level of education have been controlled by randomization and again assessed by statistical methods.

#### **Statistical Methods:**

In descriptive statistics, the proportion was used to describe categorical and numerical

variables, mean and SD was used to describe continues variables. General linear model was used for analysis. All analysis was conducted using the SPSS program version 18.0. A p-value of less than 0.05 was taken as statistically significant.

#### **Instruments:**

##### **Brief COPE:**

Brief cope scale is a 28-item self-report measure of problem-focused and emotion-focused coping skills. The scale consists of 14 subscales of two items each. The participants are asked to respond to each item on a four-point likert scale, indicating what they generally do and feel when they experience cancer related stressful events (1= I have not been doing this at all and 4= I have been doing this a lot). It takes 10 minutes to complete (9). The validity and reliability of this inventory for Iranian society were studied (10).

##### **EORTC QLQ-C30**

The European Organization for Research and Treatment of Cancer Core Quality of life Questionnaire (EORTC QLQ -C<sub>30</sub>) is composed of 5 multi-item function scales and 9 symptom scales and one global health scale. It has 30 items and takes 15 minutes to complete. All of the scales score from 0 to 100. A high scale score represents a higher response level. Thus, a higher score for a functional scale and global health status represent a high level of quality of life, but a high score for a symptom scale represents a high level of symptoms and problems (11). The Iranian version of the EORTC QLQ-C30 has reliability and validity to measure quality of life (12).

## **Results**

Demographic and medical characteristic of case and control group is presented in table 1. The mean age in the intervention group was 45.10±7.34 and in the control group was 46.52±6.20, which it was not statistically significant (p-value= 0.41, t= 0.82 = df=60). The mean age of all participants was 45.81±6.78 with the range from 32 to 60

years old. The majority of participants were married (93.5%), high school educated (41.9%) housewife (82.3%) and stage II (50.8%). There were 8.1% illiterate participants, 27.4% primary educated and 17.7% junior high school educated, 41.9% high school educated, and 4.8 % academically educated.

**Table 1: Socio-demographic and medical characteristics women of with breast cancer**

Variables	Case N (%)	Control N (%)
Age (years) mean (SD), range		
<b>Marital status</b>		
Single	1(3.2%)	0(0%)
Widowed	1(3.2%)	1(3.2%)
Married	28(90.3%)	30(96.8%)
Divorced	1(3.2%)	0(0%)
<b>Educational status</b>		
Illiterate	2(6.5%)	3(9.7%)
Primary school	9(29.0%)	8(25.8%)
Secondary school	8(25.8%)	3(9.7%)
High school	11(35.5%)	15(48.4%)
University	1(3.2%)	2(6.5%)

With the  $\chi^2$  test there was no statistically different between two groups (p-value=0.61). There were 7.1% of patients in stage IA, 6.8% in stage IB, 23.7% in stage IIA, 27.7% in stage IIB and 16.9% in stage IIIA, 15.3% in stage IIIB, and 8.5% in stage IIIC. About With t-test there were no differences between coping strategies of the two groups before intervention. The more scores of problem-focused coping strategies show more adaptive coping and the more emotion-focused coping strategies show more maladaptive coping strategies. After training, Intervention group used more problem-focused coping methods (p-value<0.01). But there was no significant difference in emotion-focused coping strategies between two groups after intervention (p-value =0.47). Religion was the most used problem-focused coping strategies in both groups. Among emotion-focused

The educational status of the two groups is in table 2 that there was no significant statistically difference between two groups with the  $\chi^2$  test (p-value=0.48).

There were 82.3% housewife patients, 6.5% teachers, 4.5% retired, 4.8% hairdressers, and 1.6 % employees. Occupational status of the two groups is shown in table 1.

<b>Occupation</b>		
House wife	26(83.9%)	25(80.6%)
Teacher	1(3.2%)	3(9.7%)
Retired	2(6.5%)	3(9.7%)
Hair dresser	2(6.5%)	1(3.2%)
Clerk	0(0%)	1(3.2%)
<b>stage</b>		
IA	1(3.4%)	0(0%)
IB	1(3.4%)	3(10.0%)
IIA	7(24.1%)	7(23.3%)
IIB	5(17.2%)	11(36.7%)
IIIA	6(20.7%)	4(13.3%)
IIIB	6(20.7%)	3(10.0%)
IIIC	3(10.3%)	2(6.7%)
Missing	2	1

50.8% of patients were in stage II. The  $\chi^2$  test didn't show significant differences between two groups in terms of tumor stage.

Table 2 showed the mean score of coping strategies in the two groups before and after intervention.

coping strategies control group used more self-distraction and behavioral disengagement and intervention group used more self-distraction and venting. Table 3 displayed quality of life scores in three functional, symptom, and global health before and after intervention. There were no significant differences between groups in these three statuses before the intervention. This score was calculated from 100. The higher functional and global score indicates the better quality of life and the higher symptom score indicates the lower quality of life.

**Table2: coping strategies in the two groups before and after intervention in women with breast cancer**

Before intervention			After intervention		
group	Mean±SD	P value	Mean±SD	P value	
<b>Problem-focused</b>					
Acceptance	case	7.09±1.07	0.107	7.41±0.67	0.001
	control	6.58±1.38		6.41±1.38	
Religion	case	7.22±1.30	0.643	7.48±0.99	0.086
	control	7.06±1.41		6.93±1.43	
Planning	case	6.12±1.56	0.673	6.64±1.33	0.007
	control	5.96±1.42		5.07±1.32	
Positive reframing	case	5.83±1.67	0.609	6.16±1.29	0.002
	control	5.61±1.78		5.00±1.46	
Using instrument	case	4.64±1.97	0.622	5.67±1.75	0.066
	control	4.90±2.11		4.83±1.77	
Active coping	case	5.67±1.35	0.550	6.67±1.30	0.014
	control	5.87±1.17		5.83±1.31	
Using emotional	case	4.64±1.92	0.248	5.38±1.90	0.003
	control	4.0968±1.77		4.03±1.44	
Humor	case	3.54±1.80	0.946	3.47±1.87	0.298
	control	3.58±1.94		3.25±1.75	
<b>Emotion-focused</b>					
Self-distraction	case	6.09±1.44	0.426	5.93±1.43	0.477
	control	6.38±1.40		6.19±1.53	
Venting	case	4.90±1.57	0.934	5.12±1.64	0.087
	control	4.8710±1.47		4.45±1.41	
Self-blaming	case	4.00±2.11	0.804	3.80±1.99	0.335
	control	3.87±1.96		4.25±1.65	
Behavioral distraction	case	4.80±1.72	0.813	4.83±1.59	0.600
	control	4.90±1.46		5.03±1.27	
Denial	case	5.67±2.15	0.090	4.80±1.77	0.721
	control	4.74±2.12		4.96±1.76	
Substance use	case	2.87±1.58	0.549	2.51±1.06	0.186
	control	3.1613±2.16		3.00±1.71	

Comparison of functional health status scores showed that the functional status of quality of life in the intervention group significantly improved after the intervention (p-value=0.002), but in the control group decreased significantly (p-value=0.029). Comparing symptom health status between

the two groups showed that there was no significant difference before and after intervention. General health scores improved significantly in the intervention group after the intervention (p-value=0.017). However, in the control group the difference between a

general health score was not statistically significant (p-value=0.128) (table 4). Problem-focused coping strategies in the intervention group after coping trainings improved markedly and significantly (p-value= 0.003) whereas the control group did

not show significant differences (p-value= 0.196) (table 5). Emotion-focused coping strategies compared in table 5 based on the paired t-test. In both groups before and after intervention, it is not statistically significant.

**Table3: Quality of life in the two groups before and after intervention in women with breast cancer**

	Before Intervention			After Intervention	
	group	mean±SD	P value	mean±SD	P value
<b>Functional</b>	case	63.04±21.07	0.249	75.09±16.65	0.010
	control	68.77±17.55		63.01±19.09	
physical	case	67.84±19.29	0.034	75.48±18.00	0.218
	control	77.20±14.27		69.89±17.37	
Role function	case	66.18±29.65	0.373	80.01±19.44	0.015
	control	72.58±26.36		65.05±27.33	
Emotional	case	45.69±30.49	0.304	67.20±25.08	0.002
	control	53.22±26.58		46.23±27.03	
Cognitive	case	59.67±28.14	0.393	75.26±19.65	0.130
	control	66.12±30.87		66.12±26.69	
Social function	case	75.80±30.98	0.886	77.41±25.29	0.168
	control	74.73±27.51		67.74±29.16	
<b>Symptom</b>	case	35.25±16.05	0.249	29.64±15.00	0.572
	control	28.69±11.06		31.76±14.20	
Fatigue	case	45.16±29.38	0.808	31.89±22.90	0.004
	control	46.95±28.35		50.89±27.18	
Nausea	case	30.64±31.06	0.150	24.19±21.87	0.936
	control	19.35±29.84		24.73±29.77	
Pain	case	42.58±26.74	0.632	35.48±26.78	0.258
	control	39.24±27.73		43.54±28.76	
Dyspnea	case	17.20±22.56	0.081	10.75±18.02	0.552
	control	8.6022±14.82		13.97±23.99	
Insomnia	case	54.83±36.05	0.001	38.70±34.53	0.524
	control	24.73±28.50		44.08±31.49	
Appetite loss	case	34.40±33.86	0.453	26.88±27.78	0.378
	control	27.95±33.44		20.43±29.41	
Constipation	case	18.27±33.15	0.799	21.50±29.24	0.559
	control	20.43±32.97		17.20±28.37	
Diarrhea	case	6.45±18.09	0.801	15.05±29.61	0.159
	control	5.37±15.14		6.45±15.91	
Financial	case	67.74±37.00	0.806	62.36±37.25	0.806
	control	65.59±31.60		64.51±30.95	
<b>Global health</b>	Case	62.63±23.36	0.398	74.73±22.30	0.000
	Control	58.06±18.69		51.61±23.51	

**Table4: comparison of QOL scales between two groups before and after intervention in women with maladaptive coping strategies with paired T-test**

group		Paired Differences					t	df	P value
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
case	Functional scale 1 – functional 2	-1.20538E1	19.56	3.51	-19.23107	-4.87646	-3.430	30	0.002
control	Functional scale 1 – functional 2	5.76	14.02	2.51	.62013	10.90675	2.289	30	0.029
case	Symptomscale1 – symptom 2	5.60	19.45	3.49	-1.52783	12.74249	1.605	30	0.119
control	Symptomscale1 – symptom 2	-3.06	11.62	2.08	-7.33241	1.19940	-1.468	30	0.152
case	Global health 1 – glob l health 2	-1.20968E1	26.60	4.77	-21.85392	-2.33963	-2.532	30	.017
control	Global health 1 – glob l health 2	6.45	22.94	4.12	-1.96437	14.86759	1.566	30	0.128

**Table5: comparison of coping strategies scales between two groups before and after intervention in women with maladaptive coping strategies with paired T-test**

group		Paired Differences					t	df	P value
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
case	Problem focused1 – Problem focused2	-4.38710	7.42	1.33	-7.11014	-1.66405	-3.290	30	0.003
control	Problem focused1 - Problem focused 2	1.64516	6.92	1.24	-.89356	4.18388	1.323	30	0.196
case	Emotionfocus1 - Emotionfocus2	1.32258	5.39992	0.96985	-.65813	3.30329	1.364	30	0.183
control	Emotionfocus1 - Emotionfocus2	0.03226	4.51283	0.81053	-1.62306	1.68758	0.040	30	0.969



## Discussion

After 8 sessions training on coping strategies, the significant difference between problem-focused coping strategies were observed in the two groups. The intervention group used these strategies more significantly.

Additionally, quality of life scores in the functions and global health for the intervention group were significantly higher than the control group. This means better quality of life in the intervention group after coping skills training. However, symptom scores between two groups were not statistically significant. While the mean of the problem and emotion focused coping strategies was not significantly different before the intervention in the two groups. After the intervention, problem-focused coping strategies in the intervention group had significant improvement than the control group. This result is consistent with other studies. Evidence showed that psychosocial interventions can help patients with cancer to cope better with stressful situations. This training leads to a more rapid return to normal life and lower limits at work and home (7). Among the problem-focused strategies some of them like: religion, acceptance, planning, positive reframing in both group before and after the intervention, were the most common strategies. Note that the use of these strategies in the intervention group had increased after training. Religion and humor strategies were not significantly different in the two groups after intervention. Religion was the most commonly used strategy in two groups after the intervention. Obviously, due to the religious atmosphere in Iran, this event was not unexpected. Studies showed that patients dealing with stress use different coping strategies. It depends on individuals, circumstances, and culture (13). In a study conducted in Iran on cancer patients, religion, and acceptance and planning have been the dominant coping strategies (14). Also, there were the dominant strategies in a study conducted in Turkey on patients with diabetes (15). But seeking social support was in a

study conducted in Thailand, the most used coping strategies breast cancer survivor in Thailand (16). According to Folkman and Lazarus model in the process of coping, cognitive skills are used to solve the problem. Patients with efficient problem-focused coping strategies use cognitive skills to solve problems. Based on it, they directly review ways to deal with the problem. And often finding the appropriate solutions for the problem, psychological satisfaction is achieved. A common feature of problem-focused coping strategies is that they are dynamic. Being dynamic gives the patient capabilities to deal actively with stressful situations. This situation requires full potential of the patient for positive coping and problem solving and increases the probability of success. Therefore, efficient coping strategies by increasing their confidence, improve their problem-solving skills and leads to more satisfaction. Another feature of patients who are using efficient problem-focused coping method is lower stress. Low levels of emotional stress cause the person can use better dynamics and cognitive skills to deal with the problem and thus achieve higher satisfaction (17).

Emotion-focused strategies already used in the intervention group were self- distraction and denial and in the control group were behavioral disengagement and self-distraction. After intervention overall scores of emotion-focused strategies between the two groups were not significantly different. Although the overall score of emotion-focused strategies has decreased in the intervention group, but this decrease was not significant. In addition, in subgroups of this strategy was not seen significant difference between the two groups both before and after the intervention. Since coping strategies are sets of skills which are influenced by person's conditions ,environment, culture and social support, insignificant emotion-focused strategies in our study may be for this reason that trainings most affected the person and due to no change has happened in patient's living conditions and social support, these

strategies are not significant. Another reason may be that emotion-focused strategies need to increase the number of training sessions or have additional training. Using emotion-focused coping strategies may be helpful in the short term and uncontrollable conditions, but in persistent and chronic stressful situations, use of these strategies will lead to negative consequences for physical and mental health (18). The study of gender differences in coping with stress showed that men use more problem-focused strategies and women use more emotion-focused strategies. But some studies have also shown that when men and women are similar in terms of job and education, methods of coping with stress is almost identical (19).

Denial and inaction are two characteristics of those who use inefficient emotion-focused coping strategies. Denial of stressful situations, can lead to avoidance behavior, passivity in the face of stressful situations, inability to use of potential abilities and person's initiative. With this coping style the problem remains unsolved, hence dissatisfaction grows. Also characteristics and consequences of denial and inaction at inefficient emotion-focused coping strategies with stressful situations increase the problems and dissatisfactions by reducing the person's self-esteem.

Psycho-social training in our study leads to improved quality of life in the intervention group in both dimensions of Global Health and Functional. These two dimensions mainly consist of the psychological aspects of quality of life, but in symptom scale no changes were made in the training that could be due to the biological nature of this dimension.

It is noteworthy that after intervention in the symptom scale subset, fatigue score in the training group was significantly lower than the control group. It could also be due to the psychological nature of "fatigue".

Evidence showed that psycho-social interventions can decrease distress and improve quality of life in patients with cancer and these interventions are cost-effective (7).

Chesney et al showed that coping strategies can be changed through psycho-social interventions. For example, because of coping training increased optimism among HIV-positive men, while such a thing has not happened in the control group (20).

Increasing optimism in breast cancer patients who have been trained in cognitive-behavioral stress management has improved compared with the control group. However, such interventions are more effective in women who have lower levels of optimism than those who have higher levels of optimism (21). Interventions and psycho-social education were more effective in women who had lower social support (22). In patients who are under stress, those interventions that target the skills and methods of coping may be better and more useful than interventions that target personal disposition. Also matching should take place between intervention content and receivers features (23). As well as, coping effectiveness training (CET) is more effective in improvement of stress and anxiety in HIV-positive men (20). In HIV-positive men, stress management and behavioral coping self-efficacy-cognitive lead to reduction of mood disorders and depressive symptoms (24). Health improvement has direct relation to active coping and acceptance and reverse relation to maladaptive coping strategy (25). Keefe et al found coping skills training and exercise training in patients with osteoarthritic knee pain and their spouses can improve physical fitness, strength, pain coping, and self-efficacy (26). Rhee et al showed that stress management in patients with rheumatoid arthritis can decrease depressive symptom and pain through changing coping strategies (27).

Our research showed that training can be changed coping strategies and by increasing problem-focused strategies, better physical and mental health outcomes brought for patients.

Thus, the effectiveness of our intervention in addition to training can be due to dynamic

and interaction that had developed between group members.

#### Limitations:

Small convenient sampling, so there was the threat of selection bias and limited generalizability. Other limitation was the length of the questionnaires were partially long, which could have led to fatigue, but participants were allowed plenty of time in peaceful conditions. The data were based on self-reports and there was the threat of social desirability bias, so we reassured participants that their confidentiality and anonymity would be protected.

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