

## Effectiveness of Cognitive Behavioral Therapy Group on Social Adjustment of Women with Breast Cancer

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### Abstract

**Introduction:** Breast cancer is the most important and common disease among women, which has the second highest mortality rate after lung cancer, so this research aims to investigate the effectiveness of cognitive behavioral therapy group on resilience, social adaptation of women with cancer. It was chest.

**Research method:** The current research was semi-experimental, using a pre-test and post-test design with a control group. The study sample was selected by available sampling from among 113 women with breast cancer in Kermanshah city in 2017, 30 patients were selected and randomly assigned to two groups of 15 people, test and control. The intervention group underwent 10 90-minute group therapy sessions for two months; and the control group did not receive any treatment. Ahmadi social adjustment questionnaire (1369) was used as an evaluation tool before and after the intervention. Data analysis was done using multivariate covariance analysis using SPSS version 24 software.

**Results:** The results showed that the cognitive behavioral therapy group had a significant effect on the social adjustment of women with breast cancer, and there was a significant difference between the experimental and control groups ( $p < 0.05$ ).

**Conclusion:** The results of this study indicate the usefulness of cognitive behavioral therapy group in increasing the social adjustment of women with breast cancer; therefore, it is recommended to use this therapeutic approach to improve the social adaptation of these patients.

**Keywords:** breast cancer, cognitive behavioral group therapy, social adaptation

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**Introduction:**

Breast cancer is the most common cancer in women and the first cause of cancer-related death in women aged 40 to 44 (1). This malignancy accounts for 33% of women's cancers and is responsible for 91% of cancer-related deaths (2), annually, 180,000 women with this cancer are diagnosed in the United States (3). This type of cancer is the most common cancer in Southeast Asia (4) and global statistics indicate an increase in the incidence rate and a faster increase in developing countries. Currently, about one third of all women's cancers in developing countries are breast cancer (6, 5).

The epidemiology pattern of breast cancer in Iran is similar to Eastern Mediterranean countries and other developing countries (7), all women of any age are at risk of developing breast cancer, but this risk increases with age (8). However, the age of breast cancer in Iran is 15 years younger than other countries (9). In fact, the age of breast cancer is at least a decade younger than in developed countries. According to the statistics available in Iran in 2016, one out of every 10 to 15 Iranian women is likely to get breast cancer (6).

The risk factors of breast cancer include a wide range, which includes increasing age, female sex, family history of breast cancer, increased breast density, genetic predisposition, onset of menstruation before the age of 12, and natural menopause after the age of 45 (8).

The risk of breast cancer with fertility history includes no history of fertility or high age at first pregnancy and replacement of endogenous and exogenous hormonal factors, not breastfeeding and related infertility (10), increased exposure to exogenous estrogen and long-term use of estrogen (more than 5 years) during life is associated with an increased risk of breast cancer (11). The special problems and conditions of women with breast cancer will also have obvious physical and posterior symptoms and affect various psychological aspects of people. Of course, the type and severity of symptoms vary from person to person (12).

Considering the difficulty of bearing and the cost of cancer for women and the impact it has on their personal and social life, it can be assumed that this disease is effective in many social aspects of life (13), social adaptation is broadly related to structures related to Health is connected (14) and it is a reflection of a person's balance with others, satisfaction with one's roles and how to perform in roles, which is most likely influenced by the culture and expectations of the family and usually in the terms of social role, role performance, involvement with others And satisfaction has been conceptualized with different roles (15), whenever the words socialization, sociability, social competence and prosocial behavior are synonymous with social adaptation. Socialization is a process through which a person learns the desired patterns, values and behaviors of his culture and society (16).

Among the effective treatments for relationships and social adaptation, we can mention cognitive-behavioral therapy, which is a psychological intervention whose goal is to help reconstruct the thoughts, feelings, behaviors, and physical signs of those seeking therapy. The goal of cognitive methods is to identify and challenge negative thoughts, to seek help to find alternative methods, to think in the direction of improving relationships and ways to avoid these methods. This treatment

focuses on the present tense, thoughts and behaviors here and now and is adapted from Beck's cognitive theory (17).

Cognitive-behavioral therapy includes methods that combine behavioral and cognitive solutions. Therefore, the cognitive-behavioral theory is based on the assumption that the thoughts, feelings and behaviors of a person are intertwined and are important for understanding and solving clients' problems. In particular, cognitive-behavioral therapy is based on the premise that emotional turmoil is caused by dysfunctional belief systems (18). Therefore, this study was conducted with the aim of investigating the effectiveness of cognitive-behavioral therapy group on the social adjustment of women with breast cancer in Kermanshah.

### Research method:

In terms of purpose, this study was practical and from the point of view of data collection, it was a semi-experimental design, pre-test, post-test with a control group. The statistical population of the present study was female patients with breast cancer in Kermanshah city in 2017 that referred to the Oncology Center of Imam Reza Hospital. The total number of women with breast cancer under treatment was 617, of which 113 women with breast cancer, from this population, were 30 patients were selected and randomly assigned to two groups of 15 people, test and control. The intervention group underwent 10 90-minute group therapy sessions for two months, and the control group did not receive any treatment.

The research tools were: Ahmadi Social Adaptation Questionnaire: This questionnaire was created by Ahmadi in 1369. This questionnaire was created from the beginning with the aim of measuring the amount of social adaptation behaviors. This questionnaire consists of 67 three-choice questions that are scored on a Likert scale from 0 to 2. The minimum and maximum possible scores are 0 and 96, respectively. The interpretation of the obtained scores is that higher scores indicate social adjustment and the total scores of all the questions indicate social adjustment. The questions of this questionnaire measure compromise behavior and developed social characteristics, these characteristics include: truthfulness, cheerfulness, trust in ego, the degree of shyness, sensitivity and irritability, the degree of jealousy, flattery, fantasizing, timidity, daring, harassing others, leadership power and the way to communicate with siblings and peers (19), the content validity coefficient of the questionnaire by Ahmadi reported 0.87, which indicates high and acceptable content validity.

Table 1- Summary of cognitive-behavioral group therapy protocol

	protocol
First session	introduction and acquaintance; description of the work process; Introducing the approach of cognitive behavioral therapy in a group way
second session	Definition of social adaptation, resilience and mental well-being; Examining the motivation of subjects to participate; Determining the objectives of the meetings; Explaining the relationship between mood and behavior

third session	Teaching the technique of "expressing emotions and feelings", the technique of "increasing optimism", the technique of "having a sincere relationship"
fourth Session	determining mood swings; Teaching the techniques of "increasing physical activity", "increasing social relations"; Analyze and examine your own thoughts
fifth meeting	Check your thoughts come; introducing counter-evidence that does not support spontaneous thoughts; Encouragement and practice of "organizing and planning and stopping worry" techniques in the form of a scenario in the meeting
The sixth session	Introducing and recording positive and appropriate thoughts for planning problem solving strategies, teaching the technique of "avoid worrying thoughts" and "creative thinking technique"; Addressing how faulty and illogical thoughts arise.
The seventh session	Work on faulty thoughts and illogical thoughts; Introducing and examining deep knowledge and the concept of conditional presuppositions and central beliefs; Getting to know the concept of "healthy personality" and practicing "being yourself"; and training to recognize the difference between real self and ideal self
The eighth session	Suggest appropriate coping strategies; Practicing the technique of "living in the moment" and the technique of "prioritizing happiness" and recognizing the "communication pattern"
The ninth session	Reviewing the educational and therapeutic topics of the past sessions; Receiving people's reports, treating the "vulnerable cycle of communication interactions"; Combining and applying learned skills.
tenth session	summarizing the techniques taught; Answers to questions; Special planning in the field of coping strategies

In order to analyze the data in this research, the following statistical methods were used: Descriptive statistics methods such as central tendency indices (mean, median and mean), dispersion indices (range of changes, variance, and standard deviation). Inferential analyzes included multivariate analysis of covariance, which was used due to the normality of data distribution and the homogeneity of the variance of the groups, in addition, the analysis of covariance test was used to determine the effectiveness of the cognitive behavioral therapy group. Also, in this research, SPSS version 22 software was used for data analysis, and a significance level of 0.05 was considered for all hypotheses.

### Results:

The results showed that most subjects in the experimental group (6 people (40%)) are between 36 and 40 years old and in the control group (5 people (33.73%)) most of the subjects are between 41 and 45 years old. However, only in the experimental group (2 people (13.3%)) and in the control group (3 people (20%)) are they in the age range of more than 45 years.

Most of the subjects in the experimental group (6 people (40%)) have bachelor's education and in the control group (47.6% of 7 people) they have undergraduate and diploma education; while a

smaller number of subjects (2 people (13.3%) in the experimental group) The experimental group has a master's degree or higher, and the control group has a bachelor's degree or a master's degree or higher.

Table 2- Descriptive statistics of research variables in two groups

Variable		Examination Group		Control Group		
		Pre test	Post test	Pre test	Post test	
Social adjustment	area of expertise	M	61.33	59.47	59.4	<b>58.93</b>
		SD	6.39	6.24	5.96	<b>6.11</b>
	free time	M	46.33	43.4	48	<b>47.67</b>
		SD	4.13	4.1	4.44	<b>4.47</b>
	Relationships with family	M	26.67	22.067	24.27	<b>24.2</b>
		SD	3.29	2.25	3.82	<b>3.07</b>
	Spouse role	M	39.33	35.67	40.33	<b>40.67</b>
		SD	3.06	3.24	2.99	<b>2.72</b>
	Parental role	M	15.8	11.6	15.87	<b>15.87</b>
		SD	1.52	1.3	1.77	<b>2.1</b>
	A member of the family unit	M	9.2	6.27	9	<b>8.4</b>
		SD	1.08	1.16	1.07	<b>0.98</b>
	Total	M	198.67	178.47	196.87	<b>195.73</b>
		SD	8.08	6.85	6.13	<b>6.9</b>

As can be seen in the above table, there is a difference in the average post-test scores of social adaptation and resilience compared to the pre-test scores in the experimental group.

Table 3- Kalmogorov-Smirnov test to measure the normality of distribution of variables

	area of expertise		free time		Relationships with family	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
z statistic	0.117	0.117	0.151	0.112	0.12	0.185
Probability of z	0.2	0.2	0.078	0.2	0.2	0.01
	Spouse role		Parental role		A member of the family unit	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
z statistic	0.089	0.1	0.164	183	0.18	0.091
Probability of z	0.2	0.2	0.038	0.012	0.015	0.2

As it is clear in the above table, the scores of the subjects in time 1 (pre-test) and time 2 (post-test) of the research variables are not KMO statistic values ( $p < 0.01$ ) and it indicates the normal distribution of the variables in the present study.

Table 4- Test of linearity of the relationship between associated and dependent variable.

Variable	sum of squares	df	mean square	F	Sig	R
area of expertise	873.364	1	873.364	136.058	0.001	0.903
free time	526.544	1	526.544	119.641	0.001	0.899
Relationships with family	112.652	1	112.652	26.753	0.001	0.689
Spouse role	281.784	1	281.784	42.631	0.001	0.802
Parental role	63.721	1	63.721	10.414	0.004	0.536
A member of the family unit	1.729	1	1.729	3.855	0.049	0.41
Social adjustment	616.339	1	616.339	4.387	0.048	0.416

As it is clear in the above table, the linearity of the relationship between the pre-test and the post-test, as well as the post-test and the follow-up of the research variables is significant with  $P < 0.05$ , so this assumption has been met. Also, R values are 0.4 and higher in the described steps. Homogeneity of regression slopes in this assumption, it is focused on the relationship between the covariance and the dependent variable for each group, so it is checked that there is no interaction between the covariance and the intervention or experimental manipulation.

Table 5- Homogeneity test of regression coefficients between groups

Variable		sum of squares	df	mean square	F	Sig
area of expertise	Pre-test group	2.051	1	2.051	0.289	<b>0.595</b>
free time	Pre-test group	0.383	1	0.383	0.14	<b>0.711</b>
Relationships with family	Pre-test group	1.412	1	1.412	1.426	<b>0.243</b>
Spouse role	Pre-test group	4.117	1	4.117	3/479	<b>0.074</b>
Parental role	Pre-test group	1.896	1	1.896	2.095	<b>0.16</b>
A member of the family unit	Pre-test group	1.497	1	1.497	1.979	<b>0.171</b>
Social adjustment	Pre-test group	17.933	1	17.933	1.349	<b>0.248</b>

As it is clear in the above table, the interaction effect of group and pre-test in the research variables is not significant with  $P > 0.01$ , so the assumption of regression slope has been observed in them.

Other assumptions such as homogeneity of variance (Levin's test), homogeneity of variance-covariance matrices (Mbox's test) and the fit of the residual covariance matrix with the same matrix (Bartlett's test of sphericity) are stated in the appropriate place for each hypothesis.

Group-based cognitive-behavioral therapy increases the social adjustment of women with breast cancer.

#### A) In the general state of social adaptation

Table 6- Test of homogeneity of variance in social adjustment

Variable	F	Df1, 2	F
Social adjustment	0.012	1,28	0.915

As can be seen in Table No.6. The assumption of homogeneity of variance was met with  $P>0.05$ .

Table 7- Social adjustment covariance analysis test

	sum of squares	df	mean square	F	Sig
Pre-test effect	972.169	1	972.169	74.464	<b>0.001</b>
Groups	2591.863	1	2591.863	198.527	<b>0.001</b>
Within-group variance	352.498	27	13.055		
Total	1053753	30			

As can be seen in Table No. 7: the pre-test effect is significant with  $P<0.01$ . Therefore, there is a correlation between the post-test and the pre-test. Therefore, by removing the pre-test effect, a significant difference was observed between the groups with  $F(1, 27) = 198.527$ ,  $P<0.01$ .

Table 8- Post-test averages of social adjustment

group	Post-test average without removing the	Pre-test effect. Post-test average with the pre-test effect removed
experiment	178.4667	<b>177.727</b>
Control	187.7333	<b>196.473</b>

As can be seen in Table No. 8, in the post-test average by removing the pre-test effect, the average difference between the experimental group and the control group (-18.746) showed that the social adjustment scores of people in the experimental group were lower (a lower score indicates a higher adjustment level) is from the control group; Therefore, it can be said: cognitive-behavioral therapy in a group way increases the level of social adaptation in women with breast cancer.

b) in the case of social adaptation components

Table 9- M BOX test, Bartlett's sphericity, and multivariate and Levin tests in the second hypothesis

		value	F	Df1	Df2	sig
M BOX test		43.06	1.57	21	2883.551	<b>0.047</b>
		6				
Bartlett's sphericity test		-	$2 = 58.75\lambda$	20	-	<b>0.001</b>
Pillai effect		0.957	0.001	6	17	<b>0.001</b>
Multivariate test	Wilkes Lambda	0.043	62.985	6	17	<b>0.001</b>
	Hotelling	62.23	62.985	6	17	<b>0.001</b>
	The largest zinc root	22.23	62.985	6	17	<b>0.001</b>
	area of expertise	-	0.001	1	28	<b>0.988</b>
	free time	-	4.728	1	28	<b>0.038</b>
Levine test	Relationships with family	-	0.54	1	28	<b>0.469</b>
	Spouse role	-	5.377	1	28	<b>0.028</b>
	Parental role	-	0.81	1	28	<b>0.376</b>
	A member of the family unit	-	0.477	20	28	<b>0.496</b>

According to the data in table number 9,

- Considering that in the M BOX test, the significance level is less than 0.05, therefore, the assumption of homogeneity of the variance-covariance matrices is not met, therefore, to check the linear combination of the dependent variables, the Pillai test, which is more resistant, is used.
- Bartlett's test of sphericity with  $\lambda = 2.5875$  with a significance level smaller than 0.05 indicates the compatibility of the remaining covariance matrix with the same matrix.
- With  $F=62.985$ ,  $value=0.957$ ,  $P<0.001$ , Pillai effect test with a significance level less than 0.05 showed that there is a statistically significant difference between the groups in the linear combination of dependent variables.
- In Levin's test, it was shown that the significance level of social adaptation components (except for leisure time and wife's role) is more than 0.05, so the assumption of homogeneity of variance has been met. However, in the components of leisure time and the role of the wife, where this assumption is not met, it will be accepted in the later stages if a stricter level is applied to it.

Table 10- The test of the effects between the subjects in the post-test of the groups in hypothesis 2

	sum of squares	Df 1,2	average of squares	F	Sig
area of expertise	14.124	1, 22	14.124	1.991	<b>0.172</b>

free time	32.882	1, 22	32.882	14.479	<b>0.001</b>
Relationships with family	71.988	1, 22	71.988	67.447	<b>0.001</b>
Spouse role	87.36	1, 22	87.36	65.809	<b>0.001</b>
Parental role	105.543	1, 22	105.543	122.255	<b>0.001</b>
A member of the family unit	23.234	1, 22	23.234	25.398	<b>0.001</b>

The results of Table No. 10 indicate that there is a significant difference between the pre-test and post-test scores of the experimental group and the control group in each of the social adaptation components (except for the work area) with  $p < 0.01$ . Now the interpretation of this meaning is mentioned in the table below.

Table 11- Post-test averages of social adjustment components

	<b>Pre test</b>	<b>Post test</b>	<b>Pre test</b>	<b>Post test</b>
	<b>Examination Group</b>		<b>Control Group</b>	
area of expertise	59.4667	58.399	58.9333	<b>60.001</b>
free time	43.4	44.311	47.6667	<b>46.756</b>
Relationships with family	22.06667	21.325	24.2	<b>24.942</b>
Spouse role	35.6667	36.175	40.6667	<b>40.159</b>
Parental role	11.6	15.311	15.8667	<b>15.923</b>
A member of the family unit	6.2667	6.306	8.4	<b>8.361</b>

As in table no. 11, it can be seen that in the component of social adaptation (leisure time, relationships with family, parental role, role of spouse and member of the family unit), the average of the post-test by removing the effect of the pre-test, the average difference between the experimental group and the control group, respectively (444) 2-, 3-617, 3-984, 4-379 and 2-055) showed that the implementation of cognitive-behavioral therapy on women with breast cancer increased the level of social adjustment in the components (leisure time, Relationships with family, parental role, wife role and family unit member) have become in them.

### **Discussion and conclusion:**

The purpose of this study was to investigate the effectiveness of cognitive behavioral therapy group on the social adjustment of women with breast cancer in Kermanshah. The result of periodic treatment was that the cognitive-behavioral therapy group was able to significantly improve the social adjustment of women with breast cancer. Also, the social compatibility of each was evaluated with a general score.

Cognitive behavioral therapy in a group way increases the social adjustment of women with breast cancer. The results showed that the level of social adjustment of people was significantly higher

than the pre-test. In other words, cognitive-behavioral group psychotherapy has a significant positive effect on the social adjustment of women with breast cancer. In other words, this treatment style was able to increase the level of social adaptation in people. This effect can be interpreted in such a way that if people are placed in a therapeutic environment in which they are raised with a focus on improving cognitive awareness of issues and correcting maladaptive behaviors, they can maintain their psychological pressures in terms of social adaptation during the recurrence of psychological pressures (17).

In cognitive-behavioral psychotherapy, no attempt is made to reduce, avoid, suppress by controlling these internal experiences; rather, patients learn to reduce incompatible and disturbed thoughts and emotions with the help of paying attention to awareness (9). Patients learn to accept their problematic cognitions and maladaptive behaviors so that they can modify and eliminate them, thus cognitive behavioral therapy interventions in a group way are focused on two main frameworks: 1) acceptance of inner experiences Unwanted that cannot be controlled, 2) commitment to living a worthwhile life and taking action to change maladaptive behavior. Considering this treatment style and the changes that are made in people's cognition, theoretically, this treatment can be considered effective for increasing the social adaptation of women with breast cancer (18).

In this regard, the research of Abedi Par Yeja, Sadeghi, Shelani, and Sadeghi (20) showed that cognitive-behavioral therapy can significantly improve the social adjustment status of addicts treated with methadone, and the ability of people to use coping styles of work. to come Also, the findings showed that this style of psychotherapy in using social adaptation skills and coping styles helps addicts not to return to drug use again. According to the findings of the present research on the effectiveness of this style of psychotherapy in improving social adaptation and coping styles, it can be concluded that the present research was similar to this research.

Also, the results of the research by Aghabarari et al. (21) showed the validity and ability of the cognitive-behavioral therapy model as a practical model in its effectiveness on social adjustment and social anxiety of individuals, the structure of social adjustment as one of the main structures in the cognitive perspective. Social has been able to make changes in people's social adjustment and social anxiety. By comparing the results of this research with the current research, we can see the alignment of the current research.

### **Ethical considerations:**

The ethical considerations of the project included: written information about the research to the participants, giving assurance to the volunteers about the confidentiality of the information and its use only in research matters, voluntary participation and obtaining written consent from the participants, and at the end with Paying attention to the evidence that supports the effectiveness of the cognitive behavioral therapy group on social adjustment, therefore, in order to comply with ethical considerations, after the completion of the mentioned treatment process, the above treatment was also performed for the control group.

**Research limitations:**

Every research, from the beginning of the work, that is, the selection of the main problem to the stages of implementation, analysis and final interpretation, faces limitations. Reporting the limitations of each research helps researchers who want to conduct research in the same field in the future to take the necessary measures to remove the limitations and conduct research with a more comprehensive perspective. This research, in turn, had limitations, the most important of which are mentioned below.

The study subjects were limited to women with breast cancer in Kermanshah. This limitation of the research sample means that the findings cannot be reliably generalized to other societies.

We also faced limitations in accessing women with breast cancer and convincing them to answer questionnaires and participate in the treatment period, because the patients came to the hospital for chemotherapy and drug treatment, and sometimes the discomforts caused by the disease work with it made them hard.

Another limitation was that we did not have information about the history of psychological disorders of the studied subjects. Having this information could provide comprehensive information to the researcher.

**Suggestions:**

In the limitation section of the research, it was stated that the sample studied was limited to women with breast cancer in Kermanshah city. In order to solve this limitation and to lay the groundwork for generalizing the research findings to other societies, it is suggested that this treatment style and structures be implemented among other societies as well; Another limitation was the method of measurement and data collection. In order to overcome this limitation, it is suggested to use other methods such as interview and observation, and the data collection should not be limited to self-report questionnaires. In this regard, semi-structured open-ended questionnaires can also be useful, for a more accurate comparison and evaluation, it is suggested that the control group (other than breast cancer patients and other than women) should be investigated in other researches as well. be used to determine whether disease and gender characteristics play a role in creating differences between people or not, and by studying research abroad, it is possible to find that extensive research on the effects of psychotherapy based on commitment and acceptance in a group manner have been measured on breast cancer patients from different aspects. But this issue has not been properly addressed in domestic research. To improve this situation and expand domestic research, it is suggested that domestic researchers pay attention to this issue and study it from different aspects. to study.

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