

## Case Report

# Assessing the Effectiveness of Cognitive Behavioral Stress Management (CBSM) on Anxiety and Depression of Cancer Patients

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## Abstract

**Background:** The purpose of this study was to determine the effectiveness of cognitive-behavioral stress therapy on stress, depression and distress in patients with cancer.

**Cases Report:** In a cross-sectional study of consecutive patients (Aged 32-70 years, progression of their disease was at levels 1 to 3, high cycle education, and 3 months of chemotherapy, of which 40, were randomly available from this group (20 experimental and 20 Control group). The instrument was a McGill Pain Questionnaire (1997) and the Hazards and Anxiety and Depression Scale (HADS) questionnaire. Data were analyzed using two methods of Kolmogorov-Smirnov inferential statistics and multivariate analysis of covariance using software software Spss17.

**Conclusion:** Correlation analysis showed that the experimental group had a significant reduction in depression and anxiety in the posttest after the control group compared with the control group. The short-term cognitive-behavioral stress management program can reduce, depression and anxiety in cancer patients.

**Keywords:** Cognitive-Behavioral Stress Management, Anxiety, Depression

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## Introduction

Cancer diagnosis is a significant source of psychological stress/distress (hereinafter referred to as stress), followed by an extended period of stressful cancer treatment<sup>1</sup>.

Mood disturbance, particularly of depression and anxiety, is common with cancer diagnosis and has been highly.

The increase of the rate of survival can be attributed to the progressively more aggressive treatment

procedures and protocols. However, this increased survival rate has resulted in some chronic issues for many of these patients. There has also been an increase in the incidence of side effects and reduced quality of life during and after treatment of cancer<sup>2</sup>. With the rising incidence of cancer survivors and pediatric oncology patients, pain is a major priority of care.

Considerable data suggest that depression and anxiety are the most commonly studied mood disorders, but that the rates of depression vary (10–20%) as reported

in a review by<sup>3</sup>. Another study suggests, however, that the number of patients with depression or anxiety is closer to 50% in the first year<sup>4</sup>, and a recent study reported that 35% still experience increased distress at 5-year follow-up<sup>5</sup>. Although underlying methodological differences in the studies may contribute to these diverse findings, it is undisputed that a significant minority of women experience serious adjustment problems after the treatment for cancer<sup>6</sup>. The prevalence of clinically diagnosed depression based on the Diagnostic and Statistical Manual of Mental Disorder, 4th edition (DSM-IV) criteria was estimated at 18.3% among all U.S. cancer survivors. Frequency of depression may vary by cancer and treatment received<sup>7</sup>. Cancer survivors experience a heavy financial burden during treatment and can still feel financial pressure long after the initial active treatment ends<sup>8</sup>. Furthermore, financial burden and depression can be bidirectionally associated<sup>9</sup>. Depression tends to be a cyclical, chronic illness and, once depressed, individuals are at risk to have another depression episode as they move through life<sup>10</sup>. Since many cancer survivors report depression after their cancer diagnosis, during, and soon after active treatment<sup>11</sup>, how this depression is associated with financial pressures over the long term remains unexplored. Further investigation of the effect of cancer types, treatments, and depression on survivors' financial well-being is needed. Pain is one of the most distressing aspects of suffering related to cancer treatment. With new technology and treatment modalities, pediatric cancer patients have a better chance of surviving, however pain is still a major side effect of treatment<sup>12</sup>. The increase of the rate of survival can be attributed to the progressively more aggressive treatment procedures and protocols. However, this increased survival rate has resulted in some chronic issues for many of these patients. There has also been an increase in the incidence of

side effects and reduced quality of life during and after treatment of cancer<sup>13</sup>. CBT is the most frequently used approach in studying the effects of psychological intervention in adjustment to cancer<sup>14-16</sup>, and its value has been demonstrated in reducing distress with diverse cancer populations<sup>17</sup>. Tatrow and Montgomery (2006) have highlighted that CBT is particularly beneficial for breast cancer patients with respect to their short-term effects on depression, anxiety and quality of life. stress management interventions may not be effective or necessary for all patients, and so, it is essential to identify subgroups of participants who benefit most. A meta-analysis by Schneider et al. (2010) showed that pre-intervention distress significantly moderated effects with the most distressed participants showing better adjustment. Other studies have shown that interventions may be differentially effective depending on baseline differences in optimism<sup>18</sup>, social support<sup>19</sup> and cancer-specific stress<sup>20</sup>. Identification of the women most in need of intervention remains an ongoing research and health care issue<sup>14,21</sup>.

## Case Report

The statistical population of the study included cancer patients with males and females who referred to Tabriz Shohada Hospital in Tehran (age 32-70 years, progression of their disease at levels 1 to 3, higher education in chemistry and 3 months of chemotherapy). They were treated with 40 patients randomly (20 experimental and 20 control groups) selected from the available sampling method. The instrument was the Anxiety and Depression Scale (HADS) questionnaire. Data were analyzed using descriptive and inferential statistics. In the descriptive section, we used the frequency distribution of the table and the mean and standard deviations and in the inferential statistics of the Kolmogorov-Smirnov tests and multivariate covariance analysis using Spss17 software.

**Table 1:** Kolmogorov-Smirnov test to ensure the normal distribution of anxiety scales.

Sig	Kolmogorov-Smirnov	variable
0.323	0.953	Anxiety

**Table 2:** Leven test to ensure homogeneity of variance of anxiety variables.

Sig	Df2	Df1	F	variable
0.112	38	1	2.649	Anxiety

**Table 3:** Regression slope survey to ensure homogeneity of regression coefficients of anxiety variable.

Sig	F	Source
0.35	16.787	Anxiety * Pre-test

**Hospital Anxiety and Depression Inventory**

**(HADS):** The HADS was designed to provide a practical tool to identify and quantify the two most common forms of psychological disorders, depression, and anxiety. It was used initially in patients who had been in clinical psychiatric hospitals, and then extended to evaluate a non-hospitalized patient with some type of disease or individuals without disease. HADS does not consider vegetative symptoms associated with depression and anxiety, and it does not allow interferences of somatic symptoms in the assessment. HADS consists of a 14-item self-report questionnaire incorporating seven questions for anxiety and seven others for

**Table 4:** Results of analysis of variance for the mean scores of post-test anxiety in the experimental and control group.

Sig	Df	t	variable
0.483	38	1.28	Anxiety

depression. The seven questions about depressive symptoms comprise the Depression Subscale of Hospital Anxiety and Depression Scale. Each item is

scored 0 to 3, and a total score of 8 or greater on one or both subscales indicates the presence of a depressive or anxiety disorder. HADS was translated and validated for the Brazilian-Portuguese language, by Botega. HADS has been used as a screening questionnaire in patients before the spine surgery.

As shown in the table, the data obtained from the implementation of the normal distribution anxiety questionnaire (Kolmogorov-Smirnov test is not significant in the significant difference). Therefore, the default is the normal distribution of data. Default homogeneity of variances: Homogeneous assumption of variance of anxiety variables was investigated. Using Loon's test, the results of this test are presented in Table 2.

Results show that the Loonens test is meaningful (P=0.112, F=2.469), which indicates that the variances are homogeneous. Therefore, the covariance analysis test can be used to compare the anxiety posttest. The results of covariance analysis are presented in Table 3. To test the homogeneity of regression coefficients, we use the f test. According to the results of Table 3, the F test for the homogeneity of regression coefficients is not significant in the study variable. To examine the coexistence of the two groups in the baseline, independent t test was used.

Regarding the results of Table 4, independent t values are not significant for the anxiety of cancer patients. Therefore, the two groups are peers in the base line.

As shown in the table 3, the results obtained from the comparison of the post-test of anxiety variable in the two groups by controlling the pre-test effect indicate that after the behavioral cognitive behavioral stress management, the anxiety scores in cancer patients who participated in the test group had a ratio. There was a significant decrease in those who were replaced in the control group (P <0.05, F = 6.400). So hypothesis. First, the research is confirmed. Therefore, cognitive-behavioral stress management is effective on the anxiety of people with cancer. Eta's coefficient shows that 14% decrease in anxiety in cancer patients in the experimental group because of cognitive behavioral stress management by the researcher. That results with results.

As shown in the table 6, the data obtained from the implementation of the depression questionnaire have a normal distribution (Kolmogorov-Smirnov test is not

**Table 5:** Comparison of post-test anxiety in two groups with control of pre-test control effect.

Partial Eta Squared	P-value	F	Mean Square	Df	Source
0.462	0.000	31.813	45.653	1	Pre-test
0.147	0.016	6.400	9.184	1	Group
			1.435	37	Error
				40	Total

**Table 6:** Kolmogorov-Smirnov test to ensure the normal distribution of variable depression scores.

Sig	Kolmogorov-Smirnov	variable
0.445	0.864	Depression

**Table 7:** Leven test to ensure the homogeneity of variables of depression.

Sig	Df2	Df1	F	Variable
0.120	38	1	2.527	Depression

significant in the depression variable). Therefore, the default is the normal distribution of data. Pre-homogeneity of variances: the homogeneous assumption of variables of depression was investigated using Leven's test. The results of this test are presented in the Table 7.

As can be seen, the results showed that the Loonse test was not significant (P=0.120, F=2.527), which indicates that the variances are homogeneous. Therefore, the covariance analysis test can be applied to compare post-test depression. The results of covariance analysis are presented in the Table 8

To test the homogeneity of regression coefficients, we use the f test.

According to the results of Table 8, the test is not significant for convergence of regression coefficients in the study variable. Therefore, assuming that the regression coefficients are homogeneous, analysis of the covariance is made.

Independent t test was used to examine the co-existence of the two groups in the base line.

**Table 8:** Regression slope check to ensure homogeneity of regression coefficients of depression variable.

Sig	F	Source
0.46	6.176	* Pre-test Depression

**Table 9:** Independent t test.

Sig	Df	t	variable
0.630	38	1.160	Depression

According to the results of the Table 9 the independent value of t is not meaningful for the depression of cancer patients. Therefore, the two groups are peer in the base line.

Table 10 Results of covariance analysis on the mean scores of post-test depression in the experimental and control group.

As shown in the Table 9, the results of the comparison of the post-test variable of depression in the two groups by controlling the pre-test effect indicate that after cognitive behavioral intervention, depression stress management in cancer patients who participated in the experimental group, Had a significant decrease compared to those in the control group (P<0.05, F=3.881).

Therefore, the second hypothesis of the research is confirmed. Therefore, cognitive-behavioral stress management has been effective on the prevalence of people with cancer. The Eta-0.39 coefficient shows that cognitive-

**Table 10:** Comparison of post-test depression in two groups with control of pre-test effect.

Partial Eta Squared	P-value	F	Mean Square	Df	Source
.252	0.001	12.495	34.612	1	Pre-test
0.391	0.045	3.881	10.750	1	Group
			2.770	37	Error
				40	Total

behavioral cognitive behavioral instruction has a significant effect on decreasing depression.

## Discussion

The eight-week, five-contact intervention was designed to assist patients with identifying troublesome symptoms, generating intervention strategies to decrease symptom severity, and evaluating the effectiveness of the strategies. In our study, we found that coping strategies were associated with pain intensity and quality.

Data suggest that patients with advanced disease undergoing chemotherapy are able to successfully implement problem-solving strategies that reduce the severity of symptoms. The results of this study extend the work of other investigators who have reported on the effectiveness of CBTM in decreasing the severity of specific symptoms<sup>22</sup>.

This study provides clear evidence that a briefer than the norm group-based stress management intervention can produce significant improvements in adjustment in undergoing treatment for non-metastatic cancer. Mood disturbance, including depression and anxiety, has been highly correlated with psychological stress and, as a result, mood disturbance has been used frequently to indicate psychological stress<sup>23,24</sup>. The intervention significantly reduced perceived global stress (primary outcome) post-treatment anxiety, depression. Causal relationships were demonstrated in that pretreatment emotional distress significantly predicted post chemotherapy fatigue.

Depression is a common but not universal reaction to cancer<sup>25</sup>. Depression is frequently underdiagnosed and undertreated in patients with cancer<sup>26</sup>. In addition, there was a significant relationship between catastrophizing and the psychological factors of depression and state- and trait anxiety in all cancer patients.

## Conclusion

Therefore, according to the results of this research and other researches on the effectiveness of psychological interventions on chronic diseases, it is necessary to avoid medical treatments and by establishing counseling and psychotherapy centers and using psychological interventions in hospitals and oncology centers, in the process of Reduce depression and anxiety were helpful.

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