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The Role of Cognitive-Behavioral Therapy on Depressive and anxiety symptoms in Cardiac Rehabilitated patients

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ABSTRACT

Background: Due to the inevitable role of psychological factors on the risk of heart attacks on Cardiac rehabilitated patients and the lack of studies in this field, the purpose of this research is to study the effectiveness of cognitive-behavioral therapy on depressive symptoms among this group of patients.
***Methods*:** By convenience sampling, 30 patients after heart surgery (CABG) were selected at Zahedan hospital during the years 1387 to 1388. Subjects were randomized into two groups (one control group and one experimental group). Through a Quasi experimental method, the scores of depression at pretest and posttest were compared.
Findings: After the intervention, a significant difference between the pretest- posttest scores of experimental group on depression and anxiety scales was observed while no differences observed between those of control group. It is noteworthy to say that cognitive- behavioral therapy is effective in reduction of depressive and anxiety symptoms in cardiac rehabilitated patients.
Discussion: Concerning the positive effect of psychotherapies on the depression and anxiety reduction, there should be intersection cooperation in hospital. Also, both personnel and patients should be aware of the crucial role of these therapies.
KEYWORDS: Cognitive Behavioral Therapy, Depression, Anxiety, Cardiac Rehabilitation

INTRODUCTION

Cardiovascular diseases are the most common cause of mortality worldwide, and coronary artery diseases are the most common among all cardiovascular illnesses. They accounted for 50% of deaths in developed countries, and each year many people die due to lack of treatment or suffer from related chronic disabilities (1).

Cardiac rehabilitation program reduce the prevalence of coronary artery disease and improving the psychological function. Participate in this program might be decrease health care costs and hospitalization. The recent studies showed that Psychological processes not only contribute in etiology and clinical presentation of cardiac heart diseases but also in how patient coping with disease(2). Rehabilitation program is invasive approach to the risk factors that result in relapse of disease. This program provides the possibility of better management of patient's symptoms. Also it offers an educative materials and reinforcement of healthy behaviors, this program facilitating return to professional activities, routine works and helps the improvement in patient's symptoms(3). Depression is one of the psychological problems that cardiac heart patients exposure with (4). Depression is prevalent in patients with coronary heart diseases (CHD). Extensive research evidence indicates that prevalence rates of depression in patients recovering from myocardial infarction are 20% or higher (4). Once CHD is established, depression impacts negatively on the prognosis, increasing both the risk of further cardiac events and mortality (5). The presence of anxiety and depression symptoms can reduce patients' ability to cope with physical symptoms and adhere to medical treatment (6) and can lead to increased mortality, reduced quality of life, functional disability, and increased health care utilization and cost (7). Also Depression is important roadblock in treatment of heart failures because it leads to non-acceptance of disease and decrease in motivation of patient to continue treatment (6). Despite the high prevalence and significant impact of depression and anxiety in the medically ill, these symptoms often are not recognized, and only a small proportion of patients receive appropriate mental health care (8).

With regards to depression reported in 13-19% of patient with heart failures, depression lead to several consequence such as increasing in mortality, angina, hospitalization, arrhythmias (Irregular heart beat), long term disability and more smoking (9). The adverse effects of clinical depression and depressive symptoms on mortality and hospitalizations in patients with HF have been well documented. Results from a meta-analysis demonstrated that

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patients with HF who have depressive symptoms are more than twice as likely to die or experience a cardiac event compared to patients without depressive symptoms (5).

Therefore, Psychotherapy and supportive interventions along with cognitive behavioral interventions and Cardiac rehabilitation program to decrease in psychological consequences after coronary heart diseases it sound necessary (10). Several therapeutic interventions has done for change in psychological status such as high arousal, predisposing behaviors of disease, reconditioning for returning to routine activity, educating the patients and their families about The process of disease, psychological support in primary stage of improvement, identifying the risk factors, reinforcing the healthy behaviors and in generally reducing the course of hospitalization(10). Also, these therapeutic interventions Decreasing treatment costs and acceleration in improvement and increasing in longevity of patients.

The purpose of current study was investigating the effectiveness of psychological interventions (cognitive behavioral therapy) as the part of rehabilitation program on depressive and anxiety symptoms in cardiac rehabilitated patients. Cognitive behavioral therapy (CBT) has been used successfully to treat depression in multiple populations (11), Therefore, it may be useful for treating depression in patients with cardiovascular illnesses, including Heart failure.

METHODS

Participants

The participants were patients after Coronary Artery Bypass Graft (CABG), recruited from the Zahedan hospital during the years 2008 to 2009. Thirty patients with clinical depression who willing and able to give written informed were recruited. There were 10 women and 20 men, all of whom Persian speaking. This was a convenience sample. All participants met DSM-IV- TR criteria or subclinical criteria for mood disorder, with mood being the primary (most interfering) problem. Also, Beck Depression Inventory (BDI- II) and Beck Anxiety Inventory (BAI) used to characterize the degree of depression and anxiety symptoms. The clients were divided into two groups (one control group and one experimental group). Through a Quasi experimental method, the scores of depression and anxiety in pre- post test were compared. Independent variable was cognitive-behavioral therapy. Dependent variable was the degree of depression and anxiety in patients after interventions. Cognitive interventions included 14 sessions twice a week and the clients attend individually. Therapy accompanied with homework. After complete description of the study to the subjects, written informed consent was obtained. Patients were excluded if they were cognitively impaired or had a diagnosis of mania, alcohol abuse, substance abuse, or psychosis, aged over 70 years, current self-harm, active suicidal intent. All participants were asked to refrain from engaging in additional treatment or making changes to their medication status during the course of the trial.

Measures

The Structured Clinical Interview for DSM-IV (12).The SCID for Axis I and Axis II diagnoses was administered at each assessment by an experienced clinician or a trained research worker for both current and past diagnoses. The SCID was used to ensure that participants met the study criteria and to examine whether diagnostic status changed across the course of therapy(12).

Beck Depression Inventory (BDI- II). Depressive symptoms were evaluated using the BDI-II (13). The Beck Depression Inventory (13) was used to assess depressive symptomatology during previous two weeks. Each of the 21 items on the BDI consists of four statements representing increasing degrees of severity with scores ranging from 0 to 3. Total scores on the BDI can range from zero (no depression) to a maximum score of 63 (severe state of depression). A score of 14 or greater on the BDI-II was used to indicate the presence of clinically significant depressive symptoms (13). The BDI includes a 21-item scale. In current study Persian version was used. The BDI-II has strong reliability and validity and is sensitive to change in psychotherapy treatment trials of medical patients (14).

Beck Anxiety Inventory (BAI). The Beck Anxiety Inventory (15) is a 21-item anxiety scale measuring the intensity of cognitive, affective, and somatic anxiety symptoms experienced during the past week. The BAI has excellent internal consistency (α= .92) and high test–retest reliability (α=.75) (16).

Procedure

Participation in the study was voluntary and participants were free to discontinue at any time.

Participants first signed an informed consent form and filled out a socio-demographic sheet. They then completed the Beck Depression Inventory (BDI-II) and the Beck Anxiety Inventory (BAI). Following completion of the self-report measures, the structured interview was administered by the first author.

Statistical analysis

The data were analyzed with SPSS Version 18.0. Means and standard deviations were computed for pre- and post BDI and BAI for the total group. A one-way between-groups analysis of covariance was conducted to investigate the effectiveness of intervention designed to reduce participants' depressive and anxiety symptoms. The independent variable was cognitive behavioral therapy and the dependent variable consisted of scores on the depression and anxiety measures administered after the intervention. Participants' scores on depression and anxiety measures in the pre-intervention were used as the covariate in this analysis.

RESULTS

The mean age for experimental group (M=60.7, SD= 7.4), and control group (M= 59.26, SD= 5.95) did not differ significantly (t= .598, df= 28, 2 tailed *p*= .555). Also the groups did not differ significantly in terms of other features such as sex(x^2 *=0, df =1, p=1).* There were no statistically significant differences between the two groups at baseline with respect to depressive (t= -.222, df= 28, *p*= .826) and anxiety symptoms. (t= -293, df= 28, *p*= .772). The results for the self-report measures are presented in Table 1.

Table1. Means and standard deviations for the symptoms measures in two groups

Measure	Experimental group		Control group	
	Mean	S.D	Mean	S.D
Beck Depression Inventory				
Pre	23.47	2.5	23.66	2.44
Post	12.53	1.72	22.47	2.16
Beck Anxiety Inventory				
Pre	13.53	2.23	13.8	2.73
post	8.4	1.5	13.53	2.26

Table2. ANCOVA summary table for effect of treatment on dependent variables

Source	df	Mean Square	F	*P*
Pre intervention BDI scores	1	2.246	.576	.454
Group	1	735.333	188.689	.000
Error	27	3.897	-	-
Pre intervention BAI scores	1	12.364	3.67	.066
Group	1	191.613	56.871	.000
Error	27	3.369	-	-

A one-way between-groups analysis of covariance was conducted to investigate the effectiveness of cognitive behavioral therapy designed to reduce participants' depressive and anxiety symptoms. The independent variable was the type of intervention (experimental or control group), and the dependent variables consisted of scores on the after the intervention. Participants' scores on the pre-intervention administration of were used as the covariate in this analysis. Preliminary checks were conducted to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariate. After adjusting for pre-intervention scores, there was significant difference between the two groups on post-intervention scores on the beck depression inventory [*F=188.69, p=.000*] and beck anxiety inventory [*F=56.871, p=.000*].

DISCUSSION

The purpose of present study was to examine the efficacy of cognitive behavioral therapy in reduction of depressive and anxiety symptoms in patients after Coronary Artery Bypass Graft (CABG). It is widely accepted that anxiety and depression symptoms negatively affect self-management behaviors in the medically ill (17), and self management interventions improve Quality of life and reduce hospitalizations and emergency-department visits for rehabilitated cardiac patients (18). Compared to waitlist, patients receiving treatment demonstrated significant improvements according to self report measures of anxiety and mood problems. Importantly, the degree of improvement in depressive and anxiety symptoms was similar indicating that the program successfully targeted both

symptoms. Results showed that cognitive behavioral therapy were effective in decreasing depression and anxiety symptoms in these patients. These results are comparable to results of saeedi et al (2) that found a significant reduction in depression when a CBT was employed with cardiac rehabilitation patients. As one would expect, any illness or health problem with comorbid depressive symptoms to be related to poorer outcomes, it is valuable when an intervention can lead to a reduction in such symptoms. The use of a psychosocial element in disease-management interventions ranges significantly from limited to highly intensive, and data generally indicate that adding a psychotherapeutic component enhances anxiety and depression outcomes (19). Findings of current study also are consistent with findings of Frizelle et al (10) and Huffman et al (20), in both studies CBT was efficacious in decreasing depressive and anxiety symptoms. In the large randomized controlled trial of psychotherapy for anxiety and depression symptoms among patients with COPD patients, Kunik et al. (21) demonstrated equivalent effects of group-based cognitive behavioral therapy (CBT) and education support for improved mental health Quality of Life, and reduced anxiety and depression symptoms. Among physical illness, coronary artery disease specifically correlated with psychological factors such as anxiety, depression, and stress that these factors are barriers in improving from disease, also, increases the rate of mortality in patients (22).The Cognitive Model holds that dysfunctional thinking influences the emotions, behaviors, and psychosomatic symptoms associated with depression and anxiety. Thus, interventions aimed at changing dysfunctional thinking should improve the emotional, behavioral, and somatic symptoms of depression and anxiety. Cognitive therapy teaches patients to identify, evaluate, and respond to their dysfunctional thoughts and beliefs (11). Cognitive behavioral therapy results in improvement depressive and anxiety symptoms in patients through reorganizing perception and thinking and substitute maladaptive and irrational belief with adaptive and rational belief. Therefore patients understand that their inner speech is the source of emotional disorders (2). Overall, psychological interventions emphasizing the critical role of internalized beliefs, and assert that emotional disorders are the results of cognitive distortions not external events. As a result, recognizing the anxiety and depressive symptoms in the first phase of disorders, can improving outcomes.

There were certain limitations with the present study. The results are based on a relatively small

Number of cases and so caution should be used in interpreting the data. A reliance strictly on self report measures of treatment outcome is a limitation for interpreting the present treatment effects. Also, the treatment was compared to a waitlist control and not an active intervention that controlled for other nonspecific therapy factors.

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