**Original Article**

# Cognitive Behavioral Group Therapy and Coping Styles in patients with Acute Coronary Heart Disease

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**Objectives:** The present study has investigated the effect of cognitive behavioral group therapy on improving coping styles in patients with acute coronary heart disease .

**Methods:** Semi- experimental in type of pretest - posttest with control group seems to be a good design for this study.22 patients with acute coronary heart disease are admitted in CCU of Mashhad Razavi Hospital and undergo angioplasty heart surgery,11 in the control and the other 11in the experimental group. Those in the experimental group receive 12 sessions of cognitive - behavioral group therapy and the ones in the control one are not offered any intervention. Before and after the intervention, CISS-21coping questionnaire is completed by members of the sample.

**Results:** The results of MANCOVA revealed after participating in cognitive behavioral group therapy, problem-oriented coping style of members of the experimental group than in the control group had a significant increase and avoidant coping style of members of the experimental group than in the control group had a significant reduction.

**Discussion:** Findings confirm that cognitive - behavioral group therapy improve coping styles in patients with acute coronary heart disease. Findings indicate awareness of thinking styles, identifying cognitive errors, doing cognitive homework, reinforcing positive behavior, encouraging acceptance of restrictions, sharing experiences, talking about negative emotions related to illness and the possible consequences .

**Keywords:** cognitive - behavioral group therapy, coping styles, acute coronary heart disease

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## Introduction

Between 40 to 50% of acute coronary heart patients report moderate to severe levels of anxiety while confined to bed in the hospital; about a fifth continue to report anxiety at one year follow-up (1). In addition, prevalence rates for depression of between 20 to30% are typical, and may rise slightly following discharge (2), perhaps as to their becoming more aware of the problems they are likely to face (3). Such levels of distress could be considered sufficient to warrant psychological interventions. That distress of this order may compromise rehabilitation serves as additional justification. Almost all of the people, who survive from acute coronary heart disease, go on to achieve some degree of rehabilitation. Interventions with this population have two primary foci: the remediation of distress and reduced quality of life resulting from the event, and reductions in mortality and morbidity or the attenuation of the risk of re-infarction by modification of risk factors for disease progression, including smoking, Type A behavior, avoidant coping style, emotion-oriented coping style, dietary change, and lack of exercise (4). Of these, only interventions to modify exercise levels have received consistent scientific enquiry. Despite frequently promising results, other forms of intervention have received surprisingly little attention. An intervention that concomitantly maximizes physical function and fosters problem- focused coping, may provide the best opportunity for reducing depression, improving clinical outcomes, and enhancing mental health in patients with acute coronary heart disease. Cognitive behavioral therapy incorporates techniques such as self-monitoring,

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problem solving, and mutual goal setting that reinforce the benefits of exercise as well as other essential self-care strategies that improve clinical outcomes in patients with acute coronary heart disease (5). Coping skills can be taught using cognitive behavioral therapy strategies that attend to the physical and functional changes and consequences of acute coronary heart disease, promote a positive health attitude, and facilitate adaptation, reducing the psychological burden (6,7). Evidence that cognitive-behavioral interventions may help ameliorate psychological distress and increase effective coping following acute coronary heart disease, particularly in the short term, is more consistent and such procedures have been shown to have a clear advantage over educational interventions. A number of studies have now examined the effectiveness of cognitive-behavioral interventions in moderating distress during cardiac rehabilitation. However, many of them have applied cognitive-behavioral interventions in combination with other intervention strategies, making it impossible to attribute potential benefits to any particular component of the intervention. Burgess et al.(8), for example, evaluated an intervention targeted at three aspects of rehabilitation: limiting psychological distress using cognitive-behavioral interventions, providing support to both patient and a key member of their social support network, and facilitating job re-entry by meetings with patients' employers or supervisors. Outcome at 3 and 12 month follow-up was assessed relative to patients receiving standard post-MI care. At the earlier follow-up, intervention subjects reported lower mean distress scores and significantly less need for family support than controls. The latter was associated with more rapid return to work. Nevertheless, by 1 year no group differences were apparent. Similarly, Oldridge et al.(9) found relative improvements on disease specific measures of quality of life and exercise tolerance following cognitive-behavioral counseling combined with an exercise program in comparison with conventional care at 8 week, but not 12month follow-up, in a group of patients who reported significant levels of emotional distress at baseline.

Using a design which allowed the relative effectiveness of each component to be better assessed, Van Dixhoorn et al.(10) allocated post-MI patients to exercise training alone, or in combination with EMG guided relaxation. While participants in the combined intervention reported no additional benefit on measures of anxiety, sleep, or somatic stress, they did achieve significantly higher scores on a scale of subjective well-being and lower scores on a measure of perceived invalidity. Unfortunately, participants were not followed for a sufficient time to determine the durability of these benefits. Oldenburg et al. (11) reported a comparison of three conditions; education and relaxation alone or in combination with cognitive-behavioral counseling, and routine care. Both intervention groups did better than the latter on measures of psychological dysfunction (including anxiety, psychological distress and Type A behavior) at both 6 and 12 month follow-up. In addition, the combined intervention group evidenced more lifestyle change (including reduced cigarette and alcohol consumption) than either of the other groups at the later follow-up. Langosch et al.(12) compared the relative effectiveness of stress management training involving both cognitive and relaxation techniques, relaxation alone, and a standard medical treatment control condition in ninety male post-MI patients. Following intervention, both psychological treatment groups scored better on measures of cardiac complaints and speed and impatience components of Type A behavior than patients in the control group. In addition, participants in the stress management intervention reported more confidence in their ability to handle stress. However, by 6-month follow-up there were minimal differences between the two intervention groups, while the control group was not followed to this point, making interpretation of these findings difficult. In addition, no differences favoring either psychological intervention were found on measures of anxiety and depression throughout the study. Finally, two studies have compared cognitive- behavioral programs incorporating stress management procedures and education programs. The first, conducted by Revel et al. (13) involved a study population of forty male post-MI patients. They reported that at 6-month follow-up, participants in the stress management group reported less depression, greater vigor, and scored better on measures of tension and confusion. In addition, they were less accepting of the 'invalid role' and reported higher internal locus of control scores. There were no differences on measures of state anxiety or Type A behavior.

Further evidence of a differential effect favoring behavioral and stress management strategies over standard education packages was reported by Oldenburg et al. (14). They randomly allocated 177

post-MI patients to either an educational group receiving a standardized in-patient educational program, a cognitive- behavioral education group who in addition to the education program received a behavioral program targeted at risk factor reduction and a stress management program, or a group which received only routine care. The time spent with patients varied considerably. Those in the education only intervention received three 20 min sessions, those in the combined treatment had twenty-four, l+ hour sessions for a period of 8week following hospitalization; the degree of staff contact in the routine group was not recorded. Accordingly, caution must be exercised in interpreting positive results. At assessments up to 1 year, those in the cognitive-behavioral intervention reported lower anxiety and depression, fewer cardiac symptoms, and less hostility and Type A behavior than participants in either of the other groups (which did not differ significantly). In addition, those in the cognitive-behavioral intervention evidenced greater exercise capacity and greater adherence to recommended medication than those in the other groups.

According to the research background which point toward the role of cognitive- behavioral interventions in improvement mental and physical health of patients with acute coronary heart disease and the necessity to identify the various factors affecting disease adjustment as well as the importance of coping style of coronary patients, the purpose of this randomized, controlled study was to investigate the efficacy of cognitive - behavioral group therapy on improving coping styles in patients with acute coronary heart disease. We hypothesized that patients in the cognitive behavioral group therapy would have a greater reduction in emotion-oriented and avoidant coping styles and a greater increase in problem-oriented coping style compared to the control group at 12 weeks.

## Methods

According to the research objectives, the design of semi- experimental in type of pretest – posttest with control group proves to be a proper fit for this study. It is used to assess the efficacy of cognitive-behavioral group therapy in ameliorating the coping styles in patients with acute coronary heart disease. This study includes patients with acute coronary heart disease who are admitted in CCU of Mashhad Razavi Hospital and undergo angioplasty heart surgery. 22 patients are randomly selected to participate in the process, 11 in the control and 11 in the experimental group. The sample consists of subjects aged 28 to 69, 69% male and 31% female. Before and after the intervention, CISS-21coping questionnaire is completed by members of the sample. For data analysis in addition to the procedures of descriptive statistics (frequency, mean, standard deviation), inferential statistics (MANOCVA), is used.

*Instrument*- Coping Inventory for Stressful Situations (CISS-21): The CISS-21 is a self-report measure of coping patterns. It consists of 21 items on a 5-point scale (1 = not at all, 5 = very much). There are three subcategories: Problem-oriented Coping, Emotion-oriented Coping, and Avoidant Coping. Problem-oriented Coping is adaptive and outlines priorities, determines a course of action, and follows through with the action involved. Emotion-oriented Coping involves blaming oneself about the situation or events and becoming preoccupied with worrying about them. Avoidant Coping involves participation in other activities as a way of ignoring the problem. Higher scores indicate a greater use of a given coping style. Each scale consists of 7 items, randomly distributed within the form to control for order effects. The CISS-21 has been frequently used in chronically ill patients with various diseases and has proven to have good psychometric characteristics in adult samples (15). Furthermore, confirmatory factor analyses provided evidence for a satisfactory fit and the invariance of the theoretically assumed three-factor structure of the CISS in adults with and without various chronic disorders.

*Procedures*- In this study, 22 patients with acute coronary heart disease using a voluntary sampling are selected. These individuals are assigned randomly into the experimental and control group. To obtain baseline scores in the experimental and control group, subjects complete the CISS-21scale.Then**,** the experimental group receive 12 sessions of cognitive behavioral group therapy and the control group are not offered any intervention. After the group sessions, the subjects in both groups are assessed byCISS-21scale. Data from the pre-test and post-test on the two groups are analyzed using descriptive and inferential statistics**.**

## Results

Demographic characteristics of 22 patients are presented in table (1). As it shows, there are no considerable differences at the baseline in the demographic background factors such as age, education and employment.

**Table 1.** Demographic characteristics

| | Experimental | Control |
|---|---|---|
| | n=11 | n=11 |
| Age Mean | 53.81 | 52.09 |
| Male | 63.6 | 72.7 |
| Female | 36.4 | 27.3 |
| Married | 81.8 | 90.9 |
| Widow | 18.2 | 9.1 |
| Elementary | 9.1 | 9.1 |
| Junior | … | 9.1 |
| Diploma | 45.5 | 54.5 |
| Associate's degree | … | 9.1 |
| Bachelor | 45.5 | 18.2 |
| Employee | 63.6 | 54.5 |
| Free job | 27.3 | 18.2 |
| Housekeeper | 9.1 | 27.3 |

Table (2) presents descriptive results of the coping styles questionnaire at the pre-test and post-test in each group. As outlined in table 2, mean of problem-oriented coping strategy scores of experimental group members, in the post test compared to pretest, has a considerable increase and mean of emotion-oriented coping, avoidant coping, social entertainment and attention turning strategy scores of experimental group members, has a considerable reduction. These changes are not observed in the control group.

**Table 2.**Mean and standard deviation of study variables

| Groups | Variables | Pre-test | | Post-test | |
|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD |
| Experimental | Problem-oriented Coping | 20.36 | 4.56 | 22.45 | 4.34 |
| | Emotion-oriented Coping | 22.90 | 6.20 | 18.09 | 5.88 |
| | Avoidant Coping | 14.36 | 4.24 | 12.18 | 3.97 |
| | Social Entertainment | 6.09 | 2.77 | 5.45 | 2.97 |
| | Attention Turning | 8.27 | 2.41 | 6.72 | 2.79 |
| Control | Problem-oriented Coping | 19.63 | 7.03 | 16.72 | 4.64 |
| | Emotion-oriented Coping | 21.00 | 8.40 | 21.09 | 5.92 |
| | Avoidant Coping | 16.63 | 6.48 | 20.72 | 5.10 |
| | Social Entertainment | 6.90 | 3.36 | 9.72 | 3.00 |
| | Attention Turning | 9.72 | 4.07 | 11.00 | 2.96 |

To assess the effect of cognitive - behavioral group therapy on improving coping styles in patients with acute coronary heart disease, multivariate analysis of covariance (MANCOVA) is used. Using MANCOVA, mean scores of subjects of each groups in post-test are compared, also pre-test effects are controlled. Before performing MANCOVA, homogeneity of variance assumption is tested and results showed that Leven test in none of subscales is significant. Therefore, MANCOVA is applicable. The results of this test are presented in table (3).

**Table 3.** Results of MANCOVA test

| Source | Variables | Df | F | *P*-value | Eta |
|---|---|---|---|---|---|
| Pre-test | Problem-oriented Coping | 1 | .022 | .883 | .001 |
| | Emotion-oriented Coping | 1 | 13.081 | .002 | .450 |
| | Social Entertainment | 1 | .798 | .385 | .047 |
| | Attention Turning | 1 | 4.721 | .045 | .228 |
| Group | Problem-oriented Coping | 1 | 9.106 | .008 | .363 |
| | Emotion-oriented Coping | 1 | 2.640 | .124 | .142 |
| | Avoidant Coping | 1 | 23.784 | .000 | .598 |
| | Social Entertainment | 1 | 7.205 | .016 | .310 |
| | Attention Turning | 1 | 9.361 | .007 | .369 |
| Error | | 16 | | | |
| Total | | 22 | | | |

As outlined in table (3), results of comparing problem-oriented coping subscales at post-test show that, after their participating in cognitive - behavioral group therapy, problem-oriented coping style of members of the experimental group compared to those of the control one has a significant increase ($P< 0.01$). Results of comparing emotion-oriented coping subscale at post-test show that, after their participating in cognitive - behavioral group therapy, emotion-oriented coping style of members of the experimental group compared to those of the control does not have a significant difference ($P=0.124$).

Results of comparing avoidant coping subscales at post-test show that, after their participating in cognitive - behavioral group therapy, avoidant coping style of members of the experimental group compared to that of those of the control one has a significant reduction ($P<0.0005$).Results of comparing social entertainment subscales at post-test show that, after their participating in cognitive - behavioral group therapy, social entertainment coping style of members of the experimental group compared to that of those of the control one has a significant reduction ($P<0.05$). Results of comparing attention turning subscales at post-test also show that, after their participating in cognitive - behavioral group therapy, attention turning coping style of members of the experimental group compared to that of those of the control one has a significant reduction ($P<0.01$).

**Discussion**

This study investigates the effect of cognitive-behavioral group therapy on improving coping styles in patients with acute coronary heart disease. Results show that, after their participating in cognitive - behavioral group therapy, their problem-oriented coping style significantly increases and their avoidant coping one significantly reduces. Therefore, this study suggests that cognitive- behavioral group therapy can effectively improve coping styles in patients with acute coronary heart disease. This is consistent with previous data (4,6,8,13). Coping styles that fall under the avoidance-oriented domain tend to be viewed as maladaptive because of their association with greater stress and anxiety (16), physical complains (16-18), and mental health problems (17,18). In contrast, problem-oriented coping styles tend to be viewed as adaptive because of their relationship with less stress and better physical and mental health. For instance, problem-oriented coping styles have been associated with less global stress, and beneficially related to physical health indicators such as illness time loss, as well as indicators of mental health such as anxiety, depression, and psychological distress (16,17,19,20).

The research literature indicates that patients with acute coronary heart disease in the face of stressful issues, mostly apply dysfunctional avoidant coping strategies, rather than problem-oriented coping style. This strategy requires that the person ignore the problem which has thinking associated with cognitive errors such as catastrophizing or arisen and deny its consequences. This pattern of behavior is consistent with the style of enlargement that makes one avoid direct confrontation with problems. Indeed, as the result of their catastrophizing and enlarging the cognitive errors, which amplify embarrassing emotions caused by stressful problems due to diseases till more, the patients strongly tend to deny problems, as if there aren't any at all. We observed this phenomenon frequently in patients encountered with recurrent symptoms. Patients suppress negative emotions caused by recurrence of signs (such as fear, anger, hostility, and fatigue from prolonged treatment), and subsequently deny the problems and avoided them. Therefore, the starting point for pushing patients with acute coronary to problem- oriented coping strategies makes them stop suppressing negative emotions caused by problems. In cognitive- behavioral group therapy sessions, patients are asked about their feelings caused by stressors related to disease that have been experienced recently. In early sessions, the patients consider the problems mainly complex and burdensome, but report their feeling of them poor and without any emotional expression.

As the avoidant style becomes weaker and the emotions are made to be experienced more frequently, the burdensome problems force the patients to undergo unpleasant emotions, as the result, there is left no more room for denial. At this stage, the therapist encourages members of the group to use problem-oriented coping strategies such as programmed problem solving, seeking social support and positive reappraisal. The group members also share their experiences in dealing similar problem sand at the summing up, the effective strategies are emphasized. Therefore, cognitive-behavioral group therapy changes coping styles in patients with acute coronary heart disease in two ways. First, by prevention of denial of stressors related to diseases, the patients are motivated to confront the problems directly. Second, by emphasis

on problem-oriented coping strategies and indirect teaching of those strategies, the patients are encouraged to apply the problem- oriented coping styles which results in their less use of avoidant coping ones.

## Conclusion

The present study emphasizes positive effects of cognitive-behavioral group therapy to increase problem-oriented coping style in experimental group after intervention. Results of this study and the past studies encourage the use of cognitive- behavioral interventions to improve coping styles in patients with acute coronary heart disease. As the findings indicate awareness of thinking styles, identifying cognitive errors, doing cognitive homework, reinforcing positive behavior, encouraging acceptance of restrictions, sharing experiences, talking about negative emotions related to illness and the possible consequences, expressing unpleasant feelings and reality education are factors which can be of great help to the mental status of the patients with acute coronary heart disease provided that the use of problem-oriented coping strategies is implemented and the use of avoidant coping strategies rejected.


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