

## Comparison of the Effectiveness of Acceptance and Commitment Therapy and Emotion-focused Therapy on Negative Emotions of Coronary Heart Disease

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### Abstract

**Introduction:** Cardiovascular diseases are among one of the most leading cause of mortality in the world. In addition to physical problems, cardiovascular diseases may have a significant impact on individuals' psychological well-being. Psychological interventions along with medical interventions can both help to the psychological and physiological improvement among individuals. The purpose of this study was to compare the effectiveness of acceptance and commitment therapy and emotion-focused therapy on negative emotions of coronary heart disease patients. **Method:** This was a quasi-experimental study with pretest-posttest design with control group. The statistical population of the study included patients with coronary heart disease in the city of Karaj. The age range was 30 to 60 years who referred to Shahid Rajaei hospital in Karaj. Samples were selected using available sampling method and then the samples were randomly divided into two experimental and one control group. Data were collected using D-type personality scale and Buss and Perry hostility scale. Data were analyzed using descriptive statistics and analysis of covariance by SPSS software, version 25. **Results:** outcomes showed that acceptance and commitment therapy and emotion-focused therapy were effective on Negative Emotions control group ( $p < 0.05$ ). Also the results of the covariance showed that, there was a significant difference between the groups' adjusted averages for Negative Emotions. The mean difference in emotion-focused therapy was greater than acceptance and commitment therapy. **Conclusion:** Considering that one of the most important psychological factors related to heart disease are negative emotions and these emotions can have an accelerating role in the development and progression of heart disease and Due to the effectiveness of the above treatments, their education can be helpful in addition to medical treatments

**Declaration of Interest:** None

**Key words:** Acceptance and commitment therapy, Emotion-focused therapy, Negative emotions, Coronary heart disease

## ***Introduction***

Cardiovascular disease kills 17 million people worldwide annually and accounts for one third of deaths (1). Today, non-communicable diseases, half of which are attributable to cardiovascular disease, cause 60% of deaths worldwide. This proportion will increase to 73% by 2020 (1). The disease has become one of the most important health problems in developing countries and developed countries (2). World Health Organization (WHO) research have showed that cardiovascular disease is the most important cause of death worldwide, with most of these deaths occurring in third world and developing countries (3). Cardiovascular disease is predicted to cause more than 23 million deaths (about 30.5%) worldwide by 2030 (4). Cardiovascular disease accounts for about half of all deaths, which is a non-communicable disease (5). The shift from other causes of mortality to cardiovascular disease as the most important cause of human mortality is a global phenomenon that can be described as an epidemiological change and is expanding day by day (5). In addition to health-related behaviors such as smoking, unhealthy diets and physical inactivity, hypertension and diabetes are also among the most common risk factors for these diseases. (6). Psychological issues such as depression (7), D and A personality type (8), anxiety sensitivity (9), and alexithymia are factors that may increase the risk of developing cardiovascular disease (10). One of the most important psychological factors related to heart disease is negative emotions such as anger and hostility (11). Hostility is a psychological tool that is associated with a number of phenomena, such as aggression, anger, annoyance, irritability, suspicion, hatred, verbal and physical aggression and sense of mistrust (11, 12). One type of personality that is closely related to coronary disease is

personality type D, a type of behavior in which individuals experience different negative emotions such as depression, anxiety and social inhibition or refrain from expressing their true emotions(12, 13). According to the results of studies, the mortality of coronary patients with type D personality is at least four times higher than that of coronary patients without type D personality (13).

In recent years, due to the role of psychological variables in the initiation and continuation of coronary disease, researchers have used different treatments to improve these patients and two approaches have been used in this study. Acceptance and Commitment Therapy (ACT), one of the therapies that have gained popularity among therapists in recent years in the form of third wave therapies and can be effective in the treatment of clinical patients. Instead of altering and changing one's cognitions, this treatment seeks to strengthen one's psychological connection with one's thoughts and feelings (14). ACT has a philosophical root in functional relativistic theory and has six central processes, including acceptance, defusing, self-context, communication with the present, values and committed action that lead to greater individual flexibility (15). Much research has demonstrated the effectiveness of acceptance and commitment therapy on the recovery of psychiatric and chronic patients and has provided rational reasons that this approach can be trusted for clinical therapies (16). The results indicate the effectiveness of acceptance and commitment therapy on improving quality of life and preventing coronary heart disease(17), Increased cardiac health

behaviors (improved diet, increased physical activity, and body weight balance) (18), increased psychological capital (self-efficacy, hope, tolerance, and optimism) (19) and it is associated with a decrease in stress in cardiovascular patients (20).

Another treatment used in this study is emotion-focused therapy. Emotion focused Therapy (EFT) is an encyclopedic and empirical therapy (21) in which the therapist seeks to restore the mental content of references that have been denied and distorted to her consciousness and create a new meaning for the therapist's physical experience (22). In many studies, the efficacy of emotion-focused therapy has been confirmed in both individual therapy, group therapy, and couple therapy (23) since lack of skill in emotion regulation. They are also the source of various types of psychological distress (such as anger, stress, and anxiety); Training in emotion regulation strategies seems to contribute to the ability to understand emotions and to modulate the experience and expression of emotions (24). Research results also show promising effects of EFT treatment for eating disorders and treatment of social anxiety disorders (23), anxiety disorders (25) and major depression (26, 27).

Given the paucity of research resources on the effects of both ACT and EFT treatments on cardiac patients and the prominent role of psychological variables in initiating, continue and improving coronary heart disease, the aim of the present study was to compare the efficacy of acceptance and commitment therapy and emotion-focused therapy on negative emotions of coronary heart disease.

## **Methods**

The statistical population of this study included all patients with coronary heart disease in the city of Karaj aged 30-60 years who were referred to Shahid Rajaei hospital for treatment. The samples who contacted them to participate in the study, 127 were identified as collaborators, 34 people withdrew due to distance or other reasons, Using available sampling method, 48 out of 93 survivors with coronary heart disease (specialist physician approval) after semi-structured interview who met the inclusion and exclusion criteria were selected as the sample group and were randomly assigned into three groups of 17, 16 and 15 each.

## **Tools**

**1-Demographic Checklist:** This questionnaire was developed by the researcher to collect personal information such as age, education, marital status and occupation of the subjects.

**2-Buss and Perry's Anger and Hostility Scale:** The new version of the Aggression Questionnaire, the previous version of which was called the Hostility Questionnaire, was reviewed by Buss and Perry (28). The questionnaire is a self-report tool consisting of 29 items and four subscales, namely physical aggression (PA), verbal aggression (VA), anger (A), and hostility (H), to each subject. Phrases in a 5-degree range from: quite similar to me (5), somewhat like me (4), neither look like me nor look like me (3), somewhat look like me (2), so strongly Not like me (1). The two terms 9 and 16 are reversed. The total score for aggression is obtained by summing the scores on the subscales. Cronbach's alpha for this scale was 0.76 in the present study.

**3-Type D Personality Scale:** This 14-item D-personality scale measures two subscales of negative affectivity and social inhibition. A higher score on each scale reflects the greater severity of that personality trait. The cut-off point is considered for both subscales of 10. Internal reliability for negative affect was 0.88 and for social inhibition was 0.86 (13). Cronbach's alpha of this scale as evaluated by Besharat and Pourang (27) in cardiac patients For social inhibition it was

0.87. Cronbach's alpha in the present study was 0.85 for negative affect and 0.89 for social inhibition. Data were analyzed using descriptive statistics and analysis of covariance by SPSS software, version 25.

The general structure of acceptance and commitment therapy and emotion-focused therapy are presented in the following tables.

Table 1. Content structure of Emotion-focused therapy

Content	Session
Communication and relationship therapy, commitment to treatment, An explanation of heart disease, its underlying causes, its causes and its maintenance, Conceptualize emotion-focused therapy, Assessment of subjects based on ability to focus on internal experiences	<b>First</b>
Identify faulty interaction cycles, Identify conflicting, dualistic, and critical feelings about yourself and important and influential people in life	<b>Second</b>
Identifying the basic emotions and expressing emotions, teaching the naming of emotions in the present, Discuss the 4 main emotions (anger, fear, shame and sadness) and their needs	<b>Third</b>
To create and challenge usually unpleasant, experiences in communication and family contexts, Put the subjects in a two-chair conversation position to identify the initial hidden emotion and debate between the self-critic and the self-critic.	<b>Fourth</b>
By calming down, the self-critical speech and emotion can be relaxed and the subject's experience of helplessness reduced. Put subjects in an empty chair to talk to influential people in their lives	<b>Fifth</b>
Strengthening positive excitement through the process of forgiveness and emancipation from self-criticism and shaping its positive effects on participants' performance and heightened awareness of the consequences of delaying the process of forgiveness.	<b>Sixth</b>
Expressing your values and how to live with them and referring to your emotional and emotional needs and ways to meet those needs in line with your values (maintaining health as a value)	<b>Seventh</b>
Review the skills provided and reinforce the changes made during treatment. Highlighting the differences between current and old interactions. Summary of points raised in previous meetings	<b>Eighth</b>

Table 2. content structure of Acceptance and Commitment Therapy

Content	Title	Session
<ul style="list-style-type: none"> <li>- Welcome- Introducing the therapist and introducing the members- Practice conscious breathing</li> <li>- Examine issues that have worsened the quality of life of members- Talk about the goals of the group</li> <li>- Preparedness for acceptance- Review solutions</li> <li>- Investigate the effects of short-term and long-term solutions</li> <li>- Thinking about what is the purpose of the members to continue living?</li> </ul>	<p>Establishing good relationships with participants and expressing guidelines, attentive awareness, creative frustration and homework assignments</p>	<b>First</b>
<ul style="list-style-type: none"> <li>- Explaining mindfulness and its brief goals to the group members</li> <li>- Review last session</li> <li>- Explaining the living conditions and the problems that are part of life and cannot be eliminated</li> <li>- Investigate the relationship between behavioral control, emotions, and coronary artery disease</li> </ul>	<p>Attention awareness, review of past session and home exercise and study of relationship between heart disease with anxiety, emotions and behavior management</p>	<b>Second</b>
<ul style="list-style-type: none"> <li>- Practice conscious breathing</li> <li>- Homework review last week</li> <li>- Acceptance</li> <li>- The therapist explains to the members that in the outside world and in dealing with events we can avoid or even control most of the things we do not like but avoid the emotions or thoughts that are an integral part of our world. Are often impossible.</li> <li>- Explain the concept of acceptance and its difference with tolerance and submission</li> <li>- Values</li> <li>- Practice celebrating 70 years</li> <li>- Defining the domain of values</li> </ul>	<p>Acceptance and Values</p>	<b>Third</b>
<ul style="list-style-type: none"> <li>- Review past sessions and experiences from homework</li> <li>-Leaves practicing on the creek</li> <li>-The members share their values and express their commitment to them.</li> <li>- Clear internal and external barriers</li> <li>- practicing magic wood</li> <li>- Smart goals</li> </ul>	<p>- Attention to consciousness and fault</p> <p>- Values</p> <p>Obstacles, goals and actions-</p>	<b>Fourth</b>
<ul style="list-style-type: none"> <li>- Homework Review</li> <li>- Attention awareness using wildlife practice</li> <li>- Explain that planning is a distinctive action- Explain the possible difficulties of committed actions</li> <li>- Members are required to plan and implement committed value-based actions based on the values derived from the meeting.</li> </ul>	<ul style="list-style-type: none"> <li>- Planning committed actions</li> <li>- As a supervisor</li> <li>- Attention awareness</li> </ul>	<b>Fifth</b>
<ul style="list-style-type: none"> <li>- Members are told to plan and implement goals and actions based on your values, as well as anticipate potential obstacles and find solutions to them.</li> <li>- Now tell us a little about your experience.</li> <li>- Practicing walking attention</li> <li>- The members of the group are explained that the concept of acceptance refers to a certain quality of behavior.</li> <li>- A stray atmospheric metaphor</li> <li>- Metaphor of monsters on the ship</li> <li>- Have team members think about obstacles, monsters and possible stray atmospheres in the course of the week.</li> </ul>	<ul style="list-style-type: none"> <li>- Homework Today</li> <li>- the reception</li> <li>- Applying circuit value despite obstacles</li> </ul>	<b>Sixth</b>
<ul style="list-style-type: none"> <li>- Group members are asked to share their experiences from last week's exercises with other members.</li> <li>- Breathing consciously</li> <li>- The members of the group are asked to explain and express their theory and practice in the group.</li> </ul>	<ul style="list-style-type: none"> <li>- Homework Review</li> <li>- Attention awareness</li> <li>- Review previous workout materials</li> </ul>	<b>Seventh</b>
<ul style="list-style-type: none"> <li>- The group members are asked to write a letter to their future, write down their goals, and write down actions that are based on their values.</li> <li>- Practice conscious breathing</li> </ul>	<ul style="list-style-type: none"> <li>- Stability of treatment</li> <li>- Attention awareness</li> <li>- Conclusion</li> </ul>	<b>Eighth</b>

**Results**

To analyze the data, the covariance analysis test with delineation of the effect of pre-test was used. Before applying the parametric test of covariance analysis, its assumptions were examined. The results of the Leven test indicated the equalization of variances ( $p>0.05$ ). the effect of different therapies showed that there was a significant difference between negative emotions in pre-test and post-test based on the treatment method. There was a significant difference in emotion in the post-test after applying the experimental methods by adjusting the pre-test scores. The

results of Bonferroni post hoc test showed that there was a significant difference between pre-test / post-test mean of negative emotion of individuals with acceptance and commitment therapy with negative emotion mean of emotion-focused therapy. There is a significant difference between the effectiveness of acceptance and commitment therapy and emotion-focused therapy on negative emotions. Also, based on the mean differences, it can be concluded that emotion-focused therapy is more effective than acceptance and commitment therapy.

Table 3. Mean and standard deviation of negative emotions test scores in the experimental and control groups

Groups	Variables	Pre-test		Post-test	
		M	SD	M	SD
EFT (n=13)	Negative affect	17.46	1.19	14.69	1.88
ACT (n=14)		16.42	1.08	15.07	1.26
Control (n=15)		16.93	1.03	16.80	1.32
EFT (n=13)	Social inhibition	16.38	1.26	13.61	0.869
ACT (n=14)		15.92	1.14	14.35	1.39
Control (n=15)		16	1.25	15.73	1.57
EFT (n=13)	Anger and hostility	96.30	4.73	89.61	4.55
ACT (n=14)		94.42	5.09	90.78	4.24
Control (n=15)		93.13	2.38	92.73	2.46

The mean score of negative affect in the pre-test was 17.46 in the pre-test and 14.69 in the post-test. The mean score of negative affect score in the acceptance and commitment group was 16.42 in the pre-test and 15.07 in the post-test. Also, the mean score of negative affect in control group was 16.93 in pre-test and 16/80 in post-test. Also, the mean score of negative affect in control group was 16.93 in pre-test and 16/80 in post-test. The mean score of social inhibition in the experimental group was 16/38 in the pre-test and 13/61

in the post-test. The mean score of social inhibition in the acceptance and commitment group was 15.92 in pre-test and 14.35 in post-test. Also, the mean score of social inhibition in control group was 16 and 15.73 in pre-test and post-test respectively. The mean score of anger and hostility in the experimental group was 96.30 in the pre-test and 89.61 in the post-test. The mean score of anger and hostility scores in the acceptance and commitment group was 94.42 in the pretest and 90.78 in the posttest. Also, the mean score of anger and hostility in control group was 93.13 in pre-test and 92.73 in post-test.

Table 4- Results of covariance analysis of post-test scores of negative emotions in experimental and control groups

Source	Lambda coefficient Wilks	F	Df 1	Df 2	Sig	Effect size(%)	Statistical power (%)
Pre-test for negative affect	0.461	13.24	3	34	0.001	0.539	1
Pre-test of social inhibition	0.407	16.48	3	34	0.001	0.593	1
Pre-test of anger and hostility	0.303	26.10	3	34	0.001	0.697	1
Group membership	0.251	11.29	6	68	0.001	0.499	1

As can be seen in Table 4, acceptance-based and commitment-based therapy and emotion-focused therapy have been shown to reduce the negative emotions of coronary heart disease patients and there was a significant difference between the negative emotions of the experimental and control groups ( $p < 0.01$  and 11.29 respectively).  $F$  and 0.25 = Lambda coefficient of Wilks.

In fact, acceptance-based commitment and emotion-focused therapy have been shown to reduce negative emotions (negative affect, social inhibition, anger, and hostility) in the post-test phase. Therefore, based on the data analysis, it is found that the research hypothesis that there is a difference between the two groups in the post-test is confirmed.

Table 5. Bonferroni chase test in negative emotions (negative affect, social inhibition, anger, and hostility)

Variables	group I(	group) J(	Mean difference ) I-J(	SE	sig
Negative affect	EFT	ACT	-1.20	0.417	0.019
		Control	-2.28	0.403	0.001
	ACT	Control	-1.07	0.383	0.024
Social inhibition	EFT	ACT	-0.973	0.367	0.036
		Control	-2.31	0.355	0.001
	ACT	Control	-1.34	0.388	0.001
Anger and hostility	EFT	ACT	-3.10	0.968	0.008
		Control	-5.66	0.935	0.001
	ACT	Control	-2.56	0.89	0.02

Table 6. Mean and standard deviation of pre-test control and adjusted scores of negative emotions in post-test phase

Variables	Group	Before checking the pre-test		Adjusted mean	
		Mean	SE	Mean	SE
Negative affect	EFT	7.46	1.19	14.35	0.294
	ACT	16.42	1.08	15.55	0.277
	Control	16.93	1.03	16.63	0.264
Social inhibition	EFT	16.38	1.26	13.46	0.259
	ACT	15.92	1.14	14.44	0.244
	Control	16	1.25	15.78	0.233
Anger and hostility	EFT	96.30	4.73	88.06	0.682
	ACT	94.42	5.09	91.16	0.643
	Control	93.13	2.38	93.72	0.613

The Bonferroni post hoc test was used to examine more precisely which of the two training provided was effective in moderating negative emotions. The results reported in (Table 7). According to the findings of this table, the difference between negative affect, social inhibition and anger and hostility between acceptance and commitment and emotion-focused group was significant ( $p < 0.05$ ), also between acceptance and commitment therapy and Emotion-focused therapy difference was significant ( $p < 0.01$ ), indicating that emotion-focused therapy was more effective than acceptance and commitment therapy in reducing negative affect, social inhibition, and anger and hostility.

### **Conclusion**

The purpose of this study was to compare the efficacy of emotion-focused therapy and acceptance and commitment therapy on negative emotions in patients with coronary heart disease. The results showed that acceptance and commitment therapy and emotion-focused therapy are effective in reducing negative emotions in these patients. In other words, there was a significant difference between the experimental groups (Acceptance and Commitment group therapy and Emotion-focused group therapy) with the negative control group. In fact, it can be said that both ACT and EFT as two separate therapies, which can help coronary heart disease patients to reduce their negative emotions. These findings are consistent with the findings of Shirazi et al. (29) on the effect of ACT on reducing negative emotions such as depression, anxiety and stress and the effect of EFT on reducing anxiety and depression in female-headed

households (30), marital stress (31) and reduce fear of intimacy and anxiety in infertile women (32) and reduce depression and anxiety (33) and reduce anger, guilt and sadness (34). Patients with heart disease mostly have distressing thoughts and inhibition of thoughts and emotions is seen in these patients. The frustration of not controlling these distracting thoughts and emotions creates new unwanted effects and increasingly alienates oneself from things that are valuable to them, such as health, work, friends and family, and produces negative emotions (35). Research suggests that in addition to physical therapy, psychological interventions for cardiac patients should be considered (36). ACT reduces anxiety and physiological stress in the person by increasing one's awareness of present experiences and shifting attention to cognitive systems and more efficient processing of information (37). In Acceptance and Commitment Therapy, individuals' desire for internal experiences was emphasized and trying to help patients experience their own maladaptive thoughts as a single thought and become aware of the ineffective nature of their current plan. Instead of responding, do what is important to them in life and in line with their values. In recent decades, extensive research has been conducted on the etiology of heart disease and the role of psychological factors such as personality traits, behavioral patterns, physical reactivity, self-involvement, anxiety and stress, depression, Anger poured out and collapsed in heart disease has been confirmed. (38). Research has shown that controlling psychological risk factors after medical interventions on coronary heart

disease patients is necessary and effective in pursuing treatment regimen because psychological disorders through negative emotional and psychosocial burden will have negative effects on patients (39). Another result of the present study was that the emotion-focused approach was more effective in reducing negative emotions than acceptance and commitment-based therapy and the control group. The present finding is in line with research by Biotel et al. (25) that results indicate the effectiveness of emotion-focused therapy on anxiety disorders and emotion-focused therapy on the severity of depression in patients with major depression (26), quality improvement The life of students with depression (40) and effect on cognitive emotion regulation and emotional distress in patients with coronary heart failure (24). The research that precisely deals with the subject of the present study was not found in the research background study, but the application of ACT and EFT therapies in other fields has been approved in various clinical studies that appear to confirm the results of the present study, for example, research demonstrates the effectiveness of emotion-focused therapy on autism spectrum disorder (41), marital satisfaction (42), well-being (43), and perception of illness and patients with chronic pain with depression and anxiety (44). It has also been shown that acceptance and commitment therapy can reduce the rate of stress in cardiovascular patients (20) and this treatment can increase psychological capital (self-efficacy, hope, tolerance, and optimism) Increase cardiovascular disease (19). Also effective in chronic pain (45) and correction of cardiovascular risk factors and psychological well-being(46).

The effectiveness of the approaches used in the present study can be investigated in clinical samples with different psychological problems.

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