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# The Effectiveness of Cognitive Behavioral Therapy on Reducing Rumination and Increasing Self-Esteem in Hospitalized Cardiac Patients

**Maryam Afshari Hamid**

*Master of Clinical Psychology, Islamic Azad University, Bukan Branch, Bukan. Iran.*

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## Abstract

**Purpose:** The present study was conducted to investigate the effectiveness of cognitive behavioral therapy on reducing rumination and increasing self-esteem in hospitalized cardiac patients.
**Method:** The present study is a semi-experimental pre-test-post-test design with a control group. The statistical population includes cardiac patients hospitalized in hospitals in Miandoab city, who agreed to participate in the study. Of these, 30 people were selected using a convenience method and randomly assigned to two groups (15 people in the experimental group and 15 people in the control group). The Rosenberg Self-Esteem Questionnaire and the Nolen-Hoeksema & Morrow (1991) Rumination Scale were used to collect data. Cognitive behavioral therapy was administered by the researcher in 8 sessions for 4 weeks, two sessions per week, each session lasting 60 minutes, for the experimental group. The control group did not receive any intervention during this period. The results of the experiments were calculated using SPSS software.
**Findings:** The results of the study show that cognitive behavioral therapy has an effect on the self-esteem of hospitalized cardiac patients and significantly improves it. Also, cognitive behavioral therapy has an effect on the rumination of patients and significantly reduces it.
**Conclusion:** Considering the simultaneous effect of cognitive behavioral therapy on increasing self-esteem and reducing rumination, it can be recommended as an effective psychological intervention in the treatment programs of cardiac patients.

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## Introduction

In recent years, the importance of mental health in human life has received widespread attention, and clinical psychology seeks to identify effective methods to improve people's mental health. One of the important areas of research in this field is the investigation of therapeutic methods that can correct negative and ineffective thoughts of an individual and improve his or her level of psychological well-being and quality of life (1). Cognitive behavioral therapy is known as one of the scientific and effective approaches in clinical psychology that, by focusing on the connection between thoughts, feelings, and behaviors, allows for changing negative thought patterns and improving the individual's psychological abilities (2). This therapy helps the individual face life's problems and challenges in a more constructive way by teaching cognitive and behavioral skills, restructuring dysfunctional beliefs, and providing coping strategies (3).

Self-esteem, as one of the central concepts in mental health, reflects the level of value and respect an individual has for themselves and their abilities. People

**Correspondence:**
Maryam Afshari Hamid
**E-mail:** Maryamafshari1356@gmail.com

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with high self-esteem feel more powerful and competent and are better able to cope with psychological pressures and stressful situations. Conversely, low self-esteem leads to feelings of helplessness, reduced motivation, and increased psychological vulnerability (4). Cognitive behavioral therapy, by correcting negative beliefs and increasing self-awareness, can strengthen a person's self-esteem and help promote a sense of worth and self-confidence. This process not only improves the psychological aspects of the person, but can also increase the quality of social interactions and success in daily activities (5).

Rumination is another important psychological challenge, which means thinking repeatedly and unproductively about life's problems and issues. This process increases anxiety, depression, and reduces a person's ability to make decisions, and can affect daily life (6). Cognitive behavioral therapy, by identifying dysfunctional thoughts, modifying thought patterns, and providing coping strategies, allows for the reduction of rumination and the improvement of the ability to manage negative thoughts. By reducing rumination, the individual will be able to deal with life issues with greater calmness and greater focus, and will have a more positive psychological experience (7).

The relationship between self-esteem and rumination is of great importance because repeated negative thoughts can lead to decreased self-esteem and feelings of inadequacy, and decreased self-esteem can lead to increased rumination (8). Cognitive behavioral therapy, which aims to simultaneously reduce repeated negative thoughts and strengthen positive beliefs about oneself, can interrupt this negative cycle and guide the individual's psychological process toward greater improvement and adaptation. This interaction shows that cognitive behavioral therapy is a comprehensive tool for promoting mental health and improving the quality of life of an individual, and its importance in clinical psychology and psychotherapy is increasing day by day. Considering the importance of psychological empowerment of the individual and the role of cognitive behavioral therapy in modifying thought patterns and increasing self-esteem, it is important to examine the effectiveness of this therapy in reducing rumination and strengthening self-esteem from a scientific and practical perspective.

Ghaneei et al. (2023) presented a study titled "The Effectiveness of Integrated Acceptance and Commitment Therapy and Cognitive-Behavioral Therapy (ACT-CBT) on Changing Attitudes and Self-Esteem." Integrated acceptance and commitment therapy and cognitive-behavioral therapy had a significant effect on changing attitudes and self-esteem of self-identified addicts in the experimental group compared to the control group. The results showed that this treatment strategy is effective in changing the attitude and self-esteem of self-identified addicts and can be used as an effective treatment method (9).

Kalantari (2023) conducted a study to investigate the effect of cognitive behavioral group therapy on self-esteem and optimism in patients with major depression who referred to Razi Educational and Medical Center in Tehran in 2022. The results of this study showed that there was a statistically significant difference between the scores of self-esteem and optimism during the time periods before the intervention, immediately, three months later, and six months later in the two control and intervention groups, which indicates the effectiveness of the intervention. In conclusion, the results of the present study demonstrate the effectiveness of cognitive behavioral group therapy on self-esteem and optimism in patients with major depression at Razi Educational and Medical Center in Tehran (10).

In their study, Varmziyar et al. (2021) examined the effectiveness of cognitive-behavioral therapy on social anxiety, rumination, and psychological well-being of depressed patients referred to comprehensive health centers in Abadan. Group CBT had a significant effect on social anxiety, rumination, and quality of life of people with depression. It can be concluded that group CBT is effective on social anxiety, rumination, and psychological well-being of people with depression, and this approach can be recommended to improve the psychological problems of people with depression (11).

Li & Tang (2024) conducted a systematic review of the effects of rumination-focused cognitive behavioral therapy in reducing depressive symptoms. The review found preliminary evidence that RFCBT can reduce depressive symptoms after intervention and may prevent individuals from developing depression, reduce depressive symptoms, and prevent relapse to depression, as well as reduce rumination. RFCBT may be promoted for treating depressive symptoms, especially for people with a high tendency to ruminate. However, more studies with rigorous designs are needed to confirm its effectiveness across different stages of depression (12).

Yasinski et al. (2020) presented a study titled "Processes of Change in Cognitive Behavioral Therapy for Treatment-Resistant Depression: Psychological Flexibility, Rumination, Avoidance, and Emotional Processing." Results showed that psychological resilience during the period before the surge predicted lower depression at 12-month follow-up, beyond baseline symptoms and other concurrent processes. Interaction analyses showed that when resilience was low during the period after the surge, avoidance and rumination predicted higher depressive symptoms, whereas emotional processing predicted lower symptoms at 12-month follow-up. When resilience was

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high, neither of these variables was associated with outcome (13).

## The Method of Research



The method of the present study is a semi-experimental pre-test-post-test design with a control group. The statistical population of this study includes cardiac patients hospitalized in hospitals in Miandoab city, who agreed to participate in the study. Of these, 30 people were selected using a convenience method (non-generalizable) and based on demographic variables such as age, and randomly assigned to two groups (15 people in the experimental group and 15 people in the control group). The following questionnaires were used to collect data:

- Rosenberg Self-Esteem Questionnaire: The Rosenberg Self-Esteem Questionnaire has 10 questions, of which 10 are 2-choice questions. The scoring of this 10-question test, which includes 2-choice questions (agree and disagree), is as follows: In the first 5 questions, the agree option is given a score of one and the disagree option is given a score of zero. In the last 5 questions, the agree option is given a score of zero and the disagree option is given a score of one. Creed & Patton (2004) estimated the reliability coefficient of this test as 0.84. Bahloul and Rajabi (2007) reported the reliability coefficient of this questionnaire in Iranian adolescents and young people as 0.84, and the internal consistency of this test was obtained from 0.72 to 0.87. In this study, the reliability of this questionnaire was calculated as 0.75 using Cronbach's alpha method (14).
- Rumination Response Scale (RRS): This questionnaire is a 22-item scale designed by Nolen-Hoeksema & Morrow (1991). The items in this questionnaire are scored on a four-point scale from 1 (never) to 4 (often). The range of scores in this test is from 22 to 88. The total rumination score is calculated by summing all items. In addition, this scale can be considered to consist of three subscales: distraction, contemplation, and meditate. Using Cronbach's alpha (range 0.88 to 0.92), it was shown that this scale has high internal reliability. Lotfinia (2007) calculated the reliability coefficients of the scale as 0.82 by administering it to 54 students with a three-week interval (15).

Cognitive behavioral therapy sessions were conducted by the researcher for the experimental group over 8 sessions for 4 weeks, two sessions per week, each session lasting 60 minutes. During this period, the control group did not receive any intervention. After the sessions ended, the questionnaire questions were read to the subjects again as a post-test, raw scores were calculated and recorded, and finally, the results of the experiments were calculated using SPSS software.

## Findings

Levin's test was used to examine the assumption of normal distribution of variables.

**Table 1**. Assumption of normal distribution of variables

| Group | Number | Mean±standard deviation | Levin | |
|---|---|---|---|---|
| | | Age | Rumination | Self-esteem |
| Experimental | 15 | 1 . 413±42 . 65 | 0 . 141 | 0 . 274 |
| Control | 15 | 1 . 413±42 . 65 | | |

The results show that in the two experimental and control groups, the condition of equality of variance is acceptable from the perspective of the research variables.

Based on the descriptive findings, the dispersion and central tendency indices of the research variables are shown in Tables 2 and 3, separated by group and test type.

**Table 2**. Mean and standard deviation of variables before cognitive behavioral therapy in the two experimental and control groups

| Variables | Mean (standard deviation) Experimental group | Mean (standard deviation) Control group |
|---|---|---|
| Rumination | (2 . 00) 71 . 60 | (2 . 60) 73 . 14 |
| Self-esteem | (1 . 50) 21 . 21 | (2 . 01) 23 . 41 |

The results show that the average scores of rumination and self-esteem in the control and experimental groups are almost equal, and the results show that the experimental and control groups do not differ significantly from each other.

The findings in the table show that the average scores of the variables in the experimental group are lower than those in the control group. In other words, cognitive behavioral therapy has reduced the average scores in the variables of rumination and increased self-esteem of hospitalized cardiac patients, while no significant difference was observed in the control group.

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**Table 3**. Mean and standard deviation of variables after cognitive behavioral therapy in the experimental and control groups

| Variables | Mean (standard deviation) Experimental group | Mean (standard deviation) Control group |
|---|---|---|
| Rumination | (2 . 42) 66 . 64 | (4 . 00) 72 . 71 |
| Self-esteem | (1 . 06) 23 . 51 | (2 . 01) 22 . 67 |

The results of testing the first hypothesis that "cognitive behavioral therapy has an effect on the self-esteem of hospitalized cardiac patients" are presented as follows:

**Table 4**. Results of univariate analysis of covariance on pre-test-post-test scores of self-esteem

| Source of changes | Sum of squares | Degree of freedom | Mean squares | F | Significance level |
|---|---|---|---|---|---|
| Pre-test | 18 . 11 | 1 | 18 . 11 | 7 . 00 | 0 . 05 |
| Group | 101 . 07 | 1 | 101 . 07 | 31 . 67 | 0 . 001 |
| Error | 94 . 94 | 27 | 2 . 72 | | |
| Total | 0. 20808 | 30 | | | |

Based on the results obtained, after adjusting for pre-test scores, there is a significant effect on the between-group factor (F=31.67, P=0.001). The scores show that the average of the experimental group that was exposed to counseling has increased significantly. Therefore, it can be concluded that cognitive behavioral therapy has an effect on the self-esteem of hospitalized cardiac patients and significantly increases it. Therefore, the first hypothesis of the study is confirmed.

The results of testing the second hypothesis that "cognitive behavioral therapy has an effect on rumination in hospitalized cardiac patients" are presented in Table 5.

**Table 5**. Results of univariate analysis of covariance on pre-test-post-test scores of the rumination variable

| Source of changes | Sum of squares | Degree of freedom | Mean squares | F | Significance level |
|---|---|---|---|---|---|
| Pre-test | 6 . 57 | 1 | 6 . 57 | 0 . 50 | 0 . 33 |
| Group | 126 . 48 | 1 | 126 . 48 | 13 . 42 | 0 . 001 |
| Error | 310 . 97 | 27 | 10 . 40 | | |
| Total | 136416 . 22 | 30 | | | |

The results show that after adjusting for pre-test scores, there is a significant effect on the between-subjects factor (F=13.42, P=0.001). The scores show that the mean of the experimental group that was exposed to the treatment decreased significantly. Therefore, it can be concluded that cognitive behavioral therapy has an effect on rumination in hospitalized cardiac patients and significantly reduces it. Therefore, the second hypothesis of the study is confirmed.

## Discussion

The aim of the present study is to investigate the effectiveness of cognitive behavioral therapy on reducing rumination and increasing self-esteem in hospitalized cardiac patients. The findings of the study are presented as follows:

- Based on the results obtained, the average self-esteem of the experimental group that was exposed to treatment increased significantly. Therefore, it can be concluded that cognitive behavioral therapy has an effect on self-esteem and significantly increases it; therefore, the first hypothesis of the study is confirmed.
- The results obtained show that the average rumination of the experimental group that was exposed to the treatment decreased significantly. Therefore, it can be concluded that cognitive behavioral therapy has an effect on rumination and significantly reduces it; therefore, the second hypothesis of the study is confirmed.

According to the research findings, cognitive behavioral therapy can play an effective role in improving the psychological state of hospitalized cardiac patients. The increase in self-esteem in the experimental group indicates that cognitive behavioral interventions have been able to correct the negative and ineffective beliefs of the individual towards himself and create a more positive attitude towards his capabilities and personal value. On the other hand, the reduction in rumination in these patients indicates the ability of cognitive behavioral therapy to inhibit repetitive and anxiety-provoking thoughts, thoughts that are commonly associated with chronic diseases and hospitalization. These findings are consistent with previous research (16, 17, 18, 19), which has demonstrated the positive effects of cognitive-behavioral interventions on the mental health of patients with cardiovascular conditions as well as other

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chronic illnesses. Prior studies have consistently reported that cognitive-behavioral therapy (CBT) and related psychological interventions can significantly reduce symptoms of anxiety, depression, and psychological distress in these patient populations. By targeting maladaptive thought patterns and promoting healthier cognitive and behavioral coping strategies, such interventions help patients better manage the emotional burden associated with chronic disease. Moreover, chronic illnesses—particularly cardiac conditions—are often accompanied by persistent stress, fear of recurrence, lifestyle restrictions, and concerns about mortality, all of which can negatively affect psychological well-being and overall functioning. Cognitive-behavioral interventions assist patients in restructuring negative beliefs, improving stress management skills, enhancing emotional regulation, and strengthening problem-solving abilities. These improvements not only reduce psychological symptoms but also promote greater treatment adherence and more adaptive health-related behaviors. The consistency of the present findings with earlier research further highlights the crucial role of integrating psychological approaches into standard medical care. Addressing the cognitive and emotional dimensions of chronic illness is essential for achieving comprehensive patient care. Therefore, incorporating structured cognitive-behavioral programs into rehabilitation and long-term treatment plans can substantially improve patients' quality of life, psychological resilience, and overall health outcomes (20, 21).

## Conclusion

The results of the study show that cognitive behavioral therapy has a significant effect on increasing the self-esteem of hospitalized cardiac patients. This increase can be due to changes in the negative and ineffective beliefs of the individual about himself and his abilities, and as a result, it improves the patients' sense of worth and self-confidence. In addition to its positive psychological impact, increased self-esteem may also increase patients' motivation to actively participate in their treatment and care, helping to improve clinical outcomes. In addition, increased self-esteem can have a positive effect on the patient's social interactions and enhance their sense of satisfaction and optimism about daily life, which in turn reduces psychological distress and improves overall quality of life (16).

Also, the significant reduction in rumination in the experimental group shows that cognitive behavioral therapy is able to reduce repetitive and anxiety-provoking thoughts, which can lead to reduced stress and improved quality of life in heart patients. Given the simultaneous effect of cognitive behavioral therapy on increasing self-esteem and reducing rumination, it can be recommended as an effective psychological intervention in the treatment programs of heart patients and provides the basis for future studies on the long-term and sustainable effects of these interventions. In addition, reducing rumination can facilitate the rehabilitation process of patients and, by reducing anxiety and worries related to the disease, improve treatment adherence and adoption of a healthier lifestyle.

Among the limitations of the study, we can mention the limitation of the statistical population to cardiac patients hospitalized in public hospitals in Tehran, which makes it difficult to generalize the results. For future research, it is suggested that a similar study be conducted in other cities and private hospitals and the findings be compared with the results of this study.

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***Authors contribution***

Authors conceptualized the study objectives and design.

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***Ethics***

The research data and literature have not been copied from any worksauthor upon reasonable request.

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