Original Article

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# The Effectiveness of Acceptance and Commitment Group Therapy on Psychological Capital in Cardiovascular Patients in Babol

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## ABSTRACT

**BACKGROUND AND OBJECTIVE:** Psychological capital is one of the positive psychological indices that is defined by the characteristics of optimism, perseverance, positive self-efficacy, and tolerance. This study was conducted to evaluate the effectiveness of acceptance and commitment group therapy on psychological capital in cardiovascular patients in Babol.

**METHODS:** This cross-sectional study was performed among 24 cardiovascular patients who referred to governmental and non-governmental medical centers of Babol in two groups of 12 based on pretest-posttest design. The therapy based on acceptance and commitment was performed for the experimental group in 8 sessions. Participants were re-evaluated one month after the sessions, and psychological capital was evaluated according to self-efficacy, hope, tolerance and optimism subscales.

**FINDINGS:** The results of the study showed that there was a significant difference between the subscales of the psychological capital in the experimental and control groups in tolerance (3.53±0.48 vs. 2.88±0.67) ($p<120.07$), hope (4±0.51 vs. 3.05±0.49) ($p<59.820$), self-efficacy (3.58±0.54 vs. 3.25±0.59) ($p>6.03$) and optimism (40.6±0.56 vs. 2.94±0.66) ($p>26.459$).

**CONCLUSION:** The present study showed that acceptance and commitment therapy could be considered as an effective intervention in increasing the psychological capital of cardiovascular patients.

**KEY WORDS:** *Acceptance And Commitment Group Therapy, Psychological Capital, Cardiovascular Patients.*

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## Introduction

Cardiovascular and respiratory diseases are the most common cause of mortality in developed and developing countries. Identifying the risk factors for these diseases, such as obesity, inactivity and inappropriate diet, and non-pharmacological interventions, such as lifestyle changes and psychological training, are effective in reducing these diseases (1,2).

Economic and industrial development, and lifestyle changes in individuals including low activity(3), drug addiction (4,5) and unhealthy diet have increased the incidence of cardiovascular disease. Various studies have shown that stress, anxiety and anger are associated with poor coping skills and low social support in cardiovascular patients (6). Psychological capital is one of the psychological indicators of optimism, which is defined by characteristics such as the individual's belief in his ability to succeed, perseverance in pursuing goals, creating positive attributes about himself and enduring problems, and psychological training plays a significant role in their psychological well – being.

The Acceptance and Commitment Therapy (ACT) approach is one of the new therapies that have a significant role in psychological well – being of patients, helping patients achieve lively, purposeful and meaningful life by integrating acceptance, commitment and mindfulness interventions. The main purpose of ACT is to enhance psychological flexibility (7). Hayes et al. believe that in this therapeutic approach, patients are taught to live a worthy life in the presence of sometimes uncontrollable mental and physical experiences (8).

The ACT model examines how a particular behavioral reserve can interact with life's valuable goals, and that how an individual can be psychologically more flexible with what life offers him/her (9). The primary goal in using the ACT method for patients with chronic pain is not to reduce the actual experience of physical pain (although it may decrease) but to guide the person to valuable, interpersonal, rich, and life-affirming paths, even if the pain continues (10).

Morshedi et al. showed that this approach had a positive response to reducing exhaustion (11). Baradaran et al. found that admission and commitment therapy was considered an effective intervention in patients with essential hypertension (12). Saboori et al. concluded that this therapeutic approach was effective in reducing the severity of pain, depression and stress (13). The study by Yu et al. showed that providing a treatment for chronic pain based on admission and commitment therapy has improved self – as – context (SAC) and improved the performance of chronic pain patients (14).

In evaluating the effect of acceptance and commitment therapy (ACT) on stress reduction in the elderly with cardiovascular disease, Kakavand et al. concluded that this therapeutic approach is effective in reducing the perceived stress of cardiovascular patients (15). Trompetter et al. demonstrated the relationship between the effectiveness of acceptance and commitment therapy (ACT) in depression/anxiety symptoms and positive mental health (16). In their research, Rachel et al. showed that admission and commitment therapy has significant effects on depression in adolescents (17).

This study was conducted using an admission therapeutic approach to assess the effect of acceptance and commitment therapy on the psychological capital of cardiovascular patients in Babol.

## Methods

After being approved by the Ethics Committee of Islamic Azad University of Sari (code IR.IAU.SARI.REC.1396.56), this cross-sectional study was conducted among 24 cardiovascular patients referred to governmental and non-governmental medical centers of Babol in 2017. Participants were randomly divided into two groups (12 patients in the experimental group, 12 patients in the control group). Individuals with cardiovascular disease were included in the study and were excluded from the study if they had personality disorders and acute psychological problems.

By complying with ethical codes and obtaining informed consent from each subject, it is ensured that the received information will be used only in the present research and will not be misused. Before the start of the main sessions of treatment, a meeting was held for the test group and all necessary rules and regulations were explained.

The commitment and acceptance treatment was performed in eight sessions for the experimental group, which is presented in Table 1 (acceptance and commitment therapy based protocol) (8). Participants were re-evaluated one month after the end of the sessions.

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**Psychological Capital Questionnaire (PCQ; Luthans et al.):** This questionnaire was designed in 2007. The questionnaire consists of 24 questions and 4 subscales of hope, tolerance, optimism and self-efficacy, each scale having six items (18). In the study of Luthans et al., Cronbach's alpha and test-retest of this questionnaire were 0.97 and 0.80, respectively (19). In addition, in a study by Narimani et al., Cronbach's alpha was reported to be 0.85 (20). Furthermore, in the study of Khosroshahi et al., its reliability and validity were 0.85 and 0.79, respectively (21). The data were analyzed using SPSS software and analysis of covariance and $p<0.05$ was considered significant.In the statistical analysis, Levene's test was used to examine the homogeneity of variances and the Kolmogorov-Smirnov test to verify the data normality

**Table 1. Acceptance and commitment therapy based protocol**

| Sessions | Therapeutic goals | Interventions |
|---|---|---|
| First | Creative despair:<br>Helping the patient to understand that his or her active approach to understanding is lacking efficiency and effectiveness | What efforts have you made? Have these efforts been effective?<br>The metaphor of the shovel and the pit,<br>The difference between a worthy action versus a catastrophic pain |
| Second | Changing your behaviors to a caregiver and following the recommended assignments and diet. | Working on health-related values and emphasizing to experience internal events |
| Third | Conceptualization and self-perception as a context and not a self-regulating body that serves the thoughts and feelings associated with chronic disease | Control is considered as a problem<br>Chessboard metaphor,<br>Practice observation – Practice of a box full of objects |
| Fourth | Valuation: Helping the patient to recognize the valuable goals of life and motivating to perform functions with pain | The metaphor of climbing mountains<br>Practicing benefitting from a subject,<br>Tombstone Metaphor |
| Fifth | Acceptance of fear of illness, disability, and death that are negatively evaluated | Exercises related to volition |
| Sixth | Lack of cognitive blending with negative thoughts: illness, disability, and death | Flexibility exercises (lion exercise, labeling, thoughts, feelings |
| Seventh | Mindfulness, compassion-focused therapy in the moment here and now | Mindfulness and meditation exercises, focusing on sounds, sentimental feelings, vision, taste, the spread of knowledge erosion, forgiveness and kindness to yourself |
| Eighth | Deliberate action pattern:<br>Increasing commitment to changing behavior to help improve disease and confront the dangers of health | Having choice in decision-making,<br>willfulness is considered as a choice.<br>Jumping practice metaphor<br>Being careful |

## Results

In this study, seven (58.3%) women were in the control group and nine (75%) women were in the experimental group. Twelve (100%) patients were married in the control group and 11 (91.7%) patients were married in the experimental group, two (16.7%) patients had high school diploma or higher education in the control group and three (25%) patients had high school diploma or higher education in the experimental group, eight (66.7%) patients were employees in the control group and six (50%) patients were employees in the experimental group. The variables of gender, marriage, education and occupation did not differ significantly between the two groups (Table 1). The mean age in the control group was 56.33±13.86 years and in the control group was 51.75±10.17 years, which was not significant (Table 2). To test the difference between the groups, one-way ANCOVA was used (21). To do this, first, its assumptions including homogeneity of variances and normality of the data were examined, and the analysis of covariance (ANCOVA) was confirmed (Table 3). In analysis of the subscales of self-efficacy, hope, tolerance and optimism in patients, their score increased after the

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acceptance and commitment therapy, and this effect continued during the follow-up period. The control group scores in these variables in the post-test and follow-up periods indicated a decrease in subscales of tolerance, self-efficacy, hope and optimism. After modifying the pre-test scores, there was a significant difference between the groups; self-efficacy (F=6.03, p=0.02), hope (F=59.82, p=0.001), tolerance (F=12.7, p=0.002) and optimism (F=29.46, p<0.001). There is a significant difference between the two groups (Table 4). The effect size or square value (62%) indicates the strong effect of acceptance and commitment–based therapy on psychological capital in cardiovascular patients. The effect size or square value in the subscales is about 25% self-efficacy variance, 77% hope variance, 41% tolerance variance and 60% optimism variance based on acceptance and commitment.

**Table 2. Demographic and underlying characteristics of the subjects in the experimental and control groups**

| Variable | Group | Control N(%) | Experimental N(%) | P-value |
|---|---|---|---|---|
| Gender | Woman | 7(58.3) | 9(75.0) | * 0.66 |
| | Man | 5(41.7) | 3(25.0) | |
| Marital status | Single | 0(0.0) | 1(8.3) | * 1.00 |
| | Married | 12(100.0) | 11(91.7) | |
| Education | Below high school diploma | 5(41.7) | 4(50.0) | * 0.76 |
| | High school diploma | 5(41.7) | 3(25.0) | |
| | High school diploma and higher | 2(16.7) | 3(25.0) | |
| Job | Employee | 8(66.7) | 6(50.0) | * 0.68 |
| | Self-employed | 4(33.3) | 6(50.0) | |
| Age | | Mean±SD 56.33±13.86 | Mean±SD 51.75±10.17 | ** 0.36 |

*** Chi-square test, * Independent T test**

**Table 3. Levene's test results for homogeneity analysis of variances and Kolmogorov-Smirnov test for analysis of data normalization**

| Variables / Test statistics | Psychological Capital | Self-efficacy | Hope | Tolerance | Optimism |
|---|---|---|---|---|---|
| F-Statistic (Levene test) | 1.61 | 1.07 | 2.15 | 2.34 | 1.59 |
| Significant value | 0.21 | 0.31 | 0.15 | 0.14 | 0.22 |
| K-S statistics (Kolmogorov-Smirnov test) | 0.77 | 1.01 | 0.70 | 0.93 | 1.17 |
| Significant value | 0.58 | 0.25 | 0.69 | 0.34 | 0.12 |

**Table 4. Comparison of the mean scores of psychological capital subscales in cardiovascular patients in the experimental and control groups**

| Subscales | Group | Pre-test Mean±SD | Post-test Mean±SD | Follow up Mean±SD | $ETA^2$ | F | P-value |
|---|---|---|---|---|---|---|---|
| Self-efficacy | Experimental | 3.03±0.54 | 3.58±0.56 | 3.44±0.62 | 0.25 | 6.03 | 0.02 |
| | Control | 3.32±0.63 | 3.25±0.59 | 3.21±0.63 | | | |
| Hope | Experimental | 3.18±0.46 | 4±0.51 | 3.81±0.56 | 0.77 | 59.82 | < 0.001 |
| | Control | 3.35±0.61 | 3.05±0.49 | 3.06±0.59 | | | |
| Tolerance | Experimental | 3.23±0.50 | 3.53±0.48 | 3.32±0.48 | 0.41 | 12.70 | 0.002 |
| | Control | 2.98±0.68 | 2.88±0.67 | 2.66±0.39 | | | |
| Optimism | Experimental | 3.29±0.81 | 4.06±0.64 | 4.06±0.64 | 0.60 | 26.45 | < 0.001 |
| | Control | 3.08±0.62 | 2.94±0.66 | 3.10±0.67 | | | |

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## Discussion

The results of this study showed that acceptance and commitment therapy has a significant effect on psychological capital in cardiovascular patients. The results of this study are consistent with the results of Twohig et al., indicating changes in psychological flexibility during acceptance and commitment therapy on patients with obsessive–compulsive disorder (OCD), and are also consistent with the results of Hoffmann et al. (22,23), which confirmed the effects. The results of this study are consistent with the results of a study based on admission and commitment for people with psychosis (ACT study for life) by Johans et al. This study examines the feasibility and acceptability of ACT treatment for people with psychotic disorder (G-AC TP) for the first time. In this research, participants were selected from among the psychosis teams of the community. This preliminary study showed that brief group – based ACT interventions are feasible and acceptable for people with psychosis (24).

Due to the impact on patients with mental health problems and the modification of the therapeutic process in depression and anxiety, its impact on some cardiovascular patients can be expected. The results of a study by Losiano et al. showed that group–based ACT interventions are effective on fibromyalgia, which is consistent with our research results (25). In a study, Niles et al. emphasized on the effectiveness of group – based ACT interventions versus cognitive-behavioral therapy on social anxiety disorder, which is consistent with the results of this study (26). Consistent with the present study, the results of Gregg et al. confirmed the effectiveness of the acceptance and commitment approach to diabetes management by the patients themselves (27).

Overall, the results of the present study showed that acceptance and commitment therapy (ACT) can increase the psychological capital of cardiovascular patients, and it is suggested that along with drug therapies for people with cardiovascular disease, health professionals use non-medical treatment methods, including acceptance and commitment therapy (ACT), which are effective in reducing stress, enhancing cognitive ability and coping with the disease. Like any other researches, this study had some limitations, including limitations in external narrative. The population of this study included cardiovascular patients referred to governmental and non-governmental centers of Babol, therefore, caution should be taken in the decision making. The most important limitation of research was the lack of full cooperation from patients, their old age and the continuation of therapeutic interventions.

**Conflict of Interest:** No conflicts of interest.

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