



The effectiveness of compassion-based therapy on pain perception in patients with Acute Coronary Syndrome

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General Note



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ABSTRACT

The purpose of this study is to investigate effectiveness of compassion-based therapy on pain perception in patients with acute coronary syndrome. The research methodology is a quasi-experimental study with pretest-posttest design with a control group. The research statistical population includes all men with acute coronary syndrome in Tehran City in 2017-18. In the first stage, the Death Anxiety Scale was performed as a pretest on subjects. Then, the test group received compassion-based intervention during 8 group sessions. After finishing the therapy sessions, the research tools were performed once more as posttest. Covariance analysis test was

used to analyze the data. The results indicated a significant difference in Death Anxiety Scale in the test group. The research findings also showed the effect of compassion-based therapy on pair perception reduction in patients with acute coronary syndrome.

Keywords: compassion-based therapy, acute coronary syndrome, pair perception

1. INTRODUCTION

Acute Coronary Syndrome (ACS) includes myocardial infarction with ascent of ST segment, myocardial infarction without ascent of ST segment, and unstable angina (Thygesen, Jaffe, Simoons, Chaitman, White, 2012).

Acute coronary syndrome has affected a diverse and non-homogeneous group of patients, namely patients with chest discomfort, nonspecific changes in ECG and natural biomarkers, as well as patients with elevated myocardial infarction and cardiogenic shock (Scirica, 2010). The term ACS is used since the coronary artery disorders have common patho physiologic mechanisms reflecting emergency nature of the problem and the need to quick diagnosis in order to reach the maximum desired therapeutic results (Chen, Woods, Wilkie, Puntillo, 2005). Patients suffering ACS might experience non-specific symptoms for several weeks or months before having a heart attack. These symptoms include fatigue, shortness of breath, digestive disturbances, anxiety, and chest discomfort (Graham, Westerhou, Kaul, Norris, Armstrong, 2008; Mirzaei, 2017; Heidary and Riahi, 2018).

Due to the resemblance in the process of unstable angina and acute myocardial infarction, the term Acute Coronary Syndrome might be applied to both of them (Rittger, Hochadel, Behrens, Hauptmann, Zahn, Mudra, 2012). The causes of heart disease and factors affecting it are investigated in several studies. Most studies have mentioned physiological factors such as high blood lipids, high blood pressure, diabetes or other factors such as smoking and alcohol. However, the psychologists believe that psychological components like stress, tension, anxiety, etc. are involved in heart disease. In addition to the decline in biological processes and the quantitative and qualitative increase in disease issues, facing death is inevitable and the anxiety associated with it have an important role in causing psychiatric disorders in these patients (Hosseini and Jalali, 2018).

Death anxiety includes the thoughts, fears, and emotions related to end of life. This type of anxiety is a multi-dimensional concept. In this regard, Hulter and Hulter (1987, quoted from Furer, 2007) considered eight dimensions for it: (1) fear of dying process, (2) fear of early death, (3) fear of the death of beloved people, (4) painful fear of death, (5) fear of being ruined, (6) fear of body decay after death, (7) fear of unknown death, (8) fear of the dead.

The types of research conducted also indicate that this kind of anxiety is common. Kustenbam (2009) conducted a cursory review on the studies performed on non-clinical population and showed that death anxiety among the public is common. In this regard, Agruss (1969) reported that (1) 16% of people have death anxiety and 3% have painful anxiety, (2) women experience higher level of death anxiety than men, (3) higher academic, economic, and social level is correlated with lower level of death anxiety, (4) level of religious beliefs and participation in religious activities is not necessarily correlated with low death anxiety. However, these findings are not validated by other studies. In a study conducted among high school and university students in USA, it was found out that women have higher death anxiety than men (Pierce, 2007).

Experiencing pain results in intolerance to heart disease in people with acute coronary syndrome and makes the situation suffering for them. Pain is a stressful experience that might result in one's lack of satisfaction from life, following suffering and sadness, decrease in the quality of life, disruptions in daily activities, and disruptions the living conditions. That's why pain relief is a medical priority after saving patient's life (Suan, 2007; quoted from Mimi and Hou, 2013; Hakiminya and Parnian, 2018; Zendegany, 2019).

History of psychology is full of concepts introduced to increase mental health, improve emotional and intellectual processing methods, and improve the psychotherapy systems (Esmaelimotlagh et al., 2018). Along with the growth of researches in this field, a new structure called self-compassion was coined in the psychology (Neff, 2009). Self-compassion is known as a structure with three components: being kind to oneself against their own judgment (understanding oneself instead of judging or criticism, and a kind of love and support regarding their own deficiencies and flaws), human participation versus isolation (admitting that all people have deficiencies and make mistakes), and wisdom against extreme alignment (moderate and clear awareness of contemporary experiences helps not to ignore the painful aspects of an experience nor constant mind pre-occupation). Today, combining these three related components is considered as a characteristic of a self-compassionate person (Neff, 2009).

Several studies have shown that higher self-compassion is correlated with lower stress and depression (Neff, 2008). Other researchers have also shown that higher self-compassion is correlated with lower mental disorders, higher psychological well-being, and higher tolerance against stress.

Based on these findings and along with the studies conducted in the field of self-compassion, Gilbert (2006) started to use this structure in therapy sessions and finally introduced the theory of compassion-based therapy. The key to establishment of this therapeutic model lies in the failure to resolve negative emotions in cognitive-behavioral therapies (Gilbert, 2006). The basic principles in compassion-based therapy points to the fact that external thoughts, factors, images, and relaxations should be internalized. Then, the human mind will calm down when facing these interior emotions, just as it reacts to the external factor (Gilbert, 2006). Cardiovascular disease is one of the most important causes of death across the world, especially in developing countries. Among heart disease, coronary artery disease is the most common chronic and life-threatening illness. The progression of this disease in our country has been high for a variety of reasons, such as changing food habits and lack of energy. The disease is responsible for 26% of deaths and its incidence is reported 181.41 cases per 100,000 people. Coronary artery disease causes several problems, including pain, reduced oxygen supply to the tissues, and reduced tolerance to daily activities, and can lead to psychological stress and anxiety in the affected population. In recent years, many studies have been conducted on the effects of depression and anxiety on the onset, duration, and progression of coronary heart disease. Fulus found that depression increases the risk of death from stroke and vascular events. Additionally, people who suffer from depression after infarction are more likely to experience complications like heart dysrhythmias, increased chest pain, reduced satisfaction with treatment, decreased activity and decreased quality of life. Anxiety is one of the most important psychological factors in cardiac patients, and its prevalence in patients with myocardial infarction is reported as much as 50%. In this regard, Maleki and Heidari calculated the correlation between anxiety and depression as much as 62%. It should be noted that anxiety alone can predict cardiovascular events. Although there is a correlation between depression, anxiety and the effectiveness of cardiovascular events, few studies and solutions have been proposed to reduce these problematic causes in this regard. Since treating patients alone cannot be treated alone, a therapist and a psychologist will be required to improve the patient, in addition to being treated by a cardiologist. Also, non-medical methods can be used to resolve this problem (along with common pharmacological treatments). Because compassion for self and beyond, compassion-based therapy is a new entity in psychology, the need for further research is needed to examine the effectiveness of this model, especially in the context of an Eastern culture that is different from Western culture. The present study aims at study the efficacy of compassion-based therapy on death anxiety and pain perception in patients with acute coronary syndrome. This new study is intended to examine the effectiveness of this method for the first time in this sample group.

2. RESEARCH METHODOLOGY

The research statistical population includes all men suffering acute coronary syndrome in Tehran City in 2017-18. To reach a control group, available sampling method was implemented on men who attended Laleh Hospital, had a file there, and were willing to participate in this research. According to Kohen table (Delavar, 2005) and considering 1% error tolerance, 30 people were randomly selected and assigned to two 15-member groups – test group and control group (Ethical code:1397.639.IR.IAU.REC)

Research tools

Melazak questionnaire (1997) was also prepared. This questionnaire has 20 sets of phrase, whose purpose is to estimate peoples' pain perception in different aspects (sensory pain perception, emotional pain perception, perception of pain assessment, various and different pains). If the respondent does not find any statement appropriate to describe their pain, zero score will be allocated to that set. To calculate the score related to each aspect, one should sum up all scores of that aspect. To calculate the questionnaire total score, one should sum up the scores of each single question. Higher score implies higher pain perception of the respondent and vice-versa. Validity of the questionnaire provided based on Dorkin research (2009) was 0.61, which was acceptable. Its reliability was measured using Cronbach's alpha coefficient, which was in the range of 0.83-0.87 for all aspects.

Templer death anxiety scale is a tool to measure the anxiety associated with death, being the most used, was prepared by Temple et al. (1999). This scale is a self-executing questionnaire consisting of 15 yes-no questions. This questionnaire was translated to Persian by Rajabi (2001). Yes answer implies anxiety in the respondent. The range of score is 0-15 and high score (greater than average score "8") implies high level of death anxiety. The studies conducted on the validity of death anxiety scale show that it is of reasonable validity. Saino et al. (1997) calculated Cronbach's alpha coefficients for the triple factors obtained using factor analysis method and Italian edition of this scale to be 0.68, 0.49, and 0.60. Temple (1970) calculated the scale re-test coefficient equal to 0.83. In the research conducted by Rajabi (2001), apparent anxiety scale was used to investigate validity, which showed 34% correlation.

8 sessions of compassion-based therapy protocol;

First session

- Understanding compassion towards self and waking up the compassionate

- How to get compassion in psychotherapy sessions

Second session

- Mindfulness Practice
- The theory and principles of mindfulness are presented

Third session

- A few exercises for self-compassion

Fourth Session

- Interventions focused on compassion (self-compassion, compassion for others, etc.)

Fifth session

- Training three emotion regulation systems
- Search for fears and threats

Sixth Session

- Compassion Techniques to Balance the Emotion Regulation System
- Expressing the key characteristics of compassion

Seventh session

- Understanding and managing emotions (shame and self-criticism)
- Deshaming and acceptance of responsibility

Eighth session

- Causality in the face of responsibility
- Acceptance of life (it is not our fault)
- Moving from our fault is not about accepting responsibility
- Examining and discovering the core values that are meaning in the life span

3. DESCRIPTIVE FINDINGS OF RESEARCH VARIABLES

Table (1) shows the descriptive indices of research variables in the pretest and posttest for each group, including the minimum, maximum, mean, and standard deviation of the scores.

Table 1 Descriptive indices of research variables in test and control groups (n=30)

Variable	Group	Qty	Mean	Standard Deviation
Death anxiety pretest	Test	15	93.30	8.97
	control	15	94.40	7.90
Death anxiety posttest	Test	15	82.95	6.66
	control	15	92.80	7.883
perception of pain pretest	Test	15	28.05	1.95
	control	15	27.95	2.52
perception of pain posttest	Test	15	21.55	3.95
	control	15	28.45	3.54

According to Table (1), the mean value of test group in death anxiety and pain perception posttest is lower than that of the control group.

Verification of the Normality of Research Variables

Normal distribution of data is one of the most important predictions of all parametric tests such as covariance analysis. The Kalmogorov-Smirnov test was used to check the normal distribution of variables in the pre-test and post-test. It should be noted that the significance of the results of this test indicates that the distribution of variables is normal. In Table 2-4, Shapiro's results are reported for normal distribution of data (figure 1).

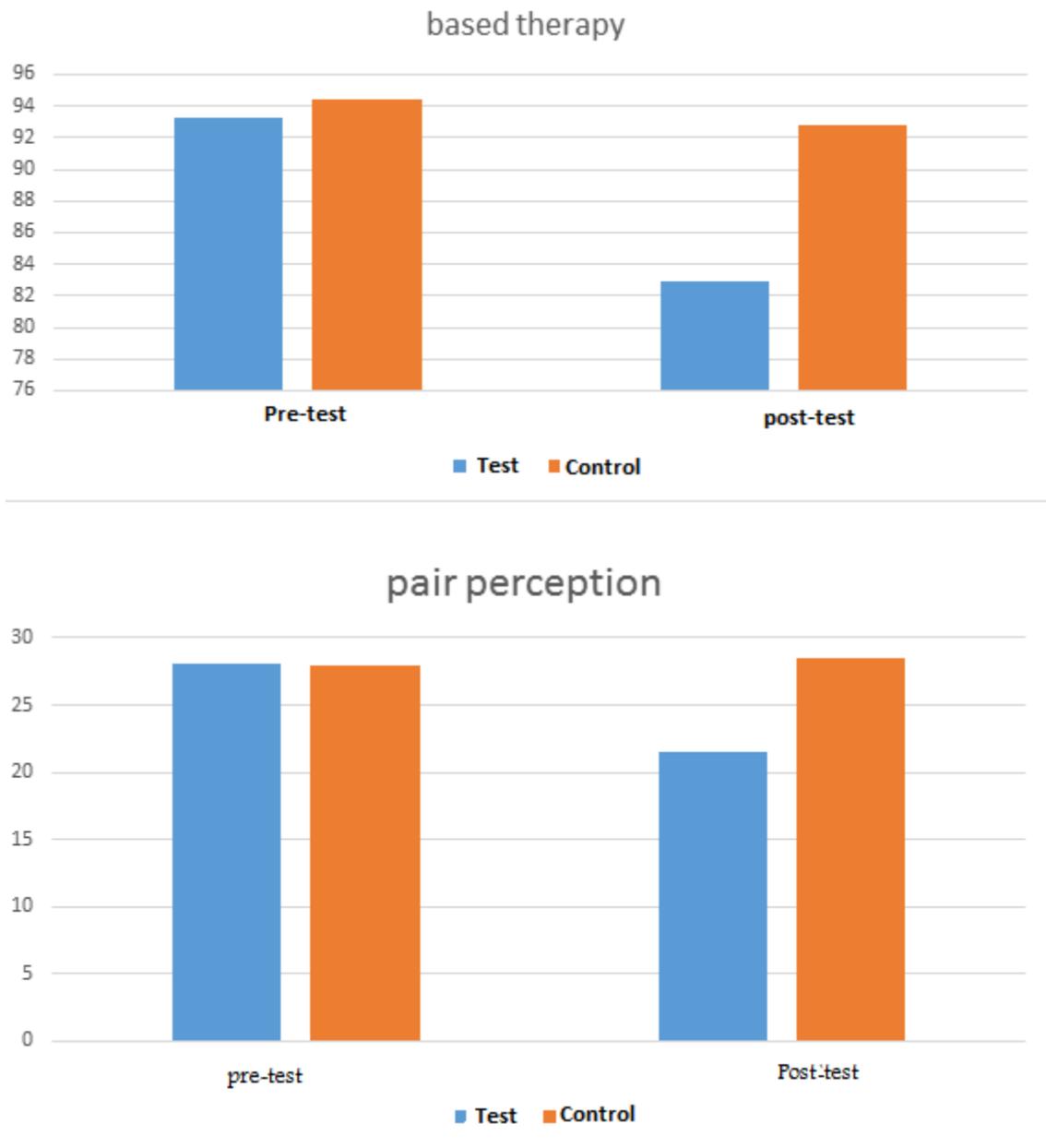


Figure 1 Pre-test and post-test Death anxiety in the experimental and control group

Table 2 Shapiro Test Results for Normal Data distribution

Variable	Group	Z-Shapiro statistic	Significant level
Death anxiety pretest	Test	1.07	0.20
	control	0.56	0.90
Death anxiety posttest	Test	0.96	0.31
	control	0.92	0.35
perception of pain pretest	Test	0.68	0.73
	control	0.84	0.47
perception of pain posttest	Test	0.63	0.81
	control	0.79	0.54

The results of Table 2 show that the Z statistic of Shapiro test was not significant in control and test groups in death anxiety pre-test, death anxiety posttest, pretest of perceived pain and posttest of perceived pain.

Inferential Findings

The first hypothesis of research

1. Compassion-based group training is effective on pain perception in people with acute coronary syndrome.

One-Way Covariance Analysis (one-way ANCOVA) was used to investigate the effectiveness of compassion-based therapy on a patient with acute coronary syndrome. Analysis of covariance is a statistical test. In this analysis, variance is combined with regression and is used to examine the difference between groups. The essential feature of this statistical technique is to reduce the variance of the dependent variable error through the use of the covariate or control variable. In this statistical method, the effect of these variables is eliminated on the dependent variable and enables researchers to speak with the power and ability to influence the independent variable on the affiliate the effect of these variables is eliminated on the dependent variable and enables researchers to speak with the power and ability to influence the independent variable on the affiliate (Tabachnick & Fidell, 2000). The covariate or control variable in this study is pain perception pretest scores as they affect the final pain score, so, their effect should be eliminated or controlled the independent variable compassion-based therapy. The dependent variable is pain perception posttest score. The assumptions made in this test are analyzed in the following, before conducting covariance analysis test.

Investigating the assumptions of one-way covariance analysis

1. Normality of the variables: Shapiro test was used to investigate normality of the variable distribution of death anxiety in the pretest and posttest. The results indicated that variable distribution of death anxiety is normal in the pretest and posttest.
2. Linearity of covariate and dependent variables: Table (2) shows the results of variance analysis test to investigate the linearity of death anxiety pretest and posttest relation.

Table 3 Analysis of variance analysis results to examine the relationship between the pre-test and post-test of pain perception

Statistical Variable	Value	F	Significance Level
Linear relation (R)	0.55	15.11	0.11
Non-linear relation (η)	0.61	0.54	0.79

According to Table 3, F is the linear relation between pain perception pretest and posttest (15.11), which is significant at 0.001 levels. F is the non-linear relation between pain perception pretest and posttest (0.54), which is not significant ($p > 0.05$). So, given this information, it can be argued that there is a linear relation between pain perception pretest and posttest.

1. No significant difference between groups in covariate variable: Two independent sample t-tests were used to investigate this assumption. The results of this test are reported in Table 4.

Table 4 Results of two independent sample t-test to investigate group differences in pain perception pretest

Group	Mean Value	Standard Deviation	Mean Difference	t	d.f	p
Test	10.30	1.97	0.90	1.46	28	0.15
Control	9.40	1.90				

According to Table 4, investigating the difference between test group and control group in pain perception pretest shows that there is not a significant difference in t values of the two groups ($t = 1.46$, $df = 28$, $p > 0.05$).

1. Homogeneity of the regression slope of covariate and dependent variable in the groups: To investigate this assumption, the results of F values are reported in Table 5 to study the homogeneity of regression slope of pain perception pretest and posttest in test and control groups.

According to Table 5, the F value in homogeneity test of regression slope of pain perception pretest and posttest is not significant in test group and control group ($F = 0.01$, $p > 0.05$). Therefore, it can be concluded that regression slope of pain perception pretest and posttest is equal in the two groups.

Table 5 Investigating the assumption of homogeneity of regression slope of pain perception pretest and posttest in test and control groups

Source	Sum of Squares	Degree of Freedom	Mean Squares	F	Significance Level
Pretest Group	0.03	1	0.03	0.01	0.91
Error	87.87	26	2.44		

Homogeneity of dependent variables' variance in the groups

Levine test was used to investigate this assumption. The insignificant results of this test imply homogeneity of variables' variance in the groups. The results of Levine test for investigating pain variables' variance in test group and control group are reported in Table 6.

Table 6 Levine test to investigate pain variables' variance in test group and control group

F	Degree of Freedom 1	Degree of Freedom 2	Significance Level
0.43	1	28	0.51

According to Table 6, the F value of Levine test to investigate pain variables' variance in test group and control group is not significant ($F=0.43$, $p>0.05$). Therefore, it can be concluded that pain variable's variance is equal or homogeneous in the groups. Table 7 shows one-way covariance analysis results for investigating the difference between pain posttest and pretest in test group and control group.

Table 7 One-way covariance analysis results for investigating the pain difference in test group and control group

Source	Sum of Squares	Degree of Freedom	Mean Square	F	Significance Level
Pretest	32.24	1	32.24	13.57	0.001
Group Membership	28.08	1	28.08	11.82	0.001
Error	87.90	27	2.37		

According to Table 7, the F value of pain is 11.82 in posttest, which is significant at 0.001 level. It shows a significant difference in pain perception between the two groups. The F value of pain is 13.57 is pretest, which is significant at 0.001 level. It implies that the pretest has a significant effect of posttest grades, so, using covariance analysis is necessary.

Table 8 Results of the analysis of covariance (Mancova) for the first sub-hypothesis ($n = 30$)

test	Value	F	Degree of Freedom of group	Degree of Freedom of Error	Significance level
Wilks' Lambda test	0.325	25.98	2	25	0.001

According to Table 4-8, since the significance level of the Wilkes Lambda test was less than 0.05. [$P < 0.001$, $F = 25.28 =$, Wilks' Lambda $325/0 =$] at 95% confidence level and measurement error of 0.05%, so the null hypothesis is rejected and the research hypothesis is confirmed; there is a significant difference between the two groups at least in one of the tested variables. Therefore, it can be concluded that "Compassion-based group training is effective on the perception of pain in people with acute coronary syndrome."

Table 9 Summary of covariance analysis of pain perception in experimental and control groups by eliminating interaction ($n = 30$)

Source	Sum of squares	Degrees of freedom	Mean Square	F	Significant level	ETA Square

Between groups	Perception of pain	38.85	1	38.85	14.89	0.001	0.364
Error	Perception of pain	67.85	28	2.61			
Total	Perception of pain	9046	30				

As in Table 9, the results of covariance analysis for pain perception ($\text{Eta} = 364$, $P < 0.001$, $14.89 = (26 \text{ and } 1) F$) show that there is a significant difference between two groups of posttest tests after the removal of the effect of auxiliary random variables; in other words, there is a significant difference between the pain perception of the experimental group and the control group.

Considering that there is a significant difference between the mean of the two groups of test and control in the variable of pain perception, the research hypothesis is confirmed and the null hypothesis that group-based compassion training on the perception of pain in patients with acute coronary syndrome is not effective.

The second hypothesis of the research

2. Compassion-based group training is effective on death anxiety in people with acute coronary syndrome.

One-Way Covariance Analysis (one-way ANCOVA) was used to investigate the effectiveness of compassion-based therapy on a patient with acute coronary syndrome. Analysis of covariance is a statistical test. In this analysis, variance is combined with regression and is used to examine the difference between groups. The essential feature of this statistical technique is to reduce the variance of the dependent variable error through the use of the covariate or control variable. In this statistical method, the effect of these variables is eliminated on the dependent variable and enables researchers to speak with the power and ability to influence the independent variable on the affiliate. The effect of these variables is eliminated on the dependent variable and enables researchers to speak with the power and ability to influence the independent variable on the affiliate (Tabachnick & Fidell, 2000). The covariate or control variable in this study is death anxiety pretest scores as they affect the final death anxiety score, so, their effect should be eliminated or controlled the independent variable compassion-based therapy. The dependent variable is death anxiety posttest score. The assumptions made in this test are analyzed in the following, before conducting covariance analysis test.

Investigating the assumptions of one-way covariance analysis

1. Normality of the variables: Shapiro test was used to investigate normality of the variable distribution of death anxiety in the pretest and posttest. The results indicated that variable distribution of death anxiety is normal in the pretest and posttest.
2. Linearity of covariate and dependent variables: Table (2) shows the results of variance analysis test to investigate the linearity of death anxiety pretest and posttest relation.

Table 10 Results of variance analysis test to investigate the linearity of death anxiety pretest and posttest relation

Statistical Variable	Value	F	Significance Level
Linear relation (R)	0.45	13.17	0.001
Non-linear relation (η)	0.71	0.62	0.68

According to Table 10, F is the linear relation between death anxiety pretest and posttest (13.17), which is significant at 0.001 levels. F is the non-linear relation between pain perception pretest and posttest (0.62), which is not significant ($p/0.05$). So, given this information, it can be argued that there is a linear relation between death anxiety pretest and posttest.

1. No significant difference between groups in covariate variable: Two independent sample t-test was used to investigate this assumption. The results of this test are reported in Table 11.

Table 11 Results of two independent sample t-test to investigate group differences in pain perception pretest

Group	Mean Value	Standard Deviation	Mean Difference	t	d.f	p
Test	20.30	5.97	0.90	1.46	28	0.15
Control	19.40	5.90				

According to Table 11, investigating the difference between test group and control group in pain perception pretest shows that there is not a significant difference in t values of the two groups ($t=1.46$, $df=28$, $p>0.05$).

1. Homogeneity of the regression slope of covariate and dependent variable in the groups: To investigate this assumption, the results of F values are reported in Table 12 to study the homogeneity of regression slope of death anxiety pretest and posttest in test and control groups.

Table 12 Investigating the assumption of homogeneity of regression slope of death anxiety pretest and posttest in test and control groups

Source	Sum of Squares	Degree of Freedom	Mean Squares	F	Significance Level
Pretest Group	0.03	1	0.03	0.01	0.91
Error	87.87	26	2.44		

According to Table 12, the F value in homogeneity test of regression slope of pain perception pretest and posttest is not significant in test group and control group ($F=0.01$, $p>0.05$). Therefore, it can be concluded that regression slope of pain perception pretest and posttest is equal in the two groups.

1. Homogeneity of dependent variables' variance in the groups: Levine test was used to investigate this assumption. The insignificant results of this test imply homogeneity of variables' variance in the groups. The results of Levine test for investigating pain variables' variance in test group and control group are reported in Table 13.

Table 13 Levine test to investigate pain variables' variance in test group and control group

F	Degree of Freedom 1	Degree of Freedom 2	Significance Level
0.53	1	28	0.41

According to Table 13, the F value of Levine test to investigate death anxiety variables' variance in test group and control group is not significant ($F=0.53$, $p>0.05$). Therefore, it can be concluded that death anxiety variable's variance is equal or homogeneous in the groups. Table 14 shows one-way covariance analysis results for investigating the difference between death anxiety posttest and pretest in test group and control group.

Table 14 One-way covariance analysis results for investigating the death anxiety difference in test group and control group

Source	Sum of Squares	Degree of Freedom	Mean Square	F	Significance Level
Pretest	32.23	1	34.23	14.55	0.001
Group Membership	29.07	1	29.07	11.67	0.001
Error	86.89	27	2.37		

According to Table 14, the F value of pain is 11.67 in posttest, which is significant at 0.001 level. It shows a significant difference in death anxiety between the two groups. The F value of pain is 14.55 is pretest, which is significant at 0.001 level. It implies that the pretest has a significant effect on death anxiety posttest grades, so, using covariance analysis is necessary.

Table 15 Results of the analysis of covariance (Mancova) for the first main hypothesis ($n = 30$)

test	Value	F	Degree of Freedom of group	Degree of Freedom of Error	Significance level
Wilks' Lambda test	0.155	6.40	2	22	0.001

According to Table 15, since the significance level of the Wilkes Lambda test was less than 0.05. [$P < 0.001$, $F(2,22) = 6.40 =$, Wilks' Lambda = 0.155] at 95% confidence level and measurement error of 0.05%, so the null hypothesis is rejected and the research hypothesis is confirmed; there is a significant difference between the two groups at least in one of the tested variables. Therefore, it can be concluded that "Compassion-based group training is effective on the death anxiety in people with acute coronary syndrome."

Summary of the results of single-variable covariance analysis of acceptance and practice in the test and control group with the elimination of interaction is shown in Table 16.

Table 16 Summary of single-variable variance analysis of death anxiety in experimental and control groups with the elimination of interactions (N = 30)

Source		Sum of squares	Degrees of freedom	Mean Square	F	Significant level	ETA Square	Statistical power
pretests	death anxiety	373.72	1	373.72	135.39	0.001		
Between groups	death anxiety	10.37	1	10.37	3.75	0.05	0.12	0.94
	Error	71.76	28	2.86				
Total	death anxiety	54273	30					

As in Table 16, based on the significance levels calculated for floating point variables (pre-tests of variables for research), for the purpose of examining the linear dependency of the regression variable, the independent variable, for the variable death anxiety Sig (=0.001, $39/135 = F$) which is significant in the error of 0.05. It can be said that linear assumption of regression and independent variables are observed for the death anxiety variable.

Given on the summary of the computations of the effects between the subjects of the scales with consideration of the error rate (individual differences) and after eliminating the possible effect of the pre-tests, 3 significant levels of f were calculated for admission and practice ($p = 0.05$, $p = 23$, $1 = df$, $F = 0.73$) is less than 0.05. Therefore, it can be concluded that compassion-based group training is effective on death anxiety in people with acute coronary syndrome. The effect of this effect was 0.12 by intervention of the independent variable has been created. The statistical power is reported as much as 0.94. In other words, the probability of the first type error is 0.06.

4. DISCUSSION

Acute coronary syndrome, in addition to being a physical illness, is considered a mental illness and should be considered and worked on the psychological factors in the disease.

First hypothesis: Compassion based group training is effective on pain perception in people with acute coronary syndrome.

In evaluating the first sub-hypothesis, the results showed that compassion-based group training is effective on perception of pain in people with acute coronary syndrome. As a result, this hypothesis was approved. The results of this study are consistent with Altshuler et al. (2015). Sturgeon (2013) states that perception of pain in some people causes pain to be more intense and, as a result, causes negative social-emotional outcomes for those who have coping strategies with illness and stress-induced disease. Researchers found that the characteristics of pain perception and catastrophic play an important role in adapting to the daily pain associated with cancer. Perception and catastrophizing of the pain cause the person to feel more intense pain and thus the pain will be hard for him/her, and his/her resiliency will be reduced. Chronic pain is usually curable in diseases and symptoms of depression in these individuals are reduced due to effective coping, but ill patients are gradually reduced due to the long course of the disease and their resilience decreases and leads to catastrophic pain. Chronic pain is usually curable in diseases and symptoms of depression in these individuals are reduced due to effective coping, but ill patients are gradually reduced due to the long course of the disease and their resilience decreases and leads to catastrophic pain. Alchuller et al. (2015) concluded in their research that compassion itself plays an important role in perceptions of pain in cardiac patients. In explaining these findings, it can be argued that evidence has shown that psychological factors are more strongly related to disability than indicators associated with a disease (Bishop, 2014).

Chronic diseases can confront a person with challenges and threats such as pain, disorientation, destruction and damage to physical function, life threatening and change in future prospects. The catastrophizing of pain can be a risk factor that can lead to selective pain associated with pain. People with pain perception and catastrophizing experience more difficult to control or quench their pain-related thoughts, and their physical and cognitive function is more likely to be exacerbated by the excitement of pain (Gabbert et al., 2014). If pain is interpreted as a threat, pain-related fear is formed through the cognitive process of disaster. This leads to avoidance and eavesdropping to body emotions and pain, which is a chronic and persistent pattern of disability.

Second hypothesis: Compassion-based group training is effective on death anxiety in people with acute coronary syndrome.

In evaluating the second sub-hypothesis, the results showed that compassion-based group training is effective on death anxiety in people with acute coronary syndrome. As a result, this hypothesis was approved. This study is consistent with the results of studies conducted by Gilbert and Proctor (2006) and Gilbert et al. (2007) on compassion-based therapy. Moreover, numerous studies by Neff et al. consistent with this study confirmed the relationship between self-compassion and reduction of anxiety symptoms and showed that compassion to a higher self is higher than anticipating lower anxiety.

Despite the importance of death anxiety, this issue is considered as a taboo in our country and as face resistance, so that not enough researches have been conducted in this field so far. In fact, as Freud (1915) wrote: "our unconscious doesn't believe our death and acts so that we are immortal". In the following he adds "even when we hypocritically believe death, we do not believe it in our unconscious" (quoted from Furer and Valker, 2008). To further explain these findings, it can be argued that as Neff and Germer (2013) believe, self-compassion is one of the important components of psychological health. It has abilities by learning and practicing related to which people can acquire happiness and psychological benevolence. Compassion-based therapy makes activities like learning or alternative behaviors to be more regulated and consistent by applying the experiences. According to Gilbert (2009), self-compassion has a proper coping resource that helps people to face the negative events in their life. Facing death is one example of these negative events and is one of the major events in life. It can also help people conserve their health more efficiently as they learn to be more compassionate to themselves, have a common sense with others, be informed of their life conditions, and face the problems with non-judgmental attitude. Given the fact that self-compassion is defined as quality of confronting the difficulties, harms, and helping to solve the problems, it is associated with positive psychological components, namely kindness and passion (Hefernan et al., 2012). To further explain these findings, it can be argued that threat and self-protection system is somewhat overwhelmed in many people with psychological disorders, which results in high level of stress and anxiety in them. On the other hand, satisfaction and relief system is less developed in these people as they never had the chance to transform this system. Self-compassion based therapy for these people acts like mind physiotherapy, i.e., provides a platform for its transformation by intriguing the soothing system. Transformation of this system improves tolerance against anxiety. Self-compassion can be an emotional-based resistance from many aspects as it requires conscious awareness of one's own emotions, lack of accompanying with kindness, and feeling of human subscriptions to them. In fact, in this model, people first recognize their emotional experience using conscious awareness and, then, will have a compassionate attitude toward their negative feelings. People with higher self-compassion in the first place receive greater effect from intervention and have less mind pre-occupation, but people lacking this feeling receive reverse effect from intervention and their mind pre-occupation becomes higher.

Several studies conducted by Neff et al. have shown that people with higher level of self-compassion have a lower tendency to calm down by mind pre-occupation. The results of these studies are in compliance with the earlier literature. However there is no data about existence of "an interactive effect between compassion-based therapy and self-compassion on mind pre-occupation" in the literature. Moreover, in the study conducted by Simos (2009), mind pre-occupation has resulted in delaying depression during cognitive-behavioral therapy. Rise et al. (2010) also claims that if mind pre-occupation is high and compassion-based therapy cannot change it, mind pre-occupation will get worse as self-compassion is negatively correlated with mind pre-occupation

5. CONCLUSION

A person who has a high self-incapacitation can even have a balanced and kindly attitude when faced with frustrations and misconduct and avoid adopting an approach to judgment. Human Participation against Isolation means that when experiencing the suffering and misery of life, we are aware that all human beings are defeated and experience suffering. These conditions (failure and suffering) as part of the usual human experience occur in the lives of all human beings, and the mind of awareness in the face of extreme identification means that people are aware of their feelings and excitements and consider and experience them in a positive and proper way, without being avoided or completely subjected to their control.

It can be argued that these findings match the results of the current study. If compassion-based therapy cannot increase self-compassion in people with low self-compassion and high min pre-occupation, their min pre-occupation will increase.

Conflict of Interest

The authors of this study have declared no conflict of interest.

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