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International Journal of Cardiovascular Medicine

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Research Article

Comparison of the Effectiveness of mulTIdimensional Spiritual Therapy and Stress Inoculation Training on Salivary Cortisol, Depression and Heart Rate Heart Rate Coordination in CABG Coronary Artery Bypass Graft Patients

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Received date: September 27, 2022; Accepted date: October 06, 2022; Published date: October 13, 2022

Citation: Fateme Nequee (2022). Comparison of the Effectiveness of mulTIdimensional Spiritual Therapy and Stress Inoculation Training on Salivary Cortisol, Depression and Heart Rate Heart Rate Coordination in CABG Coronary Artery Bypass Graft Patients. *International Journal of Cardiovascular Medicine*, 1(1) DOI:10.31579/2834-796X/004

Abstract

The aim of this study was to compare the effectiveness of SIT stress inoculation treatment and multidimensional spiritual therapy on heart rate Heart rate coordination, salivary cortisol and depression in patients with coronary artery bypass grafting. The method of the present study was a clinical trial with two experimental groups and one control group. The study population included patients with coronary artery surgery (CABG) of Tehran Cardiac Research Center who underwent cardiac rehabilitation in this study. 45 people were selected by convenience sampling and randomly divided into three experimental and control groups. The instruments of this study were DASS-21 scale, glossy cortisol kit and assessment of Heart rate coordination, which were examined before the intervention and at the end of the tenth session in three groups. The first experimental group was exposed to the independent variable, Mickenbaum stress inoculation training in 10 90-minute sessions, and the second experimental group received multidimensional spiritual therapy. Multivariate analysis of covariance and SPSS software were used to analyze the data. The results of multivariate analysis of covariance showed that SIT and multidimensional spiritual interventions in post-test and one-month follow-up had a significant increase in Heart rate coordination and depression in CABG patients ($p < 0.05$). Regarding the changes in the rate of depression in the post-test of the experimental groups, the differences between the multidimensional spiritual group and SIT were -2.200 and $p = 0.002$, and cortisol was -2.0145 and $p = 0.043$. Therefore, there is a significant difference in the effectiveness of these two groups in reducing the variables of depression and salivary cortisol. However, in relation to the changes in the degree of variability in the post-test of the experimental groups, the difference between the multidimensional spiritual group and immunization was -0.00313 and $p = 0.1$. Therefore, there is no significant difference in the effectiveness of these two groups. SIT intervention seems to be less effective than multidimensional spiritual therapy despite emphasizing irrational thoughts, replacing them with efficient cognitions, and equipping the patient with a full range of skills, without providing meaning in life. Reduces negative thoughts and subsequently lowers cortisol. But in Heart rate coordination due to vagal nerve stimulation equals spiritual therapy.

Keywords: stress inoculation; multidimensional spiritual therapy; heart rate coordination; cortisol

Introduction

Heart disease is one of the most common diseases in the world and is still the leading cause of death in various countries [1]. They do not respond and undergo coronary artery bypass graft (CABG) surgery [2]. Cardiac surgery, as an important event in people's lives, can cause physical and mental dysfunction. In addition to biological factors, this disease is also affected by psycho-social factors and emotional imbalance, in addition to being one of the risk factors for heart disease, has a significant effect on a person's recovery [1]. Depression is more than three times more common in the general population than heart patients, and negative prognosis for coronary heart disease and its risk increases by up to two and a half times [3]. Thus, the mortality rate in

these patients is more affected by depression than by the severity of the disease [4]. Due to the fact that depression has been reported in 0.13-19 heart patients, it has been observed that in these patients depression causes several complications such as increased alcohol consumption, smoking, angina, arrhythmia, readmission, long-term disability and in Ultimately mortality occurs [5]. Depression has also been shown to increase mortality up to 18 months after heart disease, so that patients with weakened immune systems are more likely to have the problem more severely. Meanwhile, the use of antidepressants in heart patients has increased, the debate about their safety is still ongoing [6]. Recent research also suggests that drug treatment of depression in heart patients has no effect on improving cardiac parameters [7]. The results of some studies have shown that emotional and dysfunctional coping in the face of stress leads to increased stress and as a result increases the activity of the autonomic nervous system and ultimately, cardiovascular reactions in patients [8]. The balance of this system is disturbed by internal or external factors and the person experiences emotional imbalance, which in turn causes changes in heart function. The equilibrium state of the sympathetic and parasympathetic nervous systems is measured by Heart rate coordination. This index has clinical value and its reduction is associated with myocardial infarction and death and is a useful prognosis of death due to arrhythmic problems in myocardial patients [9]. Therefore, it is very important in classifying types of arrhythmias and because it is a non-invasive method, it can be easily used [9] In addition to examining the psycho-physiological coordination of the Heart rate coordination heart, examining salivary cortisol also helps to identify emotional states that affect heart health. In this non-invasive method, in addition to salivary cortisol concentration, it is a valid indicator of plasma free cortisol concentration [11]. Impaired regulation of the hypothalamic-pituitary-adrenal (HPA) axis is associated with impaired cortisol secretion, which itself causes diseases of the cardiovascular, metabolic, autoimmune, and psychological systems [12]. Elevated cortisol levels indicate the presence of problems coping with a stressful situation [13], both when it is a response to an acute stressor and as a chronicle of chronic daily problems. Elevated cortisol levels are associated with increased anxiety and especially severe clinical depression [14]. Therefore, ways that can reduce these negative emotions can improve the health of the individual by adjusting the HPA axis [15]. On the other hand, despite the medical advances in recent years, in Iran we still see the effects and side effects of cardiovascular disease interventions. The studys showed that a significant percentage of heart patients do not regain their social and normal activities after surgery [14,15].

"More than two million new coronary heart disease patients in the United States need care and rehabilitation programs each year," says the U.S. Agency for Research and Health. Careful follow-ups have increased activity capacity, reduced pain incidence, reduced anxiety, reduced heart failure, increased social and family interactions, and ultimately, improved quality of life in these patients [12]. Apart from material complications, the high mortality rate and low quality of life of these patients, t CBT cognitive-behavioral intervention has been suggested as the treatment of negative emotions and its advantage over drug therapy is that it prevents the recurrence of the disease. he need for the intervention of health psychologists clarifies the use of psychological interventions along with medical measures to have more health and fewer side effects in these patients. Given that stress is associated with an increased risk of coronary artery disease, a reduction in stress may have favorable outcomes for the prognosis of patients with CHD and cause cardiac variability by reducing stress and emotional arousal. [16]. Cognitive-behavioral programs improve positive mood, mood, and emotion by managing and modifying internal speech, controlling negative self-expression, mental relaxation, and cognitive stimulation. The ENRICHD coronary heart disease enhancement program evaluated the effectiveness of group and individual cognitive-behavioral interventions and the combination of the two in a large sample of patients with depressed heart failure. The results showed that adding group cognitive-behavioral training to individual therapy reduced medical outcomes [17], reduced depression, and increased social support for HF patients [11]. These results are repeated in the study of support, education and research in the study of chronic heart failure SEARCH [8] and the project of life [18].

Cognitive-behavioral interventions in randomized clinical trials have shown that these interventions prevent cardiac recurrences with relatively long follow-ups [18]. In addition to studies that support the effectiveness of cognitive-behavioral therapy, studies on patient improvement are associated with conflicting results. A recent meta-analytic study shows that treating depression with medication or CBT or performing various psychosocial interventions has little effect on improving the depressive symptoms of CHD patients in the long run because most intervention programs are designed to be long-term and Its implementation requires a large number of specialized and clinically experienced personnel, which limits its application. In addition, it seems that reducing stress in a relatively short period of time is possible [19].

In addition to a variety of CBT interventions, stress inoculation training has a greater variety of skills for effective coping in heart patients [17]. This method of treatment seems necessary considering the role of emotional disorders in coronary artery disease, but since it has been done in research [15], the period of training sessions varies from 3 to 8 sessions. Also, in addition to changing destructive cognitions, these sessions should provide the possibility of practicing and experiencing these trainings in daily life. Therefore, it is necessary to continue these sessions in a longer time frame, and this in itself strengthens the independent variable and reduces the error of the first type and increases the test power.

In cognitive reconstruction, the therapist can help patients cope better with stress [20]. In fact, in this therapeutic approach, the patient is encouraged to test the relationship between negative spontaneous thoughts and feelings of depression, and to use behaviors that result from negative spontaneous thoughts as a criterion for assessing the validity or correctness of those thoughts and to correct self-expression. Pay for themselves [21]. Among other psychological interventions that help regulate patients' emotions, psychotherapy is a multidimensional spiritual therapy that in the form of Lazarus therapy, in addition to the physical dimension of personality, also considers the spiritual dimension. The psychological balance that is the goal of many modern therapies around the world is well ensured by current interventions. But the new generation of therapists seeks to perpetuate treatment outcomes and deepen therapeutic changes. In multidimensional spiritual therapy, the problem formulation of clients is organized differently, and the therapist's area of operation is the activation of spiritual practice after gaining insight. The treatment of multidimensional spirituality includes: behavior, emotion, feeling, visualization or mental imagery, cognition or thinking, interpersonal relationships and biological dimension or lifestyle [22]. The sociology of this method applies not only to the outward and inward dimensions but also to the dimension of evolution.

On the other hand, the spiritual therapy that is offered in the research proposal has not been out of two states; The first category is studies whose designed interventions include only a spiritual dimension, which is accompanied by a vague and non-operational definition, and its effectiveness is obviously in a state of ambiguity, because along with other interventions, Gone. For example, the study of Zila Van et al. fall into this category [23].

The second group of those whose religious-spiritual intervention is based on Eastern meditation, not interventions appropriate to our culture, such as the study of Zamarra et al. [24]. These cases indicate that such interventions to reduce patients' psychological problems; Like stress, anxiety and depression, it is mostly based on the general elements of spirituality such as prayer, prayer with a focus on Eastern healing and does not cover all aspects of one's life and is just a repetition of patterns and techniques [25]; So that it covers only one dimension of multidimensional life. Therefore, it seems that we face the limitations of research on the effects of multidimensional spiritual therapy in the field of medical diseases, especially heart patients.

Accordingly, based on the research literature, the present study seeks to compare the effectiveness and continuity of the effect of stress inoculation therapy and multidimensional spiritual therapy on Heart rate coordination, salivary cortisol depression in patients with coronary artery bypass grafting.

Research Methods

This study was a clinical trial in the experimental group and the control group. The study population included patients with coronary artery bypass graft (CABG) of Tehran Cardiac Research Center who were included in the cardiac rehabilitation program after cardiac surgery and during their attendance. The sample consisted of 45 patients who were selected by convenience sampling and randomly divided into three experimental and control groups. Inclusion criteria include coronary artery bypass graft (CABG), age less than 70 years, minimum literacy, lack of primary or secondary cognitive impairment based on the patient's medical record, ability to communicate, and exclusion criteria including no The individual was willing to cooperate, to be admitted during the study, and not to attend the training session. Among the patients participating in the cardiac rehabilitation program, they were randomly divided into the first three experimental groups (stress inoculation training), the second experimental group (multidimensional spiritual therapy), and the control group (the waiting group). The instruments of this study included scale (DASS-21) and evaluation of Heart rate coordination and salivary cortisol kit.

Scale (DASS-21): This test is a short form of the 42-item Levyband & Levyband [26] Scale for Depression, Anxiety, and Stress is a set of three self-report scales for assessing negative emotion states in depression, anxiety, and It is stress. The application of this scale is to measure the severity of the main symptoms of depression, anxiety and stress. To complete the questionnaire, one must determine the status of a symptom during the past week. Because this scale can provide a comparison of symptom severity over different weeks, it can be used to assess treatment progress over time. This test has a short form of 21 questions that the validity and reliability of the short form of this test (DASS-21) on the Iranian population has been studied and the results show that it is a suitable tool [27]. He reported Cronbach's alpha coefficients of this test in a sample of the general population (278), 0.87 for depression, 0.85 for anxiety, 0.89 for stress and 0.91 for the whole scale. These coefficients in clinical samples are 0.89 for depression, 0.91 for anxiety, 0.87 for stress and 0.93 for the whole scale. Simultaneous, convergent and diagnostic validity was calculated through simultaneous implementation of Beck Depression Inventory, Beck Anxiety Scale, Positive and Negative Emotions Index and Mental Health Scale in clinical and general samples [26]. Each of the DASS subscales consists of 7 questions, the final score of each of which is obtained through the sum of the scores of the related questions. Each question is scored from zero (does not apply to me at all) to 3 (does not apply to me at all). Since DASS-21 is the abbreviated form of the main scale (42 questions), the final score of each One of these subscales must be doubled. [25].

Salivary cortisol kit: In fact, today the measurement of cortisol through saliva is an accepted method that is widely used in psychoneuroendocrinology. Many researchers have considered this method to be superior due to the elimination of stress due to blood sampling, the presence of biochemical and hormonal factors in saliva and its ease of sampling. In this study, non-stimulatory collection method was used [28]. The samples were transferred to the laboratory immediately after collection. Due to the fact that cortisol secretion follows a circadian rhythm, the sampling time was the same in all stages (pre-test, post-test and follow-up times). Due to the uniform sampling time, the effect of circadian rhythm on hormone secretion was controlled. At all stages, the collected saliva samples were quickly frozen and transferred to the laboratory. Samples were stored at -23 ° C until the experiment was performed. To measure salivary cortisol concentration, German IBL cortisol kit, model 52611 - RE with a sensitivity of 0.03 μg / dL was used by ELISA method.

Measuring and evaluating Heart rate coordination

The first step in this study is to detect the R-wave in the ECG signal. After determining the exact location of the R arrows, the signal coordination is obtained by calculating the time intervals between two consecutive R waves. To evaluate the function of the autonomic nervous system, the number of fluctuations in R-R intervals is analyzed by an electrocardiogram (14,29). To measure Heart rate coordination, the Fourier frequency axis method was used to detect changes in different frequencies. Each participant was attached to a cardiac monitor and asked to lie in a quiet, dimly lit room for 15 minutes. The resting heart rate was then monitored by a holter for ten minutes in the open arch. Then spectral analysis was performed on spontaneous changes in heart rate and the results were used to calculate the frequency range of Heart rate coordination parameters using software.

After obtaining the code of ethics from the Vice Chancellor for Research of Payame Noor University (IR.PNU.REC.1398.001), the researcher introduced himself to the Tehran Heart Research Center, explained the objectives of the research to him, and obtained a permit to enter the environment. Research participants were assured that the information collected would be confidential and that they could be excluded from the study at any time if they did not wish to continue. Participants completed the questionnaires before the intervention and one month after the intervention. The two test groups were divided into 10 90-minute training sessions in the form of a combination of lectures, dialogue and the use of slides.

Multidimensional spiritual therapy group: This group of patients also participated in a treatment program of 10 sessions of multidimensional spiritual intervention. At the beginning of treatment, IPQ-R scale and physiological psychological coordination or resonance frequency were measured in terms of disease perception. Saliva samples were also taken from patients to evaluate cortisol and recorded as baseline evaluation. The sessions began and continued in groups and in dialogue, with PowerPoint and real-life examples. Meetings are held twice a week for 90 minutes. In this group, with the help of homework, the correct understanding of the presented material was ensured (Table 1). At the end of the tenth session and following the results of the intervention, 1 month after the post-test, the rate of depression, Heart rate coordination and salivary cortisol were re-evaluated.

Stress insemination treatment group: These sessions were based on the Milkenbam stress inoculation method. In these sessions, patients were asked to describe the difference between stress and anxiety, to find the best picture that reflects stress, to record the stressors they face during the week, and to identify the thoughts that produce these destructive emotions. To pay.

Explain the role of stress management in reducing relapse and progression of the disease, relaxation training, expression of cognitive errors, challenge with stressful negative thoughts, test negative thoughts, familiarity with internal conversations, role of negative internal conversations in creating stress, use of internal conversations Positive instead of negative internal conversations, the use of attention-grabbing techniques, teaching attention-grabbing techniques, expressing the importance and necessity of problem solving, problem-solving skills training were discussed, and in the last session, the skills taught in the previous sessions were practiced. The removal of obstacles and problems in performing skills in daily life was emphasized (Table 2). Jacobsen relaxation technique was taught to 16 groups, then to 7 and 4 groups, and they were asked to practice daily during homework. Cognitive reconstruction techniques and Socratic dialogues were applied to everyday stressors. Using mental imagery, they encountered a stressor and were asked to use their best coping skills.

Finally, the scale (DASS-21) was completed by the samples and coordination and salivary cortisol were evaluated. Data before and after the intervention were analyzed using multivariate and univariate analysis of variance.

meetings	Target	Content
First session	Conceptualization of the domain Your perception	Introduction and increase of hope for treatment
second session	Crossroads settlement Mind and body	Educate and correct correct patterns of sleep, nutrition, exercise and sex
third session	Activate the domain Quadratic perception	There was talk of the four perceptual domains of origin, end, existence, and self, and using the island technique, How did I get here and where am ?questions like who am I .I going? It formed in their minds and was challenged
Fourth and fifth sessions	Perceptual domain of origin	We worked on the perceptual realm of origin and that the person who brought us to this island was more capable than us, and on the certainty that there is no need like us.
Sixth Session	Your perceptual domain	On their perceptual realm and that the feedback and experience that others have of us is completely separate .from one's inner truth
Seventh session	Acceptance for instructions and lifestyle	Working on one's perceptual realm with the focus on the slave and that it is the manifestation of the appearance of .God and alone and independently, is not in nature
Eighth session		
The ninth session	You are a perceptual field Relaxation and work on On the thrills	Working on the perceptual realm of existence and awareness of the perception of the world as well as caring for the spiritual quadrilateral
The tenth session	The field of relationships with others	Work on emotions as well as emotions such as value, meaning over previous concepts

Table 1: Objectives and content of multidimensional spiritual therapy sessions

meetings	Target	Content
First session	Conceptualizing and describing stress, its symptoms and consequences, and positive mental imagery	Introduction, explanation of stress, its causes and factors, cortisol, its effect on the cardiovascular system and motivation to follow the sessions
second session	Relaxation and stress relief training Cognitive reconstruction	Jacobsen's 16-step Relaxation training and practical training and explanation of the conditions of effectiveness
third session		The Role of Thoughts in Stress and Stress-Related Illnesses and Exercise to Identify Irrational Thoughts, Their Role in Destructive Emotions such as Stress, Anxiety, and Depression
Fourth sessions	Cognitive reconstruction	Familiarity with the characteristics of negative spontaneous thoughts and practice to trap them and practical practice of Jacobsen's 7-step de-stress
fifth sessions	Coping skills	Teaching Coping Skills and Replacing Thoughts, The Role of Coping in Managing Emotions of Stress, Anxiety, and Depression
Sixth Session	Guided self-talk	Investigating unguided self-talk situations, the conditions under which they occur and the effect they have on our emotions, and the role of these emotions in heart health
Seventh session	Focusing and time management techniques	Practical training and practice focus and lifestyles in the present
session Eighth	Problem solving skills and daring	How to practice problem solving in practical life situations and acquire the skill of daring in social situations

The ninth session	Interpersonal skills, role-playing and and self-control skills	Self-regulation in social situations and the practical practice of 4-step Jacobsen de-stress
The tenth session	Pursuit and application of skills	Mental review, dealing with real life events, practicing learned skills, providing feedback

Table 2: Objectives and content of stress safety training sessions

Data analysis

Group membership		**Control group**	**Spiritual group**	**SIT group**	**Total**
		N=15	N=15	N=15	**N=30**
Variables and levels		Frequency	Frequency	Frequency	**Frequency**
	40-49	(6/66)3	(8/88)4	(4/44)2	(0/20)9
Age	50-59	(13/33)6	(8/88)4	(11/11)5	(33/33
	60-69	(13/33)6	(15/55)7	(17/77)8	(46/67)21
Gender	Female	(6/66)3	(11/11)5	(6/66)3	(24/44)11
	male	(26/66)12	(22/22)10	(26/66)12	(75/55)

Table 3: Frequency distribution of some demographic characteristics in test and control groups

Variance	**group**	**Pre-test**		**Post-test**		**Follow-up**	
		mean	SD	*mean*	*SD*	*mean*	*SD*
Depression	Spiritual	20	3/83	6/73	2/63	6/2	2/42
	Sit	19/66	4/59	8/93	2/87	18/93	3/21
	Control	19/92	3/92	10/66	2/43	18/9	2/52
Cortisol levels	Sit	0/276	0/115	0/131	0/055	0/142	0/048
	Spiritual	0/079	0/046	0/178	0/977	0/208	0/106
	control	0/258	0/087	0/338	0/074	0/271	0/107
Heart Rate coordination	Spiritual	0/283	0/093	0/116	0/047	0/128	0/060
	Sit	0/069	0/042	0/156	0/114	0/101	0/08
	control	0/078	0/044	0/054	0/172	0/074	0/05

Table 4: Mean and standard deviation of pre-test and post-test of depression, variability and cortisol in experimental and control groups

Table 4 shows the mean and standard deviation of the scores related to depression, cortisol and Heart Rate coordination for the two groups of cognitive-behavioral immunization and multidimensional spiritual experiment and the control group. As can be seen in the table above, the mean of the dependent variables cortisol and depression and Heart Rate coordination in the pre-test, post-test and one-month follow-up of the two experimental groups is significantly different, but this difference is in the pre-test scores. After a month of testing and follow-up by the control group, it is not obvious.

To test the hypothesis, "there is a significant difference between the effectiveness of multidimensional spiritual therapy and cognitive-behavioral therapy based on stress inoculation training on Heart rate coordination, cortisol and depression." Multivariate analysis of covariance was used. First the assumptions of this test and then the results follow.

The results of the table box test show that the level of significance is significant (0.62), which indicates that the condition of homogeneity of the variance-covariance matrix has been observed in the study groups ($p < 0.05$). Shapiro-Wilkes test was used to investigate the normal distribution of confusion and dependent variables.

The results of Levin test in the variables of depression ($P = 0.6$, $df = 1$, $F = 0.473$) and cortisol ($f = 1.798$, 28, $df = 1$, $p = 0.1$) showed that the groups They are equal in terms of variance, but in the variable Heart rate coordination ($P = 0.1$, $df = 1.927$, F27), the groups are not equal in terms of variance. Another hypothesis of this test is the independence of confluent variables and the homogeneity of variance of confusing variables in the stress, multidimensional, spiritual and control groups.

One-way analysis of variance shows that while they are homogeneous in the depression variable according to Levin test ($p = 0.2$, $f = 1.536$), the groups in the pre-test showed a significant difference in this They do not have variables together ($p = 0.5$, $f = 319$). Also, regarding the Heart rate coordination according to Levin test ($p = 0.7$, $f = 0.304$), the data are homogeneous. The groups in the pre-test do not have a significant difference in this variable. ($P = 448$, $f = 392$). One-way analysis of variance shows that while in the cortisol variable according to Levin test ($p = 0.805$, 28, 1, $df = f = 0.303$), the groups in the pre-test , There is no significant difference in this variable ($p = 0.488$, $f = 0.572$). With general confirmation of MANCOVA hypotheses and using multivariate analysis of covariance, we study the study hypothesis.

Resources	The dependent variable	Total squares	Ms	Df	F	Significance level	Eta
	Depression	762/130	130/762	1	61/924	0/001	**0/696**
	Heart Rate coordination	0/048	0/048	1	2/258	0/001	**0/077**
	Cortisol	0/317	0/317	1	72/447	0/001	**0/728**
	Depression	332/302	12/307	27			
	Heart Rate coordination	0/579	0/021	27			
	Cortisol	0/118	0/004	27			

Table 5: Results of multivariate analysis of covariance to evaluate the differences in the effectiveness of interventions on dependent variables

Given that the multivariate analysis of covariance test is significant and the linear composition of dependent variables is affected by independent variables, it is necessary to investigate whether each of the dependent variables is affected by the independent variable ($p < 0.05$).

In order to compare the mean scores after the test of dependent variables, of course, after controlling the effect of the pretest in the two groups, Bonferroni test of multiple comparisons was used, the results of which are shown in the table below.

variable	Group 1	Group 2	difference in averages	Significance level
Depression	Sit	Control	-10/6	0/001
	Spiritual	Sit	-2/2	0/002
	Spiritual	Control	-12/66	0/001
Cortisol	Sit	Control	-0/2082	0/001
	Spiritual	Sit	-2/0145	0/043
	Spiritual	Control	-0/2227	0/001
Heart Rate coordination	Sit	Control	0/0802	0/001
	Spiritual	Sit	-0/0013	0/1
	Spiritual	Control	-0/0816	0/001

Table 6: Comparative analysis of covariance with adjusted means of dependent variables by group

Regarding the changes in the rate of depression in the post-test of the experimental groups, the difference between the multidimensional spiritual group and stress inoculation was -2.200 and $p = 0.002$. Therefore, there is a significant difference in the effectiveness of these two groups in reducing depression.

Regarding the changes in the degree of variability in the post-test of the experimental groups, the difference between the multidimensional spiritual group and stress inoculation was -0.00133 and $p = 0.1$. Therefore, there is no significant difference in the effectiveness of these two groups.

Regarding the changes in cortisol levels in the post-test groups, the difference between the multidimensional spiritual group and stress inoculation was -2.045 and $p = 0.043$. Therefore, there is a significant difference in the effectiveness of these two groups in reducing depression.

Discussion and conclusion

Cognitive-behavioral therapy based on SIT stress inoculation and multidimensional spiritual therapy have a significant effect on Heart rate coordination and depression in patients with CABG coronary artery bypass grafting.

Consistent with the findings of this study, Wilkins's study showed that there is a significant relationship between spirituality and depression, and spiritual beliefs are associated with systolic blood pressure. Studies in this field [3] have shown that spiritual activity as a calming factor in They reduce depression. The results of Ling Liou et al. showed that higher levels of spiritual health were significantly associated with lower changes in systolic, diastolic, fasting blood sugar, reactive protein, and glyceride-lowering blood pressure. In fact, spiritual health as a factor Supports the heart [31].

These findings are also consistent with the results of previous research on the effects of spiritual therapy on increased Heart rate coordination in CABG patients [32]. The findings of this study are consistent with previous research on the effectiveness of spiritual therapy on increasing psycho-physiological coordination and reducing depression in heart patients [24, 33].

The results of analysis of covariance showed that SIT training programs were effective on depression in the training group. This finding is consistent with research [19, 18].

These results are also consistent with the findings of previous research on the effect of stress inoculation on psycho-physiological coordination with the findings [16,34] is consistent.

These findings are consistent with the results of previous studies on the effect of stress inoculation on salivary cortisol [30,35].

The findings of this study are consistent with previous research on the effectiveness of spiritual therapy on increasing psycho-physiological coordination and reducing depression in heart patients [24,33].

The effects of multidimensional immunization and stress therapy on improving heart condition can be evaluated and compared in several ways. The reduction of depression in the two experimental groups was significant, which seems to have caused this significant reduction from two different paths. In immunization intervention, the reduction of patients' depression is

due to the skills they have learned and causes the person to deal with chronic heart disease in a new way in a stressful situation and to re-establish their previous beliefs. These beliefs can increase a person's self-efficacy. When patients feel in control of their living environment after surgery, they can make environmental changes and, naturally, make people review successful experiences, increase self-efficacy in managing stressful situations. It will give birth to and extend to other life situations and this positive inner understanding of oneself will help manage the emotion of grief following the feeling of losing health. In this treatment, the mental path of the patient changes from someone who must be provided with comfort and relaxation in order to be able to enjoy a calm mental and physical health, to a person who also achieves these goals.

Just waiting for others to provide such a situation that makes him prone to depression becomes a person who tries to provide the environment that leads to health. On the other hand, participating in group meetings has caused people to experience the positive results of social relationships to a large extent, and by attending meetings and using the fact that they do not see themselves alone, and with the solutions of others, broad views. Find out more about the issues raised in the group, including the illness and its perception, and can benefit from the positive results of the sessions in real life by adapting this learning to everyday issues (the last step in pursuing skills).

In multidimensional spiritual intervention, the reduction of depression is slightly different. In this way, his will and ability to understand and communicate with himself in the first stage and then with the Creator of the universe is stimulated so that he can perform his spiritual action from unhealthy expectations of meeting his needs by others who are already suffering from depression. He had created for him, freed him and turned him into a person who knows himself and his needs and abilities and seeks to do something that is unique to him. That is, to fulfill the mission for which it was created.

On the other hand, by performing spiritual action, one can get rid of mental worries and so-called "nicks", which are often mental and block the way for proper action in reality, and can be effective in the real world and according to sound principles. Act humanely.

After the person has gone from a mental self-concept to a conceptual self-concept and from a God-concept that has arisen in his mind to an experienced conceptual God, it is time to communicate with others. Spiritual communication with others, because it is free of lies, expectations, blame, slander and enmity, builds trust, which is the core of healthy communication. Communication is easier and healthier in a space where both parties trust each other and try to understand the other party's situation when judging.

Most of these patients, due to their former Type A personality traits, entered into competition, resentment, and enmity in their relationships, which kept them off track. Others around the patient, whether at home or at work and living, who could provide social support to the patient if needed, had become a factor in stress and anger, followed by depression. They created the person. Along with immunization and multidimensional spiritual therapy interventions, the type of patients' relationship with others and their social relationships abroad was followed by social support. In that spiritual action, whether directly or indirectly, seeks social support and reduces stress and promotes physical health, it is consistent with the results of a study [33] and this support goes beyond Learning cognitive and behavioral skills.

Where there was anger from others and there was no opportunity to express it, it led to communication conflicts, depression, and chest pressure, which were provided in two groups. The immunization group was guided by techniques such as self-talk and assertiveness to try to provide this situation. In the multidimensional spiritual group, while understanding in front of the patient and hearing the words that repeatedly upset him throughout his life and upset his physical condition, he was given the right to choose to behave as before [34]. Carry with him a load of negative emotions, or forgive him for himself and his current health. He has the right to choose. The emotional burden of the oppression was like the stench he pinned on his clothes, making life moment more difficult and unbearable, and causing more psychological harm than hurting the other person. And it becomes physical, and at the level of social relations, it does not allow it to experience healthy and desirable relationships as before.

In addition, participation in spiritual ceremonies and spiritual gatherings can put individuals in a cohesive network that provides them with social support. Considering the average age of the subjects, which puts them in the late middle-aged and early old age period, and considering the growing need of this period, more than any other group needs social support and its effect on physical health. And they are emotional and if they do not achieve this component that affects their physical, mental and social health, they will suffer from isolation and loneliness. The improvement of the spiritual therapy experimental group, both at the beginning and in the 1-month and 3-month follow-ups, confirms this social path.

The effect of these interventions in the immunization-based cognitive-behavioral group on increasing the psychological coordination on cardiac physiology is based on vagal and parasympathetic nerve activity [30]. Relaxation exercises in the training program increase sympathetic and parasympathetic balance. This balance affects the respiration rate and heart rate and reduces tachycardia. In the immunization group, Jacobsen model is used and in the multidimensional spiritual group, spiritual relaxation techniques are used. These relaxation exercises can suppress sympathetic activity and lead to vagal success and increased parasympathetic activity, which have been studied in many studies [35,36].

The main mechanism of these changes is the presence of pressure receptors on the arterial wall, which stimulates the vagus and reduces sympathetic activity. These receptors return the heartbeat to baseline through parasympathetic stimulation as well as over time, relative to sympathetic stimulation. Breathing is also one of the main and influential factors that affect the functioning of the autonomic nervous system of various organs, such as the heart. Myocardial infarction usually increases when inhaling and decreases when exhaling. Nevertheless, the main effect of respiration is realized through vagal activity. In general, vaginal activity increases when a person experiences a sense of muscle relaxation, which in turn reduces heart rate and heart rate, along with increasing psychological coordination of heart physiology. In fact, when relaxation occurs deeper or for a longer period of time, it will have a better effect on this coordination. In fact, the relaxation techniques in the interventions reduce the heart rate and increase variability by affecting the respiratory rate. According to the results of Chapter 4, both groups were able to increase the Heart Rate coordination in the post-test and there is no significant difference ($p < 0.05$).

Multidimensional spiritual therapy has been more effective than stress inoculation training on depression in CABG patients. In short, there are several physiological-behavioral-psychological pathways for the reason for the differences in these efficiencies. In the first place, it is the effect that this intervention has on the perception of the disease, which seems to be more helpful in relieving the person from depression. In the second path, spirituality, along with adjusting to negative emotions, creates positive emotions such as love, peace, forgiveness and hope in the person, the effectiveness of these emotions has been confirmed through the path of psycho-neuroimmunology on the heart. In the third way, by working on relationships with others, it leads to gaining social support, and of course, this has a significant impact on physical and psychological health. In the fourth path, spirituality itself provides a style of life that is consistent with physical and psychological health. The fifth path is to promote health by creating hope in life and optimism and positive expectations.

However, these differences were not seen in the effectiveness on Heart rate coordination, indicating that's patients's instantaneous heart health is associated with stress management training. It is very important to pay

attention to the training of these skills and by identifying the factors affecting coronary artery disorders, an important step can be taken to promote self-care in these patients. The difference between this study and previous researches was in the number of training sessions and continuous follow-ups of one month and one month, which provide the possibility of desirable changes and practice of the learned sessions in daily life.

One of the limitations of this research is not using a larger sample size. In addition, the specific input criteria for patients' participation in this study place limitations on the generalization of the results obtained. Therefore, it is suggested that a larger sample be used in future research. Also, for a more accurate conclusion, the present intervention can be performed separately for different types of heart disorders and its effectiveness can be compared in different groups.

Gratitude

At the end of the research, I would like to thank the efforts of the Tehran Heart Hospital Research Center for their cooperation in conducting this research. The ethics code of this project is IR.PNU.REC.1398.001, which was obtained from the Vice Chancellor for Research of Payame Noor University.

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