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Effectiveness of Lifestyle-Based Stress Management Program on Emotional Problems and Life Satisfaction in Patients with Myocardial Infarction

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Abstract

Objective: The purpose of the present study was to examine the effect of lifestyle-based stress management program on emotional problems and life satisfaction in patients with myocardial infarction.

Method: This research was quasi-experimental with pre-test, post-test and control group. The statistical population of this research consisted of all patients aged 40-65 years old with myocardial infarction who were under treatment at Kasra Hospital in Karaj in the first six months of 2019. The study sample consisted of 90 patients with heart attack who were identified among the patients and selected by targeted sampling method and randomly assigned to two experimental and control groups. Data were collected using the Depression, Anxiety and Stress Scale as well as the Satisfaction With Life Scale. The collected data were analyzed using the method of Multivariate analysis of covariance (MANCOVA).

Results: Multivariate analysis of covariance showed that the lifestyle-based stress management program significantly reduced emotional problems and increased life satisfaction in the experimental group ($P<0.01$).

Conclusions: The stress management program helped patients identify dysfunctional thoughts that trigger anxiety and depression and experience fewer emotional problems by feeling self-control, attention management, changing the assessment system and using cognitive strategies. Also, by identifying and correcting irrational attitudes and beliefs, the subjects were able to better cope with the physical effects of the disease or to deal with its negative psychological complications and have more life satisfaction. These findings have important implications for education and promoting mental health of patients with myocardial infarction.

Keywords: Lifestyle-based stress management program, Emotional problems, Life satisfaction, Myocardial infarction.

Introduction

Myocardial infarction is one of the leading causes of death in developed societies and occurs when coronary blood flow is suddenly reduced by a blockage of a coronary artery that has already narrowed due to atherosclerosis. Therefore, atherosclerosis is the most common cause of coronary heart disease and therefore the main cause of ischemic heart disease (Massberg & Polzin, 2018; Scheen, 2018). The disease affects 3 million people worldwide, and more than one million deaths in the United States are linked to this disease each year (Barberi & van den Hondel, 2018; Alaour, Liew & Kaier, 2018) and is the first cause of death in Iran (Mohammadian, Hosseini, Sadeghi, Sarrafizadegan, Salehnia, Roh Afza et al., 2015).

Cardiovascular disease, despite medical advances, is one of the most common chronic diseases and one of the leading causes of death in Iran, so that cardiac surgery accounts for about 60 percent of surgeries in the country (Mohsenzadeh, Sarokhani, Hemmati,

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Sarokhani, Akbarzadeh Baghban & Sayeh Amiri, 2016). In Iran, the share of heart disease in total mortality is about 39% (Nik Danesh, Davazdah Emami, Qeydari, Bakhtiari & Mohammadi, 2017). Epidemiological studies suggest that psychological and social problems are seriously and separately related to the development of cardiovascular disease. Emotional problems are one of the psychological factors associated with heart disease because emotional distress stimulates sympathetic activity in cardiovascular system fluctuations and is accompanied with increased blood pressure and increases the risk of cardiovascular disease (Slepecky, Kotianova, Prasko, Majercak, Gyorgyova, Kotian et al., 2017). Studies have shown that 19 to 66 percent of patients with a heart attack cause anxiety or depression, which in turn causes the death of patients with a myocardial infarction (Doering et al., 2010, cited by Liu et al., 2018). Celano et al. (2016) also showed that anxiety and related disorders are common in patients with cardiovascular disease and can significantly affect heart health. Other studies suggest that depression, anxiety and stress in patients with myocardial infarction (Kala, Hudakova, Jurajda, Kasparek, Ustohal, Parenica et al., 2016; Serpytis, Navickas, Lukaviciute, Navickas, Aranauskas, Serpytis et al., 2018). Du, Zhang. Yin, Zhang, Li, Liu et al. (2016) in a study showed that patients with coronary artery disease have serious psychological problems, including high levels of anxiety, depression, and high self-blame, which can affect their health.

On the other hand, one of the determinants of how to deal with stress is a person's attitude towards life and his overall assessment of life events, which is called life satisfaction. Life satisfaction is a positive perception and a pleasant feeling that a person has according to his values, needs and aspirations towards different realms or qualities of life (Diner, 2003, cited in Dağlı & Baysal, 2017). According to research results, life satisfaction in heart patients is affected by various factors; Baumann, Tchicaya, Vanderpool, Lorentz and Le Bihan (2015) in their study aiming to assess life satisfaction among patients with heart disease after coronary angiography, showed that life satisfaction in female patients and low-income people was low. Patients who had a married life had the best life satisfaction. Patients with physical inactivity, obesity, smoking, and diabetes were more likely to have lower life satisfaction. Research has shown the existence of anxiety, depression, and poor quality of life among cardiovascular patients (Moryś, Bellwon, Höfer, Rynkiewicz & Gruchała, 2016; Adebayo, Olunuga, Durodola & Ogah, 2017; Shad, Salari, Delvandi, Hassan Dokht, Khairkhah, Nouri Saeed & Javadzadeh Moghtadder, 2018).

In recent decades, in order to improve emotional problems and psychological life satisfaction of patients with myocardial infarction, various psychological techniques and treatments have been developed along with medical therapies, including therapies related to cognitive behavioral therapy. Despite the effectiveness of the various interventions, the researchers believe that the combined interventions have a synergistic effect (Van Renen et al., 2005). In this regard,Lifestyle-Based Stress Management Program is a new multifaceted program that comprises the components of Lifestyle (L), Exercise (E), Attitudes (A), Relationships (R) and Nutrition (N) (Barlow, Rapee & Reisner, 2001). Barlow et al. (2001) have shown that implementing this program both individually and in groups are beneficial for health improvement, and in various studies, the effectiveness of this intervention in reducing stress and its consequences has been confirmed (Gupta & Guptha, 2010).

Alipour, Rezaei, Hashemi and Yousefpour (2016) in their study, aiming at the effectiveness

of cognitive behavioral therapy focusing on lifestyle modification in improving vital signs and psychological well-being of coronary heart disease in all cardiovascular patients in Tabriz, showed that cognitive behavioral therapy focusing on lifestyle modification is effective in improving vital signs and increasing the psychological well-being of patients with coronary heart disease. A study by Cho (2016) on the effectiveness of stress-based mindfulness therapy found this treatment is helpful in controlling the risk factors for coronary heart disease, such as high blood pressure, type 2 diabetes, mental stress, obesity, smoking, and improving performance during strenuous exercise and heart rate.

Alsubaie, Abbott, Dunn, Dickens, Keil, Henley et al. (2017) in their research in a systematic study with the aim of investigating the mechanism of action in cognitive therapy based on mindfulness and reducing mental stress in people with physical and mental conditions have shown that these interventions affect the state of the soul and body. Saleh (2017) in her study aiming at the effectiveness of cognitive-behavioral stress management training on quality of life and clinical symptoms of cardiovascular patients showed that the difference between the overall mean of quality of life in the two experimental and control groups was significant. In other words, the results showed that the quality of life of the experimental group in the post-test was significantly higher than the control group. Based on the results of the study, cognitive-behavioral stress management training can increase the quality of life and reduce the clinical rate of patients with heart disease.

Given above mentioned, increasing changes and complexities of society and the expansion of social relations, preparing people to face difficult situations seems to be essential. However, scientific support in the field of preparation and psychological interventions to improve the health and life of this group of patients is weak in the country and there are many research gaps. Regarding the psychological problems of this group of patients and in order to determine the impact of these interventions, the present study seeks to answer the fundamental question of whether the lifestyle-based stress management is effective in reducing emotional problems and increasing life satisfaction of patients with myocardial infarction.

Method

The research method was quasi-experimental with a pre-test, post-test design and a control group. In this study, treatment methods were considered as independent variables at two levels (lifestyle stress management and non-intervention stress management programs), and emotional problems and life satisfaction were considered as dependent variables. The statistical population of this study included all patients aged 40 to 65 years with heart attack who referred to Kasra Hospital in Karaj for treatment in the first six months of 2019. The study sample consisted of 90 patients suffering from myocardial infarction who were selected by targeted sampling method and randomly assigned to two experimental and control groups. The sample size was determined by Morgan table with 95% confidence and 5% accuracy due to the specific and limited size of the population (Krejcie & Morgan, 1970). The inclusion criteria for entering this study were male and female patients who were between 65 and 65 years old and had been diagnosed by a cardiologist and at least 6 and at most two years have passed since the diagnosis; the patient was ready to participate in the research, had no history of mental disorders or known mental disabilities, did not receive psychiatric and psychological intervention at the same time, had no chronic physical illness, was alert and able to communicate with the researcher, and had no addiction or drug abuse. The exclusion criteria were patients who did not cooperate with the therapist; unwilling to

continue participating in research; having received psychiatric and psychological intervention at the same time or having been diagnosed with other chronic physical illnesses.

Instruments

Depression, Anxiety and Stress Scale (DASS-21): The DASS-21 scale was used to measure emotional problems and includes the three scales of depression, anxiety, and stress. This scale is a shortened version of DASS-42, first introduced by Lovibond and Lovibond in 1995 and ranges from never, low, high, high and very high. The lowest score for each question is zero and the highest is 3. According to some study, the Beck Depression and Anxiety Questionnaire showed a high correlation with the Depression, Anxiety and Stress Scale (DASS-21). In the study, DASS-21 was compared with two other tools for depression and anxiety and one for positive and negative emotions, and it was concluded that the best result of this tool is when all three factors are considered. In 2006, Maliki et al. reported the reliability of this scale in a sample of the general population of Mashhad for depression 0.70, anxiety 0.66 and stress 0.76 (Asad Zandi, Sayari, Ebadi, Sanai Nasab, 2011). Also, in another study, Moradi Panah reported the internal consistancy of the scale through Cronbach's alpha for depression 0.94, for anxiety 0.92, and for stress 0.89 (Asad Zandi et al., 2011).

The satisfaction with life scale: The satisfaction with life scale has been developed by Diener, Emmons, Larsen and Griffin (1985). This scale has five items that are answered by the Likert scale criteria based on a 7-point scale (1 for completely disagree, 2 for disagree, 3 for slightly disagree, 4 for neutral, 5 for slightly agree, 6 for agree and 7 completely agree). The range of scores on this scale is from 5 to 35. Diener et al. (1985) reported that the Cronbach's alpha coefficient and the test-retest of this scale were reported to be 0.83 and 0.69, respectively. This questionnaire has been used in the research of Noor Al-Dini, Sanago, Joybari and Kavousi (2016) and Issa Zadegan, Agha Zadeh and Sheikhi (2015) in cardiac patients and its reliability and validity have been confirmed. Bayani, Kouchaki, and Goodarzi (2007) reported that the Cronbach's alpha coefficient and the test-retest of this scale were 0.83 and 0.69, respectively. Also, according to these researchers, the narrative coefficient of this scale was significant with Beck's depression questionnaire ($r = -0.60$) and Oxford's happiness scale (0.62 to 0.79) ($P < 0.001$).

Lifestyle-Based Stress Management Program: Lifestyle-Based Stress Management Program include components of lifestyle, physical activity, beliefs, relationships, and nutrition, which was designed by Barlow et al. (2001). Translated by Nazari Mehrvani (2015), this program was presented in 11 sessions which were held weekly and each session 90 minutes.

Procedure and participants

After the necessary coordination for cooperation with the hospital, the targeted sampling method was used first. Then, after identifying and selecting the research sample, patients were randomly assigned to two experimental and control groups. After justifying the participants, the subjects were asked to participate in treatment sessions. Before applying the treatment, both groups were tested and asked to complete the questionnaires. The duration of the treatment sessions in the lifestyle stress management program was eleven 90-minute sessions and was performed in groups and once a week in the hospital. After completing the training sessions, the treatment group and the control group were given post-test and the obtained data were analyzed by multivariate analysis of covariance (MANCOVA) using SPSS software.

Ethical statement

Ethical considerations included getting the informed

Table 1. Lifestyle-Based Stress Management intervention

Session 1: Familiarization of group members with each other and on the establishment of a therapeutic relationship, acquaintance of individuals with the subject of research and preliminary explanations, pre-test implementation, contracting treatment program and the general plan of meetings and treatment.
Session 2: Stress control approach, lifestyle, introducing the program, providing explanations about lifestyle changes, mental imagery, the importance of self-reliance and recording it, explanations about worksheets.
Session 3: Principles versus techniques, understanding response systems and the importance of physical activity, finding patterns, sources and principles of stress, obvious signs of stress, setting logical goals.
Session 4: Review homework of the stress response cycle, the importance of physical activity, the implementation of physical activity and its registration.
Session 5: De-stressing and time management, the ABC model, attitudes, and the role of social-self-talk, challenging destructive and stressful thoughts, the role of emotions and their origins, explanations for logical thinking.
Session 6: daring and the importance of nutrition, reviewing worksheets, explanations about daring, the importance of proper nutrition, stress management, the role of family support and seeking help.
Session 7: Mental imagery, stress and eating, overcoming negative events, avoiding self-criticism, rewarding oneself, following a proper diet, explaining anger, evaluating physical activity such as walking, etc., reviewing and solving problems .
Session 8: Testing reality and two-way ladder, attitude traps and problem solving Introducing the test, making a two-way ladder a reality, de-stressing through recall, beliefs related to failure and stress, problem solving.
Session 9: Behavioral chains and the importance of patterns, stress as a chain, breaking the chain, reviewing patients' behavioral chain, determining patterns and goals.
Session 10: Strengthening self against a stressful environment, challenging life events, reviewing and summarizing the program, performing post-test.
Session 11: Prevention of relapse and control, review and summary of the program, post-test implementation.

consent and stating the purpose of the research, ensuring that all participation was on voluntary basis with total anonymity, respecting the participants, and taking into account the confidentiality of collected data. Also it has been explained that if a participant is not willing to continue the sessions, he/she was free to withdraw from the research at any time. At the end of the study, free therapy sessions were given to the individuals in the control group who desired to receive.

Results

Table 2 shows the mean and standard deviation of emotional problems and life satisfaction in patients with myocardial infarction in both control and experimental groups based on pre-test and post-test. It can be seen that the difference between the mean scores of emotional problems and life satisfaction in the control and treatment group is evident in the post-test stages. In the experimental group, the mean score of depression, anxiety and stress of post-test are less than the pre-test and the average

life satisfaction of the post-test stage is higher than pre-test.

Before using the parametric multivariate analysis of covariance analysis, Box and Levene's tests were used to observe its hypotheses. Based on the box test, which was not significant for any of the variables, the homogeneity condition of the variance / covariance matrices was correctly observed (BOX=12.797, F=2.054, P=0.055). Based on the Levene's test, for the post-test steps and its meaninglessness for all variables, the assumption of equality of within group variances has been observed. Therefore, multivariate analysis of covariance was done. The results of Wilkes' Lambda also showed that in the post-test phase, there was a significant difference in at least one of the dependent variables (Wilkes Lambda = 0.505, F = 27.08, P <0.001). It was also found that considering Eta square, the difference between the two groups was significant with respect to the dependent variables, and the difference in the posttest stage was approximately 49% based on the Lambda Wilkes test (Eta^2= 0.495), that is, 49% of the variance is related to the difference between the two groups due to the interaction of the dependent variables.

As the results of Table 3 show, despite the control of the pre-test effect, there is a significant difference between the two groups in post-test in the mean scores of depression (F = 19.67), anxiety (F =

Table 2. Mean and standard deviation of emotional problems and life satisfaction in the pre- and post-test of the research groups

variable		Experimental group		Control group	
		Mean	SD	Mean	SD
Depression	Pre-test	12.27	3.13	13.04	3.09
	Post-test	9.11	3.53	12.55	2.99
Anxiety	Pre-test	15.20	1.85	13.13	1.97
	Post-test	11.60	2.94	11.89	2.15
Stress	Pre-test	13.80	1.92	12.98	2.57
	Post-test	9.98	2.17	12.44	2.82
Life satisfaction	Pre-test	16.33	2.37	17.40	1.66
	Post-test	21.24	1.93	17.31	1.61

Table 3. Results of covariance analysis in respect to the effect of lifestyle-based stress management program on emotional problems of patients with Myocardial Infarction

variable	Change resource	SS	DF	MS	F	Eta^2
Depression	Pre-test	19.79	1	19.79	1.96*	0.023
	Group	198.38	1	198.38	19.67***	0.188
	Error	857.27	85	10.09		
Anxiety	Pre-test	138.77	1	138.77	27.99***	0.248
	Group	51.34	1	51.34	10.36**	0.109
	Error	421.28	85	4.96		
Stress	Pre-test	212.42	1	212.42	58.48***	0.408
	Group	145.06	1	145.06	39.94***	0.320
	Error	308/75	85	3.63		

*P<0.05 **P<0.01 ***P<0.001

10.36), and stress (F=39.94) (P <0.001). In other words, lifestyle-based stress management training group significantly reduced depression, anxiety, and stress in patients with myocardial infarction in the post-test phase.

Before using the parametric test of univariate analysis of covariance to observe the assumptions, Levene's test was used. Based on the Levene's test for the post-test steps and its non-significance for the studied variable, the assumption of equality of within group variances has been observed.

Table 4. Results of a significance of univariate covariance analysis in terms of the effect of treatment on life satisfaction in patients with Myocardial Infarction

variable	Change source	SS	DF	MS	F	Eta²
Life satisfaction	model	166.78	1	166.78	73.29***	0.457
	Pre-test	79.97	1	79.97	35.14***	0.288
	group	412.90	1	412.90	181.44***	0.677
	Error	197.99	87	2.28		

*P<0.05 **P<0.01 ***P<0.001

The results of Table 4 show that despite the control effect of the pre-test, there is a significant difference between the two experimental and control groups in terms of life satisfaction scores in the post-test (F = 181.44) (P <0.001). In other words, the treatment significantly improved life satisfaction in patients with myocardial infarction.

Discussion and Conclusion

According to research findings, a lifestyle-based stress management program has the effect of reducing the emotional problems patients with myocardial infarction. Thus, a lifestyle-based stress management program has significantly reduced anxiety, depression, and stress in patients with myocardial infarction in the post-test group.

The results of this study are consistent with the results of other studies (e.g., Alipour et al. 2016; Saleh, 2017; Cho, 2016) on the effectiveness of lifestyle management stress management program on reducing emotional problems in patients with heart attack. Similarly, in their study aiming at cardiac rehabilitation using stress management training on 150 outpatient cardiovascular patients aged 36 to 84, Blumenthal et al. (2016) showed that patients experience less stress and improve the medical process more. Doring et al. (2016) also studied cognitive-behavioral therapy on depression, pain relief, and pain control in patients undergoing cardiac surgery, and the results showed that cognitive-behavioral therapy reduced depression, pain, and improved pain control.

As multifaceted programs have a significant impact on stress reduction, and the stress management program used in this study is a multifaceted program consisting of lifestyle, nutrition, exercise, attitudes, and relationships, the impact of this program on reducing the emotional problems of depression, anxiety, and stress in patients with a heart attack can be explained. In other words, the Lern Stress Management Program modified some of the cognitive schemas of the subjects in the experimental group. Patients with myocardial infarction appear to have incompatible cognitive errors. Such people have irrational thoughts and beliefs and therefore may make mistakes in evaluating events. This misjudgment may lead to stress and tension. Some part of the stress management intervention used in the program is to correct the attitudes and beliefs of the respondents.

In fact, several studies in the field of health psychology have suggested that the use of adaptive coping strategies such as stress management based on cognitive-behavioral theory in the face of stressful situations and negative emotions is an important factor in the formation of individual's physical and psychological health (House, 2011). In a study by Nader Monir poor (2018) results indicate that coping strategies, specifically emotion-focused and then problem-focused strategies have significant impact on depression after CHD. The above results can be explained by considering the role of used cognitive and behavioral strategies. Using cognitive strategies for stress management, attempts are made to identify irrational and ineffective thoughts that cause anxiety and depression so that the patient can be aware of the role of these thoughts and try to replace them with logical ones, and reduce anxiety and distress by tranquility. In fact, one of the reasons for this result is the use of cognitive-behavioral methods of stress management such as relaxation and mental imagery, which were taught to patients in treatment sessions and its effectiveness on emotional disorders such as stress, anxiety and depression has been proved in the previous studies.

It can also be said that a lifestyle-based stress management program, by properly teaching coping strategies, makes people have a high sense of internal control. In other words, a sense of efficiency and adequacy in these patients leads them to proper control. In general, these people rely on a sense of efficiency and adequacy in controlling stressful situations, making the disease controllable, and underestimating its negative emotional effects (Stanton, Revenson & Tennen, 2007). Also, a sense of personal control leads to a belief in the adequacy of internal and external resources to cope with the requirements of the disease. The adequacy of resources, in turn, creates a sense of self-worth and empowerment. Therefore, these people use effective coping strategies such as self-disclosure and information retrieval and, as a result, show fewer signs of emotional distress (Schore & Schore, 2008).

According to research findings, a lifestyle-based stress management program has the effect of increasing life satisfaction in patients with myocardial infarction. In that, lifestyle-based stress management program has significantly increased life satisfaction in patients with myocardial infarction in the treatment group in post-test. In this regard, Saleh (2017) in his research, aiming at the effectiveness of cognitive-behavioral stress management training on quality of life and clinical symptoms of cardiovascular patients, showed that the difference between the overall mean of quality of life in both experimental and control groups is significant. In other words, the results showed that the quality of life of the experimental group in the post-test stage was significantly higher than the control group. Based on the results of the study, behavioral cognitive stress management training can increase the quality of life and reduce the clinical rate of patients with heart disease. In a systematic study aimed at examining the mechanism of action in mindfulness-based cognitive therapy and reducing mental stress in people with physical and mental disorders, Alsubaie et al. (2017) showed that these interventions were effective on their state of mind and body.

Chu (2016) on the effectiveness of stress reduction mindfulness therapy showed that this treatment controlled the risk factors for coronary artery disease such as high blood pressure, type 2 diabetes, stress, obesity, smoking and improved performance during exercise. Severe heart attacks are helpful. Talebi Amri et al. (2015) in their study aimed at investigating the effectiveness of cognitive-behavioral group therapy on improving the quality of life of patients with cardiovascular disease in heart patients at Shahid Rajaei Hospital in Tehran showed that group cognitive-behavioral therapy

training significantly improved patients' quality of life in patients with coronary heart disease.

Explaining the effectiveness of this program on the life satisfaction of patients with myocardial infarction, it can be said that this program includes techniques such as identifying stressors, deep muscle relaxation, time management, daring, relationship management, mental imagery, correction of attitudes and other factors that reduce emotional problems, and its training can dramatically reduce patients' anxiety and stress, and in turn improve their physical and psychological health and life satisfaction.

Theoretically, the cognitive-behavioral methods used in stress management training can be considered as a factor influencing the temper of patients. According to Lazarus's theory of the stress exchange pattern (Lazarus & Folkman, 1984), stress is the result of the interaction of individual's cognition and the event (environment). In fact, the individual's interpretation of events and the individual's judgment of the situation play a key role; stress occurs when a situation is considered threatening and challenging or dangerous. In fact, stress management increases people's ability to reduce stress and adapt to stressful situations, because heart disease acts as a stressor and affects human life. This causes patients' emotional state and physiological thinking to deviate from normal levels, cognitive activity to become vulnerable, and behavioral problems to be called in the form of anxiety and depression. Therefore, stress management allows individuals and patients to reduce their perceived stress levels by changing their self-assessment system, resulting in less vulnerability. Awareness of stress and training stress coping strategies increases people's adaptability, and cognitive assessment plays a significant role in this area (Lazarus & Folkman, 1984).

Another explanation for the effectiveness of lifestyle-based stress management programs on reducing anxiety and depression and improving life satisfaction is the increase in social communication and ultimately social support that these patients receive as a result of this therapeutic training. Therefore, one of the goals of the training sessions was to consider the correct, courageous and daring communication style, along with the expression and control of anger, in order to encourage patients to establish good and powerful social relationships. In patients who do not have good communication and support, the chances of developing and exacerbating the symptoms of depression and anxiety increase with the progression of the disability. Through this program, appropriate communication skills, realistic evaluation and estimation of the likelihood of unpleasant events, how to overcome procrastination, changing the idealistic thoughts, the formation of logical expectations, daring and other techniques, which can somehow be effective in reducing stress, were taught with this justification that after the intervention, subjects would be able to identify their irrational attitudes and beliefs, and by correcting them and learning how to evaluate them logically and realistically, they would be better able to deal with or cope with stress.

The generalizability of the results of this study is limited because it was done on patients aged 40-65 years old with myocardial infarction in Kasra Hospital in Karaj in 2019. Sampling method and use of the questionnaire without clinical evaluation are other limitations of this study. For more generalizability it is recommended that this treatment be performed on a larger number of patients with higher homogeneity and in other parts of the country along with using follow-up test to accurately determine the status of people exposed to long-term interventions.

References

Adebayo, S.O., Olunuga, T.O., Durodola, A., Ogah, O.S. (2017). Quality of life in heart failure: A review. *Nig*

J Cardiol, 14:1-8.

Alaour, B., Liew, F., Kaier,T.E. (2018). Cardiac Troponin - Diagnostic Problems and Impact on Cardiovascular Disease. *Ann Med*, 28: 1-32.

Alipour, A., Rezai, A., Hashemi, T., Yousefpour, N. (2017). The effectiveness of cognitive behavioral therapy focused on lifestyle modification to increase monitoring vital signs and coronary heart disease and psychological well-being. *Quarterly Journal of Health Psychology*, 5(20), 125-136.

Alsubaie, M., Abbott, R., Dunn, B., Dickens, C., Keil T.F., Henley, W., & Kuyken, W. (2017). Mechanisms of action in mindfulness-based cognitive therapy (MBCT) and mindfulness-based stress reduction (MBSR) in people with physical and/or psychological conditions: A systematic review. *Clin Psychol Rev*, 55:74-91.

Asad Zandi M., Sayari R., Ebadi A., Sanainasab H. (2011). Abundance of depression, anxiety and stress in militant Nurses. *J Mil Med,* 13 (2): 103-108

Barberi, C., van den Hondel, K.E. (2018). The use of cardiac troponin T (cTnT) in the postmortem diagnosis of acute myocardial infarction and sudden cardiac death: A systematic review. *Forensic Sci Int,* 17: 292, 27-38.

Barlow, D.H., Rapee, R.M., Reisner, L.C. (2001). Mastering Stress: A Lifestyle Approach. *American Health Publishing Company.*

Baumann, M., Tchicaya, A., Vanderpool, K., Lorentz, N., and Le Bihan, E. (2015). Life satisfaction, cardiovascular risk factors, unhealthy behaviours and socioeconomic inequality, 5 years after coronary angiography. *BMC Public Health,* 15: 668. DOI 10.1186/s12889-015-2047-0.

Bayani, A.A., Kochaki A.M., Goodarzi, H., (2007). Reliability and validity of life satisfaction scale. *Journal of Iranian Psychologists*, 11(3): 259-268.

Bayani, A.A., Kouchaki, A.M., Goudarzi, H. (2007) the Reliabiity and Validity of the Satisfaction with Life Scale. *Developmental Psychology (Journal of Iranian Psychologists)*, Volume 3, Number 11; Page(s) 259 To 265.

Blumenthal, J. A., Sherwood, A., Smith, P. J., Watkins, L., Mabe, S., Kraus, W. E. & Hinderliter, A. (2016). Enhancing cardiac rehabilitation with stress management training: a randomized, clinical efficacy trial, Circulation, 133(14), 1341-1350.

Celano, C.M., Daunis, D.J., Lokko, H.N., Campbell, K.A., and Huffman, J.C. (2016). Anxiety disorders and cardiovascular disease. Curr Psychiatry Rep, 18(11): 101.

Cho, K.I. (2016). Women, Stress and Heart Health: Mindfulness-Based Stress Reduction and Cardiovascular Disease. Kosin Medical Journal, 31(2): 103-112.

Dağlı, A., Baysal, N. (2017). Investigating Teachers' Life Satisfaction. *Universal Journal of Educational Research,* 5(7): 1250-1256.

Doering, L.V., McGuire, A., Eastwood, J.A., Chen, B., Bodán, R.C., Czer, L.S., Irwin, M.R. (2016). Cognitive behavioral therapy for depression improves pain and perceived control in cardiac surgery patients. *Eur J Cardiovasc Nurs,* 15(6):417-24.

Du, J., Zhang. D., Yin, Y., Zhang, X., Li, J., Liu, D., et al. (2016). The personality and psychological stress predict major adverse cardiovascular events in patients with coronary heart disease after percutaneous coronary intervention for five years. *Medicine (Baltimore),* 95(15): e3364.

Gupta, R., & Guptha, S. (2010). Strategies for initial management of hypertension. *Indian J Med Res,* 132, 531-542.

House, SH. (2011). Epigenetics in adaptive evolution and development: The interplay between evolving species and epigenetic mechanisms. *Handbook of Epigenetics,* 425-45.

Issazadegan A, Aghayanzade H, Shiekhy S. (2015). Comparison of Cognitive Emotion Regulation Strategies, Optimism and Life Satisfaction among People with Gastrointestinal and Cardiovascular Disease. *Nurs Midwifery J.*, 13 (5): 440-450.

Kala, P., Hudakova, N., Jurajda, M., Kasparek, T.,

Ustohal, L., Parenica, J., & Kanovsky, J. (2016). Depression and anxiety after acute myocardial infarction treated by primary PCI. *PLoS One*, *11*(4), e0152367.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and psychological measurement, 30(3), 607-610.

Folkman, S., & Lazarus, R. S. (1984). Stress, appraisal, and coping (pp. 150-153). *New York: Springer Publishing Company.*

Liu, N., Liu, S., Yu, N., Peng, Y., Wen, Y., Tang, J., and Kong, L. (2018). Correlations among Psychological Resilience, Self-Efficacy, and Negative Emotion in Acute Myocardial Infarction Patients after Percutaneous Coronary Intervention. *Front Psychiatry*, 9: 1. doi: 10.3389/fpsyt.2018.00001

Massberg, S., Polzin, A. (2018). Update ESC-Guideline 2017: Dual Antiplatelet Therapy. *Dtsch Med Wochenschr*, 143(15):1090-1093.

Mohammadian, M., Hosseini, S., Sadeghi, M., Sarrafzadegan, N., Salehiniya, H., Roohafza, H., & et al. (2015). Trends of 28 days case fatality rate after first acute myocardial infarction in Isfahan, Iran, from 2000 to 2009. *ARYA atherosclerosis,* 11(4): 233.

Mohsenzadeh, Y., Sarokhani, D., Hemmati, F., Sarokhani, M., Akbarzadeh Baghban, A., & Sayehmiri, K. (2016). Quality of life in heart patients in Iran: A systematic review and meta-analysis method. Der *Pharma Chemica,* 8(18):27-34.

Monir poor, N. (2018). Post coronary heart diseases depression: role of illness perception and copping strategies. *Biquarterly Iranian Journal of Health Psychology*, 1(1), 51-62.

Moryś, J.M., Bellwon, J., Höfer, S., Rynkiewicz, A., & Gruchała, M. (2016). Quality of life in patients with coronary heart disease after myocardial infarction and with ischemic heart failure. *Arch Med Sci*, 12(2): 326–333.

Nazari Mehrvarani, Z., (2015). The Effect of Lifestyle Stress Management Program on Modifying Cognitive Schemas and Increasing Students' Feeling of Cohesion. *Journal of Cognitive Sciences,* 17(2): 12-22.

Nikdanesh M, davazdah emami M H, Gheydari M E, Bakhtiyari M, Mohamadi A. (2017). Emotion regulation, mindfulness and existential anxiety in patients with cardiovascular diseases: a comparative study. *Stud Med Sci*., 28 (6): 384-393

Nooroddini, A., Sanagoo, A., Jooybari, L., Kavousi, A. (2016). Public Health, Life Satisfaction And Quality Of Life Of Elderly Patients With Coronary Artery Disease Admitted To Hospitals In Gonbad-e Qabus in 2015. Nursing Development in Health, 7 (1): 31-40.

Saleh, S. (2017). The Effectiveness of Cognitive-Behavioral Stress Management Training on Quality of Life and Clinical Symptoms of Cardiovascular Patients. *Biomed Pharmacol J,* 10(1): 295-302.

Scheen, A.J. (2018). From atherosclerosis to atherothrombosis: from a silent chronic pathology to an acute critical event. *Rev Med Liege,* 73(5-6): 224-228.

Schore, J.R., Schore, A.N. (2008). Modern Attachment The-ory: The Central Role of Affect Regulation in Development and Treatment. *Clinical Social Work Journal,* 36: 9-20.

Serpytis, P., Navickas, P., Lukaviciute, L., Navickas, A., Aranauskas, R., Serpytis, R., & et al. (2018). Gender-Based Differences in Anxiety and Depression Following Acute Myocardial Infarction. *Arq Bras Cardiol,* 111(5):676-683.

Shad, B., Salari, A., Dalvandi, B., Hasandokht, T., Kheirkhah, J., Nourisaeed, A., Javadzadeh Moghtader, A. (2018). Psychological well-being in cardiac patients and healthy people in Guilan. *Journal of Fundamentals of Mental Health*, *20*(3), 185-193.

Slepecky, M., Kotianova, A., Prasko, J., Majercak, I., Gyorgyova, E., Kotian, M., & et al. (2017). Coping, schemas, and cardiovascular risks – study protocol. *Neuropsychiatr Dis Treat*, 13: 2599–2605.

Stanton, A.L., Revenson, T.A., Tennen, H. (2007). Health psychology: psychological adjustment to chronic disease. *Annu Rev Psychol,* 58: 565-92.

Talebi Amri, M., Bahraminasab, M., Samkhaniyan, E., Moini, F., and Kazemi Khobane, Z. (2015). Effectiveness of behavioral-cognitive group therapy on improvement of quality of life of patients with coronary heart disease. *J Med Life,* 8(Spec Iss 4): 301–306.

Vela, J.C., Lerma, E., & Ikonomopoulos, J. (2017). Evaluation of the Life Satisfaction and Subjective Happiness Scales with Mexican American High School and College Students. Hispanic Journal of Behavioral Sciences, 39(1) 34–45.