



Scholars Research Library

Der Pharmacia Lettre, 2017, 9(2):1-8
(<http://scholarsresearchlibrary.com/archive.html>)



The effect of stress inoculation training on stress and the psychological capital in patients with apical ballooning syndrome

Maryam Mehdi Araghi¹, Kianoosh ZahraKar², Farshad Mohsenzadeh³

*1*Department of Counseling, School of Psychology and Education Sciences, Kharazmi University, Tehran, Iran

*2*Associate Professor, Department of Counseling, School of Psychology and Education Sciences, Kharazmi University, Tehran, Iran

*3*Assistant Professor, Department of Counseling, School of Psychology and Education Sciences, Kharazmi University, Tehran, Iran

***Corresponding author:** Corresponding Author: Maryam Mehdi Araghi, Department of Consultation, School of, Kharazmi University, Tehran, Iran, Email: mmahdiaraghi@gmail.com

ABSTRACT

Introduction: Apical ballooning syndrome (ABS) is a disorder in heart patients that psychological backgrounds play a role in its onset. The aim of this study was to evaluate the effect of stress inoculation training (SIT) on stress and the psychological capital in patients with apical ballooning syndrome to improve the quality of life of these patients.

Materials and Methods: This study was experimental which conducted on 20 patients with apical ballooning syndrome in Sanandaj, Iran. The patients were selected using simple sampling and randomly divided in two intervention and control groups. For intervention group stress inoculation training was held in eight weeks. The level of stress and psychological capital were evaluated before intervention, one week and one month after intervention in both intervention and control groups. Data were analyzed using SPSS Ver. 20.

Results: The mean age of patients in two groups was 34.21 ± 3.60 years. In terms of gender, age, and education there was no significant difference between the two groups statistically ($p > 0.05$). The results also showed that in terms of the level of stress and psychological capital there was significant difference between the two groups statistically ($p = 0.000$).

Conclusion: Stress inoculation training significantly reduced stress and increased psychological capital consequently it could reduce ABS.

KEYWORDS: SIT, ABS, stress, psychological capital

INTRODUCTION

Broken Heart Syndrome (ABS) is a temporary condition in which the heart muscle suddenly becomes weak, its activity interrupts and the shape of left ventricular changes [1]. The disease is caused by emotional shock, so that in three-quarters of those in which this type of cardiomyopathy has been diagnosed, they have experienced a significant emotional or physical stress before the occurrence of this complication [2]. The disease is not just the result of sadness, but also a wide variety of emotions causing it; Intense fears, anxiety, worry and even sudden surprise can lead to stress cardiomyopathy [3]. Studies have shown some ABS predisposing factors including: the loss of a loved one, car accident, acute physical disease, family disputes, severe and prolonged psycho-emotional stress, and menopause in women [4]. Although Patel et al. showed that much of patients recover within a few weeks [5], but in the acute phase relapse and even death may occur [1].

Stress is of the most widely known phenomena in modern societies. Everyone in some way involved with this phenomena and stress affects a major part of humans' life [6]. Studies have shown that psychiatric disorders, heart disease, cancer, digestive and skin disorders, all are associated with mental pressure and stress (7). Psychological capital as an individual's positive psychological state of development to achieve success, persevering toward goals, making a positive reference (optimism) about him/her self and bearing the problems can affect self-efficiency [8] it also by creating the key sources of self-efficacy, hope, optimism, and resilience facilitate stress inoculation behavior [9]. Different approaches and interventions could be used to reduce stress including stress inoculation training. SIT is designed to strengthen the control over stressful situations [10] through changing attitudes and creating a sense of mastery and competence due to successful experiences in coping with stress and creating the positive expectations which led to reducing stress [11]. SIT effectiveness is inefficient through modification of cognitive content [12].

The advantages of this method compared to other treatments are control of physiological arousal, behavioral training, and cognitive coping strategies [11] which improve situation adaptation strategies and increase the ability to control stressful situations [6]. Based on previous studies SIT improve situation adaptation strategies, increase the ability to handle stressful situations, reduce the risk of heart stroke and increase the general condition of patients with psychosomatic disorders and psychological disorders such as depression and anxiety, as well as reduce stress, anxiety and daily plight [6,7,13-16]. The rationale for using this approach for patients with ABS is that, although stress broken heart syndrome occurred [4,5], but there is the chance of relapse [5]. Accordingly, as stress is the main

trigger for this syndrome, the syndrome itself also increases stress. The aim of this study was to evaluate the effect of stress inoculation training (SIT) on stress and the psychological capital in patients with apical ballooning syndrome to improve the quality of life of these patients.

MATERIALS AND METHODS

This study was experimental which conducted on 20 patients with apical ballooning syndrome in Sanandaj, Iran. The population of study was consisted of all patients who had inclusion criteria and with a variety of heart complaints including; dyspnea, chest pain similar to heart attack pain, arrhythmia and abnormal ECG referred to Thohid hospital in Sanandaj, Iran. Among them 20 patients were selected using simple sampling and randomly divided in two intervention and control groups. There were 10 patients in each group.

After medical examination and performing angiography by cardiologist they were diagnosed as having symptoms of broken heart syndrome (ABS). In order to reduce the Type I error and based on previous studies [7, 15, 17] twenty patients who met the inclusion criteria and were willing to participate in the study were selected. Written informed consent was obtained from patients. Inclusion criteria were: symptoms of ABS, aged 30 to 40 years, having at least high school diploma and willing to participate in the study.

This study has been approved by Ethics Committee of Kurdistan University of Medical Sciences with the following code; MUK.REC.1394.347. Data were collected using Stress Symptoms Inventory (SSI) which measures four cognitive, emotional, behavioral, and physical dimensions in 50 items. Also, Psychological Capital Questionnaire (PCQ) which assess hope, resiliency, optimism and self-efficacy and includes 24 items.

For intervention group stress inoculation training was held in eight weeks. Each session lasted an hour and a half. The level of stress and psychological capital were evaluated before intervention, one week and one month after intervention in both intervention and control groups. To avoid any error, communicating with patients in the early stages of data collecting was done by a person who was not sensitive to the results of the study.

Data were analyzed using SPSS Ver. 20. Normal distribution of data was evaluated using Kolomogrove-Smirnov also the homogeneity of the covariance matrix and homogeneity of variance dependent variables were evaluated using Boxe`s M test and the Levene test respectively . The level of significance was determined as $p>0.05$.

RESULTS

The results showed that the mean age of patients was 34.21 ± 3.60 years. In terms of gender, age, and education level there was no significant difference between the two groups statistically ($p> 0.05$). From 20 patients 9(45%) were male and 11(55%) were women. All patients were married. The results also showed that in terms of the level of stress and psychological capital there was significant difference between the two groups statistically ($p=0.000$).

The results of Boxe`s M test showed that the assumption of homogeneity of covariance matrix in the post-test (Box`s M =9.47, $p>0.05$) and follow-up (Box`s M =28.12, $p>0.05$) represents the equality of covariance matrices in

dependent variables. Also the results of Levene test showed that the level of statistical error ($F = 1.02$) on stress symptoms one week and one month after the intervention was significant ($p > 0.05$). For psychological capital, the results of Levene test also showed that the level of statistical error ($F = 1.092$) one week and one month after the intervention was significant ($p > 0.05$). It shows the equality of variances, therefore the assumption of covariance analysis to make a comparison is established.

The difference and mean scores of stress and psychological capital in intervention and control groups were compared in three stages. There were significant differences in intervention group ($p = 0.000$) Table 1.

Table-1: intra-group comparison of study indices with repeated ANOVA

Group	Index	pre-intervention Average	The average of One week after intervention	The average of One Month after intervention	Mean Square	F	P	eta
Intervention (SIT)	Stress	148.10	122.90	121.50	1800.9	38.3	0.000	0.81
	Psychological Capital	80.60	115.50	109.20	2923.7	156.2	0.000	0.94
Control	Stress	147.90	146.80	147.30	1.6	0.2	0.76	0.081
	Psychological Capital	77.80	78.30	77.60	10.8	0.4	0.60	0.038

The results showed that in terms of the level of stress there was a significant difference between the two groups one week ($F = 6.78$, $P < 0.05$) and one month after the intervention ($F = 8.35$, $P < 0.05$). The results also showed that in terms of psychological capital there was a significant difference between the two groups one week ($F = 1.206$, $P < 0.05$) and one month after the intervention ($F = 2.784$, $P < 0.05$) Table 2.

Table-2: covariance analysis of effectiveness and sustainability of SIT on stress and psychological capital

Source	Dependent Variable	Sum of squares	df	Mean Square	F	Sig.	Shared eta
SIT and Control Groups	Stress symptoms one week after the intervention	294.698	1	294.698	3.793	.069	.192
	Stress symptoms one month after the intervention	877.791	1	877.791	6.229	.024	.280
Stress Syndrome Before the intervention	Stress symptoms one week after the intervention	1767.094	1	1767.094	22.743	.000	.587
	Stress symptoms one month after the intervention	1157.463	1	1157.463	8.213	.011	.339
Both groups and Stress Syndrome Before the intervention	Stress symptoms one week after the intervention	526.967	1	526.967	6.782	.019	.298
	Stress symptoms one month after the intervention	1176.818	1	1176.818	8.351	.011	.343
SIT and Control Groups	Psychological capital one week after intervention	157.712	1	157.712	4.705	.005	.227
	Psychological capital one month after intervention	191.025	1	191.025	8.579	.010	.349
Psychological capital Before the intervention	Psychological capital one week after intervention	183.875	1	183.875	5.486	.022	.255
	Psychological capital one month after intervention	98.846	1	98.846	4.439	.015	.217
Both groups and Psychological capital Before the intervention	Psychological capital one week after intervention	40.421	1	40.421	1.206	.008	.070
	Psychological capital one month after intervention	61.997	1	61.997	2.784	.015	.148

DISCUSSION

In the present study, there was no significant difference between the two interventions and control groups in terms of age, sex, level of education and marital status, therefore we can conclude that stress and psychological capital was not affected by these variables. The results also showed that in terms of stress and psychological capital there were not significantly different between the two groups at the baseline ($p > 0.05$). On the other hand findings indicated that the SIT was effective in reducing symptoms of stress in post-test and follow-up and the effect was significant ($p < 0.005$), also SIT was effective on control group one week and one month after the intervention. Comparison the means it can be said, SIT was more effective on reducing stress than psychological capital. In a study by Peters et al. they showed that emotional stress was a major risk factor for ABS and SIT reduced symptoms of stress, particularly emotional stress [18]. In a study by Flaxman and Bond they compared the effect of acceptance and commitment therapy (ACT) and SIT to reduce the symptoms of stress.

They concluded that these two methods had the same effects on reducing psychological stress [19]. These findings are consistent with the results of our study. In a study by Abedi et al. which compared the effectiveness of stress inoculation training (SIT) and acceptance and commitment therapy (ACT) in reducing math anxiety in high school students they concluded that SIT was more efficient than ACT in reducing stress [20]. Also in a study by Jamshidifar et al. perceived stress was decreased significantly in SIT group [17]. They said; SIT can reduce perceived stress, because SIT is focused on coping skills; particularly in identifying skills with negative self-talk in stressful situations and can help people to control over stressful situations. Therefore, SIT is effective in the occurrence of symptoms in patients with ABS and using it, stress which is the most important symptom of broken heart syndrome could be reduced.

SIT was also effective on psychological capital and increased it. As the results of this study showed in terms of psychological capital there was significant difference between the intervention (SIT) and the control group. The results of a study by Weinberg et al showed that Hope, optimism and social support are three key resources of psychological capital and resilience that help individuals to cope with PTSD symptoms. They specifically showed that there was a negative correlation between hope and optimism (two components of psychological capital) and symptoms of stress and trauma [21]. Chang et al. also showed that hope and psychological capital were important predictors of stress symptoms [22].

CONCLUSION

The goal of SIT is to strengthen the stress coping skills. It increases resilience in patients to control stressful situations and this feature increases the level of psychological capital by increasing the hope and optimism. SIT can reduce the relapse of broken heart syndrome in patients and enhance their quality of life. We can conclude that stress inoculation training significantly reduced stress and increased psychological capital consequently it could reduce ABS.

REFERENCES

1. Movahed M, Donohue D, Review: transient left ventricular apical ballooning, broken heart syndrome, ampulla cardiomyopathy, atypical apical ballooning, or Tako-Tsubo cardiomyopathy. *Cardiovascular Revascularization Medicine*, **2007**, 8(4), 289-292.
2. Subban V, et al. Apical ballooning syndrome in first degree relatives, *Indian Heart Journal*, **2012**, 64(6), 607-609.
3. Vieweg W, et al. Depression, Stress, and Heart Disease in Earthquakes and Takotsubo Cardiomyopathy. *The American Journal of Medicine*, **2011**, 124(10), 900-907.
4. Eshtehardi P, et al. Transient apical ballooning syndrome-clinical characteristics, ballooning pattern, and long-term follow-up in a Swiss population, *International Journal of Cardiology*, **2009**, 135(3), 370-375.
5. Patel S, et al. Distinctive Clinical Characteristics According to Age and Gender in Apical Ballooning Syndrome (Takotsubo/Stress Cardiomyopathy): An Analysis Focusing on Men and Young Women, *Journal of Cardiac Failure*, **2013**, 19(5), 306-310.
6. Zahra Kar KA, Study of Effectiveness of Rational, Emotive, Behavior Therapy (REBT) with Group Method on Decrease of Stress among Diabetic Patients. *Journal of Knowledge and Health*, **2013**, 7(4), 160-164.
7. Yazdani M, et al. The effectiveness of stress management training program on depression, anxiety, and stress of the nursing students. *Iranian journal of nursing and midwifery research*, **2010**, 15(4), 208-215.
8. Erkuclu H, Exploring the Moderating Effect of Psychological Capital on the Relationship between Narcissism and Psychological Well-being, *Procedia, Social and Behavioral Sciences*, 2014, 150:1148-1156.
9. Eid J, et al. Leadership, psychological capital, and safety research: Conceptual issues and future research questions, *Safety Science*, **2012**, 50(1), 55-61.
10. Laffaye C, et al. Relationships among PTSD symptoms, social support, and support source in veterans with chronic PTSD, *Journal of Traumatic Stress*, **2008**, 21(4), 394-401.
11. Sheehy R, et al. Effects of Stress Inoculation Training for 1st-Year Law Students. *International Journal of Stress Management*, **2004**, 11(1), 41-55.
12. Hann K, McCracken L, A systematic review of randomized controlled trials of Acceptance and Commitment Therapy for adults with chronic pain: Outcome domains, design quality, and efficacy, *Journal of Contextual Behavioral Science*, **2014**, 3(4), 217-227.
13. Michalsen A, et al. Psychological and Quality-of-Life Outcomes from a Comprehensive Stress Reduction and Lifestyle Program in Patients with Coronary Artery Disease: Results of a Randomized Trial, *Psychotherapy, and Psychosomatics*, **2005**, 74(6), 344-352.

14. Van Dixhoorn J, White A, Relaxation therapy for rehabilitation and prevention in ischaemic heart disease: a systematic review and meta-analysis. *European Journal of Cardiovascular Prevention & Rehabilitation*, **2005**, 12(3), 193-202.
15. Kiani R, et al. The effectiveness of stress inoculation group training on Somatization and Anxiety of the coronary heart disease patients, *Jundishapur Scientific Medical Journal*, 2010, 9(5), 9-23
16. Hasanzadeh L M, et al. Effectiveness of stress inoculation training on perceived stress in pregnant women with infertility, *Holist Nurs Midwifery*, **2013**, 23 (2), 27-34
17. Jamshidifar Z, et al. Effectiveness of Group Training of Stress Inoculation in Reducing Perceived Stress, *Procedia, Social and Behavioral Sciences*, 2014, 159:430-432.
18. Peters M, et al. The broken heart syndrome: Takotsubo cardiomyopathy, *Trends in Cardiovascular Medicine*, 2015, 25(4), 351-357.
19. Flaxman P, Bond F, A randomized worksite comparison of acceptance and commitment therapy and stress inoculation training. *Behaviour Research and Therapy*, **2010**, 48(8), 816-820.
20. Abedi A, et al. Comparing the effectiveness of stress inoculation training and acceptance and commitment therapy in reducing math anxiety in high school students, *Journal of Consulting, and Research*, **2013**, 33 (9), 125-143.
21. Weinberg M, et al. Bidirectional associations between hope, optimism and social support, and trauma-related symptoms among survivors of terrorism and their spouses, *Journal of Research in Personality*, **2016**, 62, 29-38.
22. Chang E, et al. Hope and trauma: Examining a diathesis-stress model in predicting depressive and anxious symptoms in college students, *Personality, and Individual Differences*, **2016**, 96, 52-54.