

The effect of stress inoculation on female lifeguards' state anxiety

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Abstract

Introduction: Some occupations such as lifeguards are considered as stressful jobs because of the nature of the task that they do, the aim of this study was to determine the effect of the training of the stress inoculation on state anxiety and performance of female lifeguards.

Materials and Methods: This experimental study was done with pretest-posttest design with control group. The population of this research was active female lifeguards aged 25-30 years old in Isfahan. Then 30 lifeguards were selected as convenient and purposeful from the intended community and were divided randomly in two groups. The experimental group attended in stress inoculation training class for six 90-minute sessions and ultimately post-test was performed for two groups and data were analyzed using covariance test.

Results: The results revealed that stress inoculation training has reduced cognitive and somatic anxiety, anxiety significantly and improved lifeguards' confidence and performance ($P < 0.001$).

Conclusion: Stress inoculation has reduced cognitive and somatic anxiety, anxiety and improved confidence. Therefore, participating in stress inoculation training classes is recommended to reduce lifeguards' stress.

Keywords: Anxiety, Inoculation, Stress

Please cite this paper as:

Sanati M, Badami R. The effect of stress inoculation on female lifeguards' state anxiety. *Journal of Fundamentals of Mental Health* 2017; 19(Special Issue): 184-93.

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Received: Feb. 13, 2017
Accepted: Mar. 15, 2017

Introduction

Occupational stress is the stress that a person experiences it in a certain job (1). Some jobs, such as ambulance drivers, prison staff, police, firefighters, and lifeguards are considered as stressful jobs because of the nature of the task that they do (2). Nowadays, occupational stress is one of the important phenomena in social life and serious threat to the health of the workforce in the world. So that the International Labor Organization introduces occupational stress as the most well-known health threatening phenomenon of employees and also emphasizes that occupational has imposed high costs to the government and has led to absence from work, increasing demands of employees to change jobs and production and performance decrease (3).

National Institute for Occupational Safety and Health in America expresses occupational stress as harmful physical and emotional responses, which occurs when job requirements are not match with person's abilities, capabilities and desires (4). In other words, stress occurs when a person feels that there is no balance between her/his capabilities and what is necessary in a special situation, and the result of that task is also very important, so in fact, stress is not a product but is a process. Stress is a four-stage process. In the first step of the stress process, a type of demand is imposed to the person. In the second phase, the person measures demand with her/his abilities and capabilities. In the third stage, the person perceives an imbalance between her/his abilities and the demand that asked from him/her and this leads to increase anxiety, which in turn results in increased concerns (i.e., increased cognitive anxiety) and increased physiological responses (i.e., somatic anxiety or both) and in the fourth stage, the person's performance is influenced of stress process (5).

To intervene in stress, there are several approaches that one of the most efficient methods is stress inoculation training which was introduced in 1985 by Mayken Bam. Stress inoculation as well as medicine inoculation has been created on the face of stressful situations in person in order to form psychological antibodies or stress coping skills. This training is an accurate, multi-dimensional and multilateral therapeutic intervention that aims not only to completely eliminate stress, but also to utilize it effectively. In this method, users are encouraged to consider the stressful situations, not as a threat to themselves, but as problems to be solved (6). This approach has three steps. The three steps are: 1. Conceptualization of the problem: in conceptualization stage, the main focus is in establishing a relationship based on cooperation with clients, helping them to better understand the nature of stress and its effects on the excitement and performance and data collection through self-evaluation methods (2). The acquisition and skills practice stage the main emphasis is on coping skills training (relaxation training, cognitive restructuring, and conducted inner conversation) to clients. 3. The stage of the application and constant pursuance: the person applies learned skills in dealing with stress (6).

Studying the literature of review in this field indicates that stress inoculation training has had positive effect on increasing assertiveness of physical-mobility disabled students (7), the quality of life of nurses in the psychiatric ward (8), reducing students' anxiety and stress (9), glycemic control and depression in patients with type II diabetes (10), female students' anxiety and math performance with mathematics learning disabilities (11) and male students' academic performance and self-efficacy (12). Considering that the nature of lifeguards' job is very stressful, since a savior in addition to

protect the lives of others must also be careful to preserve their lives. As such, a savior requires prompt decision-making and performance and high anxiety and low self-esteem can reduce their act speed and cause irreparable consequences for the lifeguard (13). The aim of this study was to determine the effect of stress inoculation training on Lifeguards' state anxiety.

Materials and Methods

The population of this research included active female lifeguards with the age range of 25-30 years from Isfahan in the spring of 2015. A sample of 30 individuals were selected as available and targeted and randomly were assigned in two groups "intervention" (n=15) and control (n=15). Inclusion criteria included having lifeguard cards on behalf of Iran lifesaving Federation and lifeguards' participation in annual lifeguard readiness courses and those lifeguards who were considered as active ones by the board of Isfahan lifeguard.

Research instrument

A) Competitive Anxiety Questionnaire: This scale was designed by Martens, Vealey and Burton (1990) and has 27 questions and 3 subscales of self-esteem, cognitive state anxiety and state somatic anxiety. Questions are as 4-Likert Scale. Subject answers to the questions of this scale from "none" to "extreme". The final scores of this scale are variable from 27 to 108. Cronbach's alpha of this questionnaire for the subscales have been reported as: confidence 0.88, cognitive anxiety 0.88 and somatic anxiety 0.85. In Keshavarzi and Ariapouran's research (2010) Cronbach's alpha has also been reported for cognitive anxiety, somatic anxiety and self-confidence 0.71, 0.78, 0.76, respectively.

B) Lifeguard Performance Scale: In this study, female athletes' performance is measured based on two main indicators in the lifeguards: 1- Crawl Swimming. 2. The rescue operation scenario in the revival.

1- Crawl Swimming: Crawl swimming is utmost important to reach drowned person because of its high speed. This kind of swimming is one of the main entrance exams for lifeguards and also card renewal courses prepare in lifeguard annual readiness courses and tournaments of this field. Approved record of 200-meter crawl swimming for females is four minutes and thirty seconds on the basis of regulations of Islamic Republic of Iran Lifesaving Federation.

2. The rescue operation scenario in the revival: The measure scale in this section form number (2). Approved vivification scenario of Iran Lifesaving Federation is based on the international standard of World Rescue Operation Federation which all the vivification stages was classified in 19 clause in question form in terms of importance, order and priority in the and registered by an expert instructor in accordance with the above steps and proper implementation of each clause at least specified time set as three -options Likert from "yes" to "no".

C) Inoculation Training Stress Protocol: Therapeutic intervention was conducted on the experimental group based on inoculation training stress for 90-minute 6 sessions with one week interval for sessions. These interventions was as a group groups in Socrates training method and members were allowed to talk and gave feedback about what was said at the end of each session. At the same time the control group received no intervention. Data was collected through Martenz's Competitive Anxiety Scale and performance scale in two sections of records which obtained from the 200m crawl swimming and form number (2) that is the vivification scenario in the pre-test and post-test stages. Titles of each session and their general structure are displayed briefly in the below table.

Table 1. Titles/headlines of stress inoculation training sessions

Sessions	Titles/headlines of sessions
1	Stress conceptualization and description, explanation of the role of stress inoculation training in better stress and anxiety control
2	Relaxation training using audio CD + Relaxation training through therapist performance
3	Understanding the cognitive concepts and the role of thoughts on stress and stress and thoughts relation with emotions, Understanding negative thoughts features and introduction of cognitive errors
4	Challenging with stressful thoughts and negative thoughts + self-talk training and the role of negative self-talk in stress
5	Though focus training and distraction techniques + problem solving training

Results

In Table 2 the descriptive indicators of the variables are summarized.

Table 2. The descriptive indicators of the variables

Group	Test	Lowest value	Highest value	Mean	SD
Experimental Cognitive anxiety	Pre-test	12	20	15.20	2.42
	Post-test	10	17	12.66	1.98
Control	Pre-test	11	19	13.26	1.98
	Post-test	11	20	13.13	2.16
Experimental Somatic anxiety	Pre-test	10	18	13.60	2.06
	Post-test	10	16	11.53	1.59
Control	Pre-test	10	15	12.21	1.62
	Post-test	10	14	11.92	1.32
Experimental Self-confidence	Pre-test	15	32	23.66	5.91
	Post-test	18	33	26.00	5.07
Control	Pre-test	17	32	24.35	55.5
	Post-test	17	33	24.78	5.67
Experimental Time of Crawl swimming	Pre-test	3.27	5.06	4.06	0.50
	Post-test	3.26	4.51	3.93	0.47
Control	Pre-test	3.45	4.41	3.99	0.32
	Post-test	3.44	4.40	3.98	0.32
Experimental Performance	Pre-test	30	54	44.33	7.26
	Post-test	42	57	49.53	4.32
Control	Pre-test	37	55	45.78	5.93
	Post-test	37	54	46.35	5.66

In Table 3, two groups of variables have been compared using analysis of covariance.

Table 3. Analysis of covariance to compare variables between the two groups

	Change source	Sum of squares	Degree of freedom	Mean of squares	F	Sig	Chi-Ata
Cognitive anxiety	Pre-test	100.474	1	100.474	131.73	0.001 *	0.83
	Intergroup	28.00	1	28.00	36.71	0.001 *	0.57
	Error	20.59	27	0.763			
Somatic anxiety	Pre-test	45.54	1	45.54	90.25	0.001 *	0.77
	Intergroup	11.66	1	11.66	23.12	0.001 *	0.47
	Error	13.12	27	0.50			
Self-confidence	Pre-test	736.86	1	736.86	461.76	0.001 *	0.94
	Intergroup	24.48	1	22.48	15.34	0.01*	0.37
	Error	41.49	27	1.59			
Time of Crawl swimming	Pre-test	3.96	1	3.96	201.61	0.001 *	0.89
	Intergroup	0.093	1	0.093	4.92	0.035*	0.16
	Error	0.49	27	0.19			
Performance	Pre-test	540.26	1	540.26	101.28	0.001 *	0.79
	Intergroup	123.24	1	540.24	23.10	0.001 *	0.47
	Error	138.68	27	5.33			

According to Table 3, stress inoculation training has reduced the cognitive and somatic anxiety significantly and improved lifeguards' self-confidence and performance ($P < 0.001$)

Discussion

Stress inoculation training reduces lifeguards' cognitive and somatic anxiety. This finding is consistent with finding of Shihi and Horan studies, which showed that the stress inoculation training has reduced anxiety level and irrationality and improved students' academic and professional performance (14) and also is consistent with Bani Hashemi and Ahmadi research, based on the positive effect of stress inoculation training on stress management and patients' vital signs, compatible (15). Nisiani et al. also concluded that stress inoculation training reduces perceived stress in women with systemic lupus erythematosus (16). The positive effect of stress inoculation training on occupational stress of teachers (15) and nurses (17) has been confirmed. The positive effect of stress inoculation training on reducing lifeguards' cognitive anxiety and somatic anxiety can be attributed to various reasons, many athletes are not even able to identify a way to overcome her/his own stress. In this study, lifeguards taught strategies for coping with stress which seems to be an effective step in controlling their anxiety, various ways to cope with stress have effect on stress perception level and salivary cortisol levels.

In this intervention, lifeguards got familiar with relaxation. Muscle relaxation and gradual detente reduce anxiety in athletes, progressive muscle relaxation techniques have had effect on athletes' competitive anxiety reduction and research findings have shown that relaxation lead to increase the vagal and reduce sympathetic nervous system activity.

Relaxation physiological eyewitnesses act as stress opposition means such as blood

pressure reduction, heart rate reduction, fluid retention and sodium reduction and to reach to the normal level of glucose and insulin (18).

Other possible techniques that have helped saviors to reduce anxiety are guided self-talk and problem solving. Guided self-talk begins with habitual rhetoric which occurs during various stages of stressful experiences (6).

Another finding of this study indicated that stress inoculation training increases saviors' confidence. One of the possible reasons for increased confidence following the stress inoculation training is anxiety control. In fact, too much anxiety is a factor which disturbs processing power and actual perception to the environment, which in turn causes excessive secretion of adrenaline and noradrenaline in the blood and increases person's concern to deal with others, compete and fight. Stress inoculation program not only leads to with problems and stressful factors, but also since these individuals show successful behavior in facing with these factors, have more positive cognitive assessment of themselves and consequently they experience more positive emotions and their confidence will increase (19).

Another finding of this research showed that stress inoculation training improves saviors' performance. On the basis of performance formula, optimal performance is the result of a combination of technical capabilities (technical and tactical), physical (strength and speed) and mental (concentration, confidence, anxiety harness). In fact, most coaches believe that at least 50 percent of sports are mental or psychological (5).

The results show that the stress management training was effective in cognitive and somatic anxiety and improving saviors' confidence and performance. In fact, stress inoculation not only through relaxation training causes to reduce saviors' muscle

and physical tension and as a result reduces somatic anxiety, but also through introducing them the cognitive concepts and the role of thoughts in creating stress and its relationship with negative thoughts, causes them to get familiar with cognitive errors and by challenging spontaneous negative thoughts and positive self-talk application, distraction and problem solving techniques, reduces cognitive anxiety and improves confidence and subsequently athletic performance. Therefore, it is essential that lifeguards know stress management

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strategies, because in addition to the responsibility of rescuing and protecting and saving individuals' lives, they also must participate in annual lifeguard preparation courses which lead to cope with stress.

Conclusion

Stress inoculation training reduces cognitive and somatic anxiety and improves self-confidence. Therefore, attending in stress inoculation classes is recommended to reduce lifeguards' anxiety.

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