



Original Article

The effect of stress inoculation on female lifeguards' state anxiety

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Abstract

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

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Introduction

Occupational stress is a person experiences stress in a specific job (1). Some jobs, including ambulance drivers, prison employees, police officers, firefighters, and lifeguards, are stressful jobs due to the nature of the work (2). Today, occupational stress is one of the essential phenomena in social life and a severe threat to the health of the workforce in the world. In such a way that the International Labor Organization introduces occupational stress as the most well-known phenomenon that threatens employees' health, it also emphasizes

that occupational stress imposes many costs on the government and absenteeism from work. The increasing demands of employees to change jobs and decrease production and performance result (3).

The National Institute of Occupational Safety and Health of the United States of America defines occupational stress as harmful emotional and physical responses that occur when the job requirements do not match the individual's abilities, capabilities, and desires. (4). In other words, stress occurs when a person feels that there is no balance between his

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capabilities and what is required in a particular situation, and on the other hand, the result of that action is also significant, so in fact, stress is not a product. It is a process. Stress is a four-step process. In the first stage of the stress process, a kind of demand is imposed on the person. In the second stage, the person measures the demand with his abilities and capabilities. In the third stage, he perceives an imbalance between his abilities and the demands placed on him, and this leads to an increase in state anxiety, which in turn causes an increase in worries (that is, an increase in cognitive anxiety) and an increase in physiological responses (i.e., anxiety is a physical state) or both, and in the fourth stage, a person's performance is affected by the stress process (5).

To intervene in stress, there are different approaches. One of the most efficient methods is stress inoculation training, which Mayknbam proposed in 1985. Stress inoculation, like medical immunization, is based on exposure to stressful conditions in a person to form psychological antibodies or skills to deal with stress. This training is a precise, multi-dimensional, and multi-faceted therapeutic intervention with the goal of not eliminating stress but using it constructively. In this method, clients are encouraged to consider stressful situations not as a threat to themselves but as solvable problems (6).

This approach has three steps. These three stages are 1- Conceptualization of the problem: In the conceptualization stage, the main focus is on establishing a relationship based on cooperation with clients, helping them better understand the nature of stress and its effects on emotion and performance, and gathering information. It is through self-review methods. 2- Skills acquisition and practice stage: The main emphasis is on teaching clients coping skills (relaxation training, cognitive reconstruction, and guided inner dialogue). 3- The stage of continuous application and follow-up: the person applies the learned skills in the face of stress (6).

A review of past studies shows that stress inoculation training increases the self-expression of physically-motor disabled students (7), the quality of life of nurses working in the psychiatric department (8), reducing students' anxiety and stress (9). Furthermore, it has had a positive effect on blood sugar control and depression of type 2

diabetic patients (10), anxiety and math performance of female students with a math learning disability (11), and academic performance and self-efficacy of male students (12). Considering the job nature of lifeguards is very stressful; in addition to protecting the lives of others, the savior must also take care of his own life. Likewise, a rescuer needs quick decision-making and action, and high anxiety and low self-confidence can reduce the speed of rescuers' actions and lead to irreparable consequences for the rescuer and the drowning (13). Therefore, this research aimed to assess the effect of stress inoculation training on the state anxiety of lifeguards.

Materials and Methods

The statistical population of this research consisted of active female lifeguards of Isfahan city with an age range of 25-30 years in the spring of 2014. From this population, 30 people were selected in a purposeful and accessible manner and were randomly divided into two test groups (15 people) and a control (15 people). Entry criteria included having a lifeguard card from the Iran Lifeguard Federation and participation of lifeguards in annual lifeguard preparation courses from the Isfahan Province Lifeguard Board as active lifeguards.

Research instruments

A) *State-Competitive Anxiety Questionnaire*: This scale was created by Martens, Wiley, and Barton (1990) and had 27 questions and three subscales of self-confidence, cognitive state anxiety, and physical state anxiety. Questionnaire questions are Likert four options. The subject answers the questions of this scale from "none" to "very much". The final scores of this scale vary from 27-108. Cronbach's alpha of this questionnaire was reported as 0.88 for the self-confidence subscale, 0.88 for cognitive anxiety, and 0.85 for physical anxiety. In Iran, Cronbach's alpha for cognitive anxiety, physical anxiety, and self-confidence has been reported as 0.71, 0.78, and 0.76, respectively.

B) *Lifeguard performance scale*: In this research, the performance of female athletes is measured based on two leading indicators in lifeguarding: 1- Breaststroke swimming. 2- The scenario of rescue operations in the rehabilitation sector.

1- Breaststroke swimming: Breaststroke swimming is essential in lifeguarding because of its high speed in reaching the rescuer. This swimming is one of the main entry exams in lifeguarding and card renewal courses in the annual preparations of lifeguarding and competitions in this field. According to the Islamic Republic of Iran Federation's lifeguard regulations, the approved swimming record for 200 meters breaststroke for women is 4 minutes and 30 seconds.

2- The scenario of rescue and rescue operations in the resuscitation section: the measurement scale in this section is form number (2) of the life-saving scenario approved by the Iran Lifeguard Federation based on the international standard of rescue and rescue operations of the World Federation, which is in 19 paragraphs in the form of questions all Life stages were classified in terms of importance, order, and priority in implementation and were recorded by the expert lifeguard instructor according to the above steps and the correct implementation of each section in the minimum

time set in the form of a three-choice Likert scale from "Yes" to "No".

Stress inoculation training protocol: therapeutic intervention based on stress inoculation training was implemented for six sessions of 90 minutes with a time interval of one week for the sessions on the experimental group. These interventions were done in groups and under the Socratic teaching method, and the members were allowed to talk and, in the end, give feedback about what was said. At the same time, the control group did not receive any intervention. The data were collected with the help of Martens competitive anxiety scale and performance scale in two sections, the records obtained from swimming 200 meters breaststroke and form number (2) of life-giving scenario in two stages of pre-test and post-test.

The following table briefly mentions the titles of the meetings and their general structure.

Results

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

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

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	5.5
	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

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			

Discussion

Stress inoculation training against stress reduces the cognitive and physical anxiety of lifeguards. This finding is in line with the findings of Sheehy and Horan's studies, which showed that stress inoculation training has reduced the level of anxiety and illogicality and improved the academic and professional performance of students (14) and the research of Bani Hashemi and Ahmadi, based on The positive effect of stress inoculation training on stress management and patients' vital signs is consistent (15). Nysyani Habibadi, Neshat Dost, Molavi, and Bankdar also concluded that stress inoculation training reduces the perceived stress of women with lupus (16). The positive effect of stress inoculation training on the occupational stress of teachers (15) and nurses (17) has also been confirmed. The positive effect of stress inoculation training on reducing lifeguards' cognitive and physical anxiety can be related to various reasons, and many athletes are not even able to identify a way to overcome their stress. In this study, lifeguards learned strategies to deal with stress, which seems to have been a practical step in controlling their anxiety. Different ways of coping with stress affect stress perception and salivary cortisol levels. In this intervention, the rescuers were introduced to sedation. Muscle relaxation and gradual de-tension reduce the anxiety of student-athletes. The progressive muscle relaxation method reduces the competitive anxiety of athletes, and research findings have shown that relaxation increases the vagal flow and reduces the activity of the sympathetic nervous system. Physiological

manifestations of relaxation, such as lowering blood pressure, decreasing heart rate, reducing fluid and sodium retention, and bringing glucose and insulin to normal levels, act as anti-stress tools (18).

Other possible techniques that have helped survivors reduce anxiety are guided personal dialogue and problem-solving. The guided personal dialogue begins with habitual self-talk during different stressful experience stages (6).

Another finding of this study showed that Stress inoculation training increases the self-confidence of rescuers. One of the possible reasons for increased self-confidence following stress immunity training is anxiety control. Excessive anxiety is a factor that disrupts the processing power and actual perception of the environment, which causes the excessive secretion of adrenaline and noradrenaline in the blood and increases the person's anxiety to face others, compete and fight. Therefore, stress inoculation training not only makes the person face the problems and stressful factors beneficially, but because of the successful behavior in dealing with these factors, people have a more positive cognitive evaluation of themselves and, accordingly, emotions, and they will experience more positive emotions. As a result, their self-confidence will increase (19). Another finding of this study showed that stress inoculation training improves rescuers' performance. According to the performance formula, optimal performance is the result of a combination of technical (technique and tactics), physical (strength and speed), and mental (concentration, self-confidence, anxiety control) abilities. Most coaches believe that at least 50%

of sports are mental or psychological (5). The present study showed that stress management training effectively controls cognitive and physical anxiety and improves lifeguards' self-confidence and performance. Stress inoculation training has not only reduced rescuers' muscle and physical tension through relaxation training, reducing their physical anxiety, but also familiarized them with cognitive concepts and the role of thoughts in creating stress and its relationship. Furthermore, by challenging negative thoughts and using positive self-talk, the techniques of turning attention and solving the problem of cognitive anxiety have been reduced, improving self-confidence and, subsequently, sports performance.

For this purpose, the necessity of familiarizing lifeguards with stress management strategies is emphasized because, in addition to their duty to participate in lifeguard preparation courses every year, which are faced with record-breaking stressful consequences, they are also responsible for rescue and rescue. Therefore, people's lives are also their responsibility.

Conclusion

Stress inoculation training reduces cognitive and physical anxiety and improves self-confidence. Therefore, it is recommended to participate in stress prevention classes to reduce the anxiety of lifeguards.

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