



# The Effects of Stress Management Training on the Psychological Distress and Academic Achievement of University Entrance Exam Applicants

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## Abstract

**Background:** Psychological distress is an unpleasant mental state characterized by stress, low mood, anxiety, and depression that impairs people's mental health and their functioning.

**Objectives:** This study aimed to evaluate the effects of stress management training on the psychological distress and academic achievement of university entrance exam applicants.

**Methods:** This quasi-experimental pretest-posttest study with follow-up was conducted on all the students preparing for the Iranian University Entrance Exam in Ahvaz, Iran, in 2022. A total of 30 eligible participants were selected using convenience sampling and randomly assigned to the intervention and control groups (15 per group). The intervention group received eleven 120-minute sessions of cognitive-behavioral therapy (CBT)-based stress management training, whereas the control group received no training. The Educational Performance Test and Psychological Distress Questionnaire were used to collect data. Data were analyzed using SPSS 25 software and descriptive and inferential statistics.

**Results:** Stress management training improved the treatment group's psychological distress and academic achievement at the post-test and follow-up stages ( $P < 0.001$ ). The results showed significant differences between the intervention and control groups following stress management training ( $P < 0.001$ ).

**Conclusions:** Based on the results, stress management training could improve the psychological distress and academic achievement of people facing stressful events such as university entrance exams.

**Keywords:** Stress Management, Academic Achievement, Psychological Distress, Students

## 1. Background

Nowadays, Iranian society considers academic education an essential value and a significant factor in social mobility to affect people's future jobs, income, and social relations (1, 2). Consequently, students should pass the university entrance exam (3). The university entrance exam plays a significant role in students and their families' access to higher education in Iran (4, 5). Students preparing for exams are undergoing increasing psychological distress due to various academic, social, and personal challenges (6).

Symptoms of psychological distress include stress, low mood, anxiety, and depression, which degrade a person's mental health and impair their functioning (7, 8). Disturbing emotional or cognitive states are generally

associated with various mental disorders, typically associated with stress, depression, and decreased mental performance (9). As a critical component of distress and poor mental health, stress significantly negatively affects academic performance (10, 11). The impacts of stress on the body (e.g., poor physical health) and mind (e.g., depression) depend on individual and situational factors (12-14). While low-stress levels can be beneficial, prolonged or extreme stress can aggravate physical and mental illnesses, especially for those preparing for significant life events such as university entrance exams (15).

Students' academic achievement is a critical indicator in the evaluation of education. Stress can negatively affect students' academic achievement by decreasing optimism and hope (16). Rudland et al. (17) stated that high levels of stress can lead to poor academic achievement,

while optimal levels of stress promote learning efficiency (18, 19). Thus, severe stress is expected to negatively affect students' academic achievement in preparing for university entrance exams (20, 21).

Given the effects of stress on the psychological distress and academic achievement of students preparing for exams, stress management training seems to effectively reduce psychological problems (e.g., stress) and improve academic achievement (22). Stress management encompasses various techniques and psychotherapies to help people control their stress levels, especially chronic stress (23). Stress management is essential for a happy and successful life in modern society to improve an individual's routine performance (24, 25). Stress management programs include cognitive-behavioral techniques for improving physical and mental health by alleviating psychological or physiological symptoms of stress, eliminating or modifying the stressor, or changing a person's cognitive evaluation of the stressor (26, 27).

Investigating psychological distress and academic achievement in entrance examination candidates can be necessary in education. Stress management training in schools and universities may reduce cognitive confusion and improve students' academic progress. The effects of stress management training on psychological distress and academic achievement among students preparing for exams were investigated. The results could help to reduce students' stress and psychological problems and improve their academic achievement.

## 2. Objectives

Based on the presented materials and research background, this study aimed to evaluate the role of stress management training on the psychological distress and academic achievement of university entrance exam applicants.

## 3. Methods

The statistical population of this quasi-experimental pretest-posttest study with follow-up included all university entrance exam applicants in Ahvaz, Iran. The research sample was selected from the students referred to the exam preparation center in 2022 using convenience sampling and then randomly assigned to two groups. After the pretest, the intervention group received 11 120-minute sessions of cognitive-behavioral therapy (CBT)-based stress management training every week. Then, the participants completed the research questionnaires in the posttest. The inclusion criteria

were non-affliction with psychological disease based on participant self-report, being a university entrance exam applicant, and not participating in any other training intervention. The exclusion criteria included absence in more than two sessions and unwillingness to continue participation in the study.

### 3.1. Instruments

#### 3.1.1. Educational Performance Test

This 48-item instrument was designed by Pham and Taylor (1990). The items are scored on a five-point scale, including "low" (1), "somewhat" (2), "moderately" (3), "highly" (4), and "extremely" (5). Item 11 is scored inversely, and the total score is within 48 - 240. Saffarieh et al. (28) reported the total Cronbach's alpha coefficients of this scale as much as 0.90 (28). Moreover, Parvizi Fard et al. (29) showed that test-retest reliability for the EPT was as much as 0.86.

#### 3.1.2. Psychological Distress Scale

Kessler et al. (30) developed this 6-item instrument for measuring psychological distress. Items on this standard questionnaire are scored as "never" (score 0) to "always" (score 4), with higher scores indicating more significant psychological distress. The minimum and maximum score on this scale is 0 and 24. Tanhaye Reshvanloo et al. (31) reported the total Cronbach's alpha coefficients of this scale as much as 0.86.

### 3.2. Intervention

The researcher organized 11 weekly 120-minute CBT-based stress management training sessions for the intervention group. Appendix 1 presents the content of the training sessions. All participants completed the research questionnaires after the intervention (posttest stage).

### 3.3. Statistical Analyses

Descriptive statistics (e.g., mean and standard deviation) and inferential statistics (e.g., analysis of covariance) were used to analyze data in SPSS software version 25.

## 4. Results

The participants were 30 students preparing for the university entrance exam with an average age of  $17.71 \pm 2.11$  years. The demographic variables of the participants applying to participate in the entrance exam are presented in Table 1.

Table 2 shows the two groups' descriptive statistics (mean and standard deviation (SD)) of psychological

**Table 1.** Demographic Variables of Entrance Exam Applicants Participated in the Research

Groups	Age (y)	Gender	
		Male	Female
Intervention group	18.12 ± 1.95	7 (46.67%)	8 (53.33%)
Control group	17.29 ± 2.26	8 (53.33%)	7 (46.67%)

distress and academic achievement. Before the intervention, the mean ± SD psychological distress scores of the intervention and control groups were 14.27 (3.87) and 14.73 (3.87), respectively. After the intervention, the mean ± SD psychological distress of the intervention and control groups was 8.20 (2.65) and 14.51 (3.59), respectively. Moreover, before the intervention, the mean ± SD academic achievement scores of the intervention and control groups were 173.33 (14.80) and 175.13 (16.21), respectively. After the intervention, the mean ± SD academic achievement of the intervention and control groups were 186.53 (14.85) and 171.80 (15.51), respectively.

**Table 2.** Mean ± Standard Deviation of the Psychological Distress and Academic Achievement in Intervention and Control Groups

Variables and Phases	Mean ± SD	
	Intervention Group	Control Group
<b>Psychological distress</b>		
Pretest	14.27 ± 3.87	14.73 ± 3.87
Posttest	8.20 ± 2.65	14.51 ± 3.59
Follow-up	8.47 ± 2.84	15.53 ± 3.35
<b>Academic achievement</b>		
Pretest	173.33 ± 14.80	175.13 ± 16.21
Posttest	186.53 ± 14.85	171.80 ± 15.51
Follow-up	186.27 ± 14.09	173.87 ± 15.88

MANCOVA was used to determine the significance of these differences. Shapiro-Wilk and Levene's tests were used to determine the normality of data distribution and homogeneity of variance, respectively. Since the P-values for all variables were less than 0.05, all research variables had a normal distribution. Furthermore, the homogeneity of the regression slopes between the auxiliary (pretest) and the dependent (posttest) variables was not significant at the factor level (intervention and control groups). Therefore, the regression slope's assumption of homogeneity was also observed. The results of MANCOVA showed a significant difference between the two groups in at least one dependent variable ( $P < 0.001$ ), which was examined using analysis of variance

(ANCOVA).

Table 3 shows significant differences between the two groups regarding mean psychological distress and academic achievement scores after the intervention compared with the pretest stage.

## 5. Discussion

This study aimed to evaluate the effects of stress management training on the psychological distress and academic achievement of university entrance exam applicants. The CBT-based stress management training program significantly reduced psychological distress and improved the academic achievement of students preparing for university entrance exams. This finding is consistent with that of Salehi et al. (32), and Ehsani et al. (33). Salehi et al. (32) reported that cognitive-behavioral stress management increased self-efficacy and academic adjustment in female high school students. Ehsani et al. (33) reported that mindfulness-based stress management training significantly reduced academic burnout and improved optimism in high school students.

The relaxation exercises included diaphragmatic breathing, passive muscle relaxation, imagery technique, and self-training focusing on heart rate, breathing, abdomen, and forehead. The CBT-based anxiety reduction techniques were learning the effects of stress on health, learning the cognitive restructuring technique, challenging automatic thoughts, learning effective coping methods, and learning self-expression and anger management techniques. This program combines relaxation exercises with other CBT-based anxiety reduction techniques to help individuals identify the sources of stress and change their irrational beliefs (33). Muscle relaxation techniques helped the intervention group turn their stressful and self-blaming thoughts into more neutral or comforting ones to reduce stress and psychological distress and improve academic achievement (22). This study confirmed the improvements in psychological distress and academic achievement in the intervention group compared to the pretest stage.

The stress management program significantly reduced psychological distress in the intervention group. Cognitive-behavioral therapy -based stress management strategies help people to manage their stress by enabling them to change their beliefs about stress, assess their overall stress, and convert their irrational beliefs into rational and effective ones (24). Therefore, the psychological distress experienced by individuals is reduced. Individuals can also reduce overall psychological distress and stress by identifying and controlling physical signs of stress through relaxation

**Table 3.** Results of Analysis of Variance on Research Variables in Experimental and Control Groups

Phase and Variables	SS	df	MS	F	P	$\eta^2$
<b>Posttest</b>						
Psychological distress	63.31	1	63.31	110.75	0.001	0.86
Academic achievement	1059.30	1	1059.30	147.07	0.001	0.86
<b>Follow-up</b>						
Psychological distress	53.66	1	53.66	50.32	0.001	0.67
Academic achievement	1024.49	1	1024.49	89.35	0.001	0.78

exercises (32). Stressful academic events such as university entrance exams can negatively affect the academic achievement of adolescents. Therefore, applicants need hope to overcome problems and consciously improve their planning, study, and lifestyle. Accordingly, stress management programs teach students appropriate coping strategies to manage stress and improve their academic hope. Furthermore, students who participate in these training programs develop positive attitudes towards education and university entrance exams and can replace negative thoughts and attitudes with positive ones to improve their academic achievement.

Finally, the stress management program significantly improved the intervention group's academic achievement. People who are stressed have difficulty learning and performing tasks, especially those that require sophisticated skills. On the other hand, stress management training programs use relaxation techniques to alleviate people's tensions and worries and help them shift their focus from threatening environmental stimuli to their tasks and use their energy to study instead of focusing on their problems and sources of stress (25). This process enables students to improve their academic achievement.

This study had limitations: Since the participants were selected from students preparing for the university entrance exam in Ahvaz, these results should be cautiously generalized to other populations and backgrounds. Another limitation of this research was using a questionnaire as a self-report tool. In self-report instruments, participants may have distorted their answers due to conscious or unconscious bias.

### 5.1. Conclusions

The CBT-based stress management intervention significantly reduced stress and psychological distress and improved the academic achievement of students preparing for the university entrance exam. This approach helps students to stay calm to accept and solve their problems during stressful events that may affect their

performance, such as university entrance exams. Hence, the students' psychological distress is reduced, and they can improve their academic achievement. Therefore, teachers and academic counselors are recommended to plan and organize practical educational workshops and counseling programs to enhance students' overall mental health and academic achievement, especially those preparing for the university entrance exam.

### Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

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### Footnotes

**Authors' Contribution:** Mohammad Reza Yazdanpanah, and Fatemeh Sadat Marashian developed the study concept and design. Mohammad Reza Yazdanpanah acquired the data. Fatemeh Sadat Marashian analyzed and interpreted the data, and wrote the first draft of the manuscript. All authors contributed to the intellectual content, manuscript editing and read and approved the final manuscript. Mohammad Reza Yazdanpanah, and Fatemeh Sadat Marashian provided administrative support.

**Conflict of Interests:** No conflict of interest to declare.

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