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Comparing the Effectiveness of Mental-Grammatical Imagery Education and Uncertainty Tolerance Education on Students' Test Anxiety

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Purpose: The test anxiety has a great negative impact on other academic and non-academic variables, therefore, should look for educational and therapeutic solutions to reduce students' test anxiety. As a result, the current research was conducted with the aim of comparing the effectiveness of mental-grammatical imagery education and uncertainty tolerance education on students' test anxiety.

Methodology: This was a semi-experimental study with two experimental groups and one control group, with a pre-test, post-test and two-month follow-up plan. In this study, the research population was all 12th grade female students of governmental and non-governmental schools in Bojnourd city in the 2022-2023 academic years. The sample of the present study was 45 students who were selected by purposive sampling method and randomly replaced in three equal groups (15 people in each group). The experimental group received 12 sessions of 90-minute with the mental-grammatical imagery education method, and the second experimental group received 9 sessions of 90-minute with the uncertainty tolerance education method based on the cognitive behavioral approach, and during this time, the control group did not receive any training. The data were collected with Sarason's test anxiety questionnaire (1985) and analyzed with the methods of analysis variance with repeated measure and Bonferroni's post hoc test in SPSS-25 software.

Findings: The findings showed that there was no significant difference between the groups in terms of reducing students' test anxiety (P>0.05). In addition, both methods of mental-grammatical imagery and uncertainty tolerance education significantly reduced students' test anxiety in the post-test and follow-up stages (P<0.001).

Conclusion: Considering the effectiveness of both methods of mental-grammatical imagery education and uncertainty tolerance education in reducing students' test anxiety, school counselors and psychologists can use mental-grammatical imagery education and uncertainty tolerance education methods to reduce test anxiety.

Extended Abstract

Purpose: In recent decades, one of the most extensive research areas has been the challenges related to educational and learning activities, especially anxiety disorders and related fields. Everyone experiences anxiety at some situations. In fact, anxiety is a common and consistent emotional state, but if it goes out of its normal range, it is considered a disorder and one should look for solutions and methods to reduce it. If anxiety exceeds a limit, it is called morbid anxiety disorder as a psychiatric disorder, and anxiety disorders include a wide range of disorders, with an incidence rate of 18% and a lifetime prevalence of 28.8%. One of the types of anxiety disorders is exam anxiety, which is a common and important phenomenon in educational systems has a directly related to academic performance drop and dropout. The test anxiety means a type of mental preoccupation with self-deprecation and doubt about one's abilities, which leads to negative cognitive evaluation, lack of concentration, adverse physiological, cognitive and behavioral reactions and academic performance drop. This type of anxiety is a type of anxiety that occurs in the situation of evaluation and problem solving, and its focus is doubt about the performance and its consequences and the inability to deal with the test situation. The test anxiety is a special form of anxiety in the academic situations with physical, cognitive, and behavioral symptoms, and it becomes a problem and disorder when its high level causes a person's academic performance drop سin the exam. In order to reduce test anxiety should be used educational and therapeutic solutions, which one of the possibly effective methods in this field is the method of mental-grammatical imagery education. The mental imagery education is one of the mental interventions related to the mental representation of stimuli, when the stimuli themselves are not physically present. This educational method improves psychological characteristics by modulating and reducing stress and increasing motivation and control over life. The mental-grammatical imagery is the covert repetition of an action without performing physical movements, and just as neural mechanisms are involved in learning or physical exercise, they are also activated in mental exercise and help people master negative thoughts and stressful memories through cognitive reprocessing. The mental-grammatical imagery education was invented by Smucker (1994) based on the cognitive behavioral approach, and this method helps people to overcome negative thoughts and disturbing memories by cognitive reprocessing. In the other words, in this method helped to people to get rid of their psychological pressures by expressing negative thoughts and disturbing images and then by cognitive reprocessing. Another educational and therapeutic solution to reduce anxiety is uncertainty tolerance education. Uncertainty is a common phenomenon in everyday life that can cause different levels of tension and challenge, and people who cannot tolerate uncertainty usually describe such situations as stressful, pressurizing and unbearable and try to avoid them. The uncertainty tolerance as a cognitive structural indicates the ability of people in the tolerate ambiguous and unknown situations and affects how people receive, interpret and react to emotional, cognitive, social and behavioral situations. The uncertainty tolerance causes people to be more resilient in different situations, experience less stress and consider themselves successful in doing various academic and non-academic tasks. The uncertainty tolerance education was invented by Dugas (1995) based on the cognitive behavioral approach, and uncertainty tolerance educations based on the mentioned approach has an effective role in reducing anxiety. The test anxiety has a great negative impact on other academic and non-academic variables, therefore, should look for educational and therapeutic solutions to reduce students' test anxiety. As a result, the current research was conducted with the aim of comparing the effectiveness of mental-grammatical imagery education and uncertainty tolerance education on students' test anxiety.

Methodology: This was a semi-experimental study with two experimental groups and one control group, with a pre-test, post-test and two-month follow-up plan. In this study, the research population was all 12th grade female students of governmental and non-governmental schools in Bojnourd city in the 2022-2023 academic years. The sample of the present study was 45 students who were selected by purposive sampling method and randomly replaced in three equal groups (15 people in each group). In the purposive sampling method, the samples are selected according to the criteria that the criteria for entering the research were included the informed consent to participate in the study based on the determined program, obtaining a high score in the test anxiety questionnaire, not having a history of mental-grammatical imagery education and uncertainty tolerance education, not receiving psychological interventions in the past year, not being diagnosed with psychiatric disorders in the past year, taking psychiatric drugs, physical disability, and not suffering from other psychological disorders, and the exclusion criteria from the study were included the absence of more than two sessions and abandoning the intervention process halfway. The experimental group received 12 sessions of 90-minute with the mental-grammatical imagery education method, and the second experimental group received 9 sessions of 90-minute with the uncertainty tolerance education method based on the cognitive behavioral approach, and during this time, the control group did not

receive any training. The data were collected with Sarason's test anxiety questionnaire (1985) and analyzed with the methods of analysis variance with repeated measure and Bonferroni's post hoc test in SPSS-25 software.

Findings: Examining the demographic data of the samples showed that the mean and standard deviation of the age of the mental-grammatical imagery education group was 17.80 ± 0.41, the uncertainty tolerance education group was 17.67 ± 0.49, and the control group was 17.73 ± 0.46 years. The findings showed that there was no significant difference between the groups in terms of reducing students' test anxiety ($P>0.05$). In addition, both methods of mental-grammatical imagery and uncertainty tolerance education significantly reduced students' test anxiety in the post-test and follow-up stages ($P<0.001$).

Conclusion: Considering the effectiveness of both methods of mental-grammatical imagery education and uncertainty tolerance education in reducing students' test anxiety, school counselors and psychologists can use mental-grammatical imagery education and uncertainty tolerance education methods to reduce test anxiety.