

The Effectiveness of Cognitive Behavioral Hypnotherapy on Reducing Anxiety Symptoms and Improving the Quality of Life of First Period High School Male Students with Test Anxiety

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Abstract

Introduction: Test anxiety is a type of situational anxiety (certain phobia) that has a certain state of general anxiety including phenomenological, physiological, and behavioral responses to fear of failure and negatively affects one's quality of life. The purpose of this study was to investigate the effectiveness of cognitive behavioral hypnotherapy on reducing anxiety symptoms and improving the quality of life of students with test anxiety.

Methods: The present study was an experimental study (with pre-test, post-test, and a 3-month post hoc study) in which repeated measures analysis of variance with control group were used. From among the first period high school male students of CHENAR SHAHIJAN in Fars province, 50 individuals with test anxiety disorder were selected and assigned into experimental and control groups. Data were collected using Friedman & Jacob Test Anxiety Inventory (1997) and the World Health Organization Quality of Life Instrument- Short Form (WHOQOL-BREF). The treatment protocol comprised using Wildermouth Cognitive Behavioral Therapy techniques in a hypnosis trance state for 9 sessions of one and a half hour weekly. Data were analyzed using repeated measures ANOVA and Bonferroni's post hoc test using SPSS 22.

Results: The results showed that the psychological intervention in the post-test and post hoc reduced students' test anxiety scores in three dimensions of social humiliation, cognitive error and stress, and improved their quality of life.

Conclusion: Cognitive behavioral hypnotherapy causes significant changes in the posttest test and post hoc of both variables, and thus this method can be part of the treatment of anxiety in the future and can be effective in improving the quality of life of individuals with test anxiety.

Keywords: Anxiety Symptoms, Cognitive Behavioral Hypnotherapy, Quality of Life, Test Anxiety

Introduction

Investigating and recognizing the talents, desires, problems and issues of adolescents, young people, and even adults are of particular importance in any society, if these age groups are students or job seekers. It takes mental and physical calm to grow to succeed in human community. But during adolescence and youth due to the phenomena such as maturation, gaining independence and self-identity, acquiring the skills needed for adulthood life,

choosing a career and other choices, the individuals occasionally encounter with some kind of confusion along with low self-esteem, increased upset and restlessness, inferiority and negative self-concept together with anger and aggression, which results in a decrease in normal activities and appropriate social interactions in the individual. Such states are called anxiety and manifest as cognitive, emotional, behavioral, and physiological symptoms (1). Low anxiety, as a part of every

person's life, is seen as an appropriate and consistent response in all societies. Lack of anxiety or sick anxiety can lead to many problems and dangers in human beings. Anxiety in a balanced and constructive way compels one to strive to do their job in a timely and appropriate way so that they can live a better quality, more durable and productive life (2). Test anxiety is a type of anxiety that arises in a situation of evaluation or problem-solving, centered on the individual's self-doubt on performance, distrust and worry, self-blame and humiliation, and its consequences are a marked decline in the ability to cope, lower academic performance and acquisition of disbelief and false trust about one's ability, which manifests itself in the form of social humiliation, cognitive error, and stress (3). Anxiety and anxiety disorders are one of the most common problems among adolescents and young people that if not diagnosed and resolved in a timely manner, they will follow a morbid and worrying course. The most important negative consequences of these disorders on learners' feelings and behaviors are: worry, loneliness, restlessness, phobia, anger, and avoidance of interaction with others, all of which are factors that threaten one's physical health, mental health, and social relationships, being constitutive aspects of the quality of life. Also, its effects on cognition and academic performance are lack of memory, absent-mindedness (problems of concentration, attention, problem solving, and rational thinking), educational mortality or dropout, which impose a lot of costs on society and the family, leading to lower quality of life for the individual and society (4). Quality of life is the degree to which an individual is satisfied with his/her life in social, emotional, physical, occupational, and financial aspects, or the individuals' perception of their status in life, in the context of the culture and value systems in which they live and in relation to their goals, expectations and their needs (5). Test anxiety has so far been studied in many ways. In most previous studies, one of the influencing

factors, for example, interfering physiological arousal on subjects' performance, or as a condition-dependent trait, or attention to a concern factor as a cognitive component has been considered. In this vein, Warren and Benson (2004), in line with previous studies, proposed a three-factor model for test anxiety that includes a cognitive factor (related thoughts and cognition), a behavioral factor (disordered behaviors with disregard for task), and a physiological factor. Most recently, test anxiety has been known to comprise four components: anxiety, excitement, interference, and uncertainty, which are evaluated and measured in three dimensions of social humiliation, cognitive error, and stress. The present study is based on the same pattern (6). Hypnosis is a psychotherapy that changes the state of consciousness and using the three components of concentration, dissociation and suggestibility puts the individual in a state of trance. In hypnosis concentration and suggestibility are considered as the cognitive dimensions and dissociation as the behavioral dimension of a behavioral intervention, making it possible to be used in a treatment plan. In other words, regarding CBT principles, it is based on the assumption that most psychological disturbances are a form of negative hypnosis itself, in which negative thoughts and problematic behaviors are accepted uncritically and unconsciously by an individual. In fact, this therapy has the potential to be combined with other therapies, including cognitive behavioral therapy (7). In the present study, cognitive behavioral hypnotherapy was used in the framework of the 9 sessions of Wildermuth (2008) Cognitive Behavioral Therapy protocol in order to reduce test anxiety and improve quality of life. The prevalence rate of test anxiety disorder is around 10 to 30 percent of researchers worldwide, including Iran. Approximately 10 percent of them have severe disorder that requires immediate treatment and intervention. Also, individual, school, family, and cultural factors play a role in creating it, which if not treated, the disorder is exacerbated, having

detrimental effects on the quality of life, individual-academic performance, social relations, self-confidence, the ability to enjoy daily experiences and self-satisfaction with life (3); thus, it needs to be taken into consideration and requires further research. Given the importance of this disorder, which can cause irreparable damage to adolescents and young people as the best talents and resources of every society, it is therefore necessary to seek creative and innovative interventions such as Cognitive Behavioral Hypnotherapy in order to better develop the boundaries of science and knowledge. Accordingly, the present study was conducted to evaluate the effectiveness of Cognitive Behavioral Hypnotherapy on reducing anxiety test of the first period high school male students and improving their quality of life, which is based on the doctoral thesis approved by the Research Council of Islamic Azad University Marvdasht Branch.

Methods

This research was an experimental study with a perfect experimental design that was conducted in two experimental and control groups with pre-test, post-test and a 3-month post hoc study. A general scheme of the design is as follows:

Experimental group: T1-(x)-T2.....T3

Control group: T1.....T2.....T3

The population of the study consisted of all first period high school students of Chenar-e Shahijan of Kazerun city who were enrolled and studying in 2018 academic year. The number of students was 3800, according to the Department of Education. The sampling method of this study was cluster sampling in which one school was selected out of all first period high schools. The students in all three grades (of the first period) were given Test Anxiety Inventory (1997) and the World Health Organization Quality of Life Instrument- Short Form (26 questions). From among the students diagnosed with test anxiety, 50 were selected and randomly assigned into two groups of 25, including

experimental and control. The experimental group received a cognitive behavioral hypnotherapy intervention while the other group (control group) received no intervention except completing the questionnaires. Test Anxiety Questionnaire Friedman & Jacob (1997) whose validity and reliability were demonstrated in Iran by Baazat *et al.* (8) was used to measure the dimensions and components of test anxiety. Like other research instruments, it had some general features to be fulfilled with collecting individual's consent. The questionnaire consists of 23 questions designed to measure different aspects of test anxiety (social humiliation, cognitive error, and stress). The responding scale is of Likert type and the scores for each option are: strongly disagree = 0, disagree = 1, agree = 2, and strongly agree = 3; however, this scoring method for questions 1, 2, 3, 4, 5, 6, 7, 8, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 are reversed and their dimensions are as follows: Questions 1 to 8 belong to social humiliation, 9 to 17 are related to cognitive error, and 18 to 23 are about stress. The score of each item is achieved after the sum of the relevant questions and the total score is also obtained from the sum of all three dimensions. High scores indicate low test anxiety and low scores indicate high anxiety. Construct validity and factor analysis test were used to assess the validity of the test. Factor analysis included all 23 items and none of them had a correlation of less than 0.3 (thirty percent). As a result, the test has an acceptable validity and its face validity has been approved by relevant professors and experts in the field. The reliability of the questionnaire was calculated using Cronbach's alpha coefficient, which is: social humiliation dimension= 0.90, cognitive error dimension = 0.85, stress dimension = 0.83, and total alpha = 0.91), that are reliable numbers (8). The Quality of Life Questionnaire (Short-Form) has 26 items which measures four domains of physical health, mental health, social relations, and environmental health, with 24 questions (each domain contains 7,3,6 and 8 questions,

respectively). The first two questions do not belong to any of the domains and generally assess health and quality of life, so this questionnaire has 26 questions in total. To respond optimally, the respondents were asked to respond based on an assessment of their life status in the past 4 weeks. In addition, like other research instruments, it has characteristics such as personal information, gender, age, and occupation, which, after performing the necessary calculations in each domain, will yield a score of 4 to 20 for each domain separately, with 4 representing the worst and 20 representing the best for the given domain in question. These scores can be converted to a score of 0-100. However, this questionnaire is also of the Likert scale and has scoring options as: very good or always = 5, good or often = 4, neither good nor bad or sometimes = 3, bad or rarely = 2 and very bad or not at all = 1). In questions 3, 4 and 26 the scoring is reversed. In this study, the total score of the individual scores was calculated from 100, and instead of examining the scores of each domain individually, it was generally determined how each individual's quality of life was affected. If a person's total score is between 26 and 52, it indicates a poor quality of life, a score of 52 to 78 indicates a moderate quality of life, and a score of 78 to 130 indicates a high quality of life. The reliability coefficients with intra-cluster correlation index were 0.77 in physical health, 0.77 in mental health, 0.75 in social relations, and finally 0.84 in environmental health. Internal consistency (Cronbach's alpha) reliability of this questionnaire ranged from $r = 0.87$ to 0.92 , which is higher than the standard $r = 0.70$ for group comparisons across scales. Internal consistency of the four domains using Cronbach's alpha was found to be 0.73 in the healthy group and 0.77 in the patient group (9).

Results

Considering the objectives and hypotheses of the study, which aimed to investigate the effectiveness of Cognitive-Behavioral Hypnotherapy on Test Anxiety and Quality of

Life, the mean differences in Tables 1 to 3 were shown after collecting data from the groups, to compare, analyze, and investigate data in the inferential findings and examine research hypotheses. Table 1 summarizes data on the mean scores of the two groups in the three stages of evaluation. More detailed descriptive data on the mean and standard deviation of the variables and their dimensions in both groups are presented in the following tables. Based on the data in Tables 1 to 3, and considering the observed differences in the posttest mean scores of the intervention group and no differences in the mean of the control group at different stages of evaluation, also considering the equality of variances and the hypothetical tests used, inferential findings are discussed in order to investigate and answer the research hypotheses and to determine the cause of the difference in the post-test mean compared to the pre-test. First hypothesis: Since the experimental design of this study comprised repeated measures, the statistical method of repeated measures of analysis of variance was used to examine the effectiveness of cognitive behavioral hypnotherapy on changing test anxiety symptoms. To answer this question, the results are presented Table 4. Analysis of the above table shows that there is a significant difference between the three stages (pre-test, post-test and post hoc) at $p < 0.0001$ considering F value in the Cognitive Behavioral Hypnotherapy group. This means that the level of test anxiety and its dimensions in the three stages of implementation are significantly different and according to Table 2, the level of test anxiety and its dimensions in each stage is increased compared to the previous stage (the higher the test anxiety score, the lesser test anxiety); therefore, it is concluded that cognitive behavioral hypnotherapy has reduced test anxiety. Also, the high value of Eta squared indicates the significant accuracy of these effects. Besides, the results of Bonferroni's post hoc test showed that there was a significant difference between the mean scores of pre-test and post-

test and post hoc, but no significant difference between post hoc and post-test. Second hypothesis: Since the experimental design of this study comprised repeated measures, the statistical method of repeated measures of analysis of variance was used to examine the effectiveness of cognitive behavioral hypnotherapy on changing the quality of life of students with test anxiety. To answer this question, the results are presented Table 5. Analysis of the data in table5 shows that considering the F value in the Cognitive Behavioral Hypnotherapy group there were significant differences between the three stages (pre-test, post-test and post hoc) at $p < 0.0001$ level. In other words, the quality of life scores in three stages of implementation different, and according to Table 3, the quality of life score in each stage is increased compared to the previous stage. Thus, it is concluded that Cognitive Behavioral Hypnotherapy has increased the quality of life in students with test anxiety. Also the high value of Eta (0.98) indicates high accuracy and significance of these effects. The results of Bonferroni's post hoc test also showed that there is a significant difference between the mean scores of all three stages but there was no significant difference between post-test and post hoc scores.

Discussion

The purpose of the present study was to investigate the effectiveness of cognitive behavioral hypnotherapy on reducing anxiety symptoms and improving the quality of life of students with test anxiety. Considering the present research objectives and hypotheses,

the findings are consistent with the findings of Abbarin *et al.* (10), Abbasi Dadgar (1), Kimiaei *et al.* (11), Badella *et al.* (12), Lotfiifar *et al.* (13) as well as Carlo & Jelo (14), Aladdin (15, 16), Plaskota *et al.* (17), Dowed (18), Sapp (19) and Roberts (20). In explaining this finding, previous studies have cited a number of points: 1- The combinatorial properties of hypnosis with other therapies; 2- The intrinsic nature of the hypnosis phenomenon which has three parts of concentration, dissociation and suggestibility. The higher the person's concentration, the more coherent and coordinated their thoughts and cognitions are, leading to the better learning of each behavior. In fact, learning anxiety occurs when an intervention interferes with a person's behavioral performance, causing distraction which inhibits deep learning. On the other hand, the higher the concentration, the better and deeper learning occurs. In trance and hypnotic conditions, the learner can gain advanced concentration skills by practicing, repeating and conditioning, making it a permanent learning habit for himself. Suggestibility can be the constant feedback we receive from ourselves or others and we internalize it. One of the conditions of hypnotic trance is to provide appropriate and effective suggestibility. What negative self-thoughts do is a form of negative self-hypnosis and a kind of self-suggestibility, which, using a bit of creativity can be replaced by positive and appropriate words and phrases.

Table 1. Summary of the results of the mean scores of the two experimental and control groups in test anxiety and quality of life in the three stages of evaluation

Variable	Mean scores of three stages in the experimental group			Mean scores of three stages in the control group		
	Pretest	Posttest	Post hoc	Pretest	Posttest	Post hoc
Test anxiety	17.45	57.08	57	17	17.08	17.08
Quality of life	44	92.7	92.46	44.2	44.4	44.48

Table 2. Results of the mean and standard deviation of test anxiety in the groups with the relevant dimensions in three stages of evaluation

Variable	Group	Mean Pretest	SD Pretest	Mean Posttest	SD Posttest	Mean Post hoc	SD Post hoc
Total test anxiety	Hypnotherapy	17.45	1.8	57.08	1.9	57	1.8
	Control	17	1.7	17.08	1.7	17.08	1.6
Social humiliation	Hypnotherapy	6.12	1.2	19.68	1.6	19.64	1.5
	Control	6	1.1	6	1.1	6.02	1.1
Cognitive error	Hypnotherapy	7.67	1.6	22.08	1.4	22.06	1.4
	Control	7	1.3	7.08	1.3	7.04	1.3
Stress	Hypnotherapy	3.66	1.1	15.32	1.4	15.3	1.3
	Control	4	1.1	4	1.1	4.02	1.2

Table 3. Mean and standard deviation of groups in the quality of life and related variables in three stages of evaluation

Variable	Group	Mean Pretest	SD	Mean Posttest	SD	Mean Post hoc	SD
Total quality of life	Hypnotherapy	44	2	92.7	1.8	92.46	1.8
	Control	44.2	1.9	44.4	1.7	44.48	1.7
Physical health	Hypnotherapy	14	1.8	26.24	1.6	26.24	1.6
	Control	14.04	1.3	14.16	1.3	14.12	1.2
Mental health	Hypnotherapy	12	1.7	26.38	1.6	26.32	1.7
	Control	12.4	1.3	12.96	1.2	12.08	1.2
Social relations	Hypnotherapy	4	1.4	11.94	1.3	4.12	1.2
	Control	4.02	1.3	4.14	1.3	4.12	1.2
Environmental health	Hypnotherapy	14	1.9	28.2	2	28	1.8
	Control	14.1	1.8	14.12	1.6	14.08	1.7

Table 4. Results of repeated measures analysis of variance for intra-group comparison of test anxiety scores in three stages of implementation

Variable	Greenhouse-Geisser	df	F	P	Eta squared
Exam stress	0.005	2	2093.06	0.0001	0.99
Social humiliation	0.008	2	1409.78	0.0001	0.99
Cognitive error	0.011	2	998.94	0.0001	0.98
Stress	0.013	2	864.89	0.0001	0.98

Table 5. Results of repeated measures ANOVA for intra-group comparisons of quality of life scores in three stages of implementation

Variable	Greenhouse-Geisser	df assumed	df of error	F	P	Eta squared
Quality of life	0.011	2	23	1041.01	0.0001	0.98
Physical health	0.021	2	23	529.64	0.0001	0.97
Mental health	0.023	2	23	576.68	0.0001	0.98
Social relations	0.059	2	23	183.49	0.0001	0.94
Environmental health	0.023	2	23	486.85	0.0001	0.97

By presenting this new suggestibility, a kind of counter-conditioning can be achieved to reduce anxiety and promote efficient learning. Also, implementing regular breathing, guided imagery and muscle tension relief, brain regeneration, behavior chaining, assertiveness and self-control one can bring cognitive-behavioral techniques to the hypnosis stage with practice and repetition, and took advantage of its effective effects. Besides, hypnosis has both cognitive and behavioral aspects such as the variables of test anxiety and quality of life which can be used in this pattern. Thus, by any method of concentration to reduce one's stress and anxiety, one can reduce his or her test anxiety in the three dimensions of social humiliation, cognitive error, and stress, which confirms the above hypothesis. In general, in explaining the possible causes of findings from cognitive-behavioral approaches or combining them, it should be noted that in this type of intervention, individuals attempt to consciously interact between the three aspects of their thoughts, feelings and behaviors in different situations and notice that if it had a problem, they would correct it, because problems and drawbacks in each aspect affect the other aspects as well, and cause disruption. In anxiety situations, several categories of responses form, which appear in a series of symptoms (cognitive error, social humiliation and error-induced stress in cognitive construct, cognitive content and cognitive process) as well as behavioral, cognitive, and physiological symptoms that affect one's physical, mental, and psychological states and cause problems in the individual's attitudes toward such situations, requiring effective intervention techniques such as cognitive behavioral therapy (CBT) alone or in combination with other methods. For example, in exam anxiety situations, negative self-talk and uncompromising self-talk, and other distracting thoughts (including cognitive errors, reprehension, personal and social humiliation and false thought patterns) cause anxiety, restlessness, tension, and anxiety in

the individual. As a result, he is forced to take some compensatory actions to handle such situations. Not only does it not help him, but it also traps him in a vicious cycle, resulting in nothing but more anxiety and worries, which also undermine his health and quality of life. Thus, it is needed to seek safer and more dependable ways. In this regard, Mardpour, *et al.*, (6) have examined of the proper method of studying, planning, and reducing anxiety by implementing a regular desensitization method that utilizes combined cognitive and behavioral techniques and used the techniques to reduce test anxiety. In a meta-analysis, Mahmoudi, *et al.*, (2) have investigated the effectiveness of cognitive-behavioral interventions to reduce test anxiety in Iran and emphasized the need to be structured as well as the need to training, practicing and repeating cognitive-behavioral interventions to reduce test anxiety Betz has described the improvement of course performance as a result of reduced test anxiety by cognitive-behavioral method (21). Turner emphasized the role of enhancing social cognitive abilities and enhancing self-esteem in reducing test anxiety(22). Donald(23) also addresses the impact of facilitating performance appraisal in explaining reduced test anxiety and considers it to be the reason for his findings. Considering the consistency of the first hypothesis with the above-mentioned findings, it can be suggested that the reduction in test anxiety symptoms is attributable to cognitive-behavioral changes that occur in the three dimensions of social humiliation, cognitive error, and stress in situations such as exam. Given that the core of exam anxiety is worry and uncertainty about one's own qualities, abilities, and performance, if they rise above a reasonable level, it will turn into distraction and disturbance and will manifest itself in the form of self-reprehension, fear, nervousness, negative obsessions, subservience, humiliation (personal or social humiliation) and stress. In other words, the person actually falls into problem in three components of thinking-feeling-action, which constitute the

components of cognitive-behavioral intervention, requiring cognitive modification, behavior change, and learning. Using cognitive-behavioral therapy techniques can reduce and alleviate the above-mentioned symptoms. Therefore, it is most likely that any intervention, including cognitive-behavioral intervention that can prevent comorbidity of anxiety-related symptoms in general and test anxiety in particular, could be a useful and effective method. As a result, these factors make this finding consistent with the results of previous studies. Concerning the second hypothesis, the results are consistent with the findings of Fathi Ahmadsaraei *et al.* (24), Nouhi Iran and Mahmoud Alilou (25), Emami and Kajbaf (26), Khayyam Nekoui, Yousefi *et al.* (4), Padash *et al.* (27), Javaheri *et al.* (28) as well as Salmin Kous *et al.* (29), Hooken *et al.* (30), Ezman *et al.* (31), Flogelkoli *et al.* (32), Neuberg *et al.* (33) and Telch *et al.* (34). Fathi, Nouhi Iran and Yousefi have identified the role of stress management in cognitive-behavioral therapy to reduce anxiety and improve quality of life. (4, 24, 25). Also, Emami and Kajbaf, Javaheri, Ezman, Salmin, Flogelkoli *et al.* have examined the effects of cognitive-behavioral stress management on reducing stress and anxiety and enhancing quality of life, and attributed these changes to the nature of anxiety and stress, which are physical, psychological and mental phenomena (26, 28, 29, 31, 32). Padash *et al.*, have attributed quality-of-life-based therapies as a useful and effective factor in reducing anxiety and improving the quality of life of these individuals by combining cognitive-behavioral therapy and acceptance and consciousness-based therapies, and stated that any phenomenon that can be controlled and manipulated by human can be controlled and changed by the choice and free will, and whatever is uncontrollable and unchangeable must be accepted and be dealt with (17). In a probable justification of the second assumption, it must be stated that, quality of life, by definition and by nature, has two subjective and objective aspects; while the

subjective part can be involved with cognitive interventions, the objective part has to do with behavioral interventions. On the other hand, quality of life generally consists of four dimensions of environmental health, physical health, mental health, and social relations. Changes in the cognition and quality of thoughts, types of relationships with oneself and others, enjoyment of relative well-being, enjoyment of a safe and secure environment for life, enjoyment of physical health, enjoyment of appropriate and adequate nutrition, enjoyment of mental and spiritual health, and healthy, vibrant, dynamic, and purposeful life style will determine one's lifestyle and affect the quality of life that may be the factor in the result of the second hypothesis. As the results and findings of research shown, using cognitive-behavioral techniques such as a variety of conditioning, desensitization, effective visualization and imagination, learning effective behaviors, and effective and appropriate study skills and problem-solving skills, one can reduce his/her anxiety and raise the quality of life. It means that, using the principles of cognitive-behavioral therapy one can enhance self-efficacy, higher competence and quality as well as greater self-esteem, and manage anxiety and stress more efficiently. These factors increase one's hope and motivation, which lead to the pursuit of goals and aspirations. That is, they cause less anxiety and a higher and better quality of life in the individuals. Consequently, desirable changes can be made to reduce anxiety and improve the quality of life, using the principles of cognitive behavioral therapy, especially in trance conditions resulted in shaping the finding that we noticed; reducing the test anxiety and improving the quality of life.

Conclusion

The aim of present study was to know about the cognitive behavioral hypnosis therapy effect on reducing anxiety symptoms and improving the quality of life in some stressful situations like giving test. The results showed

that the psychological intervention in the post-test and post hoc reduced students' test anxiety scores in three dimensions of social humiliation, cognitive error and stress, and improved their quality of life. so this way could be an effective method in reducing anxiety disorders and having well-being in all aspects of life in the future.

Ethical issues

Before starting the intervention, a full disclosure of the nature of the research and the participants' involvement was described to them, and it was announced that all information would remain confidential as they let at any time went out of the research.

Author's contribution

All authors have contributed to write this manuscript equally and approved the final manuscript.

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