Effectiveness of Dialectical Behavior Therapy (Distress Tolerance Skills, Mindfulness, and Regulation of Emotion) on Achievement Anxiety among High School Students

H. Nasizadeh, J. Babapour K. and N. Moheb***
*Department of Psychology, Islamic Azad University of Tabriz, IRAN.
*Department of Psychology, University of Tabriz, IRAN
***Assistant Professor, Department of Psychology, University of Tabriz, IRAN.

(Corresponding author: H. Nasizadeh)

ABSTRACT: The purpose of this study was to investigate the efficacy of dialectical behavior therapy intervention, with the help of three skills of distress tolerance, the mindfulness, and regulation of emotion on the reduction of test anxiety symptoms among high school girls. This study was a quasi-experimental study with pretest and posttest and a control group. Among 412 high school girls out of five educational districts of Tabriz were sampled and 66 of them with high anxiety symptoms were put in two groups of experiment and control group (each group including 33). Eight sessions of group counseling based on dialectical behavior therapy (distress tolerance skills, mindfulness, regulation of emotions) were performed once a week for experiment group. Demographic characteristics questionnaires and test anxiety inventory (TAI) were used for data collection. Analysis of covariance using SPSS software was implemented to the results of experimental group and the control group for data analysis. The findings of the study showed that the intervention of dialectical behavior therapy (distress tolerance skills, mindfulness and regulation of emotions), was effective in reducing the level of test anxiety. According to the results, this study can be found useful in preventive programs, empowering youth and therapeutic interventions.

INTRODUCTION

Test anxiety is a global phenomenon. Plurality of writings and studies in the past two decades indicate the importance of this issue and the special attention to this issue by different countries. The prevalence of test anxiety research results provided by Cassady (2010), test anxiety of students ranges from 25 to 40percent. In a study done by Amirimajd and Shahmoradi (2008) on Iranian students the epidemiology of school anxiety was about 24%.

During development, children and young adults experience various types of anxiety, especially school anxiety. One type of these anxieties is test anxiety. Test anxiety is a common and important educational phenomenon having a close relationship with performance and educational achievement of children and young adults. According to Ericson & Paul (1964) students have test anxiety. They have learned lesson subjects and materials well, but because of test anxiety, they are not able to express their knowledge in test session. Zeidner (1998) believes that test anxiety is a combination of severe physiological stimulation associated with stress and physical symptoms that happen during the feeling of anxiety, and the fear of failure, a critical situation that occurs before or during the test. According to researchers and theories on test anxiety, a group of explicit monitoring theories regard

the disorders in successful completion of the assignment as the result of the individual monitoring and increased internal focus (Dekaver, Thomas, Albert and Beilock 2011). And a group of distraction theories believe that the existence of a conflicting situation causes the individual's division of concentration and limitation of working memory capacity between the two sets of task-oriented thoughts and non-task-oriented thoughts (Sian, Beilock, and Ramirez 2011) which results in the reduction of resources available to focus on this part of the memory (Revlin 2003).According to research conducted by Piece *et al* (2011) and Mowbray (2012), while focusing on a task, emotion based stimulators can allocate a larger part of working memory to allocate to themselves. Any attempt to suppress these stimulators requires occupation of a larger part of working memory capacity resulting in the loss of individual's ability to concentrate on assignment-based data.

According to the theories of Derakshan & Eysenck (2009) the theory of attention control is on the basis that test anxiety initially affects attention control work which is the key to performance itself. In fact, attention control, is an interaction between two attention systems including a purposeful system (influenced by personal purposes) and a stimulant driving system (affected by a significant stimulus).

Based on attention control theory, anxiety disrupts the balance between these two systems and stimulant driving system will be more powerful to the cost of reduction of purposeful system and thus can interfere the inhibition and performance modulation of execution center. Morris & Libbert (1967) using factor analysis found that test anxiety has two components: concern component and excitement component. Concern refers to negative cognitions about the performance and excitement of the automatic excitation perceived by an individual such as heart rate and muscle tension (quoted by Jones & Petruzzi 1995).

Transition model of Speilberger (1966) distinguishes between two aspects of anxiety: one aspect is state anxiety and the other is trait anxiety. According to trait-state anxiety model, test anxiety is a form of trait anxiety (Speilberger, Anton and Badel 1976).People with high anxiety, in test and evaluation situations, respond emotionally and their concerns are appeared with situational disclosures. These recent reactions activate the tendency to random error. Speilberger and Vopp (1995) presented transition model for test anxiety. This model is a comprehensive theoretical model of test anxiety concerning interpersonal perceptions, information processing cognitions and recovery mechanisms. This model balances the effects of anxiety and excitement on the academic performance of students. According to Sapp (1999) concern as a cognitive component and excitation as a behavioral response are test anxieties. Sapp studies thoughts and feelings that result from test anxiety as behaviors. Hence, cognitions and emotions that alert a person of a test is partly dependent on the variables. However, from the theoretical perspective, cognitive-behavioral strategies are known as logical treatments.0ACcording to the researches done by According to the researches done by Putwain, Woods & Symes (2010), existence of a low level of self-esteem associated with worry (the cognitive aspect of anxiety) and too much tension from expectation to do things properly raised and also a variety of negative beliefs, plays an important role in negative self-concept stability.

Progress anxiety almost affects all aspects of students' life. Anxiety is a lifelong problem which as an important factor in creating a wide range of progress stresses resulted from challenging events such as higher education exams, job interviews or job contracts. It should be noted that certain parenting styles and the educational system and considering the incomplete development of abstract thinking in formal stage at the age young adults and the necessary emotional imbalance in this age, selective intervention method based on approach dialectic behavioral therapy approach was performed, which is among hybrid cognitive-behavioral therapies formed on the basis of elements of acceptance and attention to cognition.

In the last decades dialectic behavior therapy has been noticed as an important factor in controlling turbulent emotions consisting of different types of anxiety. Many researches have been done on this subject. Increase in the number of researches emphasize the point that controlling these turbulent emotions, regarding two aspects of cognitive-behavioral intervention with a focus on improving self-esteem and attending to the cognition, with the help of skills of turbulence tolerance, attending to cognition and regulation of emotions, controls the state anxiety at first and then the trait anxiety (Roemer & Orsillo 2006 and Koszcki *et al.,* 2007).

Most of the studies on dialectical behavior therapy has been associated with generalized anxieties and less research has been done on test anxiety in this field. In addition the high prevalence of test anxiety among students, and the role of dialectical behavior therapy as one of the key factors in the success of students with test anxiety, and also using the results of this research on the pathology and treatment of students with progress anxiety were of important necessities of this study. Accordingly, this study aimed to investigate the effect of intervention based on dialectical behavior therapy (three skills of distress tolerance, attending to cognition, and regulation of emotion) was designed to reduce anxiety in students' progress.

MATERIALS AND METHOD

Research project: Quasi-experimental research method and two groups of experiment group and control group with a pre-test and post-test were used in this study.

Participants: Participants of this study consisted of high school girls in the city of Tabriz in the 2013-2014 school year who had higher test anxiety over the cutting line. The sample using multistage random cluster sampling was conducted in two stages, the first stage of sampling was done in five educational districts among 412 high school students, using test anxiety inventory. In the second stage66 people out of participants withhigh progress anxiety were chosen, and between them based on the conditions on entry to the study, using random assignment, 33 participants were put in the experiment group and 33 participants were put in control group.

Questionnares: The test used to measure test anxiety was Spielberg's Test Anxiety Inventory (TAI), which consists of 25 multiple-choice tests. It is answered on the basis of a scale (0 = never, 1 = rarely, sometimes = 2, often = 3). The minimum score of this test is zero and the maximum of score is 75. The higher score indicates greater anxiety. Researchers in addition to explaining the whole process of construction and validation of this scale, have calculated the degree of internal consistency and validity of the TAI scale (quoted by: Abolghasemi, Asadi Moqadam, Najarian and Shekarshekan 1996). Cronbach's alpha coefficient was used to measure the internal consistency of the TAI. Based on the results, alpha coefficients for the total sample for female subjects and male subjects respectively are: 94.92 and 0.0.

In order to measure retest reliability of TAI, after four weeks to six weeks this test was again given to 91 male and 90 female subjects who participated in the first stage. The mean and standard deviation of total score of all subjects, the female and male subjects in TAI scale in the test-retest stage was 34.24 (17.26), 32.28 (15.80), 36.2 (19.44) respectively. Assessing the validity of TAI, this scale was given to sample students at the same time with anxiety inventory (Najarian, Attari, Makvandi 1996) and self-esteem scale (Copper Smith 1967) to assess the validation. The correlation coefficients of all subjects, in generalized anxiety scale for the total sample for female and male subjects were r=0.67 and r = 0.72 (p = 0.001).

Conduction method: In the first stage, all subjects were analyzed with anxiety test in pretest. Then the experiment group received a training program of eight sessions in dialectical behavioral therapy, dialectical behavior therapy by providing a method of self-learning techniques (McKay, Wood, Barrenly 2007) including skills of distress tolerance, attending to cognition and regulation of emotions. The distress tolerance skill training included training methods of distraction, coping and relaxation and attending to cognition skills in two distinct parts of conceptual and practical skills including training methods with a full focus on the mood, conscious breathing, attention and observation of senses and body senses and describing them and distinction of thoughts from emotions without any judgment and application of wise mind. The skill of regulation of emotions included training the identification of emotions and facing them and acting against dysfunctional emotional tendencies by changing the face and body, as well as behavior analysis and troubleshooting solutions. Eight group training sessions with slides and written and practical exercises with role playing were conducted. Finally the post-test anxiety (TAI) was repeated for both the control group and the experiment group.

Methods of training: the training syllabus was adjusted according to the hierarchical level of complexity and educational content needed for training in eight weeks based on self-training method of dialectical behavior therapy techniques (McKay, Wood,

Barrenly 2007) including distress tolerance skills, attending to cognition and regulation of emotions:

First week. The development of relationship, and clarifying of the problem, training of disturbance tolerance skills (essential acceptance, distracting attention skills, coping response, and relaxation).

Second week. The evaluation of the filled forms of essential acceptance, training and practicing of counsious breathing in a group relaxation.

Third week. Training of advance level of relaxation, The skills in visualization and conception of mindfulness (complete concentration on the present, awareness of thought and emotions and ability to focus on them or let them go, constant concentration.

Forth week. The combination of practicing of relaxation through in imaginary of object with the using the technic of visualization of secure place. Training of ten ways of Cognitive distortion, discussion of different ways of goal achievement. Distribution of written package of emotional decrement.

Fifth week. Training of functional judgmental skills of mindfulness (wise judgment, negative judgment recording, blank mind, effective task performance, and training an adequate mindfulness.

Sixth week. Further and deeper concentration on complete mindfulness, training of the five obstacles of mindfulness, and the ways of combat.

Seventh week. Training of a wide point of view, planning, provoking contradictory emotion and behavior (behavior analysis and problem solving, causing facial and body

Eighth week. To summarize the three skills of dbt, and reviewing the four stages of emotional decrements, and analysis the sources of self-esteem increasement.

RESULTS

The findings of this study were presented in two descriptive and inferential parts. First we made the general description of the study by stating indices of mean and standard deviation of groups and then the statistical operations were conducted by analysis of covariance to ensure the necessary defaults.

Table 2: Statistical description of variable anxiety's score in study groups.

Group	Pretest		Posttest		Scores of mean
	Mean	std deviation	mean	std deviation	differentials of pretest and posttest
Control	47.21	10.00	46.61	11.05	0.6
Experimental	46.09	9.82	31.79	11.38	14.3

In table 1, descriptive indexes of exam anxiety in both control and test groups are reported. The highest scores belong to control group in pretest of (47.21) and the lowest ones are took by test group in posttest of (31.79).

According to the reported findings of this table, decrease in average of the variable scores of total test anxiety in experimental group -(14.03) is higher than its correspondence in control group (-0.6).

Since one of the preconditions for the implementation of the statistical method of analysis of covariance is ensuring the equality of variances in the study groups and according to the same analysis of the slope of regression in table 2 and insignificant results, the homogeneity of variances in the two groups above the 95% confidence level has been established and considering the assumptions of covariance analysis of covariance, we can use analysis of covariance for to analyze the research hypothesis.

Table 2: Results of the analysis of identical regression line slope as an assumption for regression analysis.

Source	type lll sum Of squeres	df	Mean square	F	sig
Group	2.970	1	2.970	0.074	0.787
Pretest	5302.84	1	5302.84	132.005	0.000
Group*pretest	106.550	1	106.550	2.653	0.108
Error	2490.278	62	40.166		

Table 3: Results of covariance analysis over the scores of total anxiety posttest after adjustment of pretest.

Source	type lll sum Of squeres	df	Mean square	F	sig	par tial Eta squared
Pretest	5452.566	1	5452.566	132.281	0.000	
Group	3135.549	1	3135.549	76.070	0.001	0.547
Error	2596.828	63	41.219			
Total	113075.000	65				

In the Table 3, results of the covariance analysis of posttest scores is reported. With regard to the results derived from this table (P = 0.001, df = 63 & 1, F = 76.070) it can be shown that when the effect of pretest on the results of posttest eliminates ,the difference between groups becomes meaningful with 95% of confidence. Hence it can be concluded that intervention method of dialectical behavior therapy is effective on decrement of the level of students' anxiety. Also the value of the square of Etta is showing that 55 percent of changes in scores of the test group within anxiety variable is due to applying the independent variable (dialectical behavior therapy).

CONCLUSION

The present study investigates the efficacy of dialectical behavior therapy intervention (with three skills of distress tolerance, attending to cognition and regulation of emotions) was done to reduce the level of test anxiety. The findings suggest that participating in consoling meetings of dialectical behavior therapy was effective in reducing anxiety levels of students. In other words the results showed that the intervention implemented on the experiment group caused a significant reduction in test anxiety after the intervention program compared to the control program and to pre-test.

The results of the present study are in line with the findings of Ztl *et al* (2003), Haghayegh *et al.,* (2012) and Hoffman, Brown, Forman, Herbert and Yuan (2011). It also in line with the findings of Ahmadi, Salehi and Bahrami (2012) in posttest part, but it was different with follow-up part.

According to the same applied components used in the methods of dialectical behavior therapy intervention with rational-emotional behavioral therapy, meta-cognitive intervention, cognitive-behavioral intervention, as well as intervention method of coping strategies in cognitive intervention, we can refer to following researches; the effectiveness of cognitive and meta cognitive strategies on test anxiety and self-esteem (Karami and Amirteimuri 2013), the effectiveness of mindfulness-based stress reduction (Golpur Chamrkoohi and Mohammad Amini 2012), the effectiveness of rational-emotional trainings on self-esteem and anxiety of students (Dadpour, Tavakolizade, Panahishahri 2013), determining the effectiveness of cognitive-behavioral therapy in reducing of test anxiety (Amirimajd and Shahmoradi 2008). Also in a research done by Roemer and Orsilo (2006), and Kosice *et al* (2007) so as to evaluate the effectiveness of dialectical behavioral therapy on reduction of anxiety, the results were in line with the results of this study.

Dialectical behavior therapy approach in terms of the cognitive shared with other treatments, such as the balance between emotion and logic with Rational and emotional therapy, dialectic of change - acceptance Compatible with cognitive-behavioral hypnosis, and lack of fusion think with meta cognition, recognition with the use of wise minds correspond to reconstruction cognitive methods by finding solutions and evaluate the cognitive distortions, creating opponent emotions and thoughts compatible with the part of the cognitive reconstruction, as seen the dialectical behavior therapy, including hybrid cognitive-behavioral interventions, which has been formed by the basis of acceptance and mindfulness (Linehan, 1993).

A review on Speilberger and Vagg's transition model (1995) which is a comprehensive theoretical model of test anxiety talks about interpersonal perceptions, cognitions of information processing and recovery mechanisms. It balances the effect of concern and excitation on the academic performance of students. Also this model is a "special process status" model i.e. test anxiety is a trait and it is stimulated by state anxiety. Considering Speilberger and Vagg's views (1995) two scientific facts can be confirmed again, first with the existence of a balanced role in the effect of anxiety (cognitive component), and the excitation (physiological component) and secondly, with regard to the second part of the transitional process model that is test anxiety is atrait and is stimulated by state anxiety, with the alignment of the results of the efficacy of dialectical behavior therapy of high test anxiety, and generalized anxiety and with a focus on self-esteem in treatment, its effectiveness on generalized anxiety can have increasing role in the effectiveness on test anxiety. This is an approval for the efficacy of dialectical behavior therapy with a focus on self-esteem ontest anxiety.

The cognitive-behavioral approach is defined by Sapp (1991). Concern is expressed as a cognitive component, and excitation as a behavioral response to test anxiety. Hence, cognitions and emotions that make a person aware of tests are partly due to dependences (the conditionings). However, theoretically cognitive-behavioral strategies are among rational therapies. The values gained from cognitions of anxiety are fixed across the time and excitation as a temporary and ambiguous quality influences on the test situation. On the other hand, concern is a fixed personal tendency that interferes with cognitive function and automatic reaction and causes the continuation of test anxiety (Kurosow & Harackiewiez 1995).

What is analyzable in this part is the cognitive component of test anxiety i.e. concern and its physiological component i.e. excitation. Regarding the multi-dimensional aspect of dialectical behavior therapy intervention, both components are affected at the same time. In fact, using systematic desensitization intervention techniques, training on immunization against stress and supportive consultation, in distress tolerance skills with dialectical behavior therapy

focusing on excitation component or the behavioral component of disorder and the automatic part of behavior, and with the help of behavioral-cognitive therapy methods, rational-emotional therapy and cognitive-behavioral hypnosis. Regarding attending to cognition and regulation of emotion skills dialectical behavior therapy intervention focuses on the cognitive component of test anxiety and it will be increasingly effective. In fact it is a specification on *** of effectiveness of desensitizing of intervention, behavioral-cognitive, metacognitive, mindfulness, rational-emotional training methods and against therapy on test anxiety are mentioned in this part.

The results of this study suggest that regarding the focus on controlling turbulent emotions in dialectical behavior therapy intervention, findings of this studybe used in preventive programs, in the second period of adolescence which is a high point for the brain to control, affected by hormones, and make use of it as a guide until the youngster times when it's time for making important decisions. Also government education organization should coordinate educational programs in high school and university levels. It should implement these types of interventions in the programs to improve greater mental well-being in the next training routine. The limitations of this study include self-reported test, which can be associated with errors.

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