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Investigate the effectiveness of cognitive-behavioral therapy based on Dugas' model on negative problem orientation and problem-solving in patients with generalized anxiety disorder

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Abstract

Introduction: Generalized Anxiety Disorder (GAD) is one of the most common anxiety disorders, and its treatment is very important. Cognitive-Behavioral Therapy (CBT) based on Dugas' model focuses on the causative agents of this disorder. Therefore, this study aimed to investigate the effectiveness of CBT based on Dugas' model on negative problem orientation and problem-solving in patients with generalized anxiety disorder.

Materials and Methods: In this study in 2020, 30 patients with GAD diagnosis were selected by multi-stage cluster method from psychological clinics in Isfahan, Iran. They were randomly divided into experimental and control groups. The experimental group received 12 sessions of 90-minute CBT based on Dugas' model. Due to the drop in sample, 24 subjects in the pre-test and post-test stages fulfilled Generalized Anxiety Disorder Scale (GAD-7), Negative Problem Orientation Questionnaire (NPOQ), and Heppner Problem Solving Inventory (PSI). Finally, the results were analyzed using the SPSS-21 and multivariate analysis of covariance (MANCOVA).

Results: The results of MANCOVA showed that there was generally a significant difference between the experimental and control groups in the variables of negative problem orientation and problem-solving ($P< 0.01$).

Conclusion: Cognitive-behavioral therapy based on the Dugas' model, is effective in improving negative problem orientation and problem-solving in patients with generalized anxiety disorder.

Keywords: Cognitive behavioral therapy, Dugas' Model, Generalized anxiety disorder, Problem-solving

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Introduction

Anxiety disorders are the most common mental health problems worldwide (1). One of the types of anxiety disorders is Generalized Anxiety Disorder (GAD), one of the twelve most common anxiety disorders listed in the fifth diagnostic and statistical version of mental disorders, and is a debilitating condition with negative interpretations of ambiguous situations identified (2). According to the American Psychiatric Association, generalized anxiety disorder is

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excessive anxiety and worry about multiple events or activities, most days over at least six months. Most people with this disorder have been anxious and worried for a long time, and excessive worry is one of the main criteria for this disorder (2).

While there are various theoretical models for generalized anxiety disorder, there is worry and a tendency to one of them that one of the models that specifically explains the causes of this disorder is Dugas's Intolerance of Uncertainty Model (3) because intolerance of uncertainty directly affects a person's orientation towards problems. According to this model, people with GAD have a negative problem orientation and consider them a threat. As a result, these people avoid frightening thoughts and worries; therefore, they can never fully experience fear (behaviorally, emotionally, and cognitively). In other words, intolerance of uncertainty initiates the chain of anxiety, negative problem orientation, and avoidance and can predict the severity of the disorder (4).

In this regard, problem orientation refers to the general cognitive framework of the individual when faced with a problem and includes understanding the problems, evaluating him/herself as a problem solver, and expectations related to the consequences of problem-solving (5). However, anxiety and generalized anxiety disorder are closely related to negative problem orientation. Because of a negative orientation, people with GAD perceive problems as threatening and cannot face life's problems or provide an agreeable answer (6). Clarke et al. showed that this variable plays a prominent role in GAD explanatory models due to the high correlation between negative problem orientation and worry (7).

In addition, the findings show that people with a generalized anxiety disorder also have difficulty solving the problem, and targeting the impulsive problem-solving style can be useful in treating the anxiety of these patients (8). In this regard, problem-solving includes a series of behavioral, cognitive, and emotional responses that are expressed in order to adapt to internal and external challenges. According to common problem-solving models, the problem-solving process consists of two stages problem orientation and problem-solving skills. In addition, problem-solving includes sub-skills such as problem perception, appropriate position representation, application of strategies, or the acquisition of partial solutions that are included in performance appraisal and problem-solving skills (9).

However, according to the results of research (10-12), cognitive behavioral therapy can be considered the selective treatment for generalized anxiety disorder because these interventions are less complex than other treatments. They are beneficial for treating patients suffering from chronic diseases, and these interventions can be implemented in a shorter time. However, follow-up studies show that only 50% of patients with GAD have a significant improvement (13) and the success of these treatments in long-term follow-up is not sustainable because people with this disorder need absolute certainty to stop worrying, to reassure them that certain things will not happen or that they will be able to deal with possible unfortunate consequences in the future (6). In addition, cognitive-behavioral therapies designed specifically for this disorder appear to be more effective than classical cognitive-behavioral therapies, which focus more on the content of worry and its modification (13). Based on the described cognitive model (4), the cognitive-behavioral therapy of Dugas' model is one of the therapies that deal with the etiology of generalized anxiety disorder and the role of intolerance in it (6). Although changes in psychological variables do not occur in the short term, it seems that the effect of a negative attitude towards problem-solving can be reduced in the short term (9). In this regard, cognitive-behavioral therapy based on Dugas' model is one of the new therapies with little research history in Iran. In addition, in Iranian research in this field, the selected sample is limited (both in terms of number and gender), and the problem-solving variables have not been addressed much (14-17).

Therefore, considering that generalized anxiety disorder is one of the most common disorders and approximately 25% of patients who refer to anxiety disorder clinics have a generalized anxiety disorder (2), epidemiological studies in Iran also use GAD as common, the most common anxiety disorder and in some studies have considered this disorder as the most common among other disorders (18), so research on this

disorder is also necessary to determine the most effective treatments. Therefore, considering the importance of the two components of negative problem orientation and problem-solving, the present study aimed to assess the effectiveness of cognitive-behavioral therapy based on Dugas' model in negative problem orientation and problem-solving in patients with a generalized anxiety disorder.

Materials and Methods

The Ethics Committee of the Islamic Azad University, Najafabad Branch, has given the ethics code IR.IAU.NAJAFABAD.REC.1399.061 to this research. In addition, the informed consent form was provided to all participants before starting group therapy.

The statistical population included all patients with generalized anxiety disorder in 2020 in Isfahan who were referred to psychotherapy centers and psychological clinics the previous year. The sampling method of the present study was multi-stage clustering. First, five areas (1, 2, 3, 4, 6, 10) were randomly selected from the 15 areas of Isfahan. Then the names of the clinics in each area were written. For access to patients with a generalized anxiety disorder who were referred to psychotherapy centers during the last year, three clinics (Nahal, Rasti, Sepahan) were randomly selected (clinics are located in areas 1, 4, and 6). From each clinic, 12 cases with GAD diagnosis, who had been referred to the clinic in the past year, were selected. In the next step, the 36 patients diagnosed with GAD by a psychiatrist in each clinic, again with the GAD-7 questionnaire online, and a structured clinical interview (individual diagnostic interview for each subject in a 60-minute session) were assessed to be re-examined for GAD. After interviewing and analyzing the questionnaire results, 30 patients who met the inclusion criteria were selected.

Inclusion criteria were: 1. aged 20 to 50 years, 2. the score ten or higher on the GAD-7 scale, 3. a minimum level of education, and 4. not receiving psychotherapy and medication in the last six months. Exclusion criteria were: 1. anxiety symptoms caused by a substance or drug use, mood disorder, or physical disorder, 2. symptoms of psychosis and personality disorder, 3. unwillingness to continue treatment, and 4. absenteeism for more than two sessions in treatment sessions.

According to Gall et al. (19), the number of participants in experimental research is 15 in each group, so 30 participants were randomly divided into two groups of experimental and control. The experimental group received the cognitive-behavioral therapy based on the Dugas' model which was performed online in 12 ninety-minute sessions. The researcher performed the treatment under supervision to adhere to the treatment. The issues raised in each session were provided to the participant through voice messages and summary files. After the treatment, post-test questionnaires were given to both groups, and coordination was held to hold treatment sessions in the control group. Due to the non-participation of three experimental group members in the treatment sessions, and the non-completion of post-test questionnaires by three control group members, a total of 6 people were excluded from the study. Finally, the results of the study were analyzed based on 24 participants (12 in the experimental group and 12 in the control group).

Research instruments

A) Demographic Questionnaire: It was designed to collect personal and demographic information of the participants in the study, including age, sex, marital status, level of education, duration of medical history, and history of drug use and duration.

B) Structured clinical interview for generalized anxiety disorder in DSM-5 (SCID-5): The structured clinical interview based on DSM-5 is a diagnostic tool developed by First et al. (20). First et al. (20) assessed the reliability of SCID by group retesting in seven interviewers and reported an acceptable kappa coefficient of 0.7. In the Iranian population, the reliability coefficient of the retest at intervals of three days to one week for various disorders was reported from 0.74 to 0.98, and it was found that the sensitivity coefficient (54% to 86%) and specific coefficient (63% to 96%) were satisfied (21).

C) Generalized Anxiety Disorder Scale (GAD-7): This scale was proposed by Robert et al. (22) as a diagnostic scale, citing shortcomings in anxiety measurement scales, including their height and inefficiency. This scale aims to

provide a short scale (7 questions) that can identify possible cases of generalized anxiety disorder and the severity of clinical symptoms. The GAD-7 scale has seven main questions and one additional question that measures the degree of involvement of patients with individual, social, family, and occupational disorders. Each scale question is graded from zero (0) to three (3), and the range of the scale score is from zero (0) to twenty-one (21).

The cut-off point of the scale is 10. Robert et al. (4) reported GAD-7 internal consistency as excellent (α= 0.92) and its retest reliability as good (r= 0.83).

In Iran, the validity and reliability of this questionnaire was assessed in a sample of 199 university students and 24 subjects who received a diagnosis of generalized anxiety disorder at a psychiatric clinic in Tehran. The results showed that GAD-7 had a good Cronbach's alpha (α= 0.85), and the scale reliability coefficient based on two tests was also considered appropriate (R= 0.48, *P*< 0.01).

The results showed a significant correlation between the GAD-7 scale and the Spielberger State-Trait Anxiety Questionnaire (R= 0.71, *P*< 0.01), subscales of physical function, physical role, vitality, emotional role-play, mental health, and change. Health from the short form of 36 general health survey questions (SF-36) (-0.33, -0.36, -0.30, 0.28, 0.28, and 0.27, respectively) and the 12-item anxiety subscale from the list of clinical signs (SCL-90) (R= 0.63, *P*< 0.01), which indicates the appropriate convergence validity of the scale (23).

D) Negative Problem Orientation Questionnaire (NPOQ): This questionnaire is the first independent scale to measure negative problem orientation. It is a 12-item scale that measures people's beliefs about their negative problem orientation. The items in this questionnaire are graded based on the Likert scale from "completely false (1)" to "completely true (5)". This questionnaire is one factor and has a very good internal consistency (α= 0.80) and acceptable retest reliability (0.80) (α= 0.76) (4).

E) Heppner Problem Solving Inventory (PSI): This questionnaire assesses the subject's understanding of his problem-solving behaviors. It contains 35 questions designed to measure how people respond to daily problems. The questionnaire is graded based on the Likert scale (from 1 (strongly agree) to 6 (strongly disagree)) and has three scales problem-solving confidence, approach-avoidance style, and personal control. It has a relatively high internal consistency (α= 0.85), and in Iran, it has a total Cronbach's alpha of 0.86 and 0.66. This questionnaire also has acceptable internal consistency for each scale (problem-solving confidence 85%, approach-avoidance style 84%, and personal control 72%) (25).This study was conducted in the form of 12 ninety-minute sessions as a group therapy based on the protocol of Dugas and Robichaud's cognitive-behavioral therapy (6,16), the content of each session is presented in the below table.

Table 1. Content of cognitive-behavioral therapy sessions

Session	Description
1	•Familiarize clients and therapists with each other, establish initial therapeutic communication •Assess the severity of clients' problems and review the current state of the problems •Express clients' expectations of treatment •Description of meeting rules •A brief explanation of generalized anxiety disorder and the role of anxiety in it •A brief explanation of cognitive-behavioral therapy •Explain the thought-behavior-emotion triangle •Explain the active role of therapist and client •Explain the importance of homework •Summarize and get feedback from clients •Homework: Write down anxious situations
2	• Review the previous session and review homework • Introducing the treatment model and the role of "what if" questions • Types of triggers • Raising awareness about worry and dividing worry into two categories: current problems and hypothetical situations • Conclusion

	• Homework: Worksheet 1, recording daily worries (mentioning date, time, content of worries, level of anxiety, type of worries)
3	• Review the previous session and review homework • Use of Socratic questioning to present the characteristics of anxiety: 1) different topics of concern, 2) the continuation of the chain of concern from a few minutes to a few hours, 3) the concern is more focused on the future, anxiety usually starts from a current problem and concerns about possible future events end • Explain the component of intolerance of uncertainty • Use allergy allegory and filtered glasses to better understand uncertainty intolerance • Ensuring that clients are aware of the importance of intolerance of uncertainty in the occurrence and persistence of concerns • Conclusion • Homework: Worksheet 2, recording daily worries and identifying ambiguous and unresolved situations in daily life and identifying the type of strategy adopted
4	• Review the previous session and review homework • Continue the discussion about intolerance of uncertainty • Identify ambiguous situations in life and evaluate the effectiveness of the strategies used by the authorities so far • Explaining the Detectors of Uncertainty Intolerance: Tendency Strategies and Avoidance Strategies • Teaching anxiety reduction strategies: increase tolerance and increase certainty • Explain the uncertainty tolerance test • Provide suggestion when facing uncertainty: record the experiment, start small and be realistic, expect to be anxious or uncomfortable, motivation does not precede action • Conclusion • Homework: Worksheet 3, do at least one uncertainty test
5	• Review the previous session and review homework • Identify positive beliefs about worrying and challenging them • Introduce five positive beliefs about worry: 1) The belief that worrying helps to find solutions to problems, 2) the beliefs that worrying serves a motivation function that ensures things will get done, 3) the belief that worrying can protect a person from negative emotions, 4) the belief that worrying, in and of itself, can prevent negative outcomes; and 5) the belief that worrying represents a positive personality trait • Conclusion • Homework: Worksheet 4, recording positive beliefs about the usefulness of worry
6	• Review the previous session and review homework • Intellectual challenge with the client's beliefs about the usefulness of his / her concerns based on what is written in the homework • Provide strategies for reassessing positive beliefs about concern: The Role of Lawyer-Prosecutor • Conclusion • Homework: Record at least one other lawyer-prosecutor role
7	• Review the previous session and review homework • Reassessing positive beliefs: A life without worry? • Distinguish between an active approach to dealing with problems (problem-solving) and a passive approach (worry) • Conclusion • Homework: Identify alternative ways to worry, conduct behavioral testing to change underlying beliefs
8	• Review the previous session and review homework • Brief explanation of problem-solving as an alternative to concerns about current problems • Problem-solving training in two parts: improving problem orientation and applying problem-solving skills • Explain the role of negative problem orientation (seeing problems as danger, doubts about the ability to solve the problem, pessimism about the results of solving the problem) • Explain the cognitive, behavioral, and emotional consequences of a negative problem orientation • Introduce strategies to improve the negative problem orientation: 1) Recognizing problems before it is too late, 2) Seeing problems as a normal part of life, and 3) Seeing problems as opportunities rather than threats • Conclusion • Homework: Write down a list of repetitive problems, and discover opportunities to grow in problematic situations and record it.
9	• Review the session and review homework • Focus on problem-solving training: 1) problem definition, 2) goal formulation, 3) generation of alternative solution, 4) decision making, 5) solution implementation, and 6) verification • Investigating the problem of intolerance of uncertainty as the most important problem in problem- solving • Conclusion • Homework: Worksheet 5, problem solving form and its practical application based on the 6 steps mentioned
10	• Review the previous session and review homework • Explain the cognitive avoidance component (pink elephant test)

	• Challenge avoidance and neutralization • Awareness of cognitive avoidance dysfunction • Explain imagine exposure as an alternative to worrying about hypothetical situations • Imagine exposure training • Identify the exposure theme (downward arrow technique) • Explain about preliminary draft of the exposure scenario • Conclusion • Homework: Prepare a preliminary draft of the exposure scenario
11	• Review the session and review the homework • Continue visual exposure training • Check the preliminary draft of the exposure scenario • Finalizing the scenario • Recording the final scenario for repeated exposure • Conclusion • Homework: Conducting exposure and record it and worksheet 6
12	• Review the previous session and review homework • Examining clients' emotions and reactions to their scenarios • Explain the cause and importance of the exposure scenario • As a final treatment session, clients were helped to maintain the skills acquired after treatment by 1) daily maintenance, 2) identification of at-risk situations, and 3) preparing for at-risk situations • Distinguish between "lapse" and "relapse" and between "normal" and "excessive" worries • Create a self-motivation form to reward yourself • Provide solutions to problem recurrence situations (Relapse Prevention) • Set goals for the continuation of therapeutic achievements • Summarize and receive general feedback from clients

*$P \leq 0.05$

Results

The demographic characteristics of the participants in the study are as follows; in the experimental group, 9 (75%) were female, and 3 (25%) were male. In the control group, 8 (66.66%) were female, and 4 (33.33%) were male. In the experimental and control group, most people (8 people, 66.66%) were in the group of 20-30 years. In addition, most people in both experimental and control groups had a bachelor's degree, which included 8 people (66.66%) in the experimental group and 9 people (41.70%) in the control group. In addition, in the experimental group, 8 (66.66%) were single, and 4 (33.33%) were married. In the control group, 9 (75.00%) were single, and 3 (25.00%) were married. In term of GAD duration, the experimental group, 3 people (25.00%) one year and less, 4 people (33.33%) between 1 to 5 years, and 5 people (41.66%) more than 5 years had to GAD, and in the control group, 3 patients (25.00%) one year and less, 5 patients (41.66%) between 1 to 5 years and 4 patients (33.33%) more than 5 years had GAD. Also, in the experimental group, 5 people (41.66%) had a history of drug use, and 7 people (58.33%) had no history of drug use. In the control group, 3 people (25.00%) had a history of drug use, and 9 patients (75.00%) had no history. Among the drug users in the experimental group, 3 (25.00%) had used the drug for 1 year or less, and 2 (16.66%) had used the drug for more than 1 year. In the control group, 3 (25.00 %) have taken the drug for 1 year or less.

Table 2. Descriptive indicators of research variables by group and stage

Group		Pre-test		Post-test	
		M	SD	M	SD
Negative problem orientation	Experimental	36.91	7.94	23.0	5.68
	Control	38.58	4.05	37.41	6.62
Problem-solving	Experimental	108.00	19.47	62.33	11.68
	Control	103.49	15.30	103.08	15.28
Problem-solving confidence	Experimental	38.66	10.89	21.66	5.14
	Control	39.08	8.84	38.91	8.69
Approach-avoidance style	Experimental	47.75	7.87	31.66	7.43
	Control	45.00	9.48	46.00	9.84
Personal control	Experimental	21.58	4.12	9.00	3.59
	Control	19.41	4.39	18.16	4.98

The results of the Shapiro-Wilks test on the normality of the data showed that the null hypothesis that the distribution of scores of research variables is normal in the pre-test and post-test stages remain in both stages, i.e., the distribution of sample scores is normal and identical to the community is random (all significance levels are greater than 0.05). In addition, Levene's assumption that equality of variances in groups in all research variables in the pre-test and post-test stages in society has not been rejected and has remained. Therefore, this assumption is confirmed. While there is an assumption that in covariance analysis, the variables in the whole data should be linear, there is also the assumption that the regression lines should be the same for each group.

If the regression lines are heterogeneous, then analysis of covariance is not appropriate. The assumption of regression homogeneity is a key issue in regression analysis. In order to test this default, the group interaction test was performed in the pre-test in terms of the post-test. The results showed that the pre-test interaction with group membership was insignificant in all dependent variables. Therefore, it is linear with the dependent variable.

Also, the assumption of the equality of covariances or relationships between dependent variables in the main hypothesis and the dimensions of the variables of negative problem orientation and problem-solving was confirmed, the results of which are presented in Table 3.

Table 3. Box's test of equality of covariance matrices

Hypothesis	Box's M	F	df1	df2	P
Negative problem orientation	44.53	0.63	1	26.231	0.43
Problem- solving dimensions	7.12	1.01	6	73.350	0.41

Table 4. Results of Multivariate analysis of covariance of negative problem orientation and problem solving in people with GAD

Effect	Value	F	Hypothesis df	Error df	P	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Pillai's Trace	0.619	15.437	2.000	19.000	0.000	0.619	30.874	0.997
Wilks' Lambda	0.381	15.437	2.000	19.000	0.000	0.619	30.874	0.997
Hotelling's Trace	1.625	15.437	2.000	19.000	0.000	0.619	30.874	0.997
Roy's Largest Root	1.625	15.437	2.000	19.000	0.000	0.619	30.874	0.997

According to Table 4, the mean scores of all variables, including negative problem orientation and problem-solving of the experimental and control groups in the post-test stage, are significant ($P< 0.05$). The amount of this effect is 0.61%. The statistical power for each variable is equal to 99%, respectively, which indicates the optimal statistical accuracy of this test and the adequacy of the sample size. In addition, by controlling the relationship between pre-test and post-test, the mean scores of problem-solving dimensions in the post-test stage are significantly different between the experimental and control groups ($P= 0.001$).

Table 5. Results of tests of between-subjects effects

Dependent variable	Type III Sum of Squares	df	Mean Square	F	P	Partial Eta Squared	Observed Power
Negative problem orientation	562.19	1	562.19	53.40	0.00	0.73	1.00
Problem-solving dimensions	1309.85	1	1309.85	34.29	0.00	0.64	1.00

In addition, according to Table 5, the results of tests of between-subjects effects comparing the experimental and control groups in the variables of negative problem orientation and problem-solving have shown, respectively, that 0.73 and 0.64 of individual differences in improving research variables are generally related to the differences between the two groups in the post-test phase. The statistical power of 100% indicates that the statistical accuracy of this test is desirable. In addition, the sample size was sufficient to test this hypothesis.

Discussion

This study aimed to investigate the effect of cognitive-behavioral therapy based on Dugas' model on negative problem orientation and problem-solving in patients with generalized anxiety disorder. The results showed that the cognitive-behavioral therapy based on Dugas' model is effective in negative problem orientation and problem-solving in patients with GAD. So far, no research has investigated the effect of cognitive-behavioral therapy based on Dugas' model on problem-solving.

In this regard, Sharafati et al., in a study using a single subject design of multiple baseline types, chose five patients with generalized anxiety disorder using structured clinical interview SCID-I by a clinical psychologist. Uncertainty Intolerance Scale (IUS), Pennsylvania State Worry Inventory (PSWQ), Cognitive Avoidance Questionnaire (CAQ), and Why Worry Questionnaire (WWQ-II) were used to assess before and after the cognitive intervention based on the Dugas model. The results of data analysis using recovery percentage and effect size showed that the effect size of the cognitive-behavioral therapy based on the Dugas' model was 0.72 on the scale of uncertainty intolerance, 0.79 on the cognitive avoidance scale, and positive beliefs about worry were 0.66 (15).

Akbari compared the efficacy of intolerance uncertainty therapy (IUT), buspirone, and the combination of IUT with Buspirone in improving symptom of patients with (GAD). In a clinical trial of quasi-experimental research with pretest-posttest of the patients admitted to psychiatric and psychological clinics and centers in Tehran, 24 patients were selected with GAD and randomly assigned to three groups IUT, buspirone (5-60 mg per day), and combination. Data before and after the intervention were collected by generalized anxiety disorder scale (GADS-7), intolerance of uncertainty scale (IUS), Penn State Worry Questionnaire (PSWQ), Beck Depression Inventory-II (BDI-II), and Work and Social Adjustment Scale (WSAS). This study showed that both IUT and combined treatment in comparison with buspirone led to significant improvements in alleviating the symptoms of generalized anxiety disorder, intolerance of uncertainty, worry, depression, and work and social adjustment. Also, the result showed there were no significant differences between IUT and combined treatment. Therefore, IUT and combination therapy are more effective than buspirone (5-60 mg daily) in improving GAD (16).

In addition, Hosseini et al. selected 30 people and randomly replaced them in experimental and control groups. Pennsylvania State Anxiety Inventory, Generalized Anxiety Disorder Short Scale, Uncertainty Intolerance Scale, Cognitive Avoidance Questionnaire, Why Anxiety Questionnaire, Negative Problem Orientation Questionnaire were fulfilled. The intervention of 12 ninety-minute sessions of cognitive-behavioral therapy based on the Dugas' model was conducted. The findings showed that Dugas cognitive therapy significantly affected morbid anxiety, the severity of GAD symptoms, and GAD etiological factors (negative problem orientation, intolerance of uncertainty, cognitive avoidance, and positive beliefs about anxiety) (21). In terms of the effectiveness of cognitive-behavioral therapy based on Dugas' model on negative problem orientation, it can be said that one of the reasons that people with this disorder, with any problem, experience a high level of anxiety and worry is that they consider the problems as a threat and danger. These people assume that any problem is unsolvable and think this only happens to them. Therefore, targeting the negative problem orientation is, on the one hand, a very big step in the treatment; on the other, it makes the person efficient in his/her personal life and reduces anxiety. In this treatment, there are strategies to improve these people's negative problem orientation, which include recognizing problems before it is too late, seeing problems as a normal part of life, and

seeing them as opportunities rather than threats. These strategies help clients to practice having a positive orientation towards the problems and learn that the problems are not a threat, danger, or weakness (6).

In addition, in the context of the effectiveness of cognitive-behavioral therapy based on Dugas' model of problem-solving, it can be said that people with generalized anxiety disorder have doubts about their ability to solve problems due to their negative problem orientation. They avoid problems, they are afraid of the consequences of problem-solving, and as a result, they have an impulsive problem-solving style (26). To this end, Dugas's cognitive model assumes that one must take a positive approach to problems and then be taught the next step in solving the problem. Problem-solving training to deal with a person's worry about current life problems, and in 6 steps that include problem definition, goal formulation, generation of an alternative solution, decision making, solution implementation, verification, and finally investigating the problem of intolerance of uncertainty as the most important problem in problem-solving. The solution was selected and evaluated, and the patient was instructed. Emphasizing that the goal is not just to learn the problem-solving process and that the client should choose the best solution, not the complete one, he/she is always encouraged to implement the solution he/she has chosen. In problem-solving education, the client practices his tolerance against uncertainty, which is one of the important factors in the persistence of generalized anxiety disorder (6). Therefore, it can be said that this treatment has been effective in improving the problem, both because it deals directly with problem-solving education and because it reduces the patient's worry and generalized anxiety during treatment.

Due to the prevalence of COVID-19, quarantine, and community restrictions of more than 5 people, the treatment was performed online, so it is recommended to other researchers that this treatment be performed in person. Furthermore, due to the limited time, no follow-up was performed, and long-term follow-up is necessary to evaluate the effect of treatment during the time. In addition, according to the results of the present study on the optimal effect of this treatment on generalized anxiety disorder, it is suggested that it be considered one of the selected therapies for generalized anxiety disorder in psychological clinics.

Conclusion

Based on the results, it can be said that cognitive-behavioral therapy based on Dugas' model can be an alternative to classical cognitive-behavioral therapies. Therefore, emphasizing the underlying factors and shaping the generalized anxiety disorder can, instead of temporarily eliminating the symptoms of the underlying factors, give the person the ability to eliminate these cognitive deficits and thus prevent the complication of the disease process.

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