



## Effectiveness of Acceptance and Commitment Therapy (ACT) on Emotional Processing, Irrational Beliefs and Rumination in Patients with Generalized Anxiety Disorder

Behnam. Sharif Ara<sup>1</sup>, Farshid. Khosropour\*<sup>2</sup> & Hamid. Molayi Zarandi<sup>3</sup>

1. Ph.D. student of general psychology, Zarand Branch, Islamic Azad University, Zarand, Iran
2. \*Corresponding Author: Assistant Professor, Department of Psychology, Zarand Branch, Islamic Azad University, Zarand, Iran
3. Assistant Professor, Department of Psychology, Zarand Branch, Islamic Azad University, Zarand, Iran

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### ABSTRACT

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Corresponding Author's Info  
Email:

Farshid2002@yahoo.com

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**Background and Aim:** Generalized Anxiety Disorder is one of the most common anxiety disorders. The purpose of this study was to investigate Effectiveness of Acceptance and Commitment Therapy (ACT) on Emotional Processing, Irrational Beliefs and Rumination in Patients with Generalized Anxiety Disorder. **Methods:** The research method was quasi-experimental pretest-posttest with a control group. 30 patients with generalized anxiety disorder referred to daily psychiatric treatment centers in Golpayegan in the first half of 2019 were selected and randomly assigned to experimental and control groups. The experimental group received Acceptance and Commitment Therapy program in 8 sessions of 90 minutes. However, the control group did not receive this intervention during the research process. The questionnaires used in this study included Spitzer Generalized Anxiety Disorder Scale (2006), Baker Emotional Processing Scale (2007), Jones Irrational Beliefs Questionnaire (1968), Nolen-Hoeksema and Morrow (1991) Rumination Questionnaire. The data were analyzed by analysis of covariance using SPSS 24 software. **Results:** The results of data analysis showed that Acceptance and Commitment Therapy has significantly influenced Emotional Processing ( $p < 0.001$ ), Irrational Beliefs ( $p < 0.001$ ) and Rumination ( $p < 0.001$ ). **Conclusion:** Considering the effectiveness of acceptance and commitment-based therapy on emotional processing, irrational beliefs and rumination in patients with generalized anxiety disorder, it is suggested that training workshops be held to become more familiar with the principles and techniques of this training for counselors and therapists active in the field of this disorder.



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## Introduction

Emotional disorders (anxiety and mood) as common, chronic, costly disorders that weaken the quality and healthy functions of life, cause problems for millions of people in the world every year (Qadri et al., 2020). One of the most common mood disorders is generalized anxiety disorder. This disorder is chronic and unpleasant, with persistent and intense anxiety and worry about several events or activities lasting most days for at least 6 months, which is difficult to control. It is characterized by physical symptoms such as muscle tension, irritability, sleep problems, and restlessness (Newman & Przorski, 2018). The overall prevalence of this disorder in Iran is 10% and its one-year prevalence is reported as 5.2% (Qadri et al., 2020). This disorder is associated with increased disability, cognitive impairment, dissatisfaction with life, low productivity and quality of life related to low health, impaired activity and poor job performance (Argesi et al., 2022).

Several mechanisms and risk factors are involved in the development of generalized anxiety disorder. Review of research literature shows: Several biological, cognitive, behavioral, emotional, interpersonal, and neurobiological factors, including temperament, behavioral inhibition, negative affect, avoidance of harm, misbehavior, and biases related to emotional information processing, are among the risk factors of this disorder. (Singh, 2022). Emotional processing is considered as the most basic element in the clinical texts of anxiety disorders (McNamara, Cotto, Hajek, 2016). Emotional processing is a process by which emotional disturbance is absorbed and reduced to the extent that other experiences and behaviors can take place without disturbance (Libri, 2019). People vulnerable to mental disorders choose information related to their disorder, store it in their mind and remember that information more. This bias in emotion processing can lead to more bias towards emotional information by increasing negative mood. For example, anxious people remember most of the threatening events, and this remembering causes the continuation of anxiety and its intensity (Dimartini, Patel, Fancher, 2019). Emotional processing is classified in three levels: detection and experience, control and expression, and insufficient processing, and in each of these three levels, it can be deficient

(Lee et al., 2022). In this regard, Mehrinejad et al showed in a research that people with generalized anxiety disorder use more ineffective emotional processing styles of disturbance, suppression, lack of control and dissociation. (Mehrinejad et al., 2016).

Among the factors that play a high role in the creation and continuation of anxiety disorders due to negative cognitive evaluations are irrational beliefs (Voso, Geogosopoulou, Cherisouho, Yanakoulia, Pitsavas et al., 2021). Irrational beliefs are complex schemas and structures that represent a person's structured concepts based on reality and behavioral responses to that reality. Irrational beliefs have been defined as dry, extreme and unreasonable beliefs (Voso et al., 2021). According to Ellis, human behavior and emotions are caused by his beliefs, convictions and way of thinking. Anxiety, depression, sadness, anger and fear are all caused by a person's way of thinking and beliefs about the world and others. Ellis called these beliefs irrational beliefs. Irrational beliefs mean desires and goals that become necessary preferences so that if they are not fulfilled, they become anxiety and confusion (Ellis, 2010). Irrational beliefs are not consistent with reality and are based on suspicion, and this causes conflict and prevents a person from successfully dealing with the events and requirements of life (Carbenero et al., 2021). The results of the studies have shown that irrational beliefs play an important role in the occurrence of anxiety, reduced social functioning, depression, anger and guilt, emotional instability, social and emotional compatibility, and mental health (Voso et al., 2021).

Due to the complex and multidimensional nature of generalized anxiety disorder, only drug treatment cannot solve all the patient's problems. In fact, along with drug treatment, the use of psychological treatments can be useful to speed up the treatment process, prevent relapse, and increase the durability of the treatment. Among the treatments whose effectiveness has been shown in the field of anxiety disorders is the treatment based on acceptance and commitment (Keshavarz et al., 2018). Acceptance and commitment therapy has six central processes that lead to psychological flexibility: acceptance, cognitive dissonance, self as context, connection of conscious attention to the present, values, and commitment to action. Acceptance and commitment therapy

targets the core of problems and its overall goal is to increase psychological flexibility as well as the ability to contact the present moment as fully as possible and change behavior in order to serve values (Harris, 2019). Creating and cultivating "acceptance" and "commitment" in people with generalized anxiety disorder reduces avoidance, tension and depression and avoids a problem-free life in these people. This treatment strengthens the ability to observe without judgment and magnify and accept negative emotions, thoughts and feelings in those who seek treatment, therefore it has an important contribution in regulating emotions and the correct way to deal with negative thoughts and ultimately reducing psychological symptoms (Keshavarz et al., 2018). . In this regard, Keshavarz Afshar et al. showed in a research that treatment based on commitment and acceptance can significantly reduce the general anxiety of the subjects of the test group (Keshavarz et al., 2018). Also, in a research, Demhari et al. showed the effectiveness of treatment based on acceptance and commitment in reducing rumination in patients with generalized anxiety disorder (Demhari et al., 2018). In addition, in a research, Ruiz et al. pointed to the effectiveness of acceptance and commitment therapy in reducing the symptoms of patients with generalized anxiety disorder (Ruiz et al., 2020). Generalized anxiety disorder is one of the most common anxiety disorders that, if not properly diagnosed and treated, will have many negative consequences and in addition to individual problems, it will lead to an increase in healthcare costs. On the other hand, the intervention and treatment of generalized anxiety disorder, the high efficiency of modern treatments in the treatment of mental disorders is important. In addition, according to the review of domestic and foreign researches, until now, a research aimed at the effectiveness of treatment based on acceptance and commitment on emotional processing, irrational beliefs and rumination in patients with generalized anxiety disorder has not been done, and a research gap was felt in this field. Therefore, the current study seeks to investigate the effectiveness of acceptance and commitment therapy on emotional processing, irrational beliefs and rumination in patients with generalized anxiety disorder.

## Method

The research method was quasi-experimental with a pre-test-post-test design with a control group. The independent variable was treatment based on acceptance and commitment and the dependent variables were emotional processing, irrational beliefs and rumination in patients with generalized anxiety disorder. The statistical population of the present study was all people with generalized anxiety disorder who referred to daily psychiatric treatment centers in Golpayegan city in the first half of 2019. To select the sample size, non-random purposeful sampling method was used. For this purpose, after referring to daily psychiatric treatment centers in Golpayegan city and reviewing the files of patients with generalized anxiety disorder, based on the entry and exit criteria, 30 people were selected and randomly replaced in the experimental (15 people) and control (15 people) groups. The entry and exit criteria of this research were: Age range above 18 years, at least diploma education, definitive diagnosis of generalized anxiety disorder by a psychiatric specialist, knowledge of the research objectives and consent to participate in the research. Exclusion criteria include: Recurrence of the disease, hospitalization of the patient during the intervention, the presence of a physical illness that prevents participation in treatment sessions, absence in more than 3 treatment sessions, failure to complete the tasks specified in the training course, and the occurrence of accidents were not foreseen. In order to comply with ethical considerations: all subjects received information about the research, they could leave the study at any point in time. They were assured that all information will be kept confidential and will only be used for research purposes. In order to respect privacy, the details of the subjects were not recorded. In the end, informed consent was obtained from all of them. The data were analyzed with the analysis of covariance statistical test in SPSS-24 statistical software.

## Materials

**1. Generalized anxiety scale:** This scale was designed by Spitzer in 2006 to measure the symptoms of generalized anxiety disorder during the last two weeks. This scale has 7 items and is scored on a four-option Likert scale (0=0, few days=1, more than half the days=2, almost every day=3). From the sum of the scores of the seven main questions, the total

score of anxiety is obtained, which has a range from 0 to 21. The Cronbach's alpha coefficient of the mentioned scale is 0.92, which indicates the excellent internal consistency of this scale in the external sample, and its retest coefficient was 0.83 after two weeks, which indicates the good reliability of the scale. Its convergent validity was reported by calculating its correlation with Beck's anxiety questionnaire and the anxiety subscale of the clinical symptom list as 0.72 and 0.74, respectively, which shows the appropriate convergent validity of the scale (Spitzer et al., 2006). The results of Nainian et al.'s research showed that this scale had a good Cronbach's alpha and the reliability coefficient of the scale was also evaluated based on two tests (Nainian et al., 2011).

**2. Emotional processing scale:** This scale was created by Bakker et al. in 2007 and has 25 questions. It is graded based on a 5-point Likert scale (1 = not at all to 5 = infinitely) and the range of scores is between 25 and 125. This scale has 5 components of suppression, lack of emotion regulation, lack of emotional experience, signs of lack of emotional processing and avoidance. Construct and content validity has been confirmed by the authors. Cronbach's alpha reliability was reported as 0.81 for suppression, 0.87 for emotion dysregulation, 0.84 for lack of emotional experience, 0.80 for lack of emotional processing, 0.78 for avoidance, and 0.89 for the total. (Baker & Thomas, 2007). Construct and content validity have been confirmed in Bakhtiarpour's research. Cronbach's alpha reliability was reported as 0.80 for suppression, 0.81 for emotion dysregulation, 0.78 for lack of emotional experience, 0.75 for lack of emotional processing, 0.74 for avoidance, and 0.83 for the total. (Bakhtiarpur, 2020).

**3. Irrational Beliefs Questionnaire:** This questionnaire was prepared by Jones in 1968 to measure irrational beliefs. This questionnaire contains 100 statements and is made of 10 subscales, which are scored in the form of 5 options. A lower score indicates a more rational

person. Scoring is from 1 to 5. At the end, add the person's scores in each subscale to get the person's total score. Jones reported the validity of this questionnaire as 0.92 and obtained the reliability of each of its ten scales from 0.66 to 0.88 (Jones, 1968). In the research of Elekhri Irani and Dehghan Saber (1400), the simultaneous validity of the questionnaire with overt anxiety ( $r=0.64$ ) and hidden anxiety ( $r=0.61$ ) was obtained, which indicates the concurrent validity of this questionnaire. The reliability of the questionnaire using Cronbach's alpha method was 0.72, high self-expectations 0.76, tendency to blame 0.70, reaction to failure 0.68, emotional irresponsibility 0.74. The alpha coefficient for excessive worry combined with anxiety was 0.78, problem avoidance was 0.68, dependence was 0.74, helplessness towards change was 0.74, perfectionism was 0.76, and 0.74 was obtained for the whole scale.

**4. Rumination Questionnaire:** This questionnaire was compiled by Nolen-Hoeksma and Marvo in 1991 and translated by Bagherinejad et al. in 2019. This scale evaluates negative posterior reactions and consists of two subscales of ruminating responses and distracting responses, each of which includes 11 statements. This questionnaire contains 22 statements that are scored according to the Likert scale from 1 (never) to 9 (often) (Trainer et al., 2003). In the research of Aghayousfi et al. (2015), the reliability coefficient of the questionnaire was obtained using Cronbach's alpha method of 0.90, and for its dimensions, it was 0.92 and 0.89. The validity of the questionnaire was reported to be 0.65 by correlating with the metacognitive beliefs questionnaire, which shows that it has high validity.

**5. Treatment based on acceptance and commitment:** The protocol used in the present study was derived from the treatment protocol based on acceptance and commitment by Hayes, which was performed in 8 sessions of 90 minutes, two sessions in one week and during four consecutive weeks. (Hayes, 2004). In the following, the summary of the sessions of this treatment is presented in Table 1.

Table 1. The protocol structure of the treatment program based on acceptance and commitment

Session	Content
1	Acquaintance - Establishing the therapeutic alliance - Acquiring the client's main goals - Introducing the past dysfunctional system, moving towards control as a problem - Next session assignment
2	Bridging the previous session and reviewing the task - metaphor of candy jelly - metaphor of

	struggling in the fight with the monster - presenting the concept of experiential avoidance - choosing desire/acceptance - next session assignment
3	Bridging the previous session and reviewing the assignment, conceptualization of suffering and pain and the concept of pure suffering-the assignment of the next session
4	Bridging to the previous session and reviewing the assignment - the concept of fusion and disfusion - exercise your mind is not your friend - the metaphor of the lion, the lion, the metaphor of the bus passengers - the metaphor of the leaves in the flowing stream - mindfulness exercise - the assignment of the next session
5	Bridging the previous session and reviewing the task - the concept of the therapist's ability to break down, thoughts and feelings - practicing the ice cream container - using the word (and) in front of (but) - I have these thoughts - practicing mindfulness again - homework
6	Bridging the previous session and reviewing the assignment - the concept of the observer's self - the metaphor of the chess board and the pieces - the metaphor of the movie screen and the movie - the metaphor of the car and the road - the metaphor of the chair and the student - the assignment of the next session
7	Bridging the previous session and reviewing the assignment - practicing being in the present tense - examining the goals and values - the metaphor of the burial ceremony and practicing the gravestone - the next session's assignment
8	Bridging the previous meeting and reviewing the assignment - teaching commitment - reviewing the life story - identifying behavioral plans in accordance with the values - summing up

### Implementation

Ethical considerations in this research were such that participation in this research was completely voluntary. Before starting the project, the participants were familiarized with the specifications of the project and its regulations. People's attitudes and opinions were respected. The members of the experimental and control groups were allowed to withdraw from the research at any stage. In addition, if interested, the members of the control group could receive the intervention performed for the experimental group in similar treatment sessions after the completion of the plan. All documents, questionnaires and confidential records were only available to the executives. Written informed consent was obtained from all volunteers. In the descriptive analysis of the data, the statistical indices related to each of the research variables were calculated. In the inferential statistics section, analysis of variance with repeated measurements and SPSS-22 software were used.

### Results

The findings from the demographic data showed that the people of the research sample had an age range of 20 to 50 years, in which the age range of 20-30 years had the highest frequency (66.7%). On the other hand, these people had

the education level of diploma to master's degree, and the highest number was related to the bachelor's degree (53.33 percent), and they were all married. Before presenting the results of analysis of covariance test, the presuppositions of parametric tests were assessed. Based on the results of Kolmogorov's test, Smirnov stated that the assumption of normality of sample distribution of data in the variables of emotional processing, irrational beliefs and rumination in the test and control groups in the pre-test and post-test stages is maintained ( $P < 0.05$ ). In addition, the assumption of homogeneity of variance was also measured by Levine's test, which: Its results were not significant for the variables of emotional processing ( $F = 1.22$  and  $p = 0.3$ ), irrational beliefs ( $F = 1.56$  and  $p = 0.22$ ) and rumination ( $F = 2.4$  and  $p = 0.1$ ). Therefore, the assumption of homogeneity of variances has been met. The results of the box test indicated that the assumption of homogeneity of the variance matrices was met ( $P < 0.05$ ). Analysis of covariance was used to investigate the effect of treatment based on acceptance and commitment on emotional processing, irrational beliefs and rumination in patients with generalized anxiety disorder.

**Table 2. The average pre-test-post-test results of emotional processing components, logical beliefs and rumination separately between control and test groups**

Variable	Stage	Experimental group		Control group	
		Mean	SD	Mean	SD
<b>Extinction</b>	Pre-test	15/97	2/89	14/86	1/72
	Post-test	12/13	2/41	15/33	1/63
<b>Lack of emotion regulation</b>	Pre-test	16/6	3/5	17/6	2/16
	Post-test	14/66	3/24	18/2	2/51
<b>Lack of emotional experience</b>	Pre-test	13/87	1/88	16/93	3/33
	Post-test	11/8	1/85	17/66	3/28
<b>Signs of lack of emotional processing</b>	Pre-test	13/93	3/41	16/06	4/46
	Post-test	11/87	3/20	17/26	4/28
<b>Avoidance</b>	Pre-test	12/06	2/86	2/86	12/06
	Post-test	14	3/21	3/21	14
<b>The need for approval from others</b>	Pre-test	20	4/07	18/26	2/46
	Post-test	17/86	3/77	18/80	2/62
<b>High expectations of yourself</b>	Pre-test	19/13	2/89	19	2/5
	Post-test	16/53	2/97	20/13	2/16
<b>Tendency to blame</b>	Pre-test	19/26	4/55	18	4/01
	Post-test	16/46	3/9	18/76	3/39
<b>Reaction to failure</b>	Pre-test	17/33	3/1	14/80	3/62
	Post-test	14/66	3/57	15/93	3/55
<b>Emotional irresponsibility</b>	Pre-test	12/4	2/94	13/20	3/54
	Post-test	10/06	2/81	13/86	3/20
<b>A lot of worry with anxiety</b>	Pre-test	20	2/17	18/80	2/73
	Post-test	17/6	2/19	19/6	2/84
<b>Avoid the problem dependency</b>	Pre-test	21/4	4/74	20/73	4/19
	Post-test	18/86	5/16	22/20	4/21
<b>Helplessness to change</b>	Pre-test	20/73	2/96	18/40	4/73
	Post-test	17/33	3/39	20	4/35
<b>Perfectionism</b>	Pre-test	20/20	3/6	15/73	3/34
	Post-test	17/86	3/48	16/63	3/05
<b>Rumination responses</b>	Pre-test	15/8	3/42	16/73	3/01
	Post-test	13/06	3/28	17/53	2/58
<b>Distracting responses</b>	Pre-test	47/6	5/6	38/4	9/33
	Post-test	39/63	6/02	40/53	9/49
<b>Distracting responses</b>	Pre-test	37/6	8/33	34/93	6/06
	Post-test	29/86	6/84	35/86	6/19

The results of Table 2 indicate the difference between the pre-test and post-test of the experimental group, but there is no significant

difference in the control group. Analysis of covariance test was used to check the difference of scores in two groups.

**Table 3. The results of covariance analysis to check the difference between the groups in the research variables**

Variable	SS	df	MS	F	Eta	Sig.
<b>Extinction</b>	4435/22	1	4435/22	195/26	0/76	<0/001
<b>Emotional</b>	1142/01	1	1142/01	63/03	0/40	<0/001

<b>dysregulation</b>						
<b>Lack of emotional experience</b>	1776/21	1	1776/21	77/13	0/46	<0/001
<b>Signs of lack of emotional processing</b>	1567/41	1	1567/41	70/33	0/44	<0/001
<b>Avoidance</b>	1357/21	1	1357/21	66/23	0/42	<0/001
<b>The need for approval from others</b>	1972/27	1	1972/27	90/43	0/50	<0/001
<b>High expectations of yourself</b>	2835/15	1	2835/15	120/25	0/64	<0/001
<b>Tendency to blame</b>	3608/26	1	3608/26	152/15	0/70	<0/001
<b>Reaction to failure</b>	2912/06	1	2912/06	135/21	0/66	<0/001
<b>Emotional irresponsibility</b>	2082/18	1	2082/18	98/17	0/54	<0/001
<b>A lot of worry with anxiety</b>	2332/98	1	2332/98	103/47	0/58	<0/001
<b>Avoid the problem dependency</b>	2595/72	1	2595/72	113/97	0/62	<0/001
<b>Helplessness to change</b>	4133/4	1	4133/4	186/42	0/74	<0/001
<b>Helplessness to change</b>	2067/18	1	2067/18	97/27	0/53	<0/001
<b>Perfectionism</b>	3226/66	1	3226/66	144/6	0/68	<0/001
<b>Rumination responses</b>	5034/4	1	5034/4	254/02	0/84	<0/001
<b>Distracting responses</b>	4788/13	1	4788/13	225/62	0/80	<0/001

As can be seen in Table 3, there is a significant difference between the averages of the two groups of the following components. Suppression components ( $F = 195.26$  and  $p > 0.001$ ); lack of emotion regulation ( $F = 63.03$  and  $p > 0.001$ ); lack of emotional experience ( $F = 77.13$  and  $p > 0.001$ ); signs of emotional processing failure ( $F = 70.33$  and  $p > 0.001$ ) and avoidance ( $F = 66.23$  and  $p > 0.001$ ); the need for approval from others ( $F = 90.43$  and  $p > 0.001$ ); high expectations from oneself ( $F = 120.25$  and  $p > 0.001$ ); tendency to blame ( $F = 152.15$  and  $p > 0.001$ ); reaction to failure ( $F = 135.21$  and  $p > 0.001$ ); emotional irresponsibility ( $F = 98.17$  and  $p > 0.001$ ); high worry combined with anxiety ( $F = 103.47$  and  $p < 0.001$ ); avoiding problems ( $F = 113.97$  and  $p > 0.001$ ); dependence ( $F = 186.42$  and  $p > 0.001$ ); helplessness towards change ( $F = 97.27$  and  $p > 0.001$ ) and perfectionism ( $F = 144.6$  and  $p > 0.001$ ); Ruminative responses ( $F = 254.02$  and  $p < 0.001$ ) and distraction responses ( $F = 225.62$  and  $p < 0.001$ ). With these conditions, it can be stated that in the studied groups, there is a significant difference between the average scores of the components of emotional processing, irrational beliefs and rumination in the pre-test and post-test. Therefore, it can be

said that the treatment based on acceptance and threat has reduced irrational beliefs and rumination and improved emotional processing in the experimental group compared to the control group in the post-test stage ( $p < 0.05$ ).

### Conclusion

The present study was conducted with the aim of treatment based on acceptance and commitment on emotional processing, irrational beliefs and rumination in patients with generalized anxiety disorder. The results of the present study showed that the treatment based on acceptance and commitment led to the improvement of the emotional processing of the subjects in the experimental group. This finding is consistent with the findings of Keshavarz Afshar et al. (2018), Tarkhan (2017) and Ruiz et al. (2020).

In explaining this finding, it can be said that people who have low emotional processing ability, when they are placed in therapy sessions based on acceptance and commitment, they are taught that any action to avoid or control unpleasant and unwanted mental experiences is ineffective. That is, it has the opposite effect and causes their stress to intensify. Therefore, people with generalized anxiety disorder are helped to experience disturbing thoughts simply

as a thought and become aware of the nature of their inefficiency and instead of responding to them, do something that is important in their lives and in line with their values. This type of change in the attitude and relationship of people suffering from anxiety disorders with their inner experiences and avoidances, after some time, makes them turn their minds to their activities, goals and plans and get positive and better emotional results (Keshavarz et al., 2018). One of the important parts in the treatment based on acceptance and commitment is understanding the adaptive nature of emotions and increasing emotional awareness using various interventions including mindfulness. Mindfulness skill is one of the techniques that predict self-regulated behavior and positive emotional states. On the one hand, this skill causes cognitive evaluation of emotions, reduction of negative emotions, increase of positive emotions and adaptive behaviors. On the other hand, it leads to the awareness of emotions, their acceptance and the expression of emotions, especially positive emotions in different life situations, and as a result, it will lead to an increase in emotional processing skills (Ruiz et al., 2020).

In addition, the findings of the present study showed that the treatment based on acceptance and commitment led to the reduction of irrational beliefs of the subjects in the experimental group. This finding is in line with the research findings of Nikokar et al. (2021), Kohneshin Taremi et al. (2021), Azadi et al. In explaining this finding, it can be said that treatment based on acceptance and commitment instead of ignoring emotions and inner experiences by guiding patients with generalized anxiety disorder towards awareness of feelings, emotional experiences, acceptance. Using them properly makes a person establish a proper relationship with his situations and interactions and look at them with a new perspective. This approach emphasizes discovering values and how to create a meaningful life for oneself and family members through the creation of personal values. They consider all their life experiences to find ways to live more efficiently. It encourages people to accept thought processes as a necessary and real function for psychological adaptation, and as a result, negative cognitive schemas are reduced in people and enable people to manage difficult and critical situations more effectively. (Nikopour et al., 2021). Treatment based on

acceptance and commitment through training to replace oneself as the context, observing thoughts and feelings and not judging them, separating oneself from thoughts and feelings, prioritizing values, accepting issues and challenges, and adherence and commitment to treatment reduces irrational beliefs. (Ziaei et al., 2021). Treatment based on acceptance and commitment by encouraging people to practice frequently, focusing attention on neutral stimuli and purposeful awareness on the body and mind, frees people with irrational beliefs from mental preoccupation with irrational thoughts; That is, these techniques reduce anxiety and physiological tension in a person by increasing the person's awareness of the experiences of the present moment and returning attention to the cognitive system and more efficient processing of information. As a result, the above factors cause the treatment based on acceptance and commitment to cause irrational beliefs of patients with generalized anxiety disorder (Alipanah et al., 2020).

Also, the findings of the present study showed that the treatment based on acceptance and commitment led to the reduction of rumination in the subjects of the experimental group. This finding is in line with the research findings of Hashim Varzi et al. (2021), Hamidi et al. (2020), Demhari et al. (2018) and Garivani et al. In explaining this finding, it can be said that behavioral commitment exercises along with fault and acceptance techniques, as well as detailed discussions about the values and goals of the individual and the need to specify values, have all led to a reduction in rumination in patients with generalized anxiety disorder. In therapy based on acceptance and commitment, psychological flexibility is: Increasing the client's ability to relate to their experience in the present time and based on what is possible for them at that moment, choose to act in a way that is consistent with their chosen values. Subjects with knowledge of their disturbing thoughts experience them only as a thought and become aware of the dysfunctional nature of their current program and instead of responding to it, they do what is important to them in life and in line with their values. As a result, acceptance and commitment group therapy can help reduce rumination in patients with generalized anxiety disorder (Demherdi et al., 2018). In fact, it was explained to the subjects that internal events, thoughts, feelings and emotions are not



problematic by themselves, but the way we relate to these events should be changed. For this purpose, the component of acceptance was introduced in this treatment and metaphors were used by participating in group discussion. Among the metaphors used in this case was being stuck in the swamp. It was explained to the subjects that the more they struggle in this flow, the more they get trapped in the swamp, and this can be a symbol of its conditions during repetition and rumination (Garivani et al., 2021).

Like other studies, the current research has faced some limitations. Among other things, due to the lack of long-term access to patients with generalized anxiety disorder, it was not possible to conduct a follow-up period in order to evaluate the continuity of effectiveness. The target sample was selected only from people with generalized anxiety disorder who referred to daily psychiatric treatment centers in Golpayegan city, and this issue makes the generalization of the results cautious. In line with the limitations of this research, it is suggested to conduct follow-up studies in order to investigate the long-term effects of treatment based on acceptance and commitment, and for greater generalizability, research should be conducted on a larger sample size of people with generalized anxiety disorder. It is suggested that educational workshops be held for counselors and therapists active in the field of this disorder to become more familiar with the principles and techniques of this training.

#### Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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