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Comparing the Effectiveness of Cognitive-Behavioral Therapy and Emotional Schema Therapy on Anxiety Sensitivity and Ambiguity Intolerance in Students with Anxiety Disorders

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ABSTRACT

Objective: The aim of this study was to compare the efficacy of cognitive-behavioral therapy and emotional schema therapy in reducing anxiety sensitivity and ambiguity intolerance in students with anxiety disorders in the city of Sari.

Methods: This is a quasi-experimental design that followed a pre-test and post-test format with a control group. The study sample consisted of 45 students diagnosed with anxiety disorders by the psychologist at the Education Department's consultation center in Sari. The students were randomly assigned to three groups (first experimental group: 15 individuals; second experimental group: 15 individuals; control group: 15 individuals). The first experimental group received training in the cognitive-behavioral therapy program, while the second experimental group received training in the emotional schema therapy program. The control group did not receive any specific intervention. Data collection was based on the anxiety sensitivity questionnaire by Floyd et al. (2005) and the ambiguity tolerance questionnaire by Weden et al. (2003). The data was analyzed using covariance analysis.

Results: The findings of the study revealed no significant difference in the effectiveness of the two treatment methods, indicating that both cognitive-behavioral therapy and emotional schema therapy were equally effective in reducing anxiety sensitivity in students with anxiety disorders. The results also indicated that despite the effectiveness of both treatment methods, there was no significant difference between cognitive-behavioral therapy and emotional schema therapy in increasing ambiguity tolerance in students with anxiety disorders.

Conclusions: Consequently, this study demonstrates the considerable effects of CBT and EST on students with anxiety disorders.

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Introduction

Anxiety, a prevalent psychological disorder across age groups, particularly teenagers, is a common phenomenon (Milores & Frey, 2021). This disorder significantly affects the functioning of teenagers, predominantly in the academic aspect, by generating emotional-cognitive and behavioral tension (Qareadaghi & Komaili, 2018). The disruption in the functioning of teenagers not only hampers their quality of life and progress in various dimensions but also diminishes their inclination to participate in different roles and developmental tasks due to the disturbance in their mental security (Pandy et al., 2022). Given the high prevalence of anxiety disorders, it becomes imperative to identify the underlying and influential factors causing this impairment among teenagers. Studies have identified and reported several factors in the intra-personal, interpersonal, and environmental dimensions as contributing causes of this functional impairment (Abassi et al., 2018).

Anxiety disorder is one of the most common disorders among different age groups, especially teenagers (Radwan et al., 2021). The American Psychiatric Association (2015, translated by Seyed Mohammadi, 2017) emphasized that more than 17 percentage of people in this age group suffer from one of the types of anxiety disorders and the lifetime prevalence of these disorders is close to 30 %. This psychological disorder is associated with various symptoms in emotional, cognitive and behavioral dimensions, and the symptoms are often introduced as co-dependencies of this disorder and it can be expected that their improvement, with a decrease in severity and the frequency of this disorder is accompanied (Shahamatinejad, 2021). Also, people suffering from it are faced with malfunctions such as high anxiety sensitivity and intolerance of ambiguity (Chopani & Karami, 2018).

One of the weaknesses and malfunctions of people suffering from anxiety disorder, which was also mentioned above, is the weakness in tolerance of ambiguity (Beheshti et al., 2017). The inability to tolerate ambiguity means that a person is afraid of being in any unknown situation or doing any new work and cannot bear the anxiety of the events of being in these conditions (Pourbaghari-Bahabadi &Gourban Alipour, 2021). The inability to tolerate ambiguity refers to the destructive and negative beliefs of people towards ambiguous situations and conditions, which are abundantly seen in people suffering from anxiety disorders (Yousefi Afrashte et al., 2019). According to the results of most of the researches conducted in this field, intolerance of ambiguity

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is a cognitive construct that is observed not only in anxiety disorders but also in other types of disorders, especially mood disorders (Baharvandi et al., 2019). People who have low ambiguity tolerance in dealing with ambiguous situations, when faced with these situations, experience excessive anxiety and lose control of the situation completely (Aftab & Shams, 2019). Nouri-Moghadam and Ashiani (2019) in their research after examining people suffering from anxiety disorder concluded that this group of people are not able to tolerate difficult and ambiguous situations and therefore avoid facing these situations a lot. they can be expected that clarifying ambiguous situations and reducing their level of ambiguity can greatly reduce people's experience of anxiety when facing them. Korte et al. (2021) stated in their research that improving the tolerance of people with anxiety disorders in ambiguous situations is one of the factors that greatly reduces the severity of anxiety symptoms in them.

Anxiety sensitivity is another variable that needs to be investigated in people suffering from anxiety disorders to a large extent (Yang et al., 2021). One of the effective factors regarding anxiety and its persistence is anxiety sensitivity. Anxiety sensitivity is a cognitive variable and is a type of fear of anxiety feelings that is associated with catastrophizing perceptual situations (Saulnier et al., 2022). This form of sensitivity refers to behaviors and thoughts that lead to the deepening of anxiety symptoms in people. Anxiety sensitivity is an important mediating variable in the formation of this form of disorders. Anxiety sensitivity is a type of stable tendency item that expresses the desire to deeply interpret the physiological and psychological consequences of anxiety experiences (Schmidt et al., 2021). Anxiety sensitivity plays a large role in the development and exacerbation of anxiety disorders and symptoms. This group of people usually reacts negatively and destructively to anxiety situations; However, people with lower anxiety sensitivity never interpret anxious situations and experiences as threats (Manning et al., 2021). Anxiety sensitivity, especially when it escalates, causes people to interpret even normal situations without tension and anxiety in an extreme manner. Ahmadi et al. (2019) stated in their research that anxiety sensitivity is one of the symptoms associated with anxiety disorders and if it does not improve, it cannot be expected that the treatment of anxiety disorders will be effective. Improvement of symptoms such as anxiety sensitivity increases the level of control of the person over the anxiety disorder he is suffering from and thus facilitates and accelerates getting rid of it (Bagheri et al., 2019).

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According to these statements, it became clear that people suffering from anxiety disorders face various types of negative symptoms, including anxiety sensitivity and intolerance of ambiguity (Schmidt et al., 2021; Kurti et al., 2021; Shahamati-Nejad, 2021). Signs that need to be provided by relying on effective educational and treatment programs to reduce their intensity and influence in the cognitive and emotional world of this group of people. Among the therapeutic approaches that can play an effective role in improving these symptoms associated with anxiety disorders is schema-emotional therapy (Salgó et al., 2021).

Schemas are a range of fundamental beliefs that operate outside the scope of people's awareness, they affect the way of understanding experiences, and whenever a person is in a situation similar to the situation that forms the schema, these schemas are activated (Leahy, 2019). Emotional schema therapy is a metacognitive model of emotions that considers emotion as a part of social cognition (Arntz et al., 2021). This therapeutic model emphasizes that people who are involved in incompatible emotional schemas do not have the ability to manage emotions and use destructive strategies such as avoidance strategies in dealing with these emotions (Chan and Tan, 2020).

Therefore, this therapeutic approach emphasizes on overcoming the avoidance process and correcting effective cognitions in emotional experiences. During this therapeutic approach, the way of conceptualizing emotions and emotional experiences from the perspective of people is evaluated and by correcting the types of expectations and false beliefs identified, the ground is provided for dealing with these emotions more constructively (Leahy, 2015).

From the point of view of this therapeutic approach, incompatible emotional schemas cause the appearance of destructive emotions such as fear, anxiety, shame, and guilt, and in this way disrupt the emotional-psychological health and security of people (Arntz et al., 2021). If the schemas behind people's emotions are identified and fixed, it can be expected that the functioning of these people in different dimensions of life will improve to a great extent (Abassi et al., 2019). Anxiety is one of the negative emotions that emotional patterns such as mental rumination and inability to accept provide the basis for its formation, intensification and continuation (Kyanipour et al., 2020). Masoumi-Tabar et al. (202) emphasized in their research that identifying incompatible emotional schemas in the occurrence of anxiety is the first step in correcting the symptoms of this destructive disorder. When people's incompatible emotional schemas are identified and corrected, this group accepts these emotions instead of avoiding their experience, and also the number of negative

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emotions they perceive when facing this situation. It decreases (Imam-Zamani et al., 2019). Although researches have been conducted on the effect of emotional schema therapy on anxiety disorders, not much research has been done on the effect of this therapeutic approach on comorbidities of anxiety disorders such as anxiety sensitivity and ambiguity intolerance, and there is ambiguity in this field.

Apart from schema-emotional therapy, another treatment that can play an effective role in reducing the symptoms of anxiety disorder by focusing deeply on the cognitive nature of the world of people with anxiety disorder is cognitive-behavioral therapy (Kaczkurkin & Foa, 2015). The cognitive-behavioral approach was first developed by scholars such as Ellis (1995) and Beck (1954) (Chopani & Karami, 2019). This therapeutic approach considers the root of many problems and functional weaknesses in different dimensions, destructive and negative cognitions and beliefs (James et al., 2020). When a person gets involved in non-constructive and negative beliefs, the ground is created for the emergence of destructive emotional and behavioral dysfunctions in him. During this model, people's irrational beliefs are challenged and, in this way, emotional correction is provided in them (Rector et al., 2014). Skills such as goal-setting, cognitive evaluation and reconstruction, self-monitoring and strengthening self-control, Socratic and goal-oriented dialogues, problem solving, behavioral modification, and managing internal emotions are among the most used tactics in this field. It is a therapeutic approach.

Cognitive-behavioral therapy plays a very effective role in improving the symptoms of anxiety disorders. Bogucki et al. (2021) showed in their research that this therapeutic approach reduces the severity of anxiety disorders to a large extent by modifying the cognitive system of people with anxiety disorders. This therapeutic approach increases a person's ability to control his beliefs and helps him to have more control over his emotional function (James et al., 2020). Kaczkurkin and Foa (2015) also reported the effective role of this therapeutic approach on the improvement of anxiety disorders. Anxiety sensitivity, intolerance of ambiguity, difficulty in regulating emotions and positive and negative emotions is also among the symptoms associated with anxiety disorders, which can be expected to use a cognitive-behavioral approach to reduce their severity and influence in affected people. Reduce anxiety disorders.

Bogucki et al. (2021) showed in their research that experiencing positive emotions and emotions is possible when people have their own cognitive system under their management and prevent the

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emergence of thoughts that ultimately lead to experiencing negative emotions. If the ability of people with anxiety disorders to control their thoughts increases, the experience of positive emotions in this group can be increased to a great extent. Regulating internal emotions also requires increasing people's ability to regulate their cognitive system (James et al., 2020). Regulating this system can greatly increase the efficiency of people in managing internal emotions (Kaczkurkin & Foa, 2015). Although the impact of the cognitive behavioral approach on various types of anxiety disorders has been evaluated in various researches, the impact of this approach on the hidden and obvious comorbidities of this disorder, namely anxiety sensitivity, intolerance of ambiguity, difficulty in regulating emotions and positive and negative emotions. It faces a lot of research ambiguity.

In general, previous research findings have indicated that individuals with anxiety disorders exhibit negative and destructive symptoms such as anxiety sensitivity, intolerance of ambiguity, difficulties in emotion regulation, and both positive and negative emotions. Reducing the intensity of these symptoms can enhance an individual's capacity to overcome their anxiety disorder. Various treatment approaches have been employed to address anxiety disorders, with cognitive-behavioral therapy and schema-emotional therapy being more commonly utilized in this domain. However, thus far, there has been a lack of investigation into the impact of these two approaches on the coexistence of anxiety disorders, specifically anxiety sensitivity, intolerance of ambiguity, difficulties in emotion regulation, and both positive and negative emotions. The aim of this research is to make progress towards addressing this gap. In other words, the objective of this study is to compare the effectiveness of cognitive-behavioral therapy and emotional schema therapy on anxiety sensitivity and intolerance of ambiguity in students with anxiety disorders.

Materials and Methods

The current research is applied research in terms of its purpose, and in terms of the research method, it was based on a quasi-experimental research method of pre-test and post-test design with a control group. The statistical population of the present study included all students suffering from anxiety disorders in Sari who were studying in the first and second secondary schools in 2022 and the study sample of this research was 45 students suffering from anxiety disorders who they were diagnosed by the psychologist of the counseling center of Sari Education Department, they were

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selected using the available sampling method from among all the students and randomly divided into three groups (1st experimental group: 15 people ; second experimental group: 15 people; control group: 15 people) were replaced. The first experimental group was trained in the cognitive-behavioral therapy program, and the second experimental group was trained in the emotional schema therapy program, and the control group did not receive any special intervention.

The inclusion criteria included the following; The place of residence of the participants must be Sari. The student must be in the first or second grade of high school. suffering from one of the types of anxiety disorders, have informed consent to participate in the research, do not suffer from certain physical and psychological diseases, except for anxiety disorders (check through initial interview). The exclusion criteria were: failure to comprehensively answer the questions, not wanting to participate in research and participation in research or simultaneous intervention.

The measurement tools used in the research were Floyd et al.'s Anxiety Sensitivity Index (ASI) and Budner et al.'s Intolerance of Ambiguity Scale.

Floyd et al.'s Anxiety Sensitivity Index (ASI): ASI was designed by Floyd et al. (2005). This questionnaire has 16 questions and 3 components of fear of physical worries, fear of not having cognitive control and fear of being observed by others and based on a wide range of Likert options with questions such as (when I can't focus on something If I concentrate, I worry that I might go crazy.) It measures anxiety sensitivity. The minimum score is 16 and the maximum score is 80. A higher score indicates greater anxiety sensitivity. The validity of the questionnaire in the research of Mashhadi et al. (2012) was estimated as favorable and its reliability was estimated to be above 0.70 using Cronbach's alpha method.

Budner et al.'s Intolerance of Ambiguity Scale: The standard ambiguity tolerance questionnaire was designed by Budner (1962) and has 16 questions and components of novelty, complexity and unsolvable problems. The minimum score is 16 and the maximum score is 80, and a higher score indicates the appropriate ambiguity tolerance. In the research of Gholami and Kakavand (2009), a positive and negative correlation was observed between the subscales of the ambiguity tolerance questionnaire, which indicates the favorable convergent and divergent validity of this questionnaire. Also, the reliability of the questionnaire or its reliability using Cronbach's alpha measuring method is 0.84.

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Research implementation method: First, among the students of the first and second grades of high school, 45 of them who were suffering from anxiety disorders and were diagnosed by the psychologist of the counseling center of Sari Education Department, using the available sampling method. They were randomly selected and assigned to three groups (first experimental group: 15 people; second experimental group: 15 people; control group: 15 people). The first experimental group was trained in the cognitive-behavioral therapy program and the second experimental group was trained in the emotional schema therapy program, and the control group did not receive any special intervention. After data collection, the data was analyzed using SPSS version 26 software.

Treatment protocols

Table 1. Summary of schema-emotional therapy sessions by Leahy et al. (2015)

Session	Aims	Content
1	Introducing the group members to each other and the therapist, answering the possible questions of the group members, explaining the purpose and necessity of the meetings	Empowering group members to determine the allocation of goals related to their problem
2	Familiarizing patients with existing theoretical models in the field of psychological aspects of anxiety disorders.	Educating patients on the nature of anxiety disorders, investigating how to adapt theoretical models to personal experiences in the field of anxiety disorders.
3	Introducing the members of the emotional schema therapy conceptual model	Description of the basics of the conceptual model of schema-emotional therapy by the therapist
4	Acquainting the members with the mentality of their schemas and their response and coping in facing anxiety-provoking situations and other situations in life.	Teaching prevalence of exposure to anxiety-provoking situations and other situations
5	Familiarizing people with the concept of communication and situational rules	Using a questionnaire to determine the schema of each person and functional training in the field of anxiety management.
6	Familiarizing with the anti-schema process	Writing a life scenario based on a schema model and showing incompatible schemas in the written scenarios to eliminate them.
7	Introducing the cognitive strategies of schema-therapy with emphasis on the role of primary emotions	Training and practice of schema-therapeutic cognitive strategies with emphasis on the role of primary emotions
8	Introducing the cognitive strategies of schema therapy with emphasis on the role of emotions in anxiety disorders	Teaching the practice of schema-therapeutic cognitive strategies with emphasis on the role of emotions in the occurrence of anxiety.
9	Acquainting the participants with emotional strategies	Training and training participants with emotional strategies
10	Acquainting the participants with emotional strategies	Training and training participants with emotional strategies
11	Acquainting members with the role of emotions and rules in behavioral patterns, identifying strategies for breaking behavioral patterns with emphasis on doubts and rules of life and emotions	Teaching and practicing the role of emotions and rules of life in behavioral patterns, teaching and practicing strategies for breaking behavioral patterns with emphasis on adjusting the rules of life and emotions
12	An overview of the content presented throughout the course and its achievements	Examining the achievements of the participants during the course

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Table 2. Summary of cognitive behavioral sessions Hazlett-Stevens (2008)

Session	Aims	Content
1	Getting to know anxiety, correcting misconceptions.	Psychological education, normalization of worry
2	Identify areas of concern.	The ability to control thoughts
3	attention to the correction of thoughts	Paying attention to awareness, identifying areas of concern, anxiety-provoking thoughts and challenges with spontaneous thoughts.
4	Solving communication problems	Teaching courage and communication skills, identifying, challenging spontaneous thoughts, creating alternative interpretations and predictions.
5	Paying attention to and correcting thoughts and cognitive errors and creating new strategies	Reward planning, activity scheduling to monitor the feeling of pleasure, control anxiety and resolve conflicts.
6	Modifying thoughts, discovering the underpinnings of dysfunctional thoughts	Identifying, challenging spontaneous thoughts, creating alternative interpretations and predictions, using acceptance and metacognitive strategies.
7	Discovering everyday problems and how to deal with or adapt to them.	Examining the stressful sources of the patient's life, generalizing the attention of awareness to new situations, identifying the basic ineffective assumptions.
8	Reducing anxiety through exposure.	Teaching problem solving skills, identifying basic inefficient assumptions, distinguishing between probability of occurrence, possibility of occurrence and reasonableness.
9	Discovering the underpinnings of ineffective thoughts, facing and controlling negative emotions.	Facing the avoided situations, identifying and challenging fundamental ineffective assumptions, predicting the worst situation.
10	Paying attention to and correcting the foundation of ineffective thoughts.	Identifying fundamental inefficient assumptions, creating a new perspective, explaining the relationship between worry and schemas.

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Results

Table 3 shows the mean and standard deviation of anxiety sensitivity and ambiguity tolerance scores in the pre-test and post-test of the groups.

Table 3. Statistical description of anxiety sensitivity and ambiguity tolerance scores in pre-test and post-test by group

Group	Variable	Pretest		Posttest	
		Mean	SD	Mean	SD
Control	Fear of physical worries	27.93	5.604	27.40	5.180
	Fear of not having cognitive control	14.13	3.021	13.82	2.960
	Fear of anxiety being seen by others	15.22	4.137	14.85	4.774
	Total score of anxiety sensitivity	57.28	7.411	56.07	7.102
CBT	Fear of physical worries	26.80	5.167	23.53	4.615
	Fear of not having cognitive control	15.07	3.314	12.03	3.176
	Fear of anxiety being seen by others	15.33	3.839	12.03	3.271
	Total score of anxiety sensitivity	57.20	7.219	47.59	6.982
EST	Fear of physical worries	27.73	5.604	23.53	5.615
	Fear of not having cognitive control	14.20	4.366	9.33	4.105
	Fear of anxiety being seen by others	15.48	3.280	11.35	3.193
	Total score of anxiety sensitivity	57.41	7.725	44.21	7.364
Control	Novelty and innovation	12.27	4.615	12.55	4.283
	Complexity	25.67	5.820	25.79	5.687
	Unsolvable problems	8.40	3.197	8.87	2.416
	Total ambiguity tolerance score	46.34	8.412	47.21	8.521
CBT	Novelty and innovation	11.93	4.474	14.73	4.770
	Complexity	25.80	5.597	29.73	4.631
	Unsolvable problems	8.60	2.920	12.24	2.244
	Total ambiguity tolerance score	46.33	8.129	56.70	9.011
EST	Novelty and innovation	12.07	4.634	16.93	4.301
	Complexity	26.13	5.800	32.07	5.079
	Unsolvable problems	8.17	2.890	13.64	3.248
	Total ambiguity tolerance score	46.37	7.925	62.64	8.836

In order to compare the effectiveness of cognitive-behavioral therapy and emotional schema therapy on the anxiety sensitivity of students with anxiety disorders, multivariate analysis of covariance (MANCOVA) was used. The result of the homogeneity of the covariance matrix (Box-M) test showed that the homogeneity of the covariance matrix is confirmed (Box-M = 6.619, $p < 0.92$). Also, the result of Levin's test to check the homogeneity of variances for all components of anxiety sensitivity showed that the homogeneity of variances is established. The results of the Kolmogorov-Smirnov test to check the normality of the distribution of anxiety sensitivity scores also showed that the assumption of the normality of the distribution of scores is accepted.

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Table 4. Results of multivariate covariance analysis for anxiety sensitivity in treatment and control groups

Effect	Test	Value	F	DF1	DF2	P	Effect size
Group	Pillai's trace	0.743	7.494	6	76	0.001	0.372
	Wilks' lambda	0.268	11.484	6	74	0.001	0.482
	Hotelling's trace	2.686	16.118	6	72	0.001	0.573
	Roy's largest root	2.670	33.822	3	38	0.001	0.728

According to Table 4, the significance level of all four relevant multivariate statistics, namely Pillai's trace, Wilks's lambda, Hotelling's trace and the Roy's largest root, is less than 0.01 ($p<0.01$). In this way, the statistical null hypothesis is rejected and it is determined that there is a significant difference between the scores of anxiety sensitivity in the control groups, cognitive behavioral therapy and emotional schema therapy in the post-test stage. In order to investigate the difference between the groups in each of the components of anxiety sensitivity, the test of inter-subject effects was used, the results of which are presented below.

Table 5. The test of between-subject effects to compare the components of anxiety sensitivity in the treatment and control groups in the post-test

Variable	Source	SS	DF	MS	F	P	Effect size
Fear of physical worries	Between group	118.832	2	59.416	15.537	0.001	0.443
	Error	149.144	39	3.824			
Fear of not having cognitive control	Between group	171.570	2	85.785	14.187	0.001	0.421
	Error	235.817	39	6.047			
Fear of anxiety being seen by others	Between group	111.505	2	55.752	20.967	0.001	0.518
	Error	103.704	39	2.659			

According to Table 5, the F value obtained for all components is significant at the 0.01 level ($P < 0.01$). Therefore, the null hypothesis is rejected and the research hypothesis is confirmed. In order to pairwise compare the groups with each other, Bonferroni's post hoc test was used, and the results are presented below.

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Table 6. Bonferroni's post hoc test of components of anxiety sensitivity

Variable	Group 1	Group 2	Mean difference	Std. error	P
Fear of physical worries	Control	CBT	3.016	0.735	0.001
		EST	3.972	0.739	0.001
	CBT	EST	0.956	0.714	0.566
Fear of not having cognitive control	Control	CBT	3.060	0.925	0.006
		EST	4.919	0.929	0.001
	CBT	EST	1.858	0.898	0.136
Fear of anxiety being seen by others	Control	CBT	3	0.613	0.001
		EST	3.815	0.616	0.001
	CBT	EST	0.815	0.596	0.538

Based on the results of the Bonferroni's post hoc test, the average anxiety sensitivity scores in both cognitive-behavioral therapy and emotional schema therapy groups in the post-test stage are significantly lower than the average scores of the control group, which shows the effectiveness of both treatment methods. It is in reducing the anxiety sensitivity of students with anxiety disorders. The difference between two cognitive-behavioral methods and emotional schema therapy is not significant ($p<0.05$), which shows that there is no difference between the effectiveness of two cognitive-behavioral therapy methods and emotional schema therapy in reducing the anxiety sensitivity of students with anxiety disorders.

In order to compare the effectiveness of cognitive-behavioral therapy and emotional schema therapy on ambiguity tolerance of students with anxiety disorders, multivariate analysis of covariance (MANCOVA) was used. The result of the homogeneity of the covariance matrix (Box-M) test showed that the homogeneity of the covariance matrix is confirmed (Box-M = 16.28, $p < 0.26$). Also, the result of Levine's test to check the homogeneity of variances for all components of ambiguity tolerance showed that the homogeneity of variances is established. The results of the Kolmogorov-Smirnov test to check the normality of the distribution of the ambiguity tolerance scores also showed that the assumption of the normality of the distribution of the scores is accepted.

Table 7. Results of multivariate covariance analysis for ambiguity tolerance in treatment and control groups

Effect	Test	Value	F	DF1	DF2	P	Effect size
Group	Pillai's trace	0.672	6.403	6	76	0.001	0.336
	Wilks' lambda	0.330	9.129	6	74	0.001	0.425
	Hotelling's trace	2.023	12.138	6	72	0.001	0.503
	Roy's largest root	2.020	25.592	3	38	0.001	0.669

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According to Table 7, the significance level of all four relevant multivariate statistics, namely Pillai's trace, Wilks's lambda, Hotelling's trace and the Roy's largest root, is less than 0.01 ($p<0.01$). In this way, the statistical null hypothesis is rejected and it is determined that there is a significant difference between the ambiguity tolerance scores in the control groups, cognitive behavioral therapy and emotional schema therapy in the post-test stage. In order to investigate the difference between the groups in each of the components of ambiguity tolerance, the between-subject effects test was used, the results of which are presented in Table 8.

Table 8. Test of between-subject effects to compare ambiguity tolerance components in the treatment and control groups in the post-test

Variable	Source	SS	DF	MS	F	P	Effect size
Novelty and innovation	Between group	290.210	2	145.105	15.911	0.001	0.449
	Error	355.663	39	9.120			
Complexity	Between group	230.917	2	115.459	9.380	0.001	0.325
	Error	480.054	39	12.309			
Unsolvable problems	Between group	167.152	2	83.576	12.028	0.001	0.381
	Error	270.999	39	6.949			

Table 8 shows the results of the between-subjects effects test to compare the components of ambiguity tolerance in the control groups, cognitive behavioral therapy and emotional schema therapy in the post-test stage. According to Table 8, the F value obtained for all components is significant at the 0.01 level ($P<0.01$). Therefore, the null hypothesis is rejected and the research hypothesis is confirmed. In order to pairwise compare the groups with each other, Bonferroni's post hoc test was used, and the results are presented in Table 9.

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Table 9. Bonferroni's post hoc test related to ambiguity tolerance components

Variable	Source	SS	DF	MS	F	P	Effect size
Novelty and innovation	Between group	-4.384	1.177	0.002	-4.384	1.177	0.002
	Error	-6.556	1.173	0.001	-6.556	1.173	0.001
Complexity	Between group	-2.172	1.113	0.175	-2.172	1.113	0.175
	Error	-3.849	1.367	0.023	-3.849	1.367	0.023
Unsolvable problems	Between group	-5.859	1.363	0.001	-5.859	1.363	0.001
	Error	-2.010	1.293	0.384	-2.010	1.293	0.384

Based on the results of the post-test of Bonferroni's post hoc test, the average scores of ambiguity tolerance in both cognitive-behavioral therapy and emotional schema therapy groups in the post-test stage are significantly higher than the average scores of the control group, which shows the effectiveness of both treatment methods in increasing the ambiguity tolerance of affected students. to anxiety disorders. The difference between the two methods of cognitive-behavioral therapy and emotional schema therapy is not significant ($p<0.05$), which shows that there is no difference between the effectiveness of two cognitive-behavioral therapy methods and emotional schema therapy in increasing ambiguity tolerance of students with anxiety disorders.

Discussion

The first hypothesis: There is a significant difference in the effect of cognitive-behavioral therapy and emotional schema therapy on the anxiety sensitivity of students with anxiety disorders.

According to the results of the post-test of Bonferroni, the average scores of anxiety sensitivity in both cognitive-behavioral therapy and emotional schema therapy groups in the post-test stage are significantly lower than the average scores of the control group, which shows the effectiveness of both treatment methods in reducing the anxiety sensitivity of affected students. to anxiety disorders. The difference between two cognitive-behavioral methods and emotional schema therapy is not significant ($p<0.05$), which shows that there is no difference between the effectiveness of two cognitive-behavioral therapy methods and emotional schema therapy in reducing the anxiety sensitivity of students with anxiety disorders.

In relation to the non-significance of the effect of cognitive-behavioral therapy and emotional schema therapy on the anxiety sensitivity of students with anxiety disorders, research studies

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showed that this finding is largely consistent with the results of Sadeghi et al. (2019); Jafari and the Bafandeh (2019), Sharifi et al. (2019), Shabani and Abdi (2017), Farrokhzadian et al. (2017), Pearl (2015), Vivek and Arntz (2017) and Shulman et al. (2018).

In explaining the non-significance of the effect of cognitive-behavioral therapy and emotional schema therapy on the anxiety sensitivity of students with anxiety disorders, it can be said: during the cognitive-behavioral therapy, the therapist first clarified the role of thoughts in the occurrence of anxiety for the members. The connection between thoughts and anxiety was made clear to the members in the form of concrete examples and at the moment. When the members realized that thoughts can be the main reason for the formation, continuation and intensification of anxiety, they found enough motivation to deal with it. Anxiety sensitivity is one of the main symptoms of people suffering from anxiety disorders. The therapist clarified why and how this sensitivity is accompanied by the members themselves. Thoughts effective in the occurrence of said sensitivity were identified and classified during treatment sessions. Mindfulness techniques were first taught to the members. During this tactic, the members learned to recognize the thoughts that are effective in the occurrence of anxiety sensitivity in the moment. At the moment of recognizing these thoughts, it gives the anxious person the possibility to control them. After this step, members were taught how to control and manage their thoughts. Relying on thought control strategies, the members first prevented the occurrence of any thoughts resulting in anxiety sensitivity, and when this anxiety appeared, they did not allow them to flare up and escalate by relying on them.

People who used to be involved in these thoughts for hours, relying on thought control tactics, were able to prevent it from continuing for several hours and so to speak, take control of their mind. Apart from this process, the process of cognitive reconstruction also started on the mentioned thoughts. With the help of the therapist and after clarifying the thoughts resulting in anxiety sensitivity, people evaluated the extent of their correspondence with reality. After the members realized that it has no fit and alignment with reality and only leads to psychological damage such as anxiety, their impressionability of them decreased to a great extent. The therapist continued by relying on the process of substitution and positive self-talk, and gave the members the opportunity to deal more effectively with negative and destructive thoughts. This process was able to prevent to a large extent the initiation and intensification of thoughts resulting in anxiety sensitivity. After going through this step, the process of facing anxiety-provoking factors was also

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taught to the members as the last step. The members gradually and gradually encountered the anxiety-causing factors, analyzed them and instead of confronting them, they first accepted them. This acceptance made them better able to manage it, and on the other hand, by accepting these experiences, its anxiety-inducing role was reduced to a great extent. Going through these cognitive-behavioral processes during treatment sessions gradually reduced the anxiety sensitivity of the members and restored their psychological security to a great extent.

On the other hand, emotional schema-therapy was used to reduce the anxiety sensitivity of the members individually. The first step that was taken into consideration in this therapeutic approach is guiding the person to face anxiety-provoking situations. Encountering these situations causes the awakening of emotional patterns in people. Inefficient schemas that are one of the main causes of anxiety sensitivities and completely disrupt a person's mental and psychological security. After encountering and identifying dysfunctional emotional schemas, the therapist clarified the role of these schemas in the occurrence of tensions and anxiety sensitivities for the members. When the members became aware of the relationship between these two variables with the help of the therapist, and on the other hand, realized the incompatibility of these schemas with reality, their desire and motivation to deal with them increased to a great extent. After identifying the emotional schemas, the therapist helped the members to recognize and face the root and primary emotions hidden in these schemas.

Primary emotions that were expressed in the form of role playing and therapeutic dialogue, the severity of their destructive effects was reduced to a great extent. Many of the schemas were associated with primary emotions such as anger, sadness, and guilt, which when the members faced them and began to express them, the rope of ineffective emotional schemas in them. It became very loose. In the following, the members were taught to accept these emotions. The members learned that these emotions should be accepted, loved and accepted as a natural part of human existence. Although such a problem was difficult, gradually the members came to terms with it and accepted them. This acceptance made them better able to face it and not avoid it. Acceptance of primary emotions and their momentary expression on the one hand, and on the other hand, breaking emotional schemas by confronting people with their primary emotional foundations, were two steps that during this treatment laid the ground for breaking the schema. It provided inefficient and effective emotional responses in the occurrence of anxiety sensitivities to

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a large extent. This process gradually reduced the severity of the anxiety sensitivities of the members and facilitated and accelerated coping with natural anxieties and their acceptance.

According to the above explanations, both therapeutic approaches played a role in reducing anxiety sensitivities, but there was no difference between the two approaches in terms of effectiveness. Cognitive behavioral therapy by focusing on identifying thoughts effective in the occurrence of anxiety sensitivities and reducing them by using the process of thought control, cognitive reconstruction, substitution and logical self-talk, lays the groundwork for reducing sensitizing thoughts and effective in the occurrence provided anxiety. Schema-emotional therapy, by confronting people with emotions and situations that provoke anxiety sensitivities, creates the ground for constructive confrontation with these factors, by identifying the primary emotions hidden in them, expressing them and also breaking them down. It provided ineffective emotional schemas relying on cognitive processes. In general, both therapeutic approaches constructively and directly dealt with anxiety sensitivities and provided the ground for its reduction.

Second hypothesis: There is a significant difference in the effect of cognitive-behavioral therapy and emotional schema therapy on ambiguity intolerance of students with anxiety disorders.

Based on the results of the post-test of Bonferroni, the average scores of ambiguity tolerance in both cognitive-behavioral therapy and emotional schema therapy groups in the post-test stage are significantly higher than the average scores of the control group, which shows the effectiveness of both treatment methods in increasing the ambiguity tolerance of affected students with anxiety disorders. The difference between the two methods of cognitive-behavioral therapy and emotional schema therapy is not significant, which shows that there is no difference between the effectiveness of two cognitive-behavioral therapy methods and emotional schema therapy in increasing ambiguity tolerance of students with anxiety disorders.

In relation to the non-significance of the difference between the effect of cognitive-behavioral therapy and emotional schema therapy on the intolerance of ambiguity of students with anxiety disorders, research studies showed that this finding is largely consistent with the results of Panahi's research (2014), Keshavarz (2014), Mohammadi (2016), Hosseinpour et al. (2018), Stockdale and Olver (2016).

In explaining the non-significance of the difference in the effect of cognitive-behavioral therapy and emotional schema therapy on the intolerance of ambiguity of students with anxiety disorders,

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it can be said during the cognitive-behavioral approach, the concept of ambiguity and its naturalness became completely clear to the members. The members faced the fact that uncertainty always exists throughout life and one cannot be sure of the future or even a few more moments. But the question that was raised was why did he get involved when a fact cannot be clarified? The therapist asked the members to predict themselves in the next few moments. A prediction that no one can handle. Members often became aware of the uncertainty of the future and the therapist confronted them with this reality. To face this problem, the first principle that was internalized in them was to see this ambiguity as a natural part of their lives. When the members reached this ability, they began to identify thoughts that prevented them from tolerating ambiguity. A range of these thoughts were identified. First, the degree of realism of these thoughts and their compatibility with logic and rationality were evaluated by the therapist and the members. After this evaluation, the members realized that such an expectation is completely futile and futile, and it should be prevented from happening on the one hand, and their escalation should be prevented on the other hand. The inability to tolerate ambiguity is anxiety-provoking and completely disturbs the psychological and mental security of the members. Members were taught how to control their thoughts. In the first step, the therapist developed mindfulness in the members and brought them to the ability to identify the thoughts related to the intolerance of ambiguity in the moment. When the members achieved such an ability, relying on avoidance and distraction strategies, they were given the opportunity to avoid encountering them as much as possible and thus prevent their minds from wandering for a long time. Get involved in these stressful thoughts. But this was not the whole path.

Sometimes these thoughts would overcome people's cognitive world. For these situations, the therapist taught cognitive reconstruction tactics. The members learned to face these thoughts, to evaluate their compatibility with reality. This evaluation allowed them to reduce the intensity of their influence in their mental world by clarifying the superficiality of these thoughts. In the following, replacement tactics and positive self-talk were taught to the members. Members were taught positive sentences and confronting these thoughts so that they can use them when facing thoughts that are effective in aggravating the intolerance of ambiguity. These confrontational statements caused the influence of these thoughts to be reduced to a great extent and the tolerance of ambiguity was facilitated for the members.

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On the other hand, schema-emotional therapy was also able to greatly increase the ability of members to tolerate ambiguity. First, why and how ambiguity intolerance was investigated. Ambiguity was discussed and discussed as a natural part of human life. During this therapeutic process, similar to cognitive-behavioral therapy, the members realized the naturalness of ambiguity. In fact, they accepted that ambiguity is a problem that they have to face and there is no escape from it. Emotional dysfunctional schemas effective in the occurrence of people's inability to tolerate ambiguity were identified with the help of the therapist and the members. After this identification, the members dealt with these schemas cognitively, realized its illogicality and realized the initial emotions hidden in these schemas. By identifying primary emotions as the root of these ineffective schemas, expressing and accepting these emotions was put on the agenda. The members expressed these initial emotions and created emotional and psychological relief in themselves to a great extent. Although it was difficult to express these initial emotions hidden in dysfunctional schemas, when the members understood that they are natural emotions and have no other way but to face them, they expressed them more easily. In the next step, acceptance of these emotions was considered. The members learned to recognize the initial emotions created in themselves at the moment, accept them and express them. In fact, during this treatment approach, not only by identifying the primary emotions hidden in the emotional schemas resulting in the intolerance of ambiguity and expressing them, the ground was provided to reduce the intolerance of ambiguity in the members.

Rather, this capability has been expanded and generalized to other functional dimensions, and by accepting and expressing internal emotions, as well as breaking the primary emotions hidden in dysfunctional emotional schemas, the members have the ability to deal with them widely. created in themselves. Going through this process gradually reduced the dysfunctional emotional schemas in the members and reduced their intolerance of ambiguity.

Both treatment approaches (cognitive-behavioral therapy and schema-emotional therapy) played a significant and effective role in reducing ambiguity intolerance. Cognitive-behavioral therapy with a focus on identifying effective thoughts in reducing ambiguity tolerance in the participants provided the basis for breaking these thoughts during the process of cognitive reconstruction, and relying on substitution and positive self-talk, the extent of the impact of these thoughts on It reduced the cognitive world of people and gave them the possibility to tolerate ambiguity better

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and to accept it more precisely. After identifying the effective emotional schemas in the occurrence of ambiguity intolerance, emotional schema-therapy dealt with them. First, he extracted the initial emotions hidden in these schemas and then, with the help of the therapist, he broke them down. In fact, in this approach, first, the breaking of ineffective schemas was considered through the identification of the initial emotions hidden in it, and then the acceptance of ambiguity as a natural and inevitable part of life was considered.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis and contributed to the article and approved the submitted version.

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