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The effectiveness of treatment based on acceptance and commitment to cognitive distortions, rumination, and anxiety sensitivity of female students with social anxiety disorder

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Abstract

Introduction: The present study assessed the effectiveness of treatment based on acceptance and commitment to cognitive distortions, rumination, and anxiety sensitivity of secondary school students suffering from social anxiety.

Materials and Methods: The present study population comprises all female second-grade middle school students in Mianeh City, Iran, during the second semester of the 2022-2023 academic year. Among students with social anxiety score higher than 40, 30 people were selected by the convenient sampling method. They randomly replaced in experimental and control groups. The experimental group received acceptance and commitment treatment protocol in 12 one-hour sessions. The data collected through diagnostic interviews, social phobia inventory, revised anxiety sensitivity index, rumination questionnaire, and cognitive distortions questionnaire. We analyzed the data using multivariate analysis of covariance.

Results: We found significant decreases in anxiety sensitivity, cognitive distortions, and rumination in the experimental group compared to the control group ($P< 0.05$).

Conclusion: Based on the findings, acceptance and commitment therapy effectively reduce anxiety sensitivity, cognitive distortions, and rumination in students with social anxiety.

Keywords: Acceptance, Commitment, Sensitivity, Social anxiety, Rumination

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Introduction

Social Anxiety Disorder (SAD) is a condition where individuals experience prolonged and specific anxiety in social situations. Studies have found that social anxiety disorder is quite common, with a prevalence of 7-13% among adolescents and adults (1). It is a type of anxiety disorder that often starts during adolescence, a time when individuals are transitioning from relying solely on their families to becoming more independent, which can cause feelings of anxiety (3). Anxiety Sensitivity (AS) is

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characterized by an intense fear of physical sensations associated with arousal, stemming from distorted beliefs about the meaning and consequences of these sensations (4).

Similarly, anxiety sensitivity is distinguished from general "trait anxiety" by focusing on physical symptoms and sensations instead of general stress. Some studies have investigated the relationship between anxiety sensitivity and social anxiety disorder, showing that anxiety sensitivity can predict social anxiety symptomatology (5). On the other hand, theoretical models implicitly consider anxiety sensitivity in the psychopathology of social anxiety disorder. These models generally emphasize three factors in developing and maintaining social anxiety disorder: biased information processing, behavioral inhibition, and symptoms of social anxiety disorder. Considering a close conceptual relationship between anxiety sensitivity and these factors, anxiety sensitivity can be considered a critical vulnerability (5).One of the types of thinking patterns that plays a role in the persistence of anxiety disorders is rumination. Rumination involves persistent and recurring thoughts that revolve around a common topic. These thoughts involuntarily enter the consciousness and divert the attention from the subjects and goals of the person (6). Cognitive models of adult social anxiety disorder suggest that ruminative processes are essential in maintaining this disorder (7). Moreover, post-event processing is a repeated and detailed review of negative subjective experiences after a social situation (7). As shown in the cognitive models of social anxiety disorder, bias in attention and interpretation of information and cognitive distortions play a prominent role in the etiology and maintenance of social anxiety disorder (8). Bias in information processing is characterized by how people process information in a specific cognitive domain (such as attention and interpretation) (9). Individuals with high anxiety sensitivity show vigilance to anxiety-related symptoms and catastrophic interpretations of the meaning of these symptoms (10). Several effective treatments are used for social anxiety disorder. The meta-analysis of the effectiveness of medical treatments on social anxiety disorder has provided little empirical support for these treatments (11). The main focus in treating this disorder is Cognitive Behavioral Therapy (CBT) (12). One of the treatments that has recently been used for anxiety disorders, and its effectiveness in reducing anxiety symptoms has been shown, is Acceptance and Commitment Therapy (ACT) (13). The goal of this treatment is to reduce experiential avoidance along with increasing psychological flexibility. The conducted studies found that ACT reduces externalized shame and emotion regulation in individuals with social anxiety and improves quality of life in these individuals (14-16).

Despite the many researches that have been done in the field of social anxiety treatment, there are many ambiguities and shortcomings in these studies. Effectiveness studies targeting symptoms of cognitive distortions, rumination, and anxiety sensitivity in students are very few and insufficient. In this regard, the main question of the present study is whether ACT effectively reduces cognitive distortions, rumination, and anxiety sensitivity in students with clinical symptoms of social anxiety.

Materials and Methods

The statistical population of the study includes all female students in the second grade of secondary school in Mianeh City- Iran during the second semester of the 2022-2023 academic year, whose score on the Social Phobia Inventory (SPIN) by Connor et al. was higher than 40 (17). From this population, 30 female students were selected through the convenient sampling and then randomly assigned to the experimental and control groups (18,19). The inclusion criteria included having a score higher than 40 on the social phobia inventory, being in the age range of 15-18 years, having an active medical record with a diagnosis of social anxiety disorder, confirmation of the social anxiety diagnosis based on the DSM-5 diagnostic interview, providing informed consent, not abusing drugs or alcohol, not having a concurrent mental disorder, and not receiving medical or psychotherapy treatment for at least one month. Exclusion criteria included unwillingness to continue cooperation and missing two or more therapy sessions. The accuracy of the social anxiety disorder diagnosis was confirmed by the psychiatrist's diagnosis and the DSM-5 interview.

Research instruments

A) The Structured Clinical Interview for DSM-5 (SCID-5): It was administered by a clinical psychologist to diagnose social anxiety disorder based on the DSM-5 criteria.

B) Social Phobia Inventory (SPIN): It is a 17-item self-report scale with a total score ranging from 0 to 68. The SPIN was designed to evaluate social anxiety symptoms and is sensitive to changes over time. A score of 40 or higher indicates the likelihood of social anxiety disorder with 80% accuracy. The scale is reliable and has internal consistency (17). The internal consistency of this inventory among university students in Iran, was reported as 0.87 (20).

C) Revised Anxiety Sensitivity Index: This scale was developed by Cox et al., consists of 36 items scored on a scale from 0 (low) to 4 (high), with a total score range of 0 to 144. It measures fear across four dimensions. The scale demonstrates good internal consistency and reliability, and its validity has been confirmed through various methods, including factor analysis and correlation with other measures of anxiety (21). It has been standardized in the Iranian population (22).

D) The Rumination Questionnaire: It was developed by Nolen-Hoeksema and Morrow, includes 22 items scored on a scale from 1 (never) to 4 (often), with a total score range of 22 to 88. It measures different responses to negative moods (23) and has been validated in Iran (24).

E) Cognitive Distortion Questionnaire (CD-Quest): Beck and Weissman's Cognitive Distortion Questionnaire consists of 26 questions and assesses cognitive styles using a 7-point scale. It has demonstrated good internal consistency and reliability. This questionnaire is sensitive to cognitive therapy and can indicate treatment response (25). The internal consistency of this questionnaire in Iran was 0.76 (26).

Additionally, the treatment protocol of Eifert et al. based on acceptance and commitment was used in the study (27). The results were analyzed using SPSS 27.

Table 1. Therapy based on acceptance and commitment following the Eifert et al. (2009) guidelines

Session	Content
1st	Focus on psychoeducation, experiential exercises, and conversations about acceptance and valued practices
2nd and 3rd	Creative frustration is explored whether previous attempts to control anxiety have been effective and how these efforts have led to a reduction in value-oriented life activities and acceptance.
4th and 5th	Emphasis on awareness, acceptance, and cognitive dissonance
6th to 11th	Continue to refine acceptance, attention awareness, and non-fusion, explore added values, and clarify goals, increasing willingness to pursue value-oriented life activities. Behavioral exposure, internal, imaginary, and actual exposure were used to practice accepting, observing, and paying attention to anxiety, and while experiencing anxiety, engaging in value-oriented activities was also practiced.
12th	Review what has been done so far and how to continue it.

Results

In the present study, 30 subjects with the mean age of 17.18 ± 2.84 years participated in two experimental (16.93 ± 1.95 years) and control groups (17.24 ± 2.04 years). There was no significant difference between the groups regarding the age variable (P= 0.326). Table 2 contains the descriptive statistics of the investigated groups in the pre- and post-test stages. The Shapiro-Wilk test results showed that the scores have a normal distribution. Levene's test indicated that the variance was homogenous across groups and M-tests. Box and Mauchly's Test of Sphericity indicated that the variance-covariance matrices were homogenous and had equal variances. The results of the multivariate analysis of covariance (MANCOVA) are presented in Table 3.

Table 2. Descriptive statistics of research variables

Variable	Subscale	Group	Pre-test		Post-test	
			M	SD	M	SD
Anxiety sensitivity	Fear of respiratory symptoms	ACT	25.85	1.39	21.18	4.97
		Control	25.87	1.32	25.81	4.93
	Fear of visible anxiety reactions in public	ACT	26.35	1.34	20.24	5.14
		Control	27.86	1.19	28.01	4.50
	Fear of cardiovascular symptoms	ACT	27.99	0.75	23.83	3.14
		Control	27.40	0.89	27.17	3.40
	Fear of cognitive disinhibition	ACT	20.30	0.41	16.26	1.92
		Control	20.30	0.39	20.21	2.19
	Anxiety sensitivity (total score)	ACT	100.53	2.50	81.53	9.89
		Control	101.44	2.16	101.21	7.78
Cognitive distortions	Success-perfectionism	ACT	32.70	0.62	29.56	3.35
		Control	33.27	0.64	33.39	2.45
	The need for approval from others	ACT	28.69	0.80	24.00	3.17
		Control	28.07	0.74	27.85	2.86
	The need to please others	ACT	18.33	0.54	15.14	2.22
		Control	17.66	0.66	17.74	2.78
	Vulnerability-performance evaluation	ACT	19.01	0.94	15.89	3.66
		Control	19.19	0.87	18.91	3.57
	Cognitive distortions (Total score)	ACT	98.73	1.73	84.60	6.99
		Control	98.20	1.77	98.03	7.41
Rumination	*	ACT	52.37	3.81	47.36	14.18
		Control	54.81	3.54	54.79	13.66

Table 3. Results of multivariate analysis of covariance (MANCOVA)

Test	Value	F	P
Pillai's effect	0.984	40.156	0.001

According to Table 3, MANCOVA was significant, and there was a difference between at least one of the variables of cognitive distortions, rumination, and anxiety sensitivity in students with social anxiety in the two experimental groups and the control group. In Table 4, we examined the differences in the dependent variables resulting from the treatment based on acceptance and commitment compared to the control group.

Table 4. Test of between-subject effects

Variables	Type III Sum of Squares	DF	F	P	Partial Eta Squared
Fear of respiratory symptoms	115.911	1	27.748	0.001	0.620
Fear of visible anxiety reactions in public	185.686	1	83.904	0.001	0.832
Fear of cardiovascular symptoms	57.359	1	22.450	0.001	0.565
Fear of cognitive disinhibition	88.598	1	23.682	0.001	0.582
Anxiety sensitivity (Total score)	1711.172	1	133.535	0.001	0.887
Success-perfectionism	66.206	1	21.227	0.001	0.555
The need for approval from others	112.248	1	25.160	0.001	0.597
The need to please others	49.694	1	28.048	0.001	0.632
Vulnerability-performance evaluation	29.90	1	9.750	0.001	0.364
Cognitive distortions (Total score)	1001.030	1	101.739	0.001	0.857
Rumination	143.579	1	33.434	0.001	0.663

The intergroup effects test results indicated a significant decrease in anxiety sensitivity, cognitive distortions, and rumination and its dimensions in the ACT group compared to the control group.

Discussion

The results show that the treatment based on acceptance and commitment positively and significantly affects cognitive distortions, rumination, and anxiety sensitivity. In general, the conducted studies almost support our findings (14-16). In this line, Gharraee et al. investigated the effectiveness of ACT on SAD symptoms and concluded that this intervention was effective to reduce symptoms and improving the quality of life in patients with social anxiety disorder (15). Also, Khoramnia et al. indicated the positive effects of ACT on reducing externalized shame and emotion regulation in patients with SAD (14). Azadeh et al. showed the effectiveness of ACT for interpersonal problems and psychological flexibility of high school girls with social anxiety disorder. The results showed a significant difference between the scores of the experimental and control groups. This means ACT affected interpersonal problems and psychological flexibility (16).

We can investigate the effectiveness of ACT on cognitive distortions from several aspects. Cognitive-behavioral therapists have noticed that people with cognitive distortions usually accept their truth based on face value instead of evaluating the correctness of spontaneous thoughts. The assumptions and criteria include

broader aspects of the person's worldview and are considered schemas in Beck's cognitive model. Changing thoughts and feelings, such as cognitive-behavioral: Changing thoughts and feelings is not the primary goal of treatment, but it guides people towards acceptance, being aware, and being observant towards themselves, and simultaneously emphasizes changing the client's behavior (12). The findings of the present study showed the effectiveness of ACT in reducing rumination among social anxiety patients. During therapy sessions, individuals learn about the nature of rumination and way of its contribution in exacerbating social anxiety symptoms. Then they address these issues using therapeutic methods available in acceptance and commitment therapy. Also, the acceptance component of this intervention allows a person to accept unpleasant internal experiences without trying to control them (4). When explaining the effectiveness of ACT on anxiety sensitivity in patients with social anxiety, there are some essential points to consider. In ACT, we ask the patient to recognize and accept existing problems (12) and be committed to facing and reducing them (13). This treatment helps the patients become aware of the root characteristics of their illness, including anxiety sensitivity, and accept that it plays a role in exacerbating anxiety disorders (14). This therapy also helps the patients understand that anxiety sensitivity is rooted in distorted cognitive beliefs (4). The main goal of ACT is to change the direction of the clients' attention and effort towards actions based on their desires for a desirable life rather than focusing on reducing unpleasant feelings and thoughts caused by social anxiety and anxiety sensitivity. This helps the clients to experience their internal events related to anxiety sensitivity and separate themselves from unpleasant reactions, memories, and thoughts (12).

In the present study, the sample included second-grade high school students in Mianeh, which limits the generalization of the present findings. The present study did not include a follow-up stage to investigate the effectiveness of ACT treatment in long-term periods. Conducting experimental studies on samples from different statistical communities and other disciplines can increase the possibility of comparing and increasing the validity of these findings.

Conclusion

The findings of this study highlighted the importance of an approach based on acceptance and commitment in reducing anxiety sensitivity, rumination, and cognitive distortions of students with social anxiety. Therapists and counselors can emphasize this therapeutic approach more when facing these students.

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Conflict of Interests

The author declares no conflicts of interest.

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Ethical Considerations

All ethical principles of the research, such as confidentiality, privacy, and minimizing harm, were observed.

Authors' Contributions

The author is responsible for designing, conducting and writing the manuscript.

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