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Original Article

The effectiveness of acceptance and commitment therapy for social anxiety disorder: a randomized clinical trial

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Abstract

Objective: Acceptance and commitment therapy has been used to treat anxiety disorders recently. The purpose of this study was to investigate the effectiveness of acceptance and commitment therapy for psychological symptoms in students with social anxiety disorder, including difficulty in emotion regulation, psychological flexibility based on experiential avoidance, self-compassion, and external shame.
Methods: This study was a semi-experimental clinical trial. Twenty four students with social anxiety disorder were randomly divided into two groups after initial evaluations: an experimental group (12 subjects) and a control group (12 subjects). The experimental group received 12 treatment sessions based on a protocol of acceptance and commitment therapy for anxiety disorders, and the control group was put on a waiting list. Self-Compassion (SCS), Difficulty in Emotion Regulation (DERS), External Shame (ESS), Social Anxiety (SPIN), and Acceptance and Action (AAQ-II) questionnaires were used to assess participants. Data were analyzed using SPSS.
Results: Acceptance and commitment therapy was shown to be effective at the post-test and follow up stages for reducing external shame, social anxiety, and difficulty in emotion regulation and its components, and for increasing psychological flexibility and self-compassion ($p < 0.05$). The largest effect size of treatment was for increase of psychological flexibility and the lowest efficacy was for the components "difficulty in impulse control" and "limited access to emotional strategies" at the post-test and follow-up stages, respectively.
Conclusion: Acceptance and commitment therapy may be an appropriate psychological intervention for reducing the symptoms of students with social anxiety disorder and helping them to improve psychological flexibility. Emotion and related problems can be identified as one of the main targets of this treatment.
Clinical trial registration: Iranian Registry of Clinical Trials, IRCT20180421039369N1.
Keywords: Acceptance and commitment therapy, difficulty in emotion regulation, external shame, psychological flexibility, self-compassion, social anxiety disorder.

Introduction

Social anxiety disorder is characterized by significant fear or anxiety about one or more social situations in which the person is exposed to unfamiliar people or to possible scrutiny by others.[1] Social anxiety disorder is one of the most common disorders among young people,[2,3] affecting approximately 13% of the population.[4] This disorder, in addition to isolating some patients socially[5] and having a destructive effect on occupation and on educational and interpersonal performance,[6] can inflict huge costs on all countries' economies every year.[7,8]

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Therefore, comprehensive study of this disorder and use of evidence-based interventions are important.

Many studies have shown that people with social anxiety disorder have ineffective experiential avoidance.[9,10] This is related to a person's desire for change and sensitivity to internal situations and events.[11] Previous studies have identified self-compassion,[12-15] difficulty in emotion regulation,[16-18] and extreme feelings of shame[19,20] as the most important psychological problems experienced by people with social anxiety disorder. Clinicians have used pharmacological and psychological interventions to attempt to improve the symptoms of social anxiety disorder.[21-28] Although some psychological interventions, such as cognitive-behavioral therapy, have demonstrated efficacy for treatment of patients with social anxiety, some people did not respond to treatment or symptoms remained.[22] One treatment that has been used recently to treat anxiety disorders and has demonstrated effectiveness for reducing anxiety symptoms is acceptance and commitment therapy (ACT).[23-26]

ACT is derived from the modern theory of cognition and language[27] and is classified as a third-wave psychological treatment, in which some cognitive-behavioral therapy concepts have been changed.[28] The main assumption underlying ACT is that humans experience disturbing thoughts, emotions, and feelings[29] and that their attempts to change or to get rid of these experiences are ineffective, which sometimes exacerbates these disturbances and ultimately leads to avoidance.[30] The six core psychological processes employed in this treatment are Acceptance, Defusion, Self as context, Contact with the present moment, Values, and Committed action.[31] These six processes are all implemented using metaphors, empirical exercises, and logical contradictions to escape the literal content of the language and interact more with the ongoing flow of experience at the present moment.[32] The purpose of this treatment is to reduce experiential avoidance and increase psychological flexibility.[30] A study by Azadeh et al.[2] demonstrated the efficacy of ACT for the interpersonal problems and psychological flexibility of high school girls with social anxiety disorder. In that study, only clients of one gender were selected and they were not followed-up to determine the effects of treatment over time, so the effective and lasting aspects of the intervention were not evaluated. The results of a study conducted in 2007 by Dalrymple and Herbert[22] showed that from pre-test to follow-up there was a significant decrease in symptoms experienced and improvement in the quality of life of people with social anxiety after ACT. More studies are needed to determine the effectiveness of ACT, especially in terms of cultural differences and variables related to emotion regulation.

Considering the study of research literature in this field, as well as the need to study the application of psychological treatments in different cultures and their effect on various psychological symptoms, especially emotion, the importance of further exploration is evident. The aim of this study is to evaluate the effectiveness in patients with social anxiety of ACT for psychological symptoms, including difficulty in emotion regulation, poor psychological flexibility rooted in experiential avoidance, self-compassion, and external shame.

Methods

This study was a semi-experimental clinical trial, with control and experimental groups, that was approved under code IRCT20180421039369N1 in the IRCT (Iranian Registry of Clinical Trials). Sampling was intentional, from among all students with social anxiety disorder in Kermanshah city. In two recent studies of the effectiveness of ACT, sample sizes were 19 and 30 individuals.[2,22] A sample size of 24 was selected for the present study. In coordination with the University's Counseling Center, posters were put up in college and dormitory environments and individuals with social anxiety symptoms were invited to attend a psychological assessment session. The diagnostic interview was based on the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV) and conducted by a clinical psychologist for all participants.

After reviewing inclusion and exclusion criteria, individuals willing to participate in the research were randomly assigned to groups using a random number generator (http://stattrek.com/statistics/random-number-generator.aspx). Inclusion criteria were as follows: 1) diagnosis of social anxiety disorder; 2) informed consent from the patient for participation in the study; 3) not receiving psychological treatment during the previous six months; 4) no psycho-pharmacotherapy during the previous six months; 5) no comorbidity with other anxiety and mood disorders; 6) absence of other psychiatric disorders and severe neurological disorders; 7) no substance abuse or alcohol abuse. Exclusion criteria included unwillingness to attend continuing treatment sessions and simultaneous enrollment on another treatment program. Members of the experimental group attended twelve 90-minute sessions based on a protocol of ACT for anxiety disorders.[24] Members of the control group were put on the waiting list. The control group were given treatment after the final evaluation. A total of

24 students were enrolled on the study, 22 of whom, in the experimental and control groups, completed the treatment sessions and pre-test and two-month follow-up evaluations. One person in the experimental group was excluded from the study because of unwillingness to continue attending therapy sessions and one person in the control group because of non-completion of final evaluations (Figure 1).

Ethical considerations

In order to comply with ethical standards, participants were informed of the conditions of the research and received informed consent forms before the start of the study. After completing the follow-up evaluation, individuals in the control group also attended ACT sessions. After implementation of the protocol, all research participants were referred to a psychiatrist or psychologist as necessary for complementary therapies. This research was approved by the ethics committee at the Kermanshah University of Medical Sciences (IR.KUMS.REC.1397.085).

Statistical analysis

SPSS software was used to analyze findings and statistical data. Multivariate analysis of covariance was used to analyze the effectiveness of the treatment in the experimental group on the variables evaluated, in comparison with the control group. The chi-square test was used to compare the number of participants and the independent *t* test was used to compare the mean age of the experimental and control groups.

Measurements

Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV)

This is a semi-structured, clinical and diagnostic interview for anxiety disorders developed in 1994 by Brown et al.[33] In addition to anxiety disorders, it also measures mood disorders, somatization, psychosis, and drug abuse. The Clinical Severity Rating (CSR) is scored on a scale from zero (no sign) to eight (severely disturbed). Accordingly, a severity grading of four or more indicates that the patient's symptoms are at or

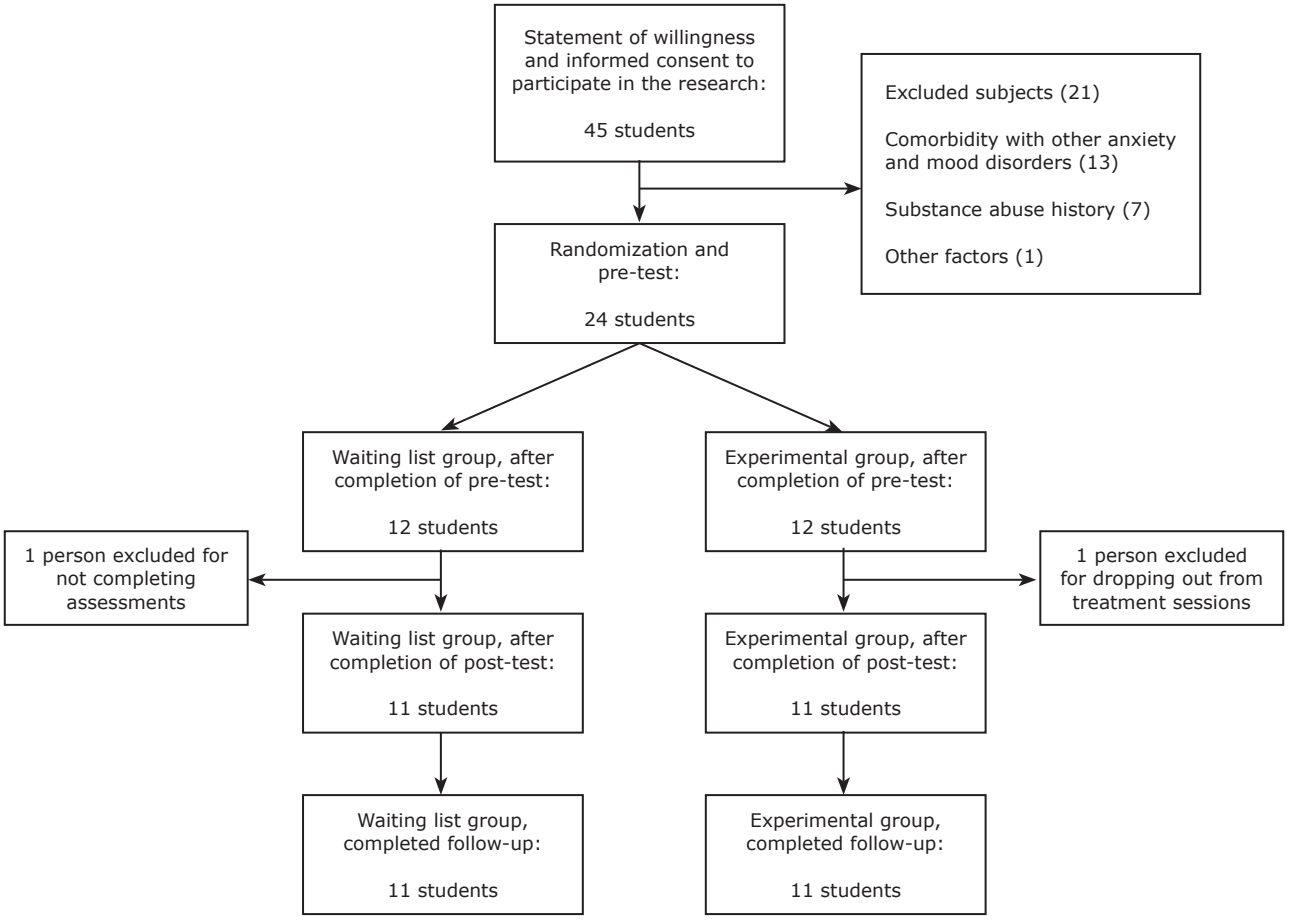

Figure 1 - Diagram illustrating participation in pre-test, post-test, and follow-up phases.

beyond the diagnostic threshold of the Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision (DSM-IV-TR). A degree of severity of three or below is attributed to diagnoses that are at partial or full improvement levels. In post-treatment studies using the ADIS-IV, clinical grade scores are usually used as an indicator for assessing post-treatment improvement.[33] The validity of the Persian version of this program has been confirmed and its retest reliability coefficient was reported as 0.83.[34] In this study, this measurement will be used to screen for social anxiety disorder, to confirm clinical diagnosis, and to assess clinical severity.

Self-Compassion Scale (SCS)

This questionnaire consists of 26 items with a five-point Likert response scale measuring three bipolar components in the form of six sub-scales. These components are Self-kindness vs. Self-judgment, Common humanity vs. Isolation, and Mindfulness vs. Over-identification.[35] The Cronbach's alpha coefficient of 0.92 represents an internal consistency superior to the original version of this scale. Convergent validity, discriminant validity, and appropriate retest reliability for this scale have been reported.[35] In an Iranian student sample, the six-factor structure of the validation questionnaire was confirmed and a Cronbach's alpha coefficient of 0.86 for the whole scale was reported. Cronbach's alpha coefficients for sub-scales were in the range of 0.79-0.85.[35]

Difficulty in Emotion Regulation Scale (DERS)

This scale is a comprehensive measurement for assessing difficulty in emotion regulation that is based on the concept of mindfulness and acceptance and was designed in 2004.[36] A self-report measure with 36 items that measure usual levels of difficulty in emotion regulation as well as its specific dimensions.[37] The scale's dimensions are Non-acceptance, Goals lack, Impulse, Awareness, Strategies, and Clarity.[37] Responses are scored on a five-point Likert scale. The reliability coefficient for the total scale is 0.93 and the test-retest is 0.88, while its construct validity is desirable.[37] This scale has been translated into Persian by Khanzadeh et al. in Iran.[38] The subscale validity of this questionnaire was reported as Cronbach's alphas between 0.66 and 0.88 and test-retest reliability between 0.97 and 0.91.[37,38]

External Shame Scale (ESS)

This scale is an 18-item self-report measure, designed by Gross et al. to measure external shame.[39] Each option is scored from "never" to "almost always" using Likert scales. A higher score indicates greater external shame.[39] The reliability of this measure was reported as desirable, based on its Cronbach's alpha (0.94) and 5-week retest reliability (0.94). This measure has a moderate correlation with a negative evaluation of fear and higher correlations with other methods of measuring shame in clinical student populations.[39] Also, this scale has appropriate validity and Cronbach's alphas for the whole scale and its related components have been reported as in the range of 0.71 to 0.93.[39]

Acceptance and Action in Social Anxiety Questionnaire, 2nd edition (AAQ-II)

This questionnaire was developed to measure the symptoms of social anxiety or the extent to which individuals are aware of their thoughts and feelings about their social anxiety without attempting to change them.[40] A Cronbach's Alpha of 0.94 has been reported by the scale's developers.[41] The questionnaire also has good validity.[41] The reliability of this questionnaire in Iran was 0.84 for test-retest and 0.84 for Cronbach's alpha and its validity was also desirable.[41] The results of factor analysis by principal component analysis revealed three components: acceptance, experience without judgment, and action.[40]

Social Phobia Inventory (SPIN)

This questionnaire is a self-report scale with 17 items that are designed to assess anxiety or social anxiety.[42] This scale consists of three subscales of fear (6 items), avoidance (7 items), and physiological discomfort (4 items), and each item has a 5-degree Likert response scale, ranging from 1 to 5.[42] A cut-off score of 19 is used to screen for social anxiety. The test-retest reliability of this scale has been reported as 0.78 to 0.89 in groups with diagnosed social anxiety and its internal consistency has been reported as 94% in a group of healthy individuals.[42] The convergent validity of this questionnaire was reported as 0.57-0.85.[42]

Intervention

An ACT protocol for anxiety disorders developed by Eifert and Forsyth[24] was used with the intervention group. This protocol consists of 12 sessions, each with specific goals. Activities were tailored to the individual needs of clients, while standard sessions were maintained. In ACT, emphasis is put on establishment of a context for acceptance, followed by commitment to values and action as the main psychological processes. The purpose of the first session was psycho-education and familiarity with treatment. In the second and third sessions, the emphasis was placed on establishing a framework for acceptance for treatment through evaluation and cost estimation of past control efforts and creating a space

for new solutions, acceptance, or willingness to change. The fourth and fifth sessions focused on acceptance and value-based life as an alternative to managing anxiety. The purpose of the sixth session was to create a pattern of behavior through value-based exposures. The seventh to eleventh sessions dealt with commitment to values and action. In the final session, the treatment sessions were reviewed and clients were prepared for recurrence and failure. Various assignments and exercises in sessions were tailored to the needs of the patients, such as mindfulness, life-enhancing, and practicing. The sessions were approximately 90 minutes long. After the fourth session, one of the clients dropped out of the treatment sessions and was excluded from the final evaluations.

Results

Based on demographic variables, the mean age of the participants was 22.12±1.08. Twenty-four subjects participated in this study, 17 of whom were women (70.8%) and 7 of whom were men (29.2%). There was no significant difference between the two groups in terms of age ($p > 0.05$). There was no significant difference between the two groups in terms of gender (Table 1). One member of each group was excluded from the study because of non-completion of the evaluation and drop-out from treatment sessions respectively.

Table 2 illustrates changes in the target variables in the control and experimental groups. The table shows means and standard deviations of variables in different conditions. The confidence interval diagram is shown in Figure 2.

Before statistical inference, the Kolmogorov-Smirnov test was performed to verify normality of the data and the data assumption was confirmed. The results of Box's M test showed that the matrix of covariance was equal in multivariate covariance analysis ($p > 0.05$). The Leven test was performed to test the equality of error variances ($p > 0.05$). Wilk's Lambda test to measure the efficacy of the treatment on all target variables showed that the linear combination of "difficulty in emotion regulation" and its components was significantly different for control and experimental groups (Wilk's Lambda = 0.003, p = 2.784, F = 0.476). Multivariate analysis of covariance was performed to determine the difference between the control and experimental groups according to each target variable.

According to Table 3, the results of multivariate covariance analysis indicate that there were significant changes in all therapeutic variables among students with social anxiety in experimental and control groups ($p < 0.05$). In other words, ACT had a significant effect, reducing external shame, social anxiety, and difficulty in emotion regulation and its components, while increasing psychological flexibility and self-compassion in the post-test and follow-up stages. The effect of this

Table 1 - Demographic features of participants

Parameters	Experimental group	Control group	p-value
Age (years)	23.11±1.01	21.13±1.09	0.12
Gender			0.07
Female, n (%)	8 (66.67)	9 (75)	0.14
Male, n (%)	4 (33.33)	3 (25)	0.17

Table 2 - Comparison of means and standard deviations of target variables in the control and experimental groups

	Control group			Experimental group		
Variable	Pre-test	Post-test	Follow-up	Pre-test	Post-test	Follow-up
ESS	13.44±65.73	66.54±11.74	58.18±12.15	63.45±11.79	58.18±19.57	55.23±6.76
AAQ-II	82.27±13.10	83.00±12.73	75.18±15.89	79.72±9.55	94.45±7.28	83.02±16.46
SPIN	63.27±9.28	61.45±10.89	62.27±9.44	59.95±15.62	46.60±59.45	49.77±13.47
SCS	84.27±14.93	81.27±10.09	83.54±16.57	78.18±12.70	94.81±6.21	96.77±16.98
DERS	117.36±9.78	117.00±10.86	120.18±10.60	115.5±13.71	101.36±9.26	98.54±15.77

Data presented as mean ± standard deviation.
ESS = External Shame Scale; AAQ-II = Acceptance and Action in Social Anxiety Questionnaire, 2nd edition; SPIN = Social Phobia Inventory; SCS = Self-Compassion Scale; DERS = Difficulty in Emotion Regulation Scale.

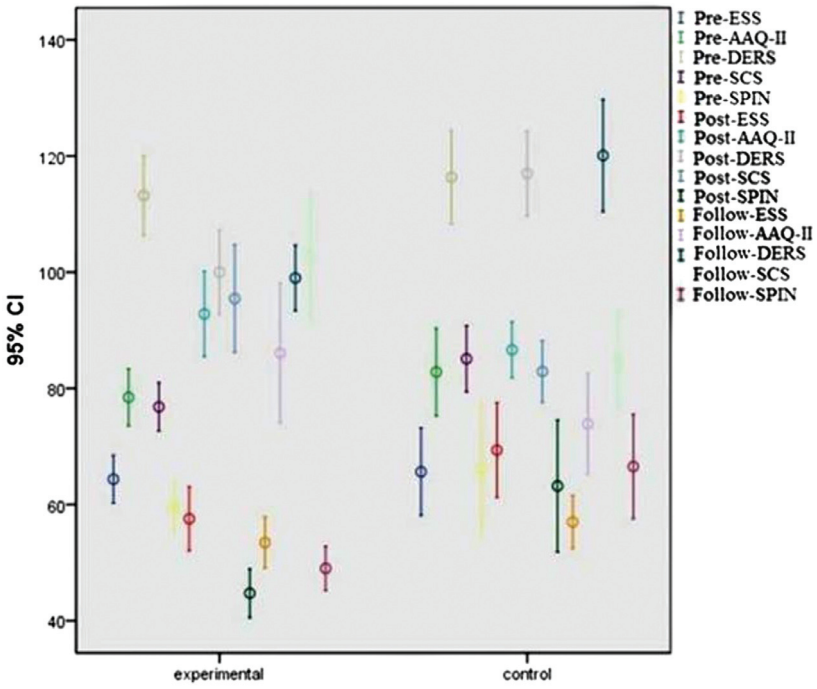

Figure 2 - Confidence interval diagram for target variables. AAQ-II = Acceptance and Action Questionnaire; DERS = Difficulty in Emotion Regulation Scale; ESS = External Shame Scale; SCS = Self-Compassion Scale; SPIN = Social Phobia Inventory.

Table 3 - Descriptive statistics and the effect of acceptance and commitment therapy, based on multivariate covariance analysis of target variables in the experimental group.

Group/variable	F	p	Effect size	Statistical power
Post-test				
ESS	12.3	0.006	0.233	0.87
AAQ-II	21.1	0.004	0.43	0.88
SPIN	29.2	0.002	0.421	0.86
SCS	51.8	0.001	0.38	0.91
DERS	7.7	0.007	0.311	0.93
Non-acceptance	22.12	0.004	0.287	0.84
Goals lack	9.31	0.007	0.148	0.85
Impulse	23	0.003	0.013	0.88
Awareness	31.27	0.002	0.107	0.87
Strategies	14.3	0.006	0.039	0.89
Clarity	43.15	0.001	0.018	0.93
Follow-up				
ESS	33.21	0.001	0.253	0.88
AAQ-II	12.7	0.009	0.627	0.86
SPIN	14.5	0.005	0.228	0.85
SCS	24.25	0.003	0.435	0.84
DERS	21.2	0.004	0.301	0.94
Non-acceptance	8.8	0.008	0.199	0.91
Goals lack	12.13	0.006	0.099	0.93
Impulse	46.4	0.000	0.016	0.79
Awareness	1.23	0.65	0.066	0.89
Strategies	10.1	0.007	0.014	0.88
Clarity	14.13	0.005	0.057	0.83

AAQ-II = Acceptance and Action Questionnaire; DERS = Difficulty in Emotion Regulation Scale; ESS = External Shame Scale; SCS = Self-Compassion Scale; SPIN = Social Phobia Inventory.

treatment in increasing the psychological flexibility of 43% and 67%, respectively, in post-test and follow-up, shows the highest degree of efficacy for ACT. Among the variables studied, the components of "difficulty in impulse control" and "limited access to emotional strategies" had the smallest effect sizes in the post-test and follow-up stages, respectively.

Discussion

The purpose of this study was to evaluate the effectiveness of ACT for improvement of psychological symptoms in students with social anxiety disorder. The psychological symptoms examined were external shame, psychological flexibility, social anxiety severity, self-compassion, and difficulty in emotion regulation and its components. The findings of this study showed that ACT improved these symptoms in students with social anxiety disorder in the experimental group, compared to the control group. The results of a randomized clinical trial conducted with 73 students by Yadavaia and colleagues showed that ACT had a significant effect, increasing self-compassion from pre-test to follow-up.[43] Vowles et al. found that self-compassion itself could be a powerful mediator of the effectiveness of ACT, undergoing change under the influence of treatment.[44] Also, the results of this study showed that the effectiveness of ACT in terms of the significant increase in students' self-compassion from pre-test to follow-up (compared with a control group) is consistent with previous studies. Although ACT do not emphasize self-compassion as a target variable, it has been argued that increased focus on self-compassion in this treatment may result in a greater effect size for the effectiveness of ACT.[45]

Luoma et al.[45] showed that ACT is effective for reducing shame in people with a history of substance abuse. In another study,[46] it was shown that experiential avoidance can be regarded as a mediator of shame and self-harmful behaviors. On the other hand, shame can be a sign and experiential avoidance is a characteristic experienced by people with social anxiety disorder,[9,19-21] and experiential avoidance is one of the criteria of psychological inflexibility in ACT. Therefore, it can be expected that ACT is effective for reducing feelings of shame and experiential avoidance, and subsequently for reducing the self-harmful behaviors of people with social anxiety disorder, which has been detailed in several studies.[19-21] In line with this conclusion, in the present study this treatment was effective at reducing the feelings of shame experienced by students with social anxiety disorder.

One of the main goals of this study was to reduce the main symptoms of social anxiety disorder in response to a psychological treatment. Because these symptoms are debilitating and can have an adverse effect on individual, social, and occupational health, it is important to attempt to reduce the symptoms experienced. This study showed that ACT was effective for reducing the social anxiety symptoms of the experimental group in comparison with the control group, as measured by the Social Phobia Inventory (SPIN). In this study, it was also shown that this treatment could be effective for increasing students' psychological flexibility, which had the largest effect size of all target variables. In several other studies, in common with the results of the present study, ACT has been shown to be effective for reducing the symptoms of social anxiety disorder.[2,47,48] Yadavaia et al. also showed that ACT is effective for improving psychological flexibility,[43] which is in line with the results of this study and previous studies.[2,49] The explanatory factors of these results indicate that acceptance and committed action in ACT can be considered as the main psychological processes, and it seems that this treatment, considering the history of research, is effective for improvement of psychological flexibility and reduction of symptoms experienced by people with social anxiety disorder.

The main purpose of this study was to investigate the effectiveness of ACT at reducing the difficulty in emotion regulation of people with social anxiety disorder, which has been shown to be a major concern in their daily lives.[50,51] Of the components of difficulty in emotion regulation, ACT had the greatest impact on "lack of acceptance of emotional responses". In view of the main psychological processes in this treatment, this result was not expected. So far, many studies have been conducted on the effectiveness of psychological treatments on emotions and related problems.[52-54] It has been argued that ACT emphasizes the experience of problematic emotions rather than trying to change knowledge or reduce emotional levels.[51] It seems that ACT is also effective for emotional problems and changes in levels of emotion. The results presented in other studies are in line with this.[50,51] In the present study, the results showed that the experimental group compared favorably to the control group in ability to effectively reduce the difficulty in emotion regulation and its components.

Several limitations of this study should be noted. First, the sample size limits the capability for generalization, which it is recommended should be addressed in future studies to increase reliability of results. Second, the sample studied consisted entirely of students, who are not comparable with the general population in terms

of social, economic, or intellectual capabilities. Third, the use of a waiting list group as control group is a limitation. It is suggested that more dynamic control groups be used to help clients in future studies.

Conclusion

Given the limitations of this study, it can be concluded that, by increasing concentration on self-compassion, ACT can be effective in reducing feelings of shame and experiential avoidance in students with social anxiety disorder. This treatment can be an appropriate psychological intervention to reduce the symptoms of people with social anxiety disorder and help them to promote psychological flexibility. According to the results of this study and the literature on the efficacy of ACT, emotion and related problems can be identified as one of the main targets of this treatment.

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Disclosure

No conflicts of interest declared concerning the publication of this article.

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