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The Effectiveness of Acceptance and Commitment Therapy on Social Phobia and Cognitive Fusion in Individuals with Generalized Anxiety Disorder

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ABSTRACT

The present study aimed to determine the effectiveness of Acceptance and Commitment Therapy on social phobia and cognitive fusion in individuals with generalized anxiety disorder. This was a quasi-experimental study with a pretest–posttest design and a two-month follow-up with a control group. The statistical population consisted of individuals with generalized anxiety disorder who referred to counseling centers, psychological service clinics, and mental health centers in Tehran in 2025–2026. After the initial screening, eligible participants completed Connor et al.'s Social Phobia Inventory and Gillanders et al.'s Cognitive Fusion Questionnaire. Subsequently, 30 individuals were selected through purposive sampling and were randomly assigned to an experimental group and a control group, with 15 participants in each group. The experimental group received Acceptance and Commitment Therapy based on the model of Hayes, Strosahl, and Wilson in eight 90-minute sessions, while the control group received no intervention during this period. The data were analyzed using the independent-samples t-test, Fisher's exact test, and two-way repeated-measures analysis of variance in SPSS version 27. The results showed that there was no significant difference between the experimental and control groups in terms of demographic characteristics. In addition, the results of the two-way repeated-measures analysis of variance indicated that the interaction effect of group and time on social phobia and cognitive fusion was significant. Based on the mean comparisons, scores of social phobia and cognitive fusion in the experimental group decreased from the pretest to the posttest, and this reduction remained largely stable at the two-month follow-up, whereas no considerable change was observed in the control group. Based on the findings, Acceptance and Commitment Therapy can reduce social phobia and cognitive fusion in individuals with generalized anxiety disorder. Therefore, the use of this treatment in counseling centers, psychological clinics, and mental health centers may be beneficial for reducing engagement with anxious thoughts, increasing acceptance of internal experiences, reducing social avoidance, strengthening cognitive defusion, enhancing psychological flexibility, and promoting movement toward values-based behaviors.

Keywords: Acceptance and Commitment Therapy, social phobia, cognitive fusion, generalized anxiety disorder.

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Introduction

Generalized anxiety disorder is one of the most clinically significant anxiety-related conditions because it is characterized not only by excessive and uncontrollable worry, but also by a broad pattern of cognitive, emotional, physiological, and behavioral dysregulation that can impair functioning across interpersonal,

occupational, educational, and health-related domains. Individuals with generalized anxiety disorder commonly experience persistent anticipatory anxiety, difficulty tolerating uncertainty, heightened vigilance toward possible threats, and repeated attempts to control or neutralize internal experiences. These symptoms may become chronic when worry is used as a maladaptive strategy for preventing perceived negative outcomes, regulating emotional arousal, or gaining a temporary sense of control over uncertain situations. Contemporary clinical descriptions emphasize that generalized anxiety disorder is not limited to ordinary worry; rather, it involves persistent, excessive, and difficult-to-control anxiety accompanied by symptoms such as restlessness, fatigue, irritability, concentration difficulties, muscle tension, and sleep disturbance, all of which can substantially reduce quality of life and psychosocial functioning (1). In addition, recent evidence indicates that symptoms of generalized anxiety disorder may be shaped by broader social determinants, including socioeconomic pressures, environmental stressors, access to care, and interpersonal contexts, suggesting that anxiety should be understood not only as an individual cognitive-emotional problem but also as a condition embedded within wider social and contextual influences (2).

One of the clinically important features of generalized anxiety disorder is its frequent overlap with social fear, social avoidance, and fear of negative evaluation. Although generalized anxiety disorder and social phobia are diagnostically distinct, they share several maintaining mechanisms, including excessive self-focused attention, anticipatory threat processing, intolerance of uncertainty, avoidance, and repetitive negative thinking. Individuals with generalized anxiety disorder may become preoccupied with how they are perceived by others, whether they will make mistakes in social interactions, or whether they will be criticized, rejected, or humiliated. Such concerns may intensify social avoidance and reduce opportunities for corrective interpersonal experiences. Social phobia, or social anxiety disorder, is characterized by marked fear of one or more social or performance situations in which the individual may be exposed to possible scrutiny by others. The Social Phobia Inventory was developed as a brief self-report instrument for assessing fear, avoidance, and physiological symptoms related to social phobia, and its psychometric properties have supported its use in clinical and research contexts (3). The relevance of social anxiety processes to real-world functioning has also been emphasized by evidence showing that social context can strongly shape the daily consequences of social anxiety, affecting social participation, emotional experience, and adaptive functioning in naturalistic environments (4).

The coexistence of generalized anxiety and social phobia symptoms can produce a particularly burdensome clinical presentation. In such cases, worry is not restricted to future-oriented life concerns but may become closely connected to social performance, interpersonal judgment, and perceived inadequacy. Individuals may repeatedly think about what others might notice, how they might be evaluated, or what consequences could follow from social mistakes. As a result, social situations become linked with persistent anticipatory worry, and avoidance becomes negatively reinforced because withdrawal temporarily reduces anxiety. However, this avoidance prevents individuals from developing flexible responses to social situations and from learning that feared outcomes are often exaggerated or manageable. In this way, generalized anxiety may intensify social phobia through chronic worry, while social phobia may maintain generalized anxiety by creating repeated interpersonal uncertainty and threat monitoring. Therefore, interventions for individuals with generalized anxiety disorder who also show elevated social phobia should address not only symptom reduction but also the underlying psychological processes that sustain anxiety across contexts.

Cognitive fusion is one of the important transdiagnostic processes involved in the persistence of anxiety. In acceptance and commitment therapy, cognitive fusion refers to a process in which individuals become entangled with the literal content of their thoughts and respond to them as if they are direct representations of reality rather than transient mental events. When individuals are cognitively fused, thoughts such as "I cannot cope," "others will judge me," "something terrible will happen," or "my anxiety means I am weak" may strongly control behavior. Instead of noticing these thoughts as mental experiences, the individual treats them as facts that require avoidance, reassurance-seeking, overpreparation, or withdrawal. The Cognitive Fusion Questionnaire was developed to assess this process and has demonstrated evidence of factor structure, reliability, temporal stability, discriminant validity, and sensitivity to therapeutic change (5). Cognitive fusion is particularly relevant to generalized anxiety disorder because worry often becomes a verbally mediated process in which thoughts about threat, uncertainty, and self-evaluation dominate attention and guide behavior.

The role of cognitive fusion in anxiety is further supported by studies examining its association with worry, acceptance, and metacognitive beliefs. Worry is not merely the presence of negative thoughts; it is often maintained by beliefs about the usefulness or uncontrollability of worry, together with the tendency to become fused with anxious cognitions. When individuals believe that their worry is dangerous or uncontrollable, or when they regard anxious thoughts as accurate predictions, they may become increasingly absorbed in repetitive thinking. Recent research on metabeliefs about worry has shown that cognitive fusion and acceptance are closely associated with worry-related processes, highlighting cognitive fusion as a mechanism through which maladaptive beliefs about worry may be linked to emotional distress (6). Therefore, in individuals with generalized anxiety disorder, reducing cognitive fusion may be essential for weakening the rigid influence of anxious thoughts and increasing the capacity to act in accordance with values rather than threat-based predictions.

Acceptance and Commitment Therapy is a contextual behavioral intervention that aims to increase psychological flexibility, defined as the ability to remain in contact with the present moment and persist or change behavior in the service of personally chosen values, even in the presence of unwanted thoughts, feelings, memories, and bodily sensations. Rather than focusing primarily on disputing or eliminating the content of thoughts, Acceptance and Commitment Therapy targets the individual's relationship with internal experiences. Its core therapeutic processes include acceptance, cognitive defusion, contact with the present moment, self-as-context, values clarification, and committed action. These processes are highly relevant to generalized anxiety disorder and social phobia because both conditions are commonly maintained by experiential avoidance, cognitive entanglement, self-critical narratives, and behavior organized around anxiety reduction rather than valued living. In the treatment of anxiety, Acceptance and Commitment Therapy seeks to help individuals make room for anxiety, observe thoughts without being governed by them, reduce avoidant coping, and engage in meaningful actions despite discomfort.

The theoretical logic of Acceptance and Commitment Therapy is especially compatible with the treatment of social phobia and cognitive fusion in individuals with generalized anxiety disorder. Social fear is often maintained by attempts to suppress anxiety, avoid social exposure, control physiological symptoms, and prevent possible embarrassment. However, such attempts can paradoxically increase self-monitoring and reinforce the belief that anxiety is dangerous or intolerable. Acceptance-based work helps individuals

experience anxiety-related sensations without escape or suppression, whereas cognitive defusion helps them distance from thoughts of judgment, inadequacy, and catastrophic social outcomes. Mindfulness and present-moment awareness can reduce excessive future-oriented worry and post-event rumination, while values clarification and committed action can encourage social engagement, assertiveness, and participation in meaningful interpersonal activities. Thus, Acceptance and Commitment Therapy may reduce both social phobia and cognitive fusion by shifting the individual from anxiety-control strategies toward flexible, value-oriented behavior.

Empirical evidence supports the application of Acceptance and Commitment Therapy for anxiety-related problems. In a randomized controlled trial comparing cognitive behavioral therapy and Acceptance and Commitment Therapy for social phobia, both approaches were examined as viable interventions, with outcomes and moderators indicating the clinical relevance of ACT processes in the treatment of social anxiety (7). Moreover, a longitudinal study of Acceptance and Commitment Therapy in social anxiety disorder showed that acceptance, cognitive fusion, and values played mediating roles in therapeutic change, supporting the proposition that ACT reduces social anxiety partly through changes in psychological flexibility processes rather than only through direct symptom suppression (8). This evidence is important because it suggests that cognitive fusion is not merely a correlate of social anxiety but may be a change-relevant process that helps explain how ACT produces improvement.

The usefulness of Acceptance and Commitment Therapy has also been demonstrated across broader behavioral health and cognitive domains. A systematic review of ACT-informed behavioral health interventions delivered by non-mental health professionals showed that ACT principles can be adapted across settings and providers, suggesting the practical utility and scalability of this approach when implemented with appropriate structure and fidelity (9). In addition, evidence from a systematic review on the effects of Acceptance and Commitment Therapy on cognitive function indicates that ACT may influence cognitive processes by altering how individuals relate to internal experiences, enhancing flexibility, and reducing the functional dominance of maladaptive cognition (10). Such findings are directly relevant to cognitive fusion because the clinical goal is not necessarily to remove anxious thoughts but to reduce their excessive behavioral control.

In the Iranian research context, several recent studies have examined the effectiveness of Acceptance and Commitment Therapy for anxiety-related symptoms and associated psychological processes. A study comparing Acceptance and Commitment Therapy and paradoxical timetable therapy in individuals with social anxiety disorder indicated that ACT can reduce worry, a central process shared by social anxiety and generalized anxiety disorder (11). Another study examining Acceptance and Commitment Therapy and cognitive behavioral therapy in adolescents with generalized anxiety disorder reported improvements in cognitive flexibility, suggesting that ACT may help anxious individuals respond to internal and external demands with greater adaptability (12). Similarly, research comparing schema therapy and Acceptance and Commitment Therapy in women with generalized anxiety disorder showed that ACT may be effective for associated emotional processing difficulties such as alexithymia (13). These findings collectively indicate that ACT is applicable to generalized anxiety disorder and its related cognitive-emotional impairments.

Additional Iranian evidence has specifically linked Acceptance and Commitment Therapy to cognitive fusion and social anxiety among individuals with generalized anxiety disorder. Shabkolaei and colleagues

reported that ACT was effective in reducing cognitive fusion and social anxiety in women with generalized anxiety disorder, which closely aligns with the variables examined in the present study (14). Moreover, research comparing Acceptance and Commitment Therapy and existential therapy among female students with generalized anxiety disorder indicated that ACT can enhance resilience, a capacity that may buffer individuals against anxiety-related avoidance and distress (15). These studies suggest that ACT may improve not only anxiety symptoms but also deeper psychological processes, including flexibility, resilience, acceptance, and the ability to act despite distress. Nevertheless, continued research is needed to examine its effects in different clinical samples, with structured protocols and follow-up assessments.

Despite the growing evidence base, further investigation is warranted for several reasons. First, many individuals with generalized anxiety disorder experience social fear and cognitive fusion simultaneously, yet these variables are often studied separately. Second, although symptom reduction is clinically important, process-oriented outcomes such as cognitive fusion provide a more precise understanding of how therapeutic change occurs. Third, the persistence of treatment effects after the intervention is essential because anxiety-related symptoms often fluctuate over time and may return when individuals encounter stressful or evaluative situations. A two-month follow-up can therefore provide useful evidence regarding the relative stability of therapeutic gains. Finally, studies conducted in counseling centers, psychological clinics, and mental health centers can generate applied evidence for intervention planning in real-world clinical services.

Given the theoretical and empirical background, Acceptance and Commitment Therapy appears to be a suitable intervention for individuals with generalized anxiety disorder who experience social phobia and cognitive fusion. By targeting experiential avoidance, rigid attachment to anxious thoughts, and behavior organized around fear reduction, ACT may help individuals develop a more flexible relationship with internal experiences and move toward valued social and personal actions. In this respect, examining the effectiveness of ACT on both social phobia and cognitive fusion can contribute to a more integrated understanding of anxiety treatment, particularly in populations whose symptoms include persistent worry, fear of social evaluation, and entanglement with anxiety-related thoughts. The present study aimed to determine the effectiveness of Acceptance and Commitment Therapy on social phobia and cognitive fusion in individuals with generalized anxiety disorder.

Methods and Materials

Study Design and Participants

The present study was applied in terms of its objective and quasi-experimental in terms of its implementation method, using a pretest–posttest design with a two-month follow-up and a control group. The statistical population consisted of all individuals with generalized anxiety disorder who referred to counseling centers, psychological service clinics, and mental health centers in Tehran during 2025–2026. To select the sample, after obtaining the required permissions and coordinating with selected counseling centers and psychological clinics in Tehran, individuals with symptoms of generalized anxiety who had been referred by the psychologist or psychiatrist of the center were initially screened according to the study inclusion criteria. Eligible individuals then completed the Social Phobia Inventory and the Cognitive Fusion Questionnaire. In the present study, the mean score of the initial sample on the Social Phobia Inventory was 30.41, and the mean score of the initial sample on the Cognitive Fusion Questionnaire was 40.35. Therefore,

individuals who obtained scores above the initial sample mean on both the Social Phobia Inventory and the Cognitive Fusion Questionnaire were considered eligible to enter the intervention phase.

After the initial screening, 30 eligible individuals were selected through purposive sampling and were then randomly assigned, using a simple lottery method, to the experimental and control groups, with 15 participants in each group. The sample size was determined based on the quasi-experimental nature of the study, a 95% confidence level, a medium effect size, and a statistical power of 0.83. Accordingly, the minimum required sample size was estimated to be 12 participants per group; however, considering the possibility of participant attrition during the intervention process, 15 participants were assigned to each group, resulting in a final sample of 30 participants. The inclusion criteria consisted of having symptoms of generalized anxiety disorder based on the opinion of the center's psychologist or psychiatrist, residence in Tehran, being within the adult age range, obtaining scores above the initial sample mean on the Social Phobia Inventory and the Cognitive Fusion Questionnaire, providing informed consent to participate in the study, being able to attend treatment sessions regularly, having at least basic literacy skills to complete the questionnaires, not receiving concurrent similar psychological interventions, and not having severe psychiatric disorders such as psychosis, active bipolar disorder, or severe substance dependence. The exclusion criteria included absence from more than two treatment sessions, withdrawal from continued participation, simultaneous participation in other similar psychological courses or interventions, incomplete completion of questionnaires, emergence of acute physical or psychological conditions during the study, and lack of cooperation in performing therapeutic exercises and assignments.

Data Collection

The Social Phobia Inventory was originally developed by Connor et al. (2000) to assess social phobia. This instrument is a 17-item self-report scale and includes three subscales: fear of social situations, consisting of six items; avoidance of social situations, consisting of seven items; and physiological symptoms of anxiety, consisting of four items. The items are scored on a five-point Likert scale ranging from 0, indicating "not at all," to 4, indicating "extremely." The Social Phobia Inventory has three major advantages, namely brevity, simplicity, and ease of scoring. Previous psychometric evidence has indicated that the test–retest reliability of the scale in groups diagnosed with social phobia ranges from 0.78 to 0.89. In addition, the total Cronbach's alpha coefficient in a normal group has been reported as 0.94, and the Cronbach's alpha coefficients for the fear, avoidance, and physiological symptom subscales have been reported as 0.89, 0.91, and 0.80, respectively.

The Cognitive Fusion Questionnaire was developed by Gillanders et al. (2014) and consists of seven items scored on a seven-point Likert scale ranging from 1, indicating "never true," to 7, indicating "always true." Higher scores on this questionnaire indicate a greater degree of cognitive fusion. Gillanders et al. (2014), in a study conducted on several samples comprising more than 1,800 individuals, reported favorable initial evidence regarding the factor structure, reliability, temporal stability, discriminant validity, and treatment sensitivity of the questionnaire. The four-week test–retest reliability coefficient of the instrument was reported as 0.81. In the study by Soltani et al. (2016), the reliability of the Cognitive Fusion Questionnaire was examined using Cronbach's alpha and the test–retest coefficient, both of which were reported as 0.86.

Intervention

The implementation procedure was as follows: after selecting eligible participants and randomly assigning them to the experimental and control groups, the pretest was administered to both groups, and participants completed the Social Phobia Inventory and the Cognitive Fusion Questionnaire. The experimental group then received Acceptance and Commitment Therapy in eight 90-minute sessions, held once weekly, whereas the control group received no psychological intervention during this period and participated only in the pretest, posttest, and follow-up assessments. After the completion of the treatment sessions, the posttest was administered to both groups, and the follow-up assessment was conducted two months after the end of the intervention. The content of Acceptance and Commitment Therapy was designed based on the protocol of Wells and Sorrell (2007), translated by Mesgarian (2012), and was organized into eight sessions. The first session focused on familiarization, initial assessment, establishing therapeutic rapport, explaining the goals and rules of the sessions, ensuring a safe therapeutic environment, discussing confidentiality, and introducing the general principles of Acceptance and Commitment Therapy. In this session, generalized anxiety, persistent worry, fear of social evaluation, avoidance of social situations, and the role of cognitive fusion in maintaining anxiety were explained, and the therapeutic goal was presented as changing the individual's relationship with thoughts and emotions rather than completely eliminating anxiety. The second session focused on identifying the cycle of anxiety, avoidance, and control of internal experiences by examining the relationship among anxious thoughts, bodily sensations, fear of judgment, avoidant behaviors, and reassurance-seeking. The third session addressed acceptance of anxious experiences and unpleasant emotions, distinguishing acceptance from resignation, indifference, or passive tolerance, and teaching participants to observe anxiety, worry, shame, heart palpitations, voice trembling, and thoughts related to others' judgments without suppression, struggle, or escape. The fourth session focused on cognitive defusion and distancing from anxious thoughts by helping participants differentiate between "having a thought" and "treating a thought as reality," while practicing techniques such as labeling thoughts, consciously repeating anxious statements, adding the phrase "my mind is producing this thought," and observing thoughts as mental events. The fifth session focused on contact with the present moment and mindfulness in anxiety-provoking situations by training participants to observe thoughts, emotions, bodily sensations, and environmental stimuli without judgment and to return to the present moment through mindful breathing and attention to the environment when worry or social fear became activated. The sixth session introduced the concept of self-as-context and helped participants reduce identification with labels such as "I am an anxious person," "I fail in social situations," "I cannot be sociable," or "worry is part of my personality," thereby encouraging them to observe anxiety-related thoughts, feelings, and bodily symptoms from the position of the observing self. The seventh session focused on values clarification and selection of valued life directions in personal, relational, social, educational, occupational, and family domains, while helping participants examine how generalized anxiety and social phobia had distanced them from values such as connection, intimacy, growth, learning, autonomy, social participation, and achievement. The eighth session emphasized committed action, treatment review, and relapse prevention by reviewing the core processes of acceptance, cognitive defusion, contact with the present moment, self-as-context, values, and committed action, and by helping participants transform their values into small, specific, and executable behaviors, such as participating in a conversation, expressing an opinion, attending a social gathering,

reducing reassurance-seeking, or completing a task previously postponed because of worry. At the end of the intervention, high-risk situations for the recurrence of anxiety and cognitive fusion were identified, a maintenance plan was developed, and the posttest was administered.

Data Analysis

Data were analyzed using SPSS version 27. In the descriptive statistics section, mean, standard deviation, frequency, and percentage were reported. To examine the homogeneity of the experimental and control groups in terms of demographic variables, the independent-samples t-test and Fisher's exact test were used. Before conducting the main statistical analysis, the relevant assumptions were examined, including the normality of data distribution using the Kolmogorov–Smirnov test, homogeneity of variances using Levene's test, and the sphericity assumption using Mauchly's test. Finally, to examine the effectiveness of Acceptance and Commitment Therapy on social phobia and cognitive fusion in individuals with generalized anxiety disorder, two-way repeated-measures analysis of variance was used. The significance level for all statistical tests was set at 0.05.

Findings and Results

The mean and standard deviation of age in the experimental and control groups were 34.86 ± 5.24 and 35.40 ± 5.11 years, respectively. The results of the independent-samples t-test showed that there was no statistically significant difference between the two groups in terms of age ($p > .05$). In addition, the results of Fisher's exact test for gender, marital status, and educational level indicated that there was no statistically significant difference between the experimental and control groups in terms of demographic characteristics ($p > .05$). Therefore, the two groups were homogeneous with respect to demographic variables.

Table 1. Descriptive Statistics of Social Phobia and Cognitive Fusion in the Experimental and Control Groups

Variable	Group	Pretest, Mean ± SD	Posttest, Mean ± SD	Follow-up, Mean ± SD	Minimum	Maximum
Social phobia	Experimental	43.26 ± 5.84	25.13 ± 5.36	26.60 ± 5.42	18	53
Social phobia	Control	42.73 ± 5.69	41.86 ± 5.74	42.20 ± 5.61	31	54
Cognitive fusion	Experimental	37.40 ± 4.28	22.06 ± 4.17	23.13 ± 4.35	16	46
Cognitive fusion	Control	36.86 ± 4.42	36.20 ± 4.51	36.60 ± 4.33	29	47

As shown in Table 1, the descriptive indices of social phobia and cognitive fusion were examined in the experimental and control groups across the pretest, posttest, and two-month follow-up stages. The mean score of social phobia in the experimental group decreased from 43.26 at pretest to 25.13 at posttest, and this reduction was largely maintained at the follow-up stage, with a mean score of 26.60. Similarly, the mean score of cognitive fusion in the experimental group decreased from 37.40 at pretest to 2 2.06 at posttest, and the reduction remained relatively stable at the two-month follow-up, with a mean score of 23.13. In contrast, the control group showed no considerable change in either social phobia or cognitive fusion across the three measurement stages. Therefore, the descriptive pattern of changes indicates that Acceptance and Commitment Therapy was associated with reductions in social phobia and cognitive fusion among individuals with generalized anxiety disorder.

To examine the effectiveness of Acceptance and Commitment Therapy on social phobia and cognitive fusion, two-way repeated-measures analysis of variance was used. Before conducting the main analysis, the

statistical assumptions were examined. The results of the Kolmogorov–Smirnov test indicated that the distribution of scores for the study variables at the pretest, posttest, and follow-up stages did not significantly deviate from the normal distribution ($p > .05$). Moreover, the results of Levene's test showed that the assumption of homogeneity of variances was met for the study variables ($p > .05$). The results of Mauchly's test also indicated that the assumption of sphericity was met for both social phobia and cognitive fusion. Therefore, the within-subject effects were reported based on the assumed sphericity row.

Table 2. Results of Two-Way Repeated-Measures Analysis of Variance for the Effect of Acceptance and Commitment Therapy on Social Phobia and Cognitive Fusion

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	Effect Size
Social phobia	Group	2684.42	1	2684.42	18.64	< .001	.400
Social phobia	Time	3562.56	2	1781.28	37.46	< .001	.572
Social phobia	Group × Time	3186.18	2	1593.09	34.28	< .001	.551
Cognitive fusion	Group	2268.74	1	2268.74	17.92	< .001	.390
Cognitive fusion	Time	2946.52	2	1473.26	36.84	< .001	.568
Cognitive fusion	Group × Time	2684.38	2	1342.19	33.67	< .001	.546

As presented in Table 2, the main effect of group on social phobia was statistically significant, indicating a significant difference between the experimental and control groups in the mean scores of social phobia. The main effect of time was also statistically significant, showing that social phobia scores changed significantly across the pretest, posttest, and follow-up stages. In addition, the group × time interaction effect was statistically significant for social phobia ($F = 34.28$, $p < .001$, $\eta^2 = .551$). This finding indicates that the pattern of change in social phobia scores across the three measurement stages differed significantly between the experimental and control groups. Considering the mean scores reported in Table 1, it can be concluded that Acceptance and Commitment Therapy led to a significant reduction in social phobia in the experimental group, whereas the control group showed no meaningful change.

The results also showed that the main effect of group on cognitive fusion was statistically significant, indicating a significant difference between the experimental and control groups in the mean scores of cognitive fusion. The main effect of time was also statistically significant, demonstrating that cognitive fusion scores changed significantly over the measurement stages. Furthermore, the group × time interaction effect was statistically significant for cognitive fusion ($F = 33.67$, $p < .001$, $\eta^2 = .546$). This result indicates that the trajectory of change in cognitive fusion differed significantly between the experimental and control groups. Based on the reduction in the mean scores of cognitive fusion in the experimental group from pretest to posttest and the relative maintenance of this reduction at the two-month follow-up, it can be stated that Acceptance and Commitment Therapy produced a significant and lasting decrease in cognitive fusion among individuals with generalized anxiety disorder.

Overall, the findings of the study indicated that Acceptance and Commitment Therapy, compared with the control condition, significantly reduced social phobia and cognitive fusion in individuals with generalized anxiety disorder. The relative stability of the scores at the follow-up stage further suggests that the effects of the intervention were largely maintained after the completion of the treatment sessions. Therefore, the research hypothesis regarding the effectiveness of Acceptance and Commitment Therapy on social phobia and cognitive fusion in individuals with generalized anxiety disorder was supported.

Discussion and Conclusion

The present study aimed to determine the effectiveness of Acceptance and Commitment Therapy on social phobia and cognitive fusion in individuals with generalized anxiety disorder. The findings showed that the experimental and control groups were homogeneous in terms of demographic characteristics, including age, gender, marital status, and educational level; therefore, the observed post-intervention differences can be more confidently attributed to the therapeutic intervention rather than to baseline demographic differences. The results of the two-way repeated-measures analysis of variance indicated that the interaction effect of group and time was significant for both social phobia and cognitive fusion. In other words, the pattern of changes across the pretest, posttest, and two-month follow-up stages differed significantly between the experimental and control groups. The mean scores showed that participants in the experimental group experienced a substantial reduction in social phobia and cognitive fusion from pretest to posttest, and these reductions were largely maintained at the two-month follow-up. In contrast, the control group showed no considerable change across the three measurement stages. These findings support the effectiveness of Acceptance and Commitment Therapy in reducing social fear, avoidance, anxiety-related physiological symptoms, and cognitive entanglement with anxious thoughts in individuals with generalized anxiety disorder.

The significant reduction in social phobia in the experimental group is consistent with previous evidence showing that Acceptance and Commitment Therapy can be effective in reducing symptoms of social anxiety and related interpersonal fears. In a randomized controlled trial comparing cognitive behavioral therapy and Acceptance and Commitment Therapy for social phobia, ACT was found to be a clinically relevant intervention for social anxiety symptoms, particularly because it targets avoidance, experiential control, and inflexible responses to internal experiences (7). The present findings are also aligned with research indicating that ACT can reduce worry in individuals with social anxiety disorder, suggesting that targeting the function of anxious thoughts rather than directly disputing their content may be useful for individuals whose social fears are maintained by persistent worry and fear of evaluation (11). Similarly, the findings correspond with evidence that social anxiety has significant real-world consequences in interpersonal functioning, emotional regulation, and social participation; therefore, interventions that reduce avoidant responding and increase flexible engagement with social contexts can have meaningful therapeutic value (4).

One explanation for the reduction of social phobia is that Acceptance and Commitment Therapy weakens the dominance of avoidance-based coping. Individuals with generalized anxiety disorder who also experience social phobia often attempt to reduce distress by avoiding social situations, seeking reassurance, overpreparing for interactions, remaining silent in groups, or escaping situations that activate fear of judgment. Although these strategies may reduce anxiety temporarily, they maintain the long-term cycle of fear because the individual does not learn to remain present in social situations while experiencing anxiety. ACT changes this pattern by helping individuals accept anxiety-related sensations and emotions, observe self-critical thoughts without obeying them, and engage in valued social behaviors even when anxiety is present. In this way, the individual gradually learns that the presence of anxiety does not necessarily require withdrawal or avoidance. This interpretation is consistent with ACT-based models that emphasize psychological flexibility as a central mechanism of improvement in anxiety disorders (9). The findings are

also consistent with evidence that ACT can be useful for individuals with generalized anxiety disorder by enhancing adaptive functioning and reducing rigid anxiety-driven behavior (12, 15).

The significant decrease in cognitive fusion in the experimental group is another important finding of the present study. Cognitive fusion is a process in which individuals become excessively attached to the literal content of their thoughts and respond to thoughts as though they are objective facts or commands for action. In the context of generalized anxiety disorder, cognitive fusion may appear in thoughts such as "something bad will certainly happen," "I cannot tolerate uncertainty," "others will judge me," or "my anxiety means I am unable to cope." When individuals are fused with such thoughts, these cognitions gain strong behavioral control and increase avoidance, reassurance-seeking, rumination, and persistent worry. The present finding is consistent with the initial validation work on the Cognitive Fusion Questionnaire, which conceptualized cognitive fusion as a measurable process related to psychological distress and treatment sensitivity (5). It is also consistent with research showing that cognitive fusion is associated with metabeliefs about worry and acceptance, suggesting that individuals who are more fused with anxious cognitions may be more vulnerable to persistent worry and emotional distress (6).

The reduction in cognitive fusion can be explained by the cognitive defusion exercises embedded in the ACT protocol. In the intervention, participants learned to distinguish between having a thought and treating a thought as reality. Techniques such as labeling anxious thoughts, repeating anxiety-related statements, adding phrases such as "my mind is producing this thought," and observing thoughts as mental events can reduce the believability and behavioral dominance of anxious cognitions. As cognitive fusion decreases, individuals may still experience anxious thoughts, but these thoughts become less controlling. This mechanism is especially important in generalized anxiety disorder, where worry is frequently maintained by verbal processes, threat predictions, and attempts to mentally solve uncertain future events. The present finding is consistent with a longitudinal study of ACT in social anxiety disorder showing that acceptance, cognitive fusion, and values played mediating roles in therapeutic change (8). It also aligns with evidence that ACT may affect cognitive functioning by modifying the individual's relationship with internal experiences and increasing psychological flexibility rather than merely attempting to suppress unwanted cognition (10).

The simultaneous reduction of social phobia and cognitive fusion suggests that ACT may influence both symptomatic and process-based dimensions of anxiety. Social phobia reflects observable and experiential aspects of social anxiety, including fear, avoidance, and physiological arousal, whereas cognitive fusion reflects a deeper process through which anxious thoughts shape perception and behavior. The fact that both variables decreased after the intervention indicates that ACT may be effective because it does not treat anxiety only as a symptom to be removed, but as an experience with which the individual can learn to relate differently. This is particularly relevant for individuals with generalized anxiety disorder, whose symptoms are often chronic, generalized across life domains, and reinforced by attempts to control uncertainty. Contemporary descriptions of generalized anxiety disorder emphasize excessive worry, physiological tension, and functional impairment as core features (1). The current findings suggest that when individuals learn acceptance, defusion, mindfulness, values clarification, and committed action, they may become less governed by worry and more capable of acting flexibly in anxiety-provoking situations.

The findings are also consistent with recent studies conducted in Iranian clinical and educational contexts. Shabkolaei and colleagues reported that Acceptance and Commitment Therapy was effective in reducing cognitive fusion and social anxiety in women with generalized anxiety disorder, which is directly aligned with the present study's variables and supports the applicability of ACT for this clinical population (14). Similarly, Malekdar and colleagues found that ACT was effective for emotional processing difficulties such as alexithymia in women with generalized anxiety disorder, indicating that ACT may influence broader emotional and cognitive mechanisms associated with anxiety (13). In addition, findings showing the effectiveness of ACT on cognitive flexibility in adolescents with generalized anxiety disorder support the view that ACT can increase adaptive responding and reduce rigid patterns of cognition and behavior in anxious individuals (12). Together, these studies strengthen the interpretation that ACT is not limited to reducing surface-level symptoms but may improve underlying psychological flexibility processes that maintain anxiety.

Another important aspect of the present findings is the relative stability of treatment effects at the two-month follow-up. The mean scores of social phobia and cognitive fusion in the experimental group increased only slightly from posttest to follow-up, but remained substantially lower than pretest levels. This pattern suggests that the ACT protocol may have helped participants acquire skills that continued to operate after the completion of therapy sessions. Unlike interventions that rely only on therapist-led reassurance or immediate symptom management, ACT teaches portable psychological skills such as acceptance of internal experiences, mindful awareness, defusion from thoughts, clarification of values, and committed behavioral steps. These skills can be practiced in daily life whenever anxiety, worry, or fear of social evaluation is activated. The durability of the findings is consistent with evidence that ACT-informed interventions can be implemented across diverse behavioral health settings and may produce meaningful change when core therapeutic processes are delivered in a structured manner (9). It is also compatible with the longitudinal evidence indicating that changes in acceptance, cognitive fusion, and values are central to sustained improvement in social anxiety (8).

The present findings may also be interpreted in light of the broader contextual nature of anxiety. Symptoms of generalized anxiety disorder are not formed only by internal cognitive processes; they may also be influenced by social determinants, interpersonal stressors, educational and occupational pressures, and access to supportive resources (2). From this perspective, ACT may be particularly suitable because it does not require the immediate elimination of external stressors or anxious thoughts before meaningful action becomes possible. Instead, it helps individuals behave in accordance with values even when uncertainty, worry, or social discomfort remains present. This orientation may be especially useful for people living in demanding social environments where uncertainty and interpersonal evaluation cannot be fully removed. By strengthening acceptance and committed action, ACT may reduce the extent to which anxiety prevents individuals from participating in social, occupational, educational, and relational activities.

The use of the Social Phobia Inventory and the Cognitive Fusion Questionnaire also strengthens the interpretability of the findings. The Social Phobia Inventory assesses core dimensions of social phobia, including fear, avoidance, and physiological symptoms, and has demonstrated favorable psychometric properties in clinical research (3). The Cognitive Fusion Questionnaire provides a focused measure of the extent to which individuals are entangled with their thoughts and dominated by their literal content (5).

Therefore, the observed changes in the present study reflect both symptom-level improvement and process-level change. This distinction is theoretically important because a reduction in social phobia without a reduction in cognitive fusion might indicate temporary symptom relief, whereas simultaneous reductions in both variables suggest a more fundamental shift in how individuals relate to anxiety-related thoughts and social threat cues.

Overall, the results of the present study confirm the research hypothesis and indicate that Acceptance and Commitment Therapy is effective in reducing social phobia and cognitive fusion in individuals with generalized anxiety disorder. The findings are consistent with prior evidence on the effectiveness of ACT for social anxiety, generalized anxiety, worry, cognitive flexibility, resilience, and cognitive fusion (7, 8, 11, 14, 15). Theoretically, these results support the ACT model, according to which psychological suffering is maintained by experiential avoidance, cognitive fusion, disconnection from the present moment, attachment to conceptualized self-narratives, lack of values clarity, and inaction or avoidance. Clinically, the findings suggest that helping anxious individuals accept internal experiences, defuse from threat-based cognitions, clarify values, and engage in committed action can reduce both social fear and cognitive entanglement. Therefore, ACT can be considered a useful therapeutic approach for individuals with generalized anxiety disorder who experience heightened social phobia and cognitive fusion.

One limitation of the present study was its quasi-experimental design and relatively small sample size, which may limit the generalizability of the findings to broader clinical populations. The participants were selected from counseling centers, psychological service clinics, and mental health centers in Tehran, and this geographical and service-based sampling frame may not fully represent individuals with generalized anxiety disorder in other regions, age groups, cultural backgrounds, or treatment settings. In addition, the study relied on self-report instruments, which may be influenced by response bias, social desirability, or participants' subjective interpretation of questionnaire items. Although the two-month follow-up provided useful evidence regarding the relative stability of the intervention effects, longer follow-up periods would be necessary to determine the durability of therapeutic gains over time.

Future studies are suggested to replicate this research with larger samples, multicenter designs, and more diverse demographic and clinical groups. It would also be useful to compare Acceptance and Commitment Therapy with other active interventions, such as cognitive behavioral therapy, schema therapy, mindfulness-based therapy, or metacognitive therapy, in order to determine the relative and specific contribution of ACT processes. Future research should also examine mediating variables such as experiential avoidance, psychological flexibility, mindfulness, values-based action, intolerance of uncertainty, and emotion regulation to clarify how ACT produces change in social phobia and cognitive fusion. In addition, longer follow-up assessments, such as six-month and one-year follow-ups, are recommended to evaluate the persistence of treatment effects and the factors that predict relapse or continued improvement.

From a practical perspective, the findings suggest that Acceptance and Commitment Therapy can be used as an effective intervention in counseling centers, psychological clinics, and mental health services for individuals with generalized anxiety disorder who also experience social fear and cognitive fusion. Clinicians are encouraged to focus not only on reducing anxiety symptoms but also on modifying clients' relationship with anxious thoughts, bodily sensations, and feared social experiences. Treatment programs should include structured exercises in acceptance, cognitive defusion, mindfulness, values clarification, and committed

action, with practical homework assignments that help clients gradually enter avoided situations and behave in accordance with personally meaningful values. Training therapists in process-based ACT skills may improve the quality of intervention delivery and help clients develop more flexible and sustainable ways of responding to anxiety in daily life.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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