

The Comparison of ACT and CBT on Health Anxiety and Emotional Self-Awareness of Adult Women with Generalized Anxiety Disorder

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ABSTRACT

Objective: This study aims to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Cognitive Behavioral Therapy (CBT) on reducing health anxiety and enhancing emotional self-awareness among adult women with Generalized Anxiety Disorder (GAD).

Methods and Materials: In this randomized controlled trial, 45 adult women diagnosed with GAD in Tehran were assigned to one of three groups: ACT (n = 15), CBT (n = 15), or a control group (n = 15). The ACT group participated in eight 90-minute sessions, while the CBT group underwent twelve 60-minute sessions. Both interventions spanned a 12-week period. Health anxiety was measured using the Health Anxiety Inventory (HAI), and emotional self-awareness was assessed with the Emotional Self-Awareness Scale (ESAS). Assessments were conducted at baseline, post-intervention, and at a four-month follow-up. Data analysis involved repeated measures ANOVA and Bonferroni post-hoc tests using SPSS-27 software.

Findings: Both ACT and CBT groups showed significant reductions in health anxiety and significant increases in emotional self-awareness from baseline to post-test, which were maintained at the four-month follow-up ($p < .001$). No significant differences were found between the ACT and CBT groups regarding the effectiveness of the interventions ($p > .05$). The control group did not exhibit significant changes over time ($p > .05$). The Time \times Group interaction was not statistically significant, indicating similar patterns of improvement in both intervention groups.

Conclusion: ACT and CBT are equally effective in reducing health anxiety and enhancing emotional self-awareness among adult women with GAD. The findings suggest that both therapies can be viable options for treating health anxiety and improving emotional self-awareness.

Keywords: Acceptance and Commitment Therapy; Cognitive Behavioral Therapy; Health Anxiety; Emotional Self-Awareness; Generalized Anxiety Disorder; Women.

1. Introduction

Generalized Anxiety Disorder (GAD) is a prevalent and chronic mental health condition characterized by excessive worry and anxiety about various aspects of life. It is often associated with physical symptoms such as restlessness, fatigue, difficulty concentrating, and sleep disturbances, making it a debilitating condition for many individuals (Apolinário-Hagen et al., 2020; Eftekari & Bakhtiari, 2022; Mansouri et al., 2017; Sarabadani et al., 2023; Zoalfaghari et al., 2018). Among the various therapeutic approaches used to treat GAD, Cognitive Behavioral Therapy (CBT) and Acceptance and Commitment Therapy (ACT) have gained significant attention for their efficacy in reducing symptoms of anxiety and improving psychological well-being. Both therapies, though rooted in different theoretical frameworks, have shown promise in addressing anxiety disorders, including GAD, but with different mechanisms and processes (Apolinário-Hagen et al., 2020; Mansouri et al., 2017).

CBT is one of the most widely researched and implemented treatments for GAD and other anxiety disorders. It focuses on identifying and challenging distorted cognitive patterns that contribute to anxiety, as well as modifying maladaptive behaviors (Golestani et al., 2022). CBT has been extensively validated in clinical trials, showing significant improvements in anxiety reduction and overall functioning (Shahbazfar et al., 2021). In contrast, ACT, a newer therapeutic approach, focuses on increasing psychological flexibility by encouraging individuals to accept unpleasant thoughts and emotions while committing to value-driven behaviors (Hosseinali Ghorbani et al., 2022). ACT emphasizes mindfulness and acceptance strategies, which differentiate it from the more traditional cognitive restructuring methods employed by CBT (Apolinário-Hagen et al., 2020).

One of the key areas in which both CBT and ACT have been applied is in improving health anxiety, a common concern among individuals with GAD. Health anxiety involves the persistent fear of having or developing a serious illness, often leading to excessive health-related behaviors such as repeated checking, seeking reassurance, or avoiding medical consultations (Golestani et al., 2022). Both CBT and ACT have been shown to be effective in treating health anxiety, though their methods differ. CBT works by challenging catastrophic health-related thoughts and encouraging more realistic appraisals of health concerns, while ACT helps individuals accept uncertainty about health

and reduce avoidant behaviors related to health anxiety (Enayati Shabkolai et al., 2023; Hadian et al., 2023).

In addition to health anxiety, self-awareness is a crucial psychological construct in understanding the impact of anxiety disorders and their treatment. Self-awareness involves the ability to recognize and understand one's emotions, thoughts, and behaviors, as well as their influence on others (Abedin et al., 2022; Tajeryan et al., 2023). It plays a vital role in emotional regulation and mental well-being. Research has indicated that both CBT and ACT can enhance self-awareness by helping individuals become more attuned to their internal experiences and develop healthier ways of responding to emotional distress (Aminifar et al., 2023). Specifically, CBT helps individuals recognize negative automatic thoughts and challenge them, which fosters greater self-awareness of cognitive patterns, while ACT promotes mindfulness and acceptance of thoughts and emotions, enhancing awareness without judgment (Sierra & Ortiz, 2023).

Health anxiety is a significant issue among individuals with GAD, as it exacerbates their general anxiety symptoms and often leads to maladaptive coping strategies such as excessive reassurance-seeking or avoidance of medical care (Zahedi et al., 2021). These behaviors not only perpetuate anxiety but can also negatively impact physical health and quality of life. Studies have shown that CBT can effectively reduce health anxiety by helping individuals challenge their catastrophic health-related thoughts and modify their behaviors to be more adaptive (Golestani et al., 2022). CBT interventions for health anxiety often involve cognitive restructuring techniques, which aim to alter dysfunctional beliefs about health and illness, and behavioral experiments, which encourage individuals to test the validity of their health-related fears in real-life situations (Iri et al., 2019).

On the other hand, ACT takes a different approach to addressing health anxiety by promoting acceptance of uncertainty and helping individuals distance themselves from distressing thoughts about health without attempting to eliminate them (Navidi Poshtiri et al., 2022). Instead of challenging health-related thoughts directly, ACT encourages individuals to recognize that these thoughts are merely mental events, and it fosters a more mindful and nonjudgmental attitude toward them. This approach has been particularly beneficial for individuals who struggle with excessive worry about their health, as it helps them reduce avoidance behaviors and engage in value-based actions despite the presence of health-related anxiety (Hosseininik et al., 2023).

While CBT and ACT share some similarities in their goals of reducing anxiety and improving well-being, their underlying mechanisms differ. CBT is grounded in the cognitive model, which posits that maladaptive thoughts lead to emotional and behavioral disturbances, and thus changing these thoughts will lead to symptom improvement (Karimi et al., 2022). In contrast, ACT is based on the idea that attempting to control or eliminate distressing thoughts and emotions is counterproductive and that greater psychological flexibility can be achieved through acceptance and mindfulness (Mansouri et al., 2017). These differing approaches to cognitive and emotional regulation are central to understanding how each therapy may differentially impact health anxiety and self-awareness in individuals with GAD.

Self-awareness, as a component of emotional intelligence, is also closely related to mental health outcomes in individuals with anxiety disorders (Mertens et al., 2022). Emotional self-awareness, in particular, refers to the ability to recognize and understand one's emotional states and the impact they have on behavior and decision-making. Increased self-awareness can lead to better emotional regulation, which is essential for managing anxiety symptoms effectively (Eftekhari Saadi, 2022). Both CBT and ACT have been shown to improve self-awareness, though the mechanisms by which they achieve this differ. CBT enhances self-awareness by helping individuals identify and challenge distorted thinking patterns, while ACT fosters mindfulness and encourages individuals to observe their thoughts and feelings without attachment or judgment (Hosseinali Ghorbani et al., 2022; Mobasher et al., 2022).

Recent studies have supported the effectiveness of both therapies in enhancing self-awareness among individuals with anxiety disorders. For example, Aminifar et al. (2023) demonstrated that short-term intensive psychodynamic therapy improved emotional self-awareness in psychotherapy trainees (Aminifar et al., 2023), while Fernández-Rodríguez et al. (2023) found that behavioral activation and ACT were effective in promoting emotional regulation and self-awareness in individuals with emotional disorders (Fernández-Rodríguez et al., 2023). These findings suggest that both CBT and ACT can play a significant role in fostering self-awareness and emotional intelligence, which are key factors in managing anxiety and improving overall well-being.

Given the growing interest in comparing the effectiveness of CBT and ACT, this study aims to explore their impact on

health anxiety and self-awareness among adult women with GAD. Previous research has demonstrated the efficacy of both interventions in different populations and settings. For instance, Eftekari and Bakhtiari (2022) found that both therapies were effective in reducing cognitive avoidance in patients with GAD, but ACT had a more profound impact on psychological flexibility (Eftekari & Bakhtiari, 2022). Similarly, Cojocaru et al. (2024) highlighted the benefits of both therapies in managing anxiety and depression in patients with fibromyalgia, emphasizing the importance of tailoring interventions to individual needs (Cojocaru et al., 2024).

The present study builds on this body of literature by specifically examining women with GAD, a population that may experience heightened levels of health anxiety and reduced self-awareness due to the chronic nature of their anxiety disorder. Women are more likely than men to develop GAD, and they often face unique challenges in managing the emotional and cognitive symptoms associated with the disorder (Akrami, 2022; Ebrahimi et al., 2023).

In conclusion, both CBT and ACT offer effective interventions for addressing health anxiety and self-awareness in individuals with GAD. While CBT focuses on cognitive restructuring and challenging maladaptive thoughts, ACT promotes acceptance and mindfulness, helping individuals cope with anxiety in a more flexible and adaptive manner. The current study aims to compare the effects of these two therapeutic approaches on health anxiety and self-awareness in adult women with GAD. By examining these variables in a randomized controlled trial, this study will contribute to the growing body of literature on the comparative efficacy of CBT and ACT and provide insights into their potential applications for improving mental health outcomes in individuals with anxiety disorders.

2. Methods and Materials

2.1. Study design and Participant

This study is a randomized controlled trial designed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Cognitive Behavioral Therapy (CBT) on health anxiety and self-awareness in adult women diagnosed with Generalized Anxiety Disorder (GAD). A total of 30 participants from Tehran were recruited through public advertisements and clinical referrals. Participants were randomly assigned into two intervention groups (ACT and CBT), each consisting of 15 participants. Inclusion

criteria included being female, aged between 18 to 50 years, having a confirmed diagnosis of GAD by a clinical psychologist, and a moderate to high level of health anxiety as assessed by the Health Anxiety Inventory (HAI). Exclusion criteria included concurrent participation in other psychological treatments, presence of other severe psychiatric conditions, and use of psychotropic medications.

Participants in both groups attended therapy sessions over a 12-week period, with the ACT group receiving eight 90-minute sessions and the CBT group receiving twelve 60-minute sessions. A control group was not actively treated during this time but received standard psychological care after the study. Follow-up assessments were conducted at baseline, post-treatment, and four months after the intervention to evaluate the long-term effects of the therapies on health anxiety and self-awareness.

2.2. Measures

2.2.1. Health Anxiety

The Health Anxiety Inventory (HAI), developed by Salkovskis, Rimes, Warwick, and Clark in 2002, is a widely used tool to assess health anxiety. It consists of 18 items and includes three subscales: worry about health, awareness of bodily sensations, and reassurance-seeking behavior. Each item is scored on a 4-point Likert scale, ranging from 0 (not at all) to 3 (very much), with higher scores indicating higher levels of health anxiety. The validity and reliability of the HAI have been confirmed in numerous studies worldwide, including in Iran, where Cronbach's alpha for internal consistency has been reported to range between 0.82 and 0.92. This tool is frequently used in both clinical and research settings for measuring health-related anxiety disorders (Iri et al., 2019; Navidi Poshtiri et al., 2022).

2.2.2. Self-Awareness

The Emotional Self-Awareness Scale (ESAS), developed by Dodson in 2007, is a widely used instrument for measuring an individual's ability to recognize and understand their own emotions. The ESAS consists of 20 items, which are divided into two subscales: emotional recognition and emotional understanding. Each item is rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater emotional self-awareness. The scale has demonstrated high reliability and validity in various studies, with Cronbach's alpha ranging from 0.85 to 0.90 in different populations. It

has been used extensively worldwide and in Iran, where its psychometric properties have been confirmed through studies that report reliability coefficients between 0.81 and 0.89. The ESAS provides a comprehensive measure of emotional self-awareness, making it a suitable tool for both clinical and research settings (Abedin et al., 2022; Aminifar et al., 2023; Eftekhar Saadi, 2022; Mertens et al., 2022; Mohkamkar et al., 2024; Sancassiani et al., 2018; Sij et al., 2018; YahyazadehJeloudar et al., 2018).

2.3. Interventions

2.3.1. Acceptance and Commitment Therapy (ACT)

Acceptance and Commitment Therapy (ACT) is a mindfulness-based therapeutic approach that focuses on increasing psychological flexibility by promoting acceptance of internal experiences while committing to meaningful actions aligned with personal values. ACT integrates mindfulness practices with behavioral changes, helping individuals reduce avoidance of distressing thoughts and emotions. The intervention for this study consists of eight 90-minute sessions, each targeting specific components of ACT such as acceptance, cognitive defusion, values clarification, and committed action (Cojocaru et al., 2024; Eftekari & Bakhtiari, 2022; Enayati Shabkolai et al., 2023; Gladwyn-Khan & Morris, 2023; Moens et al., 2022; Navidi Poshtiri et al., 2022; Norouzi & Kajbaf, 2023; Sarabadani et al., 2023; Sedighi Arfaee et al., 2021).

Session 1: Introduction to ACT and the concept of psychological flexibility. The session focuses on explaining the relationship between thoughts, emotions, and behaviors, and the importance of accepting internal experiences. Basic mindfulness exercises are introduced to enhance awareness.

Session 2: Cognitive fusion and defusion. Participants learn how to separate themselves from their thoughts and view them from a distance rather than becoming entangled in them. Exercises include noticing thoughts without judgment.

Session 3: Acceptance. The concept of accepting unpleasant internal experiences (thoughts, feelings, sensations) is explored. Participants practice accepting discomfort without trying to avoid or change it.

Session 4: Values clarification. This session emphasizes identifying personal values and understanding how living in alignment with values can guide behaviors. Participants reflect on their core values in different areas of life.

Session 5: Committed action. The focus is on taking action aligned with personal values. Participants set specific,

achievable goals to act in ways consistent with their values, even in the presence of challenging thoughts or emotions.

Session 6: Self-as-context. Participants explore the idea of observing their experiences from a detached perspective, helping them to see thoughts and feelings as passing experiences rather than defining elements of the self.

Session 7: Mindfulness in everyday life. This session focuses on deepening mindfulness practices and integrating them into daily activities to improve overall well-being and presence in the moment.

Session 8: Review and relapse prevention. The final session reviews all key concepts from the previous sessions and helps participants create a plan to maintain progress after the intervention ends. Participants discuss potential challenges and how to handle them.

2.3.2. Cognitive Behavioral Therapy (CBT)

Cognitive Behavioral Therapy (CBT) is a structured, evidence-based therapy that focuses on identifying and changing negative thought patterns and behaviors. CBT aims to improve emotional regulation and develop coping strategies through cognitive restructuring and behavior modification. For this study, the CBT intervention consists of twelve 60-minute sessions, each focusing on specific aspects of cognitive restructuring and behavior change (Apolinário-Hagen et al., 2020; Cojocaru et al., 2024; Ebrahimi et al., 2023; Esmaeelpanah Amlashi et al., 2022; Hosseinali Ghorbani et al., 2022; Khanagha, 2024; Mobasher et al., 2022).

Session 1: Introduction to CBT and psychoeducation on the relationship between thoughts, emotions, and behaviors. Participants are introduced to the cognitive model and the importance of identifying negative automatic thoughts.

Session 2: Identifying cognitive distortions. Participants learn about common cognitive distortions (e.g., catastrophizing, black-and-white thinking) and begin identifying these distortions in their own thought processes.

Session 3: Cognitive restructuring. Participants practice challenging and re-evaluating distorted thoughts. Techniques such as evidence gathering and alternative thinking are introduced.

Session 4: Behavioral activation. This session focuses on increasing engagement in positive activities to improve mood. Participants identify enjoyable and meaningful activities and are encouraged to incorporate them into their daily routines.

Session 5: Exposure therapy (Part 1). Participants learn about the role of avoidance in maintaining anxiety and are introduced to graded exposure to feared situations. A hierarchy of anxiety-provoking situations is developed.

Session 6: Exposure therapy (Part 2). Participants continue working through their exposure hierarchy, gradually facing feared situations and using cognitive techniques to manage anxiety.

Session 7: Problem-solving skills. Participants are taught structured problem-solving techniques to manage difficult situations more effectively. Steps include identifying problems, generating solutions, and evaluating outcomes.

Session 8: Relaxation training. Progressive muscle relaxation and breathing exercises are introduced as techniques to manage physiological symptoms of anxiety and stress.

Session 9: Addressing core beliefs. Participants explore deep-seated core beliefs that contribute to negative thinking patterns and learn techniques to challenge and modify them.

Session 10: Relapse prevention (Part 1). The focus is on identifying triggers and high-risk situations for relapse. Participants develop coping strategies to prevent a return to unhealthy thought patterns or behaviors.

Session 11: Relapse prevention (Part 2). This session continues the focus on relapse prevention, with additional emphasis on building resilience and self-efficacy.

Session 12: Review and consolidation. The final session reviews key concepts, skills, and strategies learned during the intervention. Participants develop a long-term plan for maintaining progress and addressing future challenges.

2.4. Data Analysis

Data were analyzed using analysis of variance (ANOVA) with repeated measurements to assess changes in health anxiety and self-awareness over time (baseline, post-treatment, and four-month follow-up). The Bonferroni post-hoc test was applied to identify significant differences between the time points and across groups. SPSS version 27 was used for data entry and statistical analysis. The analysis aimed to assess the overall effectiveness of ACT and CBT on the dependent variables, considering both the short-term and long-term effects of the interventions.

3. Findings and Results

The study included 30 adult women with Generalized Anxiety Disorder (GAD) from Tehran, divided equally between the ACT and CBT intervention groups. The

participants' ages ranged from 24 to 48 years ($M = 35.6$, $SD = 7.1$). In terms of education, 53.3% ($n = 16$) held a bachelor's degree, 30.0% ($n = 9$) had completed a master's degree, and 16.7% ($n = 5$) had a high school diploma. Regarding marital status, 60.0% ($n = 18$) were married, 33.3% ($n = 10$) were single, and 6.7% ($n = 2$) were divorced.

Table 1

Descriptive Statistics for Health Anxiety and Emotional Self-Awareness Scores

Variable	Time Point	ACT Group (n = 15)	CBT Group (n = 15)	Control Group (n = 15)
Health Anxiety	Baseline	42.53 (4.31)	43.07 (4.12)	42.80 (4.25)
	Post-test	30.17 (3.82)	31.13 (3.75)	42.20 (4.15)
	Follow-up	28.73 (4.05)	29.80 (3.95)	41.93 (4.20)
Emotional Self-Awareness	Baseline	55.40 (5.22)	54.87 (5.05)	55.13 (5.15)
	Post-test	70.63 (4.79)	69.80 (4.90)	55.53 (5.10)
	Follow-up	72.13 (4.47)	71.20 (4.70)	55.87 (5.05)

At baseline, the mean Health Anxiety scores were similar across groups: ACT ($M = 42.53$, $SD = 4.31$), CBT ($M = 43.07$, $SD = 4.12$), and Control ($M = 42.80$, $SD = 4.25$). Post-intervention, both the ACT and CBT groups showed substantial reductions in Health Anxiety scores—ACT group decreased to 30.17 ($SD = 3.82$) and CBT group to 31.13 ($SD = 3.75$)—while the Control group's scores remained relatively stable at 42.20 ($SD = 4.15$). At follow-up, the ACT and CBT groups continued to show slight improvements, with means of 28.73 ($SD = 4.05$) and 29.80 ($SD = 3.95$), respectively, whereas the Control group's mean remained almost unchanged at 41.93 ($SD = 4.20$).

For Emotional Self-Awareness, baseline scores were also comparable: ACT ($M = 55.40$, $SD = 5.22$), CBT ($M = 54.87$, $SD = 5.05$), and Control ($M = 55.13$, $SD = 5.15$). Following the interventions, the ACT group's mean increased to 70.63 ($SD = 4.79$) and the CBT group's to 69.80 ($SD = 4.90$), indicating enhanced self-awareness. The Control group's mean remained relatively unchanged at 55.53 ($SD = 5.10$). At the four-month follow-up, the ACT and CBT groups showed further slight increases to 72.13 ($SD = 4.47$) and

No significant differences in demographic variables were observed between the two intervention groups.

Table 1 presents the means and standard deviations for Health Anxiety and Emotional Self-Awareness scores for the ACT, CBT, and Control groups at baseline, post-test, and four-month follow-up.

71.20 ($SD = 4.70$), respectively, while the Control group remained stable at 55.87 ($SD = 5.05$).

Prior to conducting the analysis of variance (ANOVA) with repeated measurements, the assumptions of normality, homogeneity of variances, and sphericity were assessed. The normality of the distribution was confirmed for both health anxiety and self-awareness scores using the Shapiro-Wilk test ($p = 0.47$ for health anxiety and $p = 0.52$ for self-awareness), indicating that the data were normally distributed. Levene's test for homogeneity of variances showed non-significant results for both variables ($p = 0.61$ for health anxiety and $p = 0.74$ for self-awareness), confirming the assumption of homogeneity. Mauchly's test of sphericity was also non-significant ($\chi^2(2) = 3.28$, $p = 0.23$), confirming the assumption of sphericity was met. Therefore, the assumptions for repeated measures ANOVA were satisfied.

Table 2 presents the results of the repeated measures ANOVA for both Health Anxiety and Emotional Self-Awareness, integrating all variables and groups.

Table 2

Repeated Measures ANOVA Results for Health Anxiety and Emotional Self-Awareness

Source	Variable	df	F	p	Partial η^2
Time	Health Anxiety	2, 84	182.50	< .001	.81
	Emotional Self-Awareness	2, 84	214.30	< .001	.84
Time \times Group	Health Anxiety	4, 84	2.45	.052	.10
	Emotional Self-Awareness	4, 84	2.10	.088	.09
Group	Health Anxiety	2, 42	0.75	.477	.03
	Emotional Self-Awareness	2, 42	0.65	.526	.03

The ANOVA results for Health Anxiety indicated a significant main effect of Time, $F(2, 84) = 182.50, p < .001$, partial $\eta^2 = .81$, suggesting that Health Anxiety scores significantly changed over time across all groups. However, the Time \times Group interaction was not statistically significant, $F(4, 84) = 2.45, p = .052$, indicating that the rate of change over time did not significantly differ among the ACT, CBT, and Control groups. The main effect of Group was also not significant, $F(2, 42) = 0.75, p = .477$.

For Emotional Self-Awareness, there was a significant main effect of Time, $F(2, 84) = 214.30, p < .001$, partial $\eta^2 = .84$, showing that scores significantly increased over time. The Time \times Group interaction was not significant, $F(4, 84) = 2.10, p = .088$, and the main effect of Group was not significant, $F(2, 42) = 0.65, p = .526$, indicating similar patterns across groups.

Table 3 provides Bonferroni-adjusted post-hoc comparisons for within-group changes over time for both variables.

Table 3

Bonferroni Post-hoc Tests for Within-Group Comparisons

Variable	Group	Time Comparison	Mean Difference	SE	p
Health Anxiety	ACT	Baseline vs. Post-test	12.36	1.02	< .001
		Post-test vs. Follow-up	1.44	0.57	.051
		Baseline vs. Follow-up	13.80	1.11	< .001
	CBT	Baseline vs. Post-test	11.93	1.05	< .001
		Post-test vs. Follow-up	1.33	0.60	.078
		Baseline vs. Follow-up	13.27	1.15	< .001
	Control	Baseline vs. Post-test	0.60	0.55	.284
		Post-test vs. Follow-up	0.27	0.50	.600
		Baseline vs. Follow-up	0.87	0.58	.142
Emotional Self-Awareness	ACT	Baseline vs. Post-test	15.23	1.15	< .001
		Post-test vs. Follow-up	1.50	0.60	.054
		Baseline vs. Follow-up	16.73	1.20	< .001
	CBT	Baseline vs. Post-test	14.93	1.18	< .001
		Post-test vs. Follow-up	1.40	0.62	.062
		Baseline vs. Follow-up	16.33	1.25	< .001
	Control	Baseline vs. Post-test	0.40	0.58	.500
		Post-test vs. Follow-up	0.33	0.53	.540
		Baseline vs. Follow-up	0.73	0.60	.240

In the ACT group, Health Anxiety significantly decreased from baseline to post-test (mean difference = 12.36, $p < .001$) and from baseline to follow-up (mean difference = 13.80, $p < .001$). The reduction from post-test to follow-up was not statistically significant ($p = .051$). Similar patterns were observed in the CBT group, with significant reductions from baseline to post-test and baseline to follow-up, but not from post-test to follow-up. The Control group did not show significant changes over time.

For Emotional Self-Awareness, both the ACT and CBT groups showed significant increases from baseline to post-test and baseline to follow-up ($p < .001$). Changes from post-test to follow-up were not significant. The Control group did not exhibit significant changes across any time points.

Table 4 displays the Bonferroni-adjusted post-hoc comparisons between groups at each time point for both variables.

Table 4

Bonferroni Post-hoc Tests for Between-Group Comparisons

Variable	Time Point	Group Comparison	Mean Difference	SE	p
Health Anxiety	Baseline	ACT vs. CBT	-0.53	1.12	.640
		ACT vs. Control	-0.27	1.12	.810
		CBT vs. Control	0.27	1.12	.810
	Post-test	ACT vs. CBT	-0.96	0.95	.320
		ACT vs. Control	-12.03	0.95	< .001
		CBT vs. Control	-11.07	0.95	< .001
	Follow-up	ACT vs. CBT	-1.07	1.00	.290

Emotional Self-Awareness	Baseline	ACT vs. Control	-13.20	1.00	< .001
		CBT vs. Control	-12.13	1.00	< .001
		ACT vs. CBT	0.53	1.28	.684
		ACT vs. Control	0.27	1.28	.840
		CBT vs. Control	-0.27	1.28	.840
		ACT vs. CBT	0.83	1.05	.430
	Post-test	ACT vs. Control	15.10	1.05	< .001
		CBT vs. Control	14.27	1.05	< .001
		ACT vs. CBT	0.93	1.00	.350
		ACT vs. Control	16.27	1.00	< .001
		CBT vs. Control	15.33	1.00	< .001
		ACT vs. CBT			
Follow-up	ACT vs. Control	15.10	1.05	< .001	
	CBT vs. Control	14.27	1.05	< .001	
	ACT vs. CBT	0.93	1.00	.350	
	ACT vs. Control	16.27	1.00	< .001	
	CBT vs. Control	15.33	1.00	< .001	
	ACT vs. CBT				

At baseline, no significant differences were found between any groups for either Health Anxiety or Emotional Self-Awareness. At post-test and follow-up, both the ACT and CBT groups had significantly lower Health Anxiety scores compared to the Control group (all $p < .001$), but there were no significant differences between the ACT and CBT groups themselves. Similarly, for Emotional Self-Awareness, the ACT and CBT groups scored significantly higher than the Control group at post-test and follow-up (all $p < .001$), with no significant differences between the two intervention groups.

4. Discussion and Conclusion

The present study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Cognitive Behavioral Therapy (CBT) on reducing health anxiety and enhancing emotional self-awareness among adult women with Generalized Anxiety Disorder (GAD). The results indicated that both ACT and CBT significantly reduced health anxiety and increased emotional self-awareness from baseline to post-test and maintained these improvements at a four-month follow-up. However, there were no significant differences between the two intervention groups, suggesting that both therapies were equally effective in addressing these variables.

The significant reduction in health anxiety observed in both the ACT and CBT groups aligns with previous research demonstrating the efficacy of these therapies in treating anxiety disorders. For instance, Zoalfaghari et al. (2018) found that both ACT and CBT effectively reduced symptoms of GAD, supporting the notion that these therapies can alleviate excessive worry and anxiety (Zoalfaghari et al., 2018). Similarly, Eftekari and Bakhtiari (2022) reported that both interventions decreased cognitive avoidance in patients with GAD, which is closely related to health anxiety as it involves avoidance of distressing thoughts and situations (Eftekari & Bakhtiari, 2022).

The finding that ACT was as effective as CBT in reducing health anxiety is noteworthy, given that CBT is often considered the gold standard for treating anxiety disorders. ACT's emphasis on accepting distressing thoughts and feelings without attempting to change them may help individuals with GAD reduce their preoccupation with health concerns. This approach contrasts with CBT's focus on challenging and restructuring maladaptive thoughts but achieves similar outcomes. Navidi Poshtiri et al. (2022) demonstrated that ACT effectively reduced health anxiety in nursing and midwifery students, highlighting its applicability in different populations (Navidi Poshtiri et al., 2022).

In terms of emotional self-awareness, both interventions led to significant improvements. Emotional self-awareness is crucial for effective emotional regulation and mental well-being (Abedin et al., 2022). The increase in emotional self-awareness suggests that participants became more attuned to their emotional states, which may contribute to better management of anxiety symptoms. Aminifar et al. (2023) reported that psychodynamic therapy improved emotional self-awareness in psychotherapy trainees, indicating that therapeutic interventions can enhance this construct (Aminifar et al., 2023). The current study extends these findings to ACT and CBT, demonstrating their effectiveness in fostering emotional self-awareness among women with GAD.

The lack of significant differences between ACT and CBT in improving emotional self-awareness suggests that both therapies may enhance self-awareness through different mechanisms. CBT may increase self-awareness by helping individuals identify and challenge negative automatic thoughts, leading to greater insight into cognitive patterns (Mobasher et al., 2022). ACT, on the other hand, promotes mindfulness and present-moment awareness, encouraging individuals to observe their thoughts and emotions without judgment (Hosseinali Ghorbani et al., 2022). Despite these differing approaches, both therapies effectively increased emotional self-awareness in the study participants.

The stability of the improvements at the four-month follow-up indicates that the benefits of both interventions were maintained over time. This finding is consistent with previous research demonstrating the lasting effects of ACT and CBT on anxiety symptoms. For example, Karimi et al. (2022) found that both therapies sustained improvements in fatigue among patients with multiple sclerosis at follow-up assessments. The maintenance of treatment gains is essential for individuals with chronic conditions like GAD, as it suggests that the interventions have long-term benefits (Karimi et al., 2022).

The inclusion of a control group that did not receive any intervention but showed no significant changes over time strengthens the conclusion that the observed improvements were due to the therapeutic interventions rather than external factors. This finding underscores the effectiveness of both ACT and CBT in producing meaningful changes in health anxiety and emotional self-awareness compared to no treatment.

Overall, the results of this study contribute to the growing body of literature supporting the use of ACT and CBT for treating GAD and associated symptoms. The findings suggest that both therapies are viable options for reducing health anxiety and enhancing emotional self-awareness among adult women with GAD. Clinicians may consider patient preferences, availability of resources, and specific treatment goals when choosing between these therapeutic approaches.

5. Limitations and Suggestions

Despite the valuable insights provided by this study, several limitations should be acknowledged. First, the sample size was relatively small, with only 15 participants in each group, which may limit the generalizability of the findings. A larger sample size would increase the power of the study and enhance the confidence in the results. Second, the study focused exclusively on adult women with GAD from Tehran, which may limit the applicability of the findings to other populations, including men or individuals from different cultural or geographic backgrounds. Third, the reliance on self-report measures may introduce bias, as participants might respond in socially desirable ways or may not accurately reflect their internal states. Additionally, the study did not account for potential therapist effects, as differences in therapist skill or style could have influenced the outcomes.

Future studies should aim to address these limitations by including larger and more diverse samples to enhance the generalizability of the findings. Research involving participants of different genders, ages, and cultural backgrounds would provide a more comprehensive understanding of the effectiveness of ACT and CBT across populations. Moreover, studies could incorporate objective measures, such as physiological indicators of anxiety or behavioral assessments, to complement self-report data. Investigating the long-term effects of these therapies beyond four months would also be valuable in determining the durability of treatment gains. Additionally, exploring the specific mechanisms through which ACT and CBT impact health anxiety and emotional self-awareness could inform the development of more targeted interventions.

Clinicians working with individuals with GAD should consider incorporating both ACT and CBT into their therapeutic repertoire, as both have been shown to be effective in reducing health anxiety and enhancing emotional self-awareness. Given that no significant differences were found between the two therapies, the choice of intervention could be tailored to the individual's preferences and treatment goals. For example, patients who are more receptive to mindfulness and acceptance strategies may benefit from ACT, while those who prefer a more structured approach to challenging negative thoughts may find CBT more suitable. Clinicians should also be mindful of the importance of emotional self-awareness in managing anxiety symptoms and incorporate techniques that foster this skill within their interventions. Training and supervision in both therapeutic approaches could enhance clinicians' flexibility in addressing the diverse needs of their clients.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

This study adhered to all ethical principles. Initially, participants were informed about the research's objectives and procedures. All participants provided written informed consent. The study complied with all APA ethical standards and the Helsinki Declaration guidelines.

References

- Abedin, T., Ghodsi, P., Taghilo, S., & Davabi, M. (2022). Causal relationship between coherent self-awareness and basic psychological needs with psychological well-being: considering the mediating role of mind-awareness in students. *Journal of Adolescent and Youth Psychological Studies*, 3(2), 213-226. <https://www.magiran.com/paper/2508584>
- Akrami, S. (2022). Evaluation of the Effectiveness of Acceptance and Commitment-based Education on Emotional Self-disclosure and Marital Commitment of Women Referring to Gonbad Kavous Clinics. *International Journal of Education and Cognitive Sciences*, 3(2), 23-29. <https://doi.org/10.22034/injoeas.2022.160610>
- Aminifar, S., Bahrami Hidaji, M., Kraskian Mujembari, A., Mansoobifar, M., & Peyvandi, P. (2023). The effectiveness of short-term intensive psychodynamic therapy on emotional self-awareness, empathy and self-compassion in psychotherapy trainees [Research]. *Journal of Adolescent and Youth Psychological Studies*, 4(5), 133-149. <https://doi.org/10.61186/jayps.4.5.133>
- Apolinário-Hagen, J., Drüge, M., & Fritsche, L. (2020). Cognitive Behavioral Therapy, Mindfulness-Based Cognitive Therapy and Acceptance Commitment Therapy for Anxiety Disorders: Integrating Traditional with Digital Treatment Approaches. In Y.-K. Kim (Ed.), *Anxiety Disorders: Rethinking and Understanding Recent Discoveries* (pp. 291-329). Springer Singapore. https://doi.org/10.1007/978-981-32-9705-0_17
- Cojocar, C. M., Popa, C. O., Schenk, A., Suci, B. A., & Szasz, S. (2024). Cognitive-behavioral therapy and acceptance and commitment therapy for anxiety and depression in patients with fibromyalgia: a systematic review and meta-analysis. *Medicine and Pharmacy Reports*, 97(1), 26. <https://doi.org/10.15386/mpr-2661>
- Ebrahimi, F., Barghi irani, Z., & Ali Akbari, M. (2023). Comparison of Cognitive-Behavioral Therapy and Acceptance and Commitment Therapy in Reducing Mood Swings, Sleep Quality and Sexual Performance in Postmenopausal Women. *Health Psychology*, 11(44), 73-88. <https://doi.org/10.30473/hpj.2023.59513.5289>
- Eftekari, A., & Bakhtiari, M. (2022). Comparing the effectiveness of schema therapy with acceptance and commitment therapy on cognitive avoidance in patients with generalized anxiety disorder. *Practice in Clinical Psychology*, 10(1), 11-22. <https://doi.org/10.32598/jpcp.10.1.593.1>
- Eftekhar Saadi, Z. (2022). Evaluation of social well-being and emotional self-awareness based on the quality of relationship with parents due to smartphone addiction in high-intelligence students. *Journal of Pediatric Nursing*, 8(3), 16-26. https://jpen.ir/browse.php?a_id=626&sid=1&slc_lang=en
- Enayati Shabkolai, M., Enayati Shabkolai, M., & Bagheri Dadokolai, M. (2023). The Effectiveness of Treatment based on Acceptance and Commitment on Social Adaptation, Academic Self-Regulation and Cognitive Flexibility of Students with Specific Learning Disorders. *International Journal of Education and Cognitive Sciences*, 4(1), 33-41. <https://doi.org/10.61838/kman.ijecs.4.1.5>
- Esmaeelpanah Amlashi, Z., Hosseinkhanzadeh, A. A., Akbari, B., & Moghtader, L. (2022). Comparison of the Effectiveness of Cognitive Behavioral Training with Acceptance and Commitment Therapy on the Self-esteem of Mothers of Children with Autism Spectrum Disorder. *childmh*, 9(2), 50-64. <https://doi.org/10.52547/jcmh.9.2.5>
- Fernández-Rodríguez, C., Coto-Lesmes, R., Martínez-Loredo, V., González-Fernández, S., & Cuesta, M. (2023). Is Activation the Active Ingredient of Transdiagnostic Therapies? A Randomized Clinical Trial of Behavioral Activation, Acceptance and Commitment Therapy, and Transdiagnostic Cognitive-Behavioral Therapy for Emotional Disorders. *Behavior Modification*, 47(1), 3-45. <https://doi.org/10.1177/01454455221083309>
- Gladwyn-Khan, M., & Morris, R. (2023). The efficacy of therapist-supported acceptance and commitment therapy-based bibliotherapy for psychological distress after stroke: a single-case multiple-baseline study. *Behavioural and Cognitive Psychotherapy*, 51(1), 87-104. <https://doi.org/10.1017/S135246582200042X>
- Golestani, R., Khalatbari, J., Nasehi, M., & Ghorban Shirodi, S. (2022). A Comparison of the Effectiveness of Acceptance and Commitment Therapy (ACT) and Cognitive Behavioral Therapy (CBT) in Improving Health Locus of Control, Irrational Health Beliefs, and Medication Adherence in Men and Women with Type II Diabetes. *Journal of Applied Family Therapy*, 3(1), 542-564. https://www.aftj.ir/article_147344.html?lang=en
- Hadian, S., Havasi soomar, N., Hosseinzadeh Taghvaei, M., Ebrahimi, M. I., & Ranjbaripour, T. (2023). Comparing the effectiveness of acceptance and commitment therapy and reality therapy on the responsibility and self-efficacy of divorced women [Research]. *Advances in Cognitive Sciences*, 25(3), 47-63. <https://doi.org/10.30514/icss.25.3.47>
- Hosseinali Ghorbani, A., Moradi, O., Arefi, M., & Ahmadian, H. (2022). The Effectiveness of Cognitive behavior therapy and Acceptance and Commitment therapy (ACT) on Self-Control and Resiliency in Divorced Women. *Applied Family Therapy Journal (AFTJ)*, 3(4), 493-508. <http://journals.kmanpub.com/index.php/aftj/article/view/1039>
- Hosseininik, S. S., Rasoly, S. Y., Sadeghi, M., & Salmabadi, M. (2023). The effectiveness of acceptance and commitment therapy in social cognition and psychological capital. *icss*, 25(2), 30-43. <https://doi.org/10.30514/icss.25.2.30>
- Iri, H., Makvandi, B., Bakhtiarpour, S., & Hafezi, F. (2019). Comparison of the effectiveness of Acceptance and

- Commitment Therapy and Dialectical Behavioral Therapy on health anxiety, psychosocial adjustment and cognitive emotion regulation of divorced women. *medical journal of mashhad university of medical sciences*, 61(suppl1), 79-88. <https://doi.org/10.22038/mjms.2019.13786>
- Karimi, M., Narenji Thani, F., Naghsh, Z., & Ghazaghi, T. (2022). Comparing the effectiveness of acceptance and commitment-based therapy with cognitive-behavioral therapy in improving fatigue in patients with multiple sclerosis. *Iranian journal of psychiatry and behavioral sciences*, 16(1), 117-131. <https://doi.org/10.5812/ijpbs.107467>
- Khanagha, H. B. (2024). Comparison of Cognitive Behavioral Therapy and Acceptance and Commitment Therapy on Negative Automatic Thoughts and Negative Affect in Depressed Women. *Aftj*, 5(2), 208-217. <https://doi.org/10.61838/kman.aftj.5.2.23>
- Mansouri, A., Korozhde, N., & Miri, S. (2017). The Effectiveness of Acceptance and Commitment Therapy (ACT) on the Symptoms of Generalized Anxiety Disorder (GAD) in Mothers of Children with Autism Spectrum Disorder. *Achievements of Clinical Psychology*, 2(4), 1-20. <https://www.magiran.com/paper/1915836>
- Mertens, E. C. A., Deković, M., van Londen, M., & Reitz, E. (2022). Parallel Changes in Positive Youth Development and Self-awareness: the Role of Emotional Self-regulation, Self-esteem, and Self-reflection. *Prevention Science*, 23(4), 502-512. <https://doi.org/10.1007/s11121-022-01345-9>
- Mobasher, Z., Bagheri, N., Abbasi, M., & Tanha, Z. (2022). Comparison of the effectiveness of cognitive-behavioral therapy and combination therapy on self-compassion and emotional self-regulation in heart patients [Research]. *Journal of Modern Medical Information Sciences*, 7(4), 33-43. <https://doi.org/10.52547/jmis.7.4.33>
- Moens, M., Jansen, J., De Smedt, A., Roulaud, M., Billot, M., Laton, J., Rigoard, P., & Goudman, L. (2022). Acceptance and Commitment Therapy to Increase Resilience in Chronic Pain Patients: A Clinical Guideline. *Medicina*, 58(4).
- Mohkamkar, A., Shaterian, F., & Nikookar, A. (2024). The Effectiveness of Education based on Successful Intelligence on Emotional Self-Awareness and Academic Engagement of Secondary School Students. *Sociology of Education*, 10(1), 305-313. <https://doi.org/10.22034/ijes.2024.2015018.1493>
- Navidi Poshtiri, S., Hassanzadeh, R., & Olia Emadian, S. (2022). The effectiveness of acceptance and commitment therapy on tolerance failure and health anxiety in nursing and midwifery students with health anxiety. *Journal of Adolescent and Youth Psychological Studies (JAYPS)*, 3(1), 222-231. <https://doi.org/10.61838/kman.jayps.3.1.18>
- Norouzi, M., & Kajbaf, M. B. (2023). The Effectiveness of Treatment Based on Acceptance and Commitment on Mental Health and Cognitive Fusion of Girls with Emotional Breakdown [Research]. *Journal of Research in Behavioural Sciences*, 20(4), 634-647. <https://doi.org/10.52547/rbs.20.4.6>
- Sancassiani, F., Petretto, D. R., Romano, F., & Preti, A. (2018). Exploring Physical and Psychosocial Well-Being and Self-Awareness as a New Frontier in Active Aging. *Clinical Practice and Epidemiology in Mental Health*, 14(1), 293-294. <https://doi.org/10.2174/1745017901814010293>
- Sarabadani, A., Hasanzadeh, R., & Ghanadzadegan, H. (2023). The effectiveness of acceptance and commitment therapy on distress tolerance and cognitive emotion regulation in women with generalized anxiety disorder. *Applied Family Therapy Journal (AFTJ)*, 4(2), 96-114. <https://doi.org/10.61838/kman.aftj.4.2.6>
- Sedighi Arfaee, F., Rashidi, A., & Tabesh, R. (2021). The Distress Tolerance in the Elderly: The Role of Experiential Avoidance, Rumination and Mindfulness. *Aging Psychology*, 7(1), 12-11. <https://doi.org/10.22126/jap.2021.6108.1498>
- Shahbazfar, R., Zarei, E., Hajializade, K., & Dortaj, F. (2021). Comparing the Effectiveness of Cognitive-Behavioral Couple Therapy and Couple Therapy Based on Acceptance and Commitment Therapy in Improving Marital Quality of Non-clinical Couples. *Psychological Models and Methods*, 12(43), 100-113. <https://doi.org/10.30495/jpmm.2021.4726>
- Sierra, M. A., & Ortiz, E. (2023). Feasibility and effect of a self-help online acceptance and commitment therapy program focused on repetitive negative thinking for Colombian young women. *Journal of Contextual Behavioral Science*, 28, 127-138. <https://doi.org/10.1016/j.jcbs.2023.03.010>
- Sij, Z. D., Manshaee, G., Hasanabadi, H., & Nadi, M. (2018). The Effects of Schema Therapy on Emotional Self-Awareness, Vulnerability, and Obsessive Symptoms Among Patients With Obsessive-Compulsive Disorder. *Modern Care Journal*, 15(2). <https://doi.org/10.5812/modernc.69656>
- Tajeryan, Z., Afrooz, G. A., & Nouryghasemabadi, R. (2023). Emotion Regulation in Women with PTSD and Addiction. *Psychology of Woman Journal*, 4(2), 160-168. <https://doi.org/10.61838/kman.pwj.4.2.19>
- YahyazadehJeloudar, S., Hedarie, S., & Mousavi Teroujeni, S. R. (2018). The Effect of Self-awareness Rising on Identification and Accountability among High School Students. *Shenakht*, 5(4), 52-62. <https://doi.org/10.29252/shenakht.5.4.52>
- Zahedi, Z., Azizi, A., Rahmani, S., Zarein, F., & Ranjbar, M. (2021). Compare the Effectiveness of Acceptance and Commitment Therapy and Cognitive-Behavioral Therapy on Marital Satisfaction. *Family Counseling and Psychotherapy*, 10(2), 75-100. <https://doi.org/10.22034/fcp.2021.61928>
- Zoalfaghari, A., Bahrami, H., & Ganji, K. (2018). A Comparative Analysis of Acceptance-Commitment and Cognitive-Behavioral Interferences Effectiveness on Generalized Anxiety Disorder [Original Article]. *Journal of Arak University of Medical Sciences*, 20(12), 24-34. <http://jams.arakmu.ac.ir/article-1-5440-en.html>