

Enhancing Cognitive-Attentional Functioning and Life Expectancy Hope through Acceptance and Commitment Therapy in Depressed Youth

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Abstract

Background: The pervasive impact of depression on cognitive-attentional processes and future hope in young individuals underscores the critical need to investigate targeted interventions.

Objectives: This study aimed to evaluate the effectiveness of Acceptance and Commitment Therapy (ACT) in improving Cognitive-Attentional Syndrome (CAS) and enhancing hope for the future in young adults experiencing depression.

Methods: A quasi-experimental design was employed with a pre-test/post-test control group. The target population consisted of young adults aged 18-35 years diagnosed with depression, who presented for services at psychology and counseling centers in Ahvaz during 2021. A convenience sample of 40 eligible individuals was recruited and randomized into two groups: an experimental group and a control group, each comprising 20 participants. Data were collected using the Cognitive Attentional Syndrome Questionnaire (CAS-Q) and the Adult Hope Scale (AHS). The experimental group underwent eight weekly 90-minute sessions of ACT, while the control group was placed on a waitlist with no intervention. Analysis of Covariance (ANCOVA) was employed to analyze the collected data.

Results: A statistically significant reduction was found in CAS scores ($F = 255.28, P < 0.001, \eta = 0.83$) and a significant increase in hope scores ($F = 296.46, P < 0.001, \eta = 0.93$) among young adults with depression in the post-intervention assessment within the ACT group, relative to the control group. These findings indicate that ACT is an effective treatment for mitigating maladaptive cognitive-attentional patterns and cultivating greater hope for the future in this demographic.

Conclusion: This study provides robust evidence for the efficacy of ACT in reducing CAS and enhancing dispositional hope in young adults with depression. These findings suggest ACT's potential as a scalable clinical intervention to address core psychological processes and improve long-term mental health outcomes.

Keywords: Acceptance and Commitment Therapy, Hope, Depression, Young Adults

1. Background

Depression in adolescents and young adults is a significant global health concern, marked by persistent low mood, anhedonia, and various cognitive and somatic symptoms that severely impair daily functioning, academic pursuits, and interpersonal relationships.¹ Estimates indicate a high global prevalence of depression among young adults aged 18-25, ranging from 10-20% across different populations, highlighting its profound effect on developmental trajectories and long-term psychological well-being.² Beyond its primary affective manifestations, depression often presents with cognitive impairments, collectively termed Cognitive-Attentional Syndrome (CAS).³ Wells⁴ describes CAS as encompassing maladaptive cognitive processes, including excessive rumination, worry, and heightened vigilance toward perceived threats, which intensify emotional distress and impede adaptive

copings. Notably, CAS differs from general cognitive deficits (e.g., in memory or processing speed) associated with depression; instead, it represents a specific pattern of maladaptive self-regulatory thinking that perpetuates distress rather than indicating a broad cognitive deficiency. These cognitive patterns not only maintain depressive symptoms but also foster a sense of diminished hope and a pessimistic future outlook, leading to feelings of helplessness that undermine recovery motivation.⁵ Therefore, a thorough understanding of these complex facets of depression is crucial for developing targeted interventions that alleviate acute symptoms, build resilience, and support positive developmental outcomes into adulthood.

Hope, as a cognitive-motivational construct, plays a pivotal role in the psychological well-being and adaptive functioning of young individuals, particularly those

grappling with this condition. Defined by Snyder⁶ as a positive motivational state rooted in goal-directed agency and the ability to identify pathways to achieve desired outcomes, hope serves as a critical buffer against adversity and a catalyst for resilience. In the context of youth with depressive symptoms, diminished hope can intensify feelings of helplessness, reduce engagement in recovery-oriented behaviors, and worsen prognostic outcomes.⁷ Conversely, interventions that cultivate hope can counteract the deleterious effects of the disorder by fostering optimism, enhancing motivation, and promoting active coping strategies.⁸ By targeting hope as a therapeutic goal, interventions can empower young individuals to envision a more positive future, thereby mitigating the emotional and functional impairments associated with depression. As such, therapeutic approaches that explicitly address hope hold significant potential as adjuncts to traditional treatments, offering a pathway to bolster personal agency and improve long-term mental health outcomes.

The CAS represents a critical dimension of psychological dysfunction in depression, particularly during the developmentally sensitive periods of adolescence and young adulthood. The age range of 18-35 years is particularly critical due to significant developmental transitions, including establishing independence, pursuing higher education or career paths, and forming significant relationships. These transitions can be major stressors, and the onset of depression during this period can severely disrupt these crucial developmental tasks, leading to long-term consequences for mental health and functional outcomes. Characterized by repetitive negative thinking, including worry and rumination, and a heightened focus on negative stimuli, CAS disrupts executive functioning and attentional control, perpetuating emotional distress and impairing goal-directed behavior.⁹ These cognitive deficits have far-reaching consequences, compromising academic performance, social interactions, and overall quality of life.¹⁰ For young individuals, whose cognitive and emotional systems are still developing, the impact of CAS can be particularly detrimental, reinforcing cycles of depressive symptomatology and hindering developmental milestones.¹¹ Consequently, therapeutic interventions that target these maladaptive cognitive processes are vital for alleviating depressive symptoms and promoting functional recovery. By addressing the underlying mechanisms of CAS, such interventions can enhance cognitive flexibility, improve attentional regulation, and support adaptive behavioral responses, thereby breaking the cycle of depressive states and fostering psychological resilience.

Acceptance and Commitment Therapy (ACT) offers a promising and empirically supported framework for addressing the interplay between cognitive-attentional deficits and diminished hope in depressed youth. At its core, ACT aims to increase psychological flexibility

through six interconnected processes: acceptance, cognitive defusion, present moment awareness, self-as-context, values, and committed action.¹² Unlike traditional cognitive-behavioral therapies that focus on altering the content of negative thoughts, ACT emphasizes psychological flexibility—the ability to engage fully with the present moment and align behavior with personal values, regardless of internal emotional states. By promoting acceptance of difficult thoughts and emotions, ACT reduces the dominance of rumination and worry, key components of CAS, thereby alleviating cognitive-attentional impairments.¹³ Simultaneously, ACT's focus on identifying and pursuing value-driven goals fosters a sense of purpose and direction, which can significantly enhance hope and counteract the inertia and withdrawal often associated with depressive disorders.¹⁴ The experiential exercises and behavioral activation techniques integral to ACT provide practical tools for cultivating psychological acceptance and value-congruent action, offering a dual approach to improving cognitive functioning and emotional well-being. Recent meta-analyses and systematic reviews have robustly supported ACT's efficacy across a range of psychological conditions, including depression in young adults, highlighting its relevance as a promising intervention.¹⁵ Preliminary studies suggest that ACT is particularly effective for adolescents and young adults, as its flexible and experiential nature aligns well with the developmental needs of this population.

The profound individual and societal consequences of depression in youth, coupled with the detrimental effects of impaired cognitive-attentional functioning and reduced hope, highlight the urgent need for research into effective intervention strategies that target these core psychological processes. While various therapeutic modalities, such as Cognitive-Behavioral Therapy (CBT) and pharmacotherapy, have demonstrated efficacy in treating adolescent and young adult depression, there remains a critical gap in addressing the specific interplay between cognitive-attentional deficits and lack of future-oriented hope.¹⁶ Investigating interventions like ACT, which target both cognitive and emotional dimensions of depressive illness, can expand the repertoire of evidence-based practices available to clinicians. Moreover, a deeper understanding of the mechanisms through which ACT exerts its effects on cognitive-attentional processes and hope can inform the development of more precise and potent therapeutic strategies. Such research is particularly crucial given the unique developmental vulnerabilities of youth, where early intervention can alter the trajectory of mental health outcomes and prevent long-term psychological and functional impairments.¹⁷ Specifically, despite the growing evidence for ACT in youth depression, there is a lack of research directly examining how ACT simultaneously impacts both CAS and hope as distinct but interrelated mechanisms of change in this population. Addressing this

gap is crucial for refining targeted interventions and optimizing treatment outcomes for young adults experiencing depression.

2. Objectives

Consequently, this study was conducted to assess the effectiveness of an ACT intervention on the CAS and hope in young adults diagnosed with depression.

3. Methods

This study adopted a quasi-experimental pre-test/post-test control group design. The study population consisted of young adults (aged 18-35 years) diagnosed with depression who sought services at psychology and counseling centers in Ahvaz during 2021. A convenience sample of 40 eligible participants was recruited and subsequently randomized into experimental and control groups, each comprising 20 individuals, using a computer-generated simple randomization procedure (Figure 1). The inclusion criteria included: (a) young adults presenting to Ahvaz counseling centers in 2021 with a diagnosis of a depressive disorder, confirmed by licensed psychotherapists through structured clinical interviews based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria; (b) a diagnosis of moderate depression, indicated by a score of 20–28 on the Beck Depression Inventory; and (c) no current pharmacological treatment for depression. The exclusion criteria included: (a) participant withdrawal of consent; (b) lack of informed

consent; (c) severe relapse of a physical or mental illness; and (d) absence from more than two intervention sessions. The sample size of 40 was determined based on a power analysis conducted using G*Power, assuming a medium effect size, alpha of 0.05, and power of 0.80, which indicated a minimum of 34 participants was required to detect significant differences in the primary outcomes. The experimental and control groups were matched via random assignment, and a pre-test was administered to both groups prior to the intervention. Subsequently, the experimental group received an ACT intervention consisting of eight 90-minute weekly sessions, delivered by a licensed clinical psychologist with specialized training in ACT and over five years of experience in psychotherapy, while the control group received no intervention. The pre-test was conducted one week before the intervention, and the post-test was administered one week after the final session, resulting in an approximately 10-week gap between assessments. A summary of the ACT session content has been provided in Table 1. Following the completion of the ACT intervention, a post-test was administered to both the experimental and control groups using the study questionnaires. Ethical safeguards included obtaining written informed consent from all the participants, ensuring confidentiality of personal data, and implementing risk mitigation protocols, such as immediate referral to crisis intervention services for participants showing signs of severe distress or suicidal ideation.

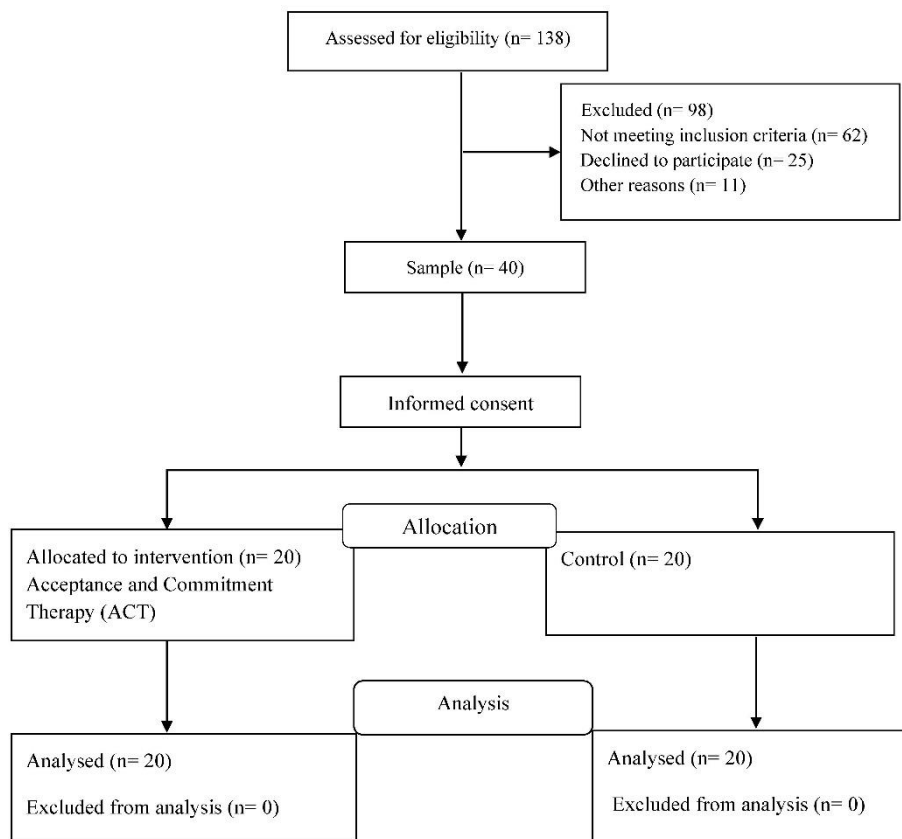


Figure 1. CONSORT Flow Diagram.

Table 1. Content of Acceptance and Commitment Therapy (ACT) Sessions

Session	Topic	Process/behavior targeted
1	Introduction of Members, Group Goals, and Overview of the Therapy Course	Establishing Rapport, Gathering Information
2	From Experiential Avoidance to Familiarity with Some Basic ACT Concepts and the Nature of Psychological Pain	Undermining Avoidance of Negative Emotions
3	Cognitive Defusion, Self-as-Context, Awareness of the Function of Psychological Pain	Acceptance of Thoughts and Negative Emotions
4	Education on Emotion Regulation, Awareness (Using Body Scan Exercise)	Attention to Present Moment and Moment-by-Moment Experience
5	Education on Self-as-Context and Practice, Mindful Awareness and Distress Tolerance Training	Acceptance of Emotions and Negative Thoughts
6	Clarifying Personal Values and Education on Emotion Regulation (Body Scan Exercise)	Effort Towards Value-Consistent Behavior
7	Education on Personal Values and Committed Action (Imaginary Scene Exercise)	Gaining Cognitive Defusion
8	Review and Practice of Learned Skills with Emphasis on Regulating Emotions and Creating Meaning in Life	Letting Go of Negative Emotions and Thoughts, Gaining Cognitive Defusion

3.1. Measure

3.1.1. The Adult Hope Scale (AHS)

The Adult Hope Scale (AHS), a 9-item self-report instrument developed by Snyder et al.⁶ to assess dispositional hope, employs a 5-point Likert scale ranging from 1 (totally wrong) to 5 (totally right) for each item. Total scores on the AHS can range from 9 to 45, with higher scores reflecting a greater level of hope. In a previous study, Hasani et al.¹⁸ reported a Cronbach's alpha coefficient of 0.82 for the AHS, indicating a good internal consistency.

3.1.2. The Cognitive Attentional Syndrome Questionnaire-1 (CAS-Q)

The Cognitive Attentional Syndrome Questionnaire-1 (CAS-Q), a 16-item self-report instrument developed by Wells et al. in 2009,⁴ is designed to assess the activation of cognitive-attentional patterns. Specifically, two items evaluate the frequency of worry and attentional focus on threat, respectively. The remaining six items assess individuals' coping strategies in response to feelings and negative thoughts. Responses to these eight subscales are rated on a 9-point Likert scale, ranging from 0 to 8, with each subscale assessing the degree of belief in metacognitive beliefs about worry. The total score on the CAS-Q ranges from 0 to 128, with higher scores indicating greater activation of the CAS. In their research, Mohammadkhani et al.¹⁹ reported a Cronbach's alpha coefficient of 0.88 for the CAS-Q, demonstrating strong

internal consistency

3.2. Statistical Analysis

To assess the impact of the intervention, inferential statistical analysis was performed using Analysis of Covariance (ANCOVA). All statistical analyses were conducted using SPSS software (version 27).

4. Results

The sample of this study consisted of young adults with a mean age of 25.32 years (SD = 4.18). The mean duration of their reported depressive symptoms was 3.80 years (SD = 1.52). Regarding education, 60% of participants had completed university-level education, while the remaining 40% held a high school diploma. Table 2 displays the descriptive statistics, specifically the means and Standard Deviations (SD), for the primary research variables measured at both the initial pre-test and subsequent post-test assessments. As presented in Table 2, the mean scores for both the CAS and hope demonstrated improvement in the experimental group from the pre-test to the post-test assessment. In contrast, the control group did not exhibit statistically significant changes in these measures over the same period. Specifically, for the control group, the negligible differences between pre-test and post-test means for both CAS and hope suggest that, without intervention, these measures remained stable, indicating the absence of spontaneous remission or improvement.

Table 2. Means and Standard Deviations of Research Variables in the Experimental and Control Groups

Variable	Group	Pre-test		Post-test		P (within-group)
		Mean	SD	Mean	SD	
Cognitive-attentional syndrome (CAS)	Control	99.45	10.30	98.80	9.25	0.751
	Experimental	101.72	11.67	49.24	6.39	0.001
Hope	Control	17.40	3.96	16.68	3.18	0.860
	Experimental	16.36	3.75	25.24	4.45	0.001

The Kolmogorov-Smirnov test was conducted to assess the normality of data distribution. For the CAS, the test statistics were: experimental group pre-test K-S=0.15 ($P = 0.170$), experimental group post-test K-S=0.17 ($P = 0.054$), control group pre-test K-S=0.16 ($P = 0.096$), and control group post-test K-S=0.15 ($P = 0.127$). For hope,

the results were: experimental group pre-test K-S=0.16 ($P = 0.105$), experimental group post-test K-S=0.159 ($P = 0.106$), control group pre-test K-S=0.13 ($P = 0.200$), and control group post-test K-S=0.15 ($P = 0.127$). These results indicate that the data for all variables across both groups and time points were normally distributed. Prior to

conducting the ANCOVA, the assumption of homogeneity of regression slopes was assessed and met, indicating that the relationship between the covariate (pre-test scores) and the dependent variable (post-test scores) was consistent across both the experimental and control groups. This ensures the validity of the ANCOVA results.

Table 3 summarizes the findings of the ANCOVA, which was conducted to assess the impact of the intervention on post-intervention means for both the CAS and hope, while controlling baseline (pre-test) scores. The analysis yielded statistically significant main effects of the intervention on both outcome variables. Specifically, after adjusting for pre-test scores, the experimental group

demonstrated a significantly lower mean score on the CAS ($F = 255.28, P < 0.001$) and a significantly higher mean score on hope ($F = 296.46, P < 0.001$) in comparison to the control group. The substantial partial eta squared values (CAS: $\eta^2 = 0.83$; hope: $\eta^2 = 0.93$) indicate that a large proportion of the variance in both outcome measures was accounted for by the intervention. These large effect sizes suggest that ACT had a very strong practical impact on reducing CAS symptoms and increasing hope in the experimental group, accounting for 83% of the variance in CAS and 93% of the variance in hope that was not explained by initial differences between groups.

Table 3. Results of Analysis of Covariance on Post-test Means of CAS and Hope

Variable	SS	df	MS	F	P	η^2
Cognitive-attentional syndrome (CAS)	169.98	1	169.98	255.28	0.001	0.83
Hope	378.86	1	378.86	296.46	0.001	0.93

5. Discussion

This investigation aimed to evaluate the efficacy of ACT in ameliorating the CAS and fostering hope among young individuals diagnosed with depression. The findings of this study demonstrated that ACT effectively reduced symptoms of CAS in this population. CAS, characterized by maladaptive cognitive patterns including excessive rumination, worry, and hypervigilance towards perceived threats, is a significant contributor to the persistence and severity of depressive symptoms.²⁰ The implementation of ACT, which emphasizes psychological flexibility through mindfulness, acceptance of negative emotions, and value-driven behavioral activation, was shown to effectively disrupt these cognitive patterns.¹⁴ By promoting present-moment awareness and encouraging acceptance rather than avoidance of distressing thoughts, ACT enabled participants to redirect their cognitive focus, thereby alleviating the emotional distress and cognitive rigidity associated with CAS. The statistically significant reduction in CAS symptoms observed in the ACT group compared to the control group underscores the intervention's targeted impact on cognitive-attentional processes, highlighting its potential as a robust therapeutic approach for addressing this critical dimension of depression in young adults.

These findings have significant clinical applications, particularly for mental health practitioners working with young adults aged 18-35 years experiencing depression. ACT can be integrated into outpatient counseling settings as a structured, evidence-based intervention to target cognitive-attentional deficits and enhance hope. Its focus on mindfulness and value-driven action makes it suitable for group or individual therapy formats, offering clinicians practical tools such as mindfulness exercises and values clarification activities to help clients manage rumination and foster goal-directed behaviors. Furthermore, ACT's

transdiagnostic nature allows it to complement existing treatments like CBT, providing a flexible approach for clients with co-occurring anxiety or stress-related symptoms.²¹

These findings carry important implications for clinical practice, particularly in the treatment of depression among young adults, a population susceptible to the long-term consequences of cognitive and emotional impairments. The effectiveness of ACT in reducing CAS suggests its potential as a valuable alternative or complement to traditional interventions, such as CBT, by addressing both the cognitive and emotional aspects of depression.²¹ By cultivating skills such as cognitive defusion and mindful awareness, ACT not only mitigates the immediate symptoms of CAS but also equips individuals with adaptive strategies to manage future emotional challenges, potentially reducing the risk of depressive relapse.²² The results of this study advocate for the integration of ACT into clinical settings, particularly for young adults exhibiting pronounced cognitive-attentional difficulties.

The findings of this study furnish compelling evidence for the efficacy of ACT in significantly augmenting hope among young adults experiencing depression, a crucial element in fostering enhanced psychological well-being and resilience. Hope, as delineated by Snyder's⁶ theoretical framework, comprises goal-directed agency and the perceived capacity to generate viable pathways towards achieving desired outcomes, both of which are frequently attenuated in individuals grappling with depression.⁶ Through its fundamental components—mindfulness, acceptance of internal experiences, and commitment to actions congruent with personal values—ACT cultivates a heightened sense of purpose and optimism, enabling participants to recontextualize their emotional landscape and engage in behaviors that align with their core aspirations.²³ The statistically significant elevation in

hope scores, observed in the ACT intervention group compared to the control group, suggests that the intervention effectively counteracts the pervasive sense of hopelessness often characteristic of depressive states. This enhancement of hope is likely raised from ACT's emphasis on the identification of personally meaningful values and the subsequent pursuit of committed actions, which empowers young adults to envision a more positive future trajectory and mitigate feelings of learned helplessness.^{24,25} These results highlight ACT's potential to address motivational deficits in depression, offering clinicians a framework to foster resilience and support long-term recovery through structured interventions that mainly emphasize personal values and proactive coping strategies.²⁶

The present study, just like any other research, has several limitations that warrant consideration. In addition to the previously noted constraints on generalizability due to the specific sample of young adults in Ahvaz city, the relatively small sample size may limit the statistical power to detect smaller effect sizes and reduce the robustness of the findings. Furthermore, reliance on self-report measures, such as the CAS-Q and AHS, introduces potential response biases, including social desirability or recall inaccuracies, which may affect the validity of the results. The CAS-Q, while reliable, primarily captures metacognitive beliefs and may not fully assess all the dimensions of cognitive-attentional deficits, such as real-time attentional performance. Similarly, the AHS, though well-validated, may be influenced by transient mood states, potentially conflating state and trait hope. Therefore, future research should address these limitations by incorporating larger, more diverse samples to enhance generalizability across cultural and socioeconomic contexts. Additionally, studies could employ objective measures, such as neuropsychological tests for attentional control or ecological momentary assessments for hope, in order to complement self-report data. It is worth mentioning that investigating the long-term effects of ACT through follow-up assessments and exploring its efficacy in combination with other interventions, such as pharmacotherapy, could further elucidate its therapeutic potential.

6. Conclusion

The findings of this study provide robust evidence supporting the efficacy of ACT as a targeted intervention for young adults with depression. The statistically significant reduction in CAS symptoms, characterized by decreased rumination and enhanced attentional control, underscores ACT's capacity to address maladaptive cognitive patterns through its emphasis on mindfulness and acceptance-based strategies. Concurrently, the significant increase in hope among participants in the ACT group highlights the intervention's ability to foster psychological resilience and optimism, key factors in ameliorating depressive

symptoms. These results suggest that ACT is a promising therapeutic approach for addressing both cognitive and emotional dimensions of depression, though caution is warranted in generalizing these findings beyond the specific context of young adults in Ahvaz due to the small sample size and cultural specificity of the study population. The integration of value-driven behavioral activation and experiential techniques within ACT appears to be a pivotal mechanism underlying these outcomes. Collectively, these findings support the cautious application of ACT in clinical settings for young adults with depression, with future research needed to validate its efficacy in broader populations and explore its long-term impact.

Research Highlights

What Is Already Known?

Depression in young adults is closely associated with cognitive-attentional dysfunction and diminished hope for the future. Maladaptive thought patterns, such as rumination and worry, exacerbate emotional distress. Previous research has suggested that ACT may improve emotional regulation, but its impact on CAS remains underexplored.

What Does This Study Add?

This study demonstrates that ACT significantly reduces CAS and enhances future-oriented hope in young adults with depression. It provides empirical support for using ACT to target core psychological processes, offering a promising intervention for improving attentional functioning and psychological resilience in this vulnerable population.

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Author Contributions

SA: Conceptualized the study, designed the research methodology, and led the data analysis and interpretation. FKS: Contributed to the literature review, data collection, and implementation of the ACT intervention. EHH: Assisted in participant recruitment, data collection, and drafting the initial manuscript. MJ: Contributed to the statistical analysis, interpretation of results, and critical revision of the manuscript for intellectual content. All authors reviewed and approved the final manuscript.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

Ethical Approval

This research received approval from the Ethics Committee of Islamic Azad University, under the approval code IR.IAU.AHVAZ.REC.1399.009.

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