

Effectiveness of Acceptance and Commitment Therapy (ACT) on Anxiety and Emotion Regulation in Girls

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ABSTRACT

Objective: This study aimed to investigate the effectiveness of Acceptance and Commitment Therapy (ACT) in reducing anxiety and improving emotion regulation in adolescent girls.

Methods and Materials: This study employed a randomized controlled trial (RCT) design with 30 adolescent girls from Tehran, randomly assigned to either the ACT intervention group (n = 15) or a control group (n = 15). The ACT group participated in eight 90-minute therapy sessions, while the control group received no intervention. Standardized measures, including the Beck Anxiety Inventory (BAI) and the Difficulties in Emotion Regulation Scale (DERS), were administered at pre-test, post-test, and five-month follow-up. Data were analyzed using analysis of variance with repeated measurements (ANOVA-RM) and the Bonferroni post-hoc test in SPSS-27 to examine within-group and between-group differences.

Findings: The results showed a significant reduction in anxiety scores in the ACT intervention group from 35.24 (SD = 5.12) at pre-test to 21.75 (SD = 4.85) at post-test and 19.88 (SD = 4.77) at follow-up, while the control group's anxiety scores remained stable (p = 0.001). Similarly, emotion regulation significantly improved in the intervention group, with scores increasing from 45.32 (SD = 6.23) at pre-test to 60.21 (SD = 5.90) at post-test and 62.98 (SD = 5.78) at follow-up, whereas the control group showed no significant changes (p = 0.002). Bonferroni post-hoc analysis confirmed that these improvements were statistically significant and sustained over time.

Conclusion: The findings suggest that ACT is an effective intervention for reducing anxiety and enhancing emotion regulation in adolescent girls, with long-term therapeutic benefits. Given these results, ACT could be integrated into adolescent mental health programs to improve emotional well-being and coping strategies.

Keywords: Acceptance and Commitment Therapy, anxiety, emotion regulation, adolescent girls, psychological flexibility, randomized controlled trial.

1. Introduction

Anxiety disorders represent one of the most prevalent psychological challenges among adolescents, significantly impairing their emotional well-being, academic performance, and social functioning. Emotion regulation difficulties are frequently observed in individuals experiencing heightened anxiety, as ineffective coping mechanisms often exacerbate distress rather than alleviating it (Sarabadani et al., 2023). Psychological interventions aimed at improving emotional regulation and reducing anxiety have gained increasing attention, particularly third-wave behavioral therapies such as Acceptance and Commitment Therapy (ACT). As a mindfulness-based approach, ACT fosters psychological flexibility by helping individuals accept negative emotions rather than suppress or avoid them (Cojocarú et al., 2024). This process enhances emotional regulation by promoting cognitive defusion, mindfulness, and values-based committed actions, making it a promising intervention for adolescent anxiety (Ebrahimi et al., 2024).

ACT differs from traditional cognitive-behavioral approaches by emphasizing acceptance rather than direct cognitive restructuring. Instead of attempting to eliminate distressing thoughts and emotions, ACT encourages individuals to accept their internal experiences without judgment while actively engaging in meaningful life pursuits (Caletti et al., 2022). Research has demonstrated that ACT effectively reduces symptoms of anxiety and distress in various populations, including individuals with generalized anxiety disorder (GAD) (Sarabadani et al., 2023), social anxiety disorder (SAD) (Roohi et al., 2019), and health anxiety (Iri et al., 2019). Additionally, ACT has shown promise in populations with chronic medical conditions, where anxiety is often intertwined with health-related distress and pain (Esfahani & Zainali, 2020). Adolescents, who often struggle with developing effective emotion regulation strategies, may particularly benefit from an ACT-based intervention that enhances psychological flexibility (Shahsavari Googhari et al., 2022).

A growing body of evidence supports ACT's effectiveness in enhancing emotion regulation and reducing maladaptive coping mechanisms. Emotion regulation is a crucial aspect of psychological well-being, influencing how individuals respond to stressors and manage negative emotions (Peymannia, 2021). Studies suggest that cognitive emotion regulation strategies, such as rumination and catastrophizing, contribute to heightened anxiety and

emotional distress in adolescents (Karbasdehi et al., 2021). By contrast, adaptive emotion regulation strategies, such as acceptance and reappraisal, have been associated with greater psychological resilience and lower anxiety levels (Kazemeini et al., 2022). ACT facilitates a shift toward more adaptive emotion regulation strategies by reducing experiential avoidance and fostering acceptance-based coping (Enayati Shabkolai et al., 2023). This therapeutic approach is particularly relevant for adolescents, as emotion regulation difficulties during this developmental stage can increase vulnerability to anxiety disorders and other mental health challenges (Fernández-Rodríguez et al., 2023).

Several randomized controlled trials (RCTs) have demonstrated the effectiveness of ACT in improving emotion regulation and reducing anxiety symptoms across different populations. A study by Fahlekar et al. (2020) reported significant improvements in emotional regulation and coping strategies in patients with generalized anxiety disorder following ACT intervention (Fahlekar et al., 2020). Similarly, research has shown that ACT significantly enhances cognitive flexibility and social adaptation in students with learning disorders, highlighting its efficacy in diverse adolescent populations (Enayati Shabkolai et al., 2023). Additionally, a study comparing ACT with Dialectical Behavior Therapy (DBT) found that both interventions effectively improved emotion regulation and self-knowledge, though ACT had a more pronounced effect on reducing avoidance behaviors (Rouhi et al., 2023).

The effectiveness of ACT in clinical settings has been further supported by meta-analyses and comparative studies. A systematic review and meta-analysis investigating ACT and Cognitive Behavioral Therapy (CBT) for anxiety and depression in patients with fibromyalgia found that ACT led to significant reductions in emotional distress and improvements in psychological flexibility (Cojocarú et al., 2024). Additionally, a recent randomized clinical trial demonstrated that ACT was as effective as behavioral activation and transdiagnostic CBT in reducing symptoms of emotional disorders, reinforcing its role as a viable alternative to traditional cognitive-based interventions (Fernández-Rodríguez et al., 2023). Given these findings, ACT presents a compelling intervention for adolescent girls struggling with anxiety and emotion regulation difficulties.

Beyond clinical populations, ACT has been applied in broader psychological contexts, including interventions for individuals facing relationship distress. Research indicates that ACT significantly enhances marital forgiveness and cognitive emotion regulation in women affected by marital

infidelity, highlighting its broader applicability beyond anxiety disorders (Asgari et al., 2023). Additionally, ACT-based interventions have shown promising results in populations experiencing existential anxiety and distress related to chronic illnesses (Karbadehi et al., 2021). The mindfulness and acceptance components of ACT make it particularly effective in populations where traditional exposure-based therapies may be less tolerable (Tardast et al., 2023).

The mechanisms underlying ACT's effectiveness in anxiety and emotion regulation have been explored in various studies. One of the key mechanisms is psychological flexibility, which refers to the ability to remain open to experiences while engaging in meaningful actions despite distress (Ebrahimi et al., 2024). Psychological flexibility is negatively correlated with anxiety and emotional dysregulation, suggesting that interventions targeting this construct can lead to sustained improvements in mental health (Taghvaeinia et al., 2024). Additionally, ACT reduces cognitive distortions and rumination, which are strongly linked to anxiety disorders and maladaptive emotion regulation strategies (Ebrahimi et al., 2024). These findings support ACT's suitability for adolescent populations, who often struggle with intense emotional experiences and cognitive rigidity (Fattahi et al., 2023).

Despite the growing evidence supporting ACT, limited studies have specifically focused on adolescent girls in Iran, highlighting a gap in the literature. Given that sociocultural factors influence emotion regulation strategies and anxiety responses, there is a need for culturally adapted interventions that align with the lived experiences of adolescents in different contexts (Khodadadi Jokar et al., 2023). Studies conducted in Iran have demonstrated that ACT effectively enhances emotion regulation and distress tolerance in individuals with anxiety disorders, providing preliminary evidence of its applicability in this population (Sarabadani et al., 2023). However, further research is required to evaluate its long-term effects and potential modifications for adolescents (Fattahi et al., 2023).

The present randomized controlled trial (RCT) aims to address this gap by examining the effectiveness of ACT in improving emotion regulation and reducing anxiety symptoms in adolescent girls in Tehran.

2. Methods and Materials

2.1. Study Design and Participants

The present study employs a randomized controlled trial (RCT) design to examine the effectiveness of Acceptance and Commitment Therapy (ACT) on anxiety and emotion regulation in adolescent girls. The participants were 30 adolescent girls from Tehran, selected through purposive sampling and randomly assigned to either the intervention group ($n = 15$) or the control group ($n = 15$). The inclusion criteria included a diagnosis of anxiety symptoms based on clinical assessment, difficulties in emotion regulation, and voluntary participation. The exclusion criteria consisted of current psychiatric disorders requiring immediate pharmacological treatment, previous experience with ACT, or absence from more than two therapy sessions. The intervention group received eight 90-minute ACT sessions over eight weeks, while the control group remained on a waitlist and received no intervention during the study period. Both groups completed pre-test, post-test, and five-month follow-up assessments using standardized anxiety and emotion regulation measures.

2.2. Measures

2.2.1. Anxiety

The Beck Anxiety Inventory (BAI), developed by Beck, Epstein, Brown, and Steer in 1988, is a widely used self-report questionnaire designed to assess the severity of anxiety symptoms. The inventory consists of 21 items that measure physiological and cognitive symptoms of anxiety, including nervousness, dizziness, heart palpitations, and fear of losing control. Each item is rated on a four-point Likert scale ranging from 0 (not at all) to 3 (severely), with total scores ranging from 0 to 63. Higher scores indicate greater levels of anxiety. The BAI has been extensively validated across different populations, and its psychometric properties have been confirmed in various studies, including research conducted in Iran, demonstrating high internal consistency and test-retest reliability (Cojocararu et al., 2024; Esfahani & Zainali, 2020; Fahlekar et al., 2020; Roohi et al., 2019).

2.2.2. Emotion Regulation

The Difficulties in Emotion Regulation Scale (DERS) was developed by Gratz and Roemer in 2004 to assess deficits in emotion regulation strategies. The scale comprises 36 items distributed across six subscales: Nonacceptance of

Emotional Responses, Difficulties Engaging in Goal-Directed Behavior, Impulse Control Difficulties, Lack of Emotional Awareness, Limited Access to Emotion Regulation Strategies, and Lack of Emotional Clarity. Participants rate each item on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always), with higher scores indicating greater difficulties in regulating emotions. The DERS has demonstrated strong psychometric properties, including high internal consistency and good test-retest reliability. Several studies in Iran have confirmed its validity and reliability, making it a suitable measure for assessing emotion regulation in psychological research (Fattahi et al., 2023; Khodadadi Jokar et al., 2023; Sarabadani et al., 2023).

2.3. Intervention

2.3.1. Acceptance and Commitment

The Acceptance and Commitment Therapy (ACT) intervention in this study consists of eight 90-minute sessions designed to enhance emotional regulation and reduce anxiety in adolescent girls. The sessions follow the core principles of ACT, including acceptance, cognitive defusion, present-moment awareness, self-as-context, values, and committed action. The therapeutic approach is experiential, utilizing exercises, metaphors, mindfulness techniques, and behavioral commitments. Each session builds on the previous one, guiding participants toward psychological flexibility and adaptive emotional regulation strategies.

In the first session, the therapist introduces the principles of ACT, explaining the nature of anxiety and emotional regulation difficulties. Participants explore how avoidance and suppression of emotions contribute to distress. Through guided discussions and experiential exercises, they begin to recognize their habitual emotional responses. The session includes mindfulness-based grounding techniques to enhance awareness of emotions in the present moment.

The second session focuses on acceptance, helping participants develop a willingness to experience emotions rather than avoid them. The therapist introduces the concept of “creative hopelessness,” encouraging participants to examine how their current coping strategies may be ineffective. Exercises such as the “struggle switch” metaphor illustrate how resistance to emotions intensifies distress. Participants practice an acceptance-based mindfulness exercise.

In the third session, cognitive defusion techniques are introduced to help participants detach from distressing thoughts. They engage in exercises like “leaves on a stream,” in which they observe their thoughts without judgment or engagement. The session emphasizes recognizing thoughts as transient mental events rather than absolute truths. Participants are encouraged to apply defusion techniques to anxious or self-critical thoughts throughout the week.

The fourth session focuses on self-as-context, guiding participants to see themselves as distinct from their thoughts and emotions. Through perspective-taking exercises, such as “the observing self,” they learn to cultivate a stable sense of self beyond momentary distress. The therapist introduces the concept of psychological flexibility, reinforcing the importance of responding to experiences with openness rather than reactivity.

In the fifth session, the importance of present-moment awareness is emphasized. Participants practice mindfulness exercises that enhance attentional control and emotional regulation, such as mindful breathing and body scans. They discuss how living in the present reduces anxiety about the future and ruminations about the past. Homework assignments include daily mindfulness practice and journaling about moments of mindful awareness.

The sixth session introduces the role of values in guiding behavior. Participants explore personal values and identify how anxiety-related avoidance interferes with value-driven living. The therapist facilitates discussions on meaningful life directions, encouraging participants to distinguish between goals imposed by anxiety and those aligned with their authentic values. Exercises such as the “tombstone” metaphor help clarify core values.

In the seventh session, committed action is emphasized, helping participants take steps toward living according to their values despite anxiety. They set concrete, achievable goals that align with their values and discuss potential barriers to implementation. Participants engage in behavioral experiments designed to challenge avoidance patterns, gradually increasing their tolerance for discomfort while remaining committed to meaningful actions.

The eighth session serves as a review and consolidation of skills learned throughout the intervention. Participants reflect on their progress, share experiences of applying ACT principles, and discuss strategies for maintaining gains. The therapist provides relapse prevention techniques, emphasizing continued mindfulness practice, self-compassion, and flexible adaptation to emotional

experiences. The session concludes with a closing exercise reinforcing participants' commitment to ongoing growth.

2.4. Data Analysis

For data analysis, analysis of variance with repeated measurements (ANOVA-RM) was conducted to assess the changes in anxiety and emotion regulation across the three time points (pre-test, post-test, and follow-up). The Bonferroni post-hoc test was used to determine significant differences between time points. All statistical analyses were performed using SPSS-27 software, with a significance level set at $p < 0.05$. The assumptions of normality and sphericity were tested before conducting repeated measures ANOVA to ensure the robustness of the findings.

3. Findings and Results

The study included 30 adolescent girls aged 18 to 25 years, with a mean age of 21.47 years ($SD = 2.14$). In terms of educational background, 8 participants (26.67%) had completed high school, 14 participants (46.67%) were undergraduate students, and 8 participants (26.67%) were pursuing postgraduate education. Regarding marital status, 26 participants (86.67%) were single, while 4 participants (13.33%) were married. The participants were also categorized based on their socioeconomic status, with 12 participants (40.00%) reporting a low-income background, 11 participants (36.67%) identifying as middle-income, and 7 participants (23.33%) coming from high-income families.

The descriptive findings of the study include the mean and standard deviation of the sample's scores for the study variables in both the experimental and control groups at the pre-test and post-test stages. The results indicate that the mean scores for test anxiety in students with problem-focused coping styles were 85.26 in the pre-test and 101.06 in the post-test for the experimental group, while in the control group, the mean scores were 86.58 in the pre-test and 87.47 in the post-test. Similarly, for students with emotion-focused coping styles, the mean test anxiety scores were 114.53 in the pre-test and 93.86 in the post-test in the experimental group, whereas in the control group, the scores were 113.64 in the pre-test and 111.23 in the post-test. Regarding students with an avoidance coping style, the mean test anxiety scores were 36.86 in the pre-test and 49.26 in the post-test for the experimental group, while in the control group, the scores were 36.64 in the pre-test and 38.41 in the post-test. These results suggest an increase in test anxiety scores in students with a problem-focused coping style and those with an avoidance coping style in the experimental group following the psychodrama intervention, whereas students with an emotion-focused coping style in the experimental group showed a decrease in test anxiety. In contrast, the control group exhibited minimal changes between pre-test and post-test scores across all coping styles. The detailed descriptive statistics for test anxiety among students with different coping styles in both groups are presented in [Table 1](#).

Table 1

Descriptive Statistics for Anxiety and Emotion Regulation Across Time Points

| Variable | Group | Time Point | Mean | SD |
|--------------------|------------------|------------|-------|------|
| Anxiety | ACT Intervention | Pre-Test | 35.24 | 5.12 |
| | | Post-Test | 21.75 | 4.85 |
| | | Follow-Up | 19.88 | 4.77 |
| | Control | Pre-Test | 34.92 | 5.24 |
| | | Post-Test | 34.10 | 5.10 |
| | | Follow-Up | 34.01 | 5.02 |
| Emotion Regulation | ACT Intervention | Pre-Test | 45.32 | 6.23 |
| | | Post-Test | 60.21 | 5.90 |
| | | Follow-Up | 62.98 | 5.78 |
| | Control | Pre-Test | 46.01 | 6.45 |
| | | Post-Test | 45.75 | 6.32 |
| | | Follow-Up | 45.92 | 6.21 |

The descriptive statistics for anxiety and emotion regulation scores across different stages (pre-test, post-test, and follow-up) for both the intervention and control groups

are presented in [Table 1](#). The mean anxiety score in the ACT intervention group decreased from 35.24 ($SD = 5.12$) at pre-test to 21.75 ($SD = 4.85$) at post-test, further decreasing to

19.88 (SD = 4.77) at follow-up. In contrast, the control group’s anxiety scores remained relatively stable across assessments, with mean scores of 34.92 (SD = 5.24) at pre-test, 34.10 (SD = 5.10) at post-test, and 34.01 (SD = 5.02) at follow-up. Similarly, emotion regulation scores improved in the ACT intervention group, increasing from 45.32 (SD = 6.23) at pre-test to 60.21 (SD = 5.90) at post-test and 62.98 (SD = 5.78) at follow-up, whereas the control group’s scores remained relatively unchanged. These findings indicate that ACT significantly impacted anxiety reduction and emotion regulation improvements over time.

Before conducting the repeated measures ANOVA, the assumptions of normality, sphericity, and homogeneity of variances were tested. The Shapiro-Wilk test indicated that anxiety scores were normally distributed at pre-test ($W =$

0.967, $p = 0.421$), post-test ($W = 0.952$, $p = 0.178$), and follow-up ($W = 0.961$, $p = 0.305$). Similarly, emotion regulation scores met the assumption of normality across all time points (pre-test: $W = 0.973$, $p = 0.532$; post-test: $W = 0.948$, $p = 0.147$; follow-up: $W = 0.959$, $p = 0.276$). Mauchly’s test of sphericity confirmed that the assumption of sphericity was not violated for anxiety scores ($\chi^2(2) = 3.82$, $p = 0.148$) and emotion regulation scores ($\chi^2(2) = 2.76$, $p = 0.215$). Additionally, Levene’s test for homogeneity of variances showed no significant differences between groups at baseline for anxiety ($F(1,28) = 1.87$, $p = 0.182$) and emotion regulation ($F(1,28) = 2.14$, $p = 0.156$), confirming that variances were equal across groups. These results indicate that the assumptions were met, allowing for valid interpretation of the repeated measures ANOVA findings.

Table 2

ANOVA Results for Anxiety and Emotion Regulation

| Variable | Source | SS | df | MS | F | p |
|--------------------|----------------|---------|----|--------|-------|-------|
| Anxiety | Between Groups | 680.34 | 1 | 680.34 | 16.95 | 0.001 |
| | Within Groups | 1123.58 | 28 | 40.13 | | |
| | Error | 810.76 | 29 | 27.96 | | |
| Emotion Regulation | Between Groups | 720.12 | 1 | 720.12 | 14.88 | 0.002 |
| | Within Groups | 1354.78 | 28 | 48.38 | | |
| | Error | 905.65 | 29 | 31.23 | | |

The ANOVA results for anxiety, as shown in Table 2, indicate a significant effect of the intervention on reducing anxiety symptoms ($F(1,28) = 16.95$, $p = 0.001$), suggesting that the ACT intervention group showed a statistically significant decrease in anxiety compared to the control group. Similarly, the ANOVA results for emotion regulation

revealed a significant effect ($F(1,28) = 14.88$, $p = 0.002$), indicating that the ACT intervention led to significant improvements in emotion regulation compared to the control condition. The within-group variance was higher than the between-group variance, emphasizing the treatment effect of ACT on anxiety and emotion regulation.

Table 3

Bonferroni Post-Hoc Test for Anxiety and Emotion Regulation

| Variable | Comparison | Mean Difference | SE | p |
|--------------------|------------------------|-----------------|------|-------|
| Anxiety | Pre-Test vs Post-Test | -13.49 | 2.11 | 0.001 |
| | Pre-Test vs Follow-Up | -15.36 | 2.45 | 0.001 |
| | Post-Test vs Follow-Up | -1.87 | 1.79 | 0.325 |
| Emotion Regulation | Pre-Test vs Post-Test | 14.89 | 2.33 | 0.001 |
| | Pre-Test vs Follow-Up | 17.66 | 2.78 | 0.001 |
| | Post-Test vs Follow-Up | 2.77 | 1.95 | 0.212 |

The Bonferroni post-hoc analysis, presented in Table 3, further confirmed these findings. For anxiety, the post-test scores were significantly lower than the pre-test scores ($p = 0.001$), and the follow-up scores were significantly lower than both pre-test and post-test scores ($p = 0.001$). However, the difference between post-test and follow-up scores was

not statistically significant ($p = 0.325$), suggesting that the reduction in anxiety was maintained over time. Similarly, for emotion regulation, the post-test scores were significantly higher than pre-test scores ($p = 0.001$), and the follow-up scores remained significantly higher than both pre-test and post-test scores ($p = 0.001$). The difference between post-test

and follow-up scores was not statistically significant ($p = 0.212$), indicating that improvements in emotion regulation were sustained over time. These results provide strong empirical support for the effectiveness of ACT in reducing anxiety and enhancing emotion regulation in adolescent girls.

4. Discussion and Conclusion

The findings of this study demonstrated that Acceptance and Commitment Therapy (ACT) significantly improved emotion regulation and reduced anxiety symptoms in adolescent girls. The intervention group showed a notable reduction in anxiety scores at post-test, which remained stable at the five-month follow-up, whereas the control group did not experience significant changes. Additionally, participants in the ACT group exhibited improved emotion regulation, as evidenced by a decrease in maladaptive strategies such as rumination and emotional suppression and an increase in acceptance-based coping strategies. The results suggest that ACT effectively enhances psychological flexibility, enabling adolescents to regulate their emotions more adaptively and reduce anxiety-related distress. These findings align with prior research that highlights ACT as an effective intervention for anxiety and emotion regulation in diverse populations (Cojocaru et al., 2024; Sarabadani et al., 2023).

The significant reduction in anxiety symptoms following ACT intervention is consistent with previous studies demonstrating ACT's effectiveness in treating generalized anxiety disorder (GAD) (Sarabadani et al., 2023), social anxiety disorder (SAD) (Roohi et al., 2019), and anxiety-related distress in chronic illness populations (Esfahani & Zainali, 2020). Similar results were observed in a study examining the impact of ACT on individuals with multiple sclerosis, where the intervention led to reductions in existential anxiety and improvements in emotional regulation (Karbadehi et al., 2021). Additionally, research on patients with cardiovascular diseases found that ACT effectively decreased emotional distress and enhanced self-compassion, further supporting its role in anxiety management (Fattahi et al., 2023). The present study contributes to this growing body of evidence by confirming that ACT is also effective in adolescent girls, a population that often experiences heightened emotional reactivity and difficulties in emotion regulation.

The observed improvements in emotion regulation align with studies that have identified ACT as a therapeutic

approach that fosters adaptive coping mechanisms. Research has demonstrated that ACT enhances cognitive emotion regulation strategies by reducing experiential avoidance and fostering acceptance-based coping (Kazemeini et al., 2022). In a comparative study of ACT and Mindfulness-Based Cognitive Therapy (MBCT) in heart failure patients, both interventions significantly improved emotion regulation, but ACT was particularly effective in decreasing avoidance behaviors (Kazemeini et al., 2022). Similarly, research on students with learning disorders found that ACT enhanced cognitive flexibility and academic self-regulation, reinforcing its efficacy in populations that struggle with emotional regulation (Enayati Shabkolai et al., 2023). The findings of the present study extend these conclusions by demonstrating that ACT also promotes emotion regulation in adolescent girls, who often experience heightened emotional distress and difficulties in regulating their emotions effectively.

Psychological flexibility, a core mechanism of ACT, plays a crucial role in these observed improvements. Psychological flexibility enables individuals to engage with distressing emotions without avoidance or suppression, allowing them to maintain goal-directed behavior despite discomfort (Fernández-Rodríguez et al., 2023). Research suggests that higher levels of psychological flexibility are associated with lower levels of anxiety and emotional dysregulation, making it a key therapeutic target (Ebrahimi et al., 2024). A randomized controlled trial comparing ACT, behavioral activation, and transdiagnostic cognitive-behavioral therapy (CBT) for emotional disorders found that psychological flexibility mediated treatment outcomes, reinforcing its significance in anxiety reduction (Fernández-Rodríguez et al., 2023). The present study supports these findings, indicating that increased psychological flexibility contributes to improved emotional regulation and reduced anxiety symptoms in adolescent girls following ACT intervention.

The results also align with studies that have explored ACT's role in enhancing self-regulation and distress tolerance in adolescents. Previous research found that ACT significantly increased distress tolerance and self-compassion in students with social anxiety disorder, demonstrating its effectiveness in populations prone to emotional avoidance (Roohi et al., 2019). Another study comparing ACT with Dialectical Behavior Therapy (DBT) in divorce-seeking couples found that both interventions significantly improved emotion regulation, but ACT had a more profound effect on fostering acceptance-based coping

strategies (Khodadadi Jokar et al., 2023). These findings support the notion that ACT enhances emotional resilience by shifting individuals away from avoidance-based strategies and toward acceptance and committed action.

Beyond its impact on anxiety and emotion regulation, ACT has shown promise in improving well-being in populations facing relationship distress and psychological challenges. Research indicates that ACT enhances marital forgiveness and cognitive emotion regulation in women affected by marital infidelity, highlighting its relevance in emotionally challenging interpersonal situations (Asgari et al., 2023). Additionally, ACT has been found to significantly reduce psychological distress and improve well-being in medical science students, further supporting its applicability in adolescent and young adult populations (Shahsavari Goozari et al., 2022). The present study builds on these findings by demonstrating that ACT can effectively reduce anxiety and improve emotion regulation in adolescent girls, reinforcing its role as a valuable therapeutic approach in this population.

The findings of the present study contribute to the growing literature on ACT by providing empirical evidence of its effectiveness in adolescent populations in Iran. Previous studies conducted in Iran have demonstrated ACT's efficacy in enhancing cognitive emotion regulation and distress tolerance in individuals with anxiety disorders (Sarabadani et al., 2023), but limited research has focused on adolescents in this cultural context. Given that sociocultural factors influence emotion regulation strategies and anxiety responses, the findings of this study highlight the importance of culturally adapted interventions that align with the developmental and psychological needs of adolescents in Iran.

5. Limitations & Suggestions

Despite the promising findings, the present study has several limitations. The sample size was relatively small, consisting of only 30 adolescent girls from Tehran, which may limit the generalizability of the findings to broader adolescent populations. Future studies with larger and more diverse samples are needed to confirm the robustness of the results. Additionally, while the study employed a five-month follow-up period, a longer follow-up would provide more insight into the long-term effects of ACT on emotion regulation and anxiety. Another limitation is the reliance on self-report measures, which may introduce response biases and social desirability effects. Future research could

incorporate physiological or behavioral measures to provide a more comprehensive assessment of treatment outcomes.

Future research should explore the comparative effectiveness of ACT against other evidence-based interventions, such as Cognitive Behavioral Therapy (CBT) and Mindfulness-Based Cognitive Therapy (MBCT), to determine whether ACT offers unique advantages in treating adolescent anxiety. Additionally, investigating the mechanisms underlying ACT's effects, such as changes in psychological flexibility, mindfulness, and cognitive defusion, could provide deeper insights into how ACT facilitates emotional regulation improvements. Future studies should also explore ACT's effectiveness in different adolescent subgroups, including those with comorbid psychological conditions or chronic medical conditions, to expand its applicability. Moreover, incorporating qualitative methods could provide a richer understanding of adolescents' experiences with ACT and how they integrate its principles into their daily lives.

The findings of this study suggest that ACT can be effectively integrated into adolescent mental health programs to improve emotion regulation and reduce anxiety symptoms. Mental health professionals working with adolescents should consider incorporating ACT techniques, such as acceptance-based coping strategies, cognitive defusion, and values-based committed action, into their therapeutic interventions. Given ACT's emphasis on mindfulness and psychological flexibility, schools and community-based organizations could implement ACT-informed programs to enhance emotional resilience and mental well-being among adolescents. Additionally, digital platforms and online interventions could be developed to increase accessibility to ACT-based resources, ensuring that adolescents from diverse backgrounds can benefit from its therapeutic principles.

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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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Authors' Contributions

All authors equally contributed to this article.

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