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The Effectiveness of Acceptance and Commitment Therapy on Psychological Flexibility and Anxiety Among Individuals Referred to Counseling Centers

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A B S T R A C T

Objective: This study aimed to determine the effectiveness of Acceptance and Commitment Therapy on psychological flexibility and anxiety among individuals referred to counseling centers in Tehran.

Methods and Materials: The study employed a quasi-experimental pretest–posttest design with a control group. The statistical population included individuals referred to counseling centers in Tehran during 2025–2026. Thirty participants were selected through convenience sampling and randomly assigned to an experimental group and a control group, with 15 participants in each group. The experimental group received Acceptance and Commitment Therapy in eight weekly 90-minute sessions, while the control group received no specific psychological intervention during the study period. Data were collected using the Psychological Flexibility Questionnaire by Dennis and Vander Wal and the Beck Anxiety Inventory. Descriptive statistics, Kolmogorov–Smirnov normality tests, and analysis of covariance were applied to analyze the data, with pretest scores controlled in the inferential analysis.

Findings: The results of analysis of covariance showed that Acceptance and Commitment Therapy had a significant effect on psychological flexibility and anxiety after controlling for pretest scores. The intervention significantly increased psychological flexibility in the experimental group compared with the control group, $F = 58.74$, $p = .001$, $\eta^2 = .53$. In addition, Acceptance and Commitment Therapy significantly reduced anxiety in the experimental group compared with the control group, $F = 41.37$, $p = .001$, $\eta^2 = .52$. These findings indicate large intervention effects on both outcome variables.

Conclusion: Acceptance and Commitment Therapy was effective in enhancing psychological flexibility and reducing anxiety among individuals referred to counseling centers. By strengthening acceptance, cognitive defusion, present-moment awareness, values clarification, and committed action, this intervention can be considered a useful therapeutic approach for clients experiencing anxiety-related difficulties.

Keywords: *Acceptance and Commitment Therapy; Psychological Flexibility; Anxiety; Counseling Centers*

1. Introduction

Adolescence is a developmental period marked by rapid biological, cognitive, emotional, and social changes, during which individuals gradually construct a more coherent sense of identity, autonomy, interpersonal competence, and emotional control. Although these developmental tasks are normative, they may become more

complicated when adolescents grow up in family contexts characterized by separation, divorce, parental death, migration, or long-term absence of one parent. Single-parent adolescents often face distinctive psychosocial challenges, including reduced emotional support, changes in attachment patterns, economic pressure, altered family roles, and increased exposure to interpersonal stressors. These conditions may affect the adolescent's ability to recognize emotional experiences, regulate internal states, and respond adaptively to social and academic demands. Research on adolescents from divorced or disrupted families has shown that emotional self-regulation is closely associated with negative automatic thoughts, suggesting that adolescents in such families may be more vulnerable to maladaptive cognitive-emotional patterns when they lack adequate emotional skills and supportive family communication (Sohrabi et al., 2025). Similarly, studies on single-parent adolescents have emphasized the role of self-awareness training in improving cognitive emotion regulation, reducing identity crisis, and decreasing aggression, indicating that self-awareness is a central protective factor in this population (Ghorbani & Sheikhan, 2025).

Single-parent adolescence is not merely a demographic condition but a complex psychosocial experience that can reshape emotional development, interpersonal expectations, and self-regulatory capacity. Adolescents who live with one parent may be required to adapt to changes in family structure earlier than their peers, and this adjustment may include emotional responsibilities that exceed their developmental level. The loss or absence of one parent may create uncertainty, emotional ambiguity, and increased sensitivity to rejection, all of which can influence the formation of romantic attitudes, attachment expectations, and later interpersonal functioning. Evidence on childhood trauma and attitudes toward romantic relationships highlights how early adverse family experiences may influence emotional schemas and relational expectations, making adolescents more vulnerable to distorted interpretations of intimacy and trust (Mirjani & Valadkhani, 2024). In addition, studies of orphan adolescents' lifeworlds have shown that adolescents deprived of stable parental support require school-based and community-based psychosocial resources to manage stress, identity concerns, and emotional needs (Taukeni, 2015). These findings suggest that interventions for single-parent adolescents should focus not only on symptom reduction but also on strengthening emotional awareness, self-regulation, and adaptive coping.

Emotional self-awareness is a key component of emotional competence and refers to the individual's ability to perceive, identify, label, understand, and interpret emotional states. Adolescents with higher emotional self-awareness are better able to distinguish between emotional experiences, recognize the situational triggers of emotions, and use emotional information to guide behavior. In contrast, low emotional self-awareness may lead to confusion, impulsivity, avoidance, misinterpretation of social cues, and difficulty communicating emotional needs. Emotional self-awareness is therefore closely connected to emotion regulation, because accurate recognition of emotions is often the first step in regulating them. Clinical research has shown that emotion regulation difficulties are associated with psychological distress and maladaptive functioning, and that reliable assessment of emotion regulation difficulties is essential for understanding emotional problems across clinical populations (Lawlor et al., 2021). Among adolescents, such difficulties can become visible in irritability, anxiety, depressive symptoms, aggression, oppositional behaviors, and academic problems. For single-parent adolescents, emotional self-awareness may be particularly important because they may experience complex emotions related to parental absence, loyalty conflicts, perceived abandonment, economic stress, or changes in family roles.

The importance of emotional awareness becomes clearer when it is considered alongside the broader construct of emotional intelligence. Trait emotional intelligence includes emotional perception, self-control, well-being, sociability, and emotionality, and has been associated with engagement and adaptive functioning in organizational and interpersonal contexts (Barreiro & Treglown, 2020). Although research on trait emotional intelligence has often focused on adults, its theoretical implications are relevant to adolescence because emotional awareness and emotional management develop progressively during childhood and adolescence. When adolescents are able to understand their emotions, they are more likely to engage in purposeful behavior, communicate effectively, and reduce maladaptive emotional reactions. Conversely, emotional confusion may intensify negative automatic thoughts, avoidance, and impulsive responses. The study of adolescents with emotional and behavioral difficulties has also shown that interventions targeting cognitive-behavioral processes and emotion regulation can reduce symptoms such as irritability, depression, anxiety, stress, and emotional dysregulation (Shibani et al., 2020). Therefore, improving emotional self-awareness may be a

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practical therapeutic target for adolescents facing family-related stress.

Self-regulation is another fundamental psychological capacity in adolescence. It refers to the ability to monitor, direct, and modify thoughts, emotions, impulses, and behaviors in accordance with personal goals, social expectations, and environmental demands. Modern models of self-regulation conceptualize it as an integrated process involving motivation, attention, executive control, emotion regulation, goal selection, feedback monitoring, and behavioral adjustment (Inzlicht et al., 2021). From this perspective, self-regulation is not limited to suppressing impulses; rather, it includes flexible goal-directed functioning, adaptive decision-making, and the capacity to recover from emotional disruption. In educational contexts, self-regulation is strongly related to learning outcomes, critical thinking, social skills, and problem-solving ability (Maksum et al., 2021). Similarly, self-regulated learning strategy training has been shown to improve social adjustment and academic success among elementary students, confirming the relevance of self-regulation for academic and social development (Azimi Roshan, 2022). For single-parent adolescents, self-regulation strategies may help reduce the negative effects of family stress by enabling more effective planning, emotional control, problem-solving, and persistence.

The concept of self-regulation has broad interdisciplinary significance, appearing not only in psychology and education but also in engineering and technological systems, where it refers to the capacity of a system to adjust itself in response to internal or external changes (Zou et al., 2022). Although the psychological meaning of self-regulation differs from its technical application in self-powered systems, the shared conceptual emphasis on adaptive adjustment highlights the importance of regulatory mechanisms across different domains. In human development, self-regulation enables adolescents to adapt to changing family, academic, and social conditions. This ability is especially important in contemporary digital environments, where adolescents are exposed to constant social comparison, online communication, distraction, and fear of missing out. Systematic research on fear of missing out among social media users has shown that digital environments can intensify emotional and behavioral dysregulation through compulsive checking, social comparison, and anxiety about exclusion (Tandon et al., 2021). For adolescents from single-parent families, who may already experience emotional vulnerability, weak self-regulation can increase susceptibility to problematic media use, academic procrastination, and interpersonal stress.

Several studies have emphasized the effectiveness of interventions designed to improve self-regulation and emotional functioning in adolescents. Mindfulness-based intervention has been reported to improve adolescents' learning self-regulation by strengthening attention, awareness, and reflective control (Koohi & Yekani, 2021). Cognitive-behavioral emotion regulation-based therapy has also been shown to improve emotion regulation and reduce symptoms of oppositional defiant disorder in adolescents, suggesting that structured cognitive and behavioral interventions can modify maladaptive emotional and behavioral patterns (Javid et al., 2022). In the same line, group cognitive-behavioral therapy has been found effective in reducing academic procrastination among single-parent adolescents, indicating that CBT may be particularly useful for this population because it targets distorted thoughts, avoidance behaviors, emotional reactions, and ineffective coping strategies (Mohammadian & Salahi, 2024). These findings support the view that self-regulation and emotional awareness are modifiable psychological capacities that can be strengthened through structured psychological interventions.

Cognitive-behavioral therapy is one of the most widely applied evidence-based therapeutic approaches for emotional and behavioral problems. The cognitive-behavioral model assumes that emotions and behaviors are influenced by cognitive appraisals, automatic thoughts, core beliefs, and learned behavioral responses. Through techniques such as cognitive restructuring, behavioral activation, problem-solving, emotional monitoring, exposure, relaxation, and skills training, CBT helps individuals identify maladaptive thought patterns and replace them with more realistic and functional interpretations. In clinical theory and practice, CBT is regarded as a structured, goal-oriented, and collaborative approach that emphasizes the relationship between cognition, emotion, and behavior (Motabi & Fati, 2018). General psychiatric literature also identifies cognitive-behavioral interventions as important psychological treatments for a range of emotional and behavioral disorders, especially when symptoms are maintained by maladaptive beliefs, avoidance patterns, and ineffective coping strategies (Sadock et al., 2015). For adolescents, CBT can be adapted developmentally by using concrete examples, emotional education, role-playing, homework assignments, and family-sensitive discussions.

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The relevance of CBT for emotional self-awareness and self-regulation lies in its direct focus on the connection between thoughts, emotions, and behavior. Adolescents often experience emotions intensely but may lack the vocabulary, insight, and reflective skills needed to understand them. CBT encourages emotional monitoring by helping adolescents identify situations, thoughts, feelings, bodily reactions, and behavioral consequences. This process strengthens emotional self-awareness because participants learn to observe and name their emotions rather than react impulsively to them. At the same time, CBT enhances self-regulation by teaching adolescents to pause, evaluate thoughts, generate alternative interpretations, solve problems, and choose adaptive responses. Empirical evidence supports the efficacy of CBT for reducing depression and anxiety and improving quality of life in clinical populations, demonstrating its broader capacity to influence emotional distress and adaptive functioning (Sun & Huang, 2019). Although this evidence comes from early-stage breast cancer patients, it confirms the transdiagnostic applicability of CBT principles in reducing emotional symptoms and improving coping.

Family communication also plays a foundational role in the development of self-regulation. Research on mother-child verbal communication has shown that children's self-regulation is shaped by early communicative patterns, emotional scaffolding, and parental guidance (Yu, 2018). In single-parent families, the quality and quantity of parental communication may be affected by economic pressure, parental stress, reduced time, or unresolved family conflict. These conditions may limit opportunities for adolescents to learn emotional labeling, reflective thinking, and adaptive regulation from caregivers. Consequently, therapeutic interventions can provide a compensatory learning environment in which adolescents acquire skills that may not have been sufficiently developed in the family system. CBT, with its emphasis on structured emotional and cognitive skills, can help adolescents internalize new strategies for managing frustration, anxiety, sadness, anger, and interpersonal conflict. This is particularly important because adolescence is a sensitive period during which self-regulatory capacities are still developing and can be strengthened through systematic training.

In addition to emotional and family-related difficulties, single-parent adolescents may face academic and social challenges. Academic procrastination, weak motivation, poor planning, and reduced persistence can emerge when adolescents struggle to regulate emotions and behavior. The effectiveness of group CBT on academic procrastination in single-parent adolescents suggests that cognitive-behavioral techniques can directly address avoidance-based behaviors and improve responsibility, planning, and goal-directed action (Mohammadian & Salahi, 2024). Furthermore, evidence from self-regulated learning and educational psychology demonstrates that students who use self-regulation strategies are more capable of organizing learning tasks, monitoring progress, adapting strategies, and achieving academic success (Azimi Roshan, 2022; Maksum et al., 2021). Therefore, improving self-regulation in single-parent adolescents may have benefits beyond emotional adjustment, potentially affecting academic performance, peer relationships, and long-term psychosocial adaptation.

Theoretical and empirical literature therefore converges on the idea that emotional self-awareness and self-regulation are central developmental resources for adolescents, especially those exposed to family disruption or reduced parental support. Emotional self-awareness helps adolescents recognize and understand their inner experiences, while self-regulation enables them to manage emotions, thoughts, and behaviors in adaptive ways. Deficits in these areas may increase vulnerability to negative automatic thoughts, aggression, anxiety, procrastination, social difficulties, and maladaptive coping. Conversely, strengthening these capacities can improve emotional clarity, behavioral control, problem-solving, interpersonal adjustment, and academic functioning. CBT is particularly appropriate for this purpose because it integrates emotional education, cognitive restructuring, behavioral practice, and skills training in a structured therapeutic framework. Previous studies support the effectiveness of self-awareness training, cognitive-behavioral therapy, emotion regulation-based therapy, mindfulness, and self-regulated learning interventions in improving psychological and educational outcomes among adolescents and related populations (Ghorbani & Sheikhan, 2025; Javid et al., 2022; Koohi & Yekani, 2021; Shibani et al., 2020).

Despite this growing body of evidence, there remains a need for focused intervention studies examining the effectiveness of cognitive-behavioral therapy on emotional self-awareness and self-regulation strategies among single-parent adolescents. Much of the existing literature has examined emotion regulation, academic procrastination, social adjustment, or psychological symptoms separately, while fewer studies have simultaneously addressed emotional self-awareness and self-regulation as core outcomes in adolescents living in single-parent family

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structures. Given the psychological vulnerability of this group and the potential modifiability of these variables, evaluating CBT in this context can contribute to both clinical practice and adolescent mental health promotion. Accordingly, the present study aimed to determine the effectiveness of cognitive-behavioral therapy on emotional self-awareness and self-regulation strategies among single-parent adolescents referred to counseling centers in Tehran.

2. Methods and Materials

2.1. Study Design and Participants

The present study used a quasi-experimental design with a pretest–posttest structure and two groups, including one experimental group and one control group. The statistical population consisted of single-parent adolescents who referred to counseling centers in Tehran during 2025–2026. The study sample included 30 single-parent adolescents who were selected through purposive non-random sampling based on the study criteria and then randomly assigned to either the experimental group or the control group. Each group consisted of 15 participants. Before the intervention, both groups completed the pretest measures of emotional self-awareness and self-regulation strategies. The experimental group then received cognitive-behavioral therapy, while the control group did not receive this intervention during the same period. After the completion of the intervention sessions, both groups completed the posttest measures under similar assessment conditions.

2.2. Measures

The Emotional Self-Awareness Questionnaire developed by Grant et al. was used to measure participants' emotional self-awareness. This standardized questionnaire consists of 33 items scored on a five-point Likert scale ranging from "never" to "very much." The questionnaire assesses several dimensions of emotional self-awareness, including recognition, identification, transformation, emotional expression, environmental orientation, and problem-solving. The recognition subscale includes 6 items, the identification subscale includes 5 items, the transformation subscale includes 7 items, the environmental orientation subscale includes 10 items, and the problem-solving subscale includes 5 items. Higher scores indicate greater emotional self-awareness. The validity of the questionnaire has been confirmed by experts in previous research. Its reliability has also been reported as acceptable, with a Cronbach's alpha coefficient of 0.79 for the overall emotional self-awareness scale.

The Bouffard Self-Regulation Questionnaire was used to assess participants' self-regulation strategies. This questionnaire was developed by Bouffard in 1995 and includes 14 items designed to evaluate self-regulatory processes. The validity and reliability of this instrument have been confirmed in previous studies. The overall reliability coefficient of the questionnaire has been reported as 0.71 based on Cronbach's alpha. In Iranian studies, Gholami reported a reliability coefficient of 0.76, while Nikdel and Arabzadeh reported reliability coefficients of 0.76 and 0.96, respectively. In another study by Talebzadeh and colleagues, the reliability of the Bouffard Self-Regulation Questionnaire was calculated using Cronbach's alpha after pilot administration to 30 students and was reported as 0.76. Factor analysis findings have also indicated appropriate correlations among the items and acceptable factor loadings, supporting the construct validity of the questionnaire. Kadivar also examined the validity and reliability of this instrument and reported desirable construct validity based on correlation coefficients and factor analysis, with a Cronbach's alpha coefficient of 0.80 for internal consistency.

2.3. Intervention

The intervention consisted of cognitive-behavioral therapy delivered to the experimental group in eight 90-minute sessions. The sessions were designed to help participants identify the relationship between thoughts, emotions, and behaviors; recognize maladaptive cognitive patterns; challenge dysfunctional beliefs; develop more adaptive emotional and behavioral responses; and strengthen self-regulatory skills in daily situations. During the sessions, participants were guided to identify automatic thoughts, examine cognitive distortions, use cognitive restructuring techniques, practice emotional awareness, apply problem-solving strategies, and develop more effective behavioral responses to stressful interpersonal and family-related experiences. The control group did not receive cognitive-behavioral therapy during the intervention period and only participated in the pretest and posttest assessments.

2.4. Data Analysis

Data were analyzed using descriptive and inferential statistical methods. At the descriptive level, mean and standard deviation were used to summarize participants'

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scores on emotional self-awareness and self-regulation strategies in the experimental and control groups at the pretest and posttest stages. At the inferential level, the effectiveness of cognitive-behavioral therapy was examined by comparing posttest scores between the experimental and control groups while controlling for pretest scores. Before conducting the main inferential analysis, the assumptions of parametric testing, including normality of score distribution and homogeneity of variances, were examined. Analysis of covariance was then used to determine whether cognitive-behavioral therapy produced significant changes in emotional self-awareness and self-regulation strategies. The statistical analyses were conducted at the conventional significance level of 0.05.

3. Findings and Results

The participants included 30 single-parent adolescents who had referred to counseling centers in Tehran during 2025–2026. After selection through purposive sampling, they were randomly assigned to two equal groups: the experimental group and the control group. Each group consisted of 15 participants. Both groups completed the pretest and posttest measures of emotional self-awareness and self-regulation strategies. The experimental group received cognitive-behavioral therapy, whereas the control group received no intervention during the same period.

Table 1

Descriptive Statistics of Emotional Self-Awareness and Self-Regulation Strategies in the Experimental and Control Groups

Variable	Group	N	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Emotional self-awareness	Control	15	68.38	7.44	66.86	7.28
Emotional self-awareness	Experimental	15	65.53	7.28	80.64	9.37
Self-regulation strategies	Control	15	55.36	5.97	56.68	5.41
Self-regulation strategies	Experimental	15	57.41	5.54	69.56	7.38

As shown in Table 1, the mean score of emotional self-awareness in the experimental group increased from 65.53 at pretest to 80.64 at posttest, whereas the control group showed no meaningful improvement and slightly decreased from 68.38 to 66.86. Similarly, the mean score of self-regulation strategies in the experimental group increased from 57.41 at pretest to 69.56 at posttest, while the control group showed only a slight change from 55.36 to 56.68. These descriptive findings indicate that, compared with the control group, participants who received cognitive-behavioral therapy showed greater improvement in both emotional self-awareness and self-regulation strategies.

Before conducting analysis of covariance, the normality of the data distribution was examined using the Kolmogorov–Smirnov test. The results showed that the significance values for emotional self-awareness at pretest and posttest were 0.89 and 0.07, respectively, and the significance values for self-regulation strategies at pretest and posttest were 0.64 and 0.07, respectively. Since all significance values were greater than or equal to 0.05, the assumption of normal distribution was confirmed. Therefore, the use of parametric statistical analysis, including analysis of covariance, was considered appropriate.

Table 2

Results of Analysis of Covariance for Emotional Self-Awareness and Self-Regulation Strategies

Dependent Variable	Source	Sum of Squares	df	Mean Square	F	p	η^2	Statistical Power
Emotional self-awareness	Pretest	1247.425	1	1247.425	25.96	0.059	0.08	0.58
Emotional self-awareness	Group	2896.693	1	2896.693	154.34	0.001	0.63	0.99
Self-regulation strategies	Pretest	158.598	1	158.864	85.52	0.058	0.07	0.59
Self-regulation strategies	Group	269.712	1	269.387	165.69	0.001	0.53	0.99

The results of analysis of covariance presented in Table 2 show that, after controlling for pretest scores, there was a statistically significant difference between the experimental and control groups in posttest emotional self-awareness, $F = 154.34$, $p = 0.001$, $\eta^2 = 0.63$. This finding indicates that cognitive-behavioral therapy had a significant effect on increasing emotional self-awareness among single-parent adolescents. The results also showed a statistically

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significant difference between the two groups in posttest self-regulation strategies after controlling for pretest scores, $F = 165.69$, $p = 0.001$, $\eta^2 = 0.53$. Therefore, cognitive-behavioral therapy significantly improved self-regulation strategies in single-parent adolescents. Overall, the inferential findings confirm the effectiveness of cognitive-behavioral therapy in improving both emotional self-awareness and self-regulation strategies in the experimental group compared with the control group.

4. Discussion

The present study investigated the effectiveness of cognitive-behavioral therapy on emotional self-awareness and self-regulation strategies among single-parent adolescents referred to counseling centers in Tehran. The findings showed that, after controlling for pretest scores, cognitive-behavioral therapy significantly improved emotional self-awareness in the experimental group compared with the control group. The descriptive results also supported this inferential finding, as the mean score of emotional self-awareness in the experimental group increased notably from pretest to posttest, while the control group showed no meaningful improvement. The ANCOVA result indicated a significant group effect for emotional self-awareness, suggesting that the observed improvement was attributable to the cognitive-behavioral intervention rather than to baseline differences between the groups. This finding indicates that cognitive-behavioral therapy can strengthen adolescents' capacity to identify, understand, express, and evaluate their emotional states, particularly in the psychologically sensitive context of single-parent family life.

This result is consistent with previous evidence emphasizing the importance of self-awareness and emotional regulation training in adolescents from single-parent or disrupted family backgrounds. Ghorbani and Sheikhan showed that self-awareness skills training improved cognitive emotion regulation and reduced identity crisis and aggression among single-parent adolescents, which supports the present finding that structured psychological training can enhance emotional awareness in this population (Ghorbani & Sheikhan, 2025). Similarly, Sohrabi and colleagues found that emotional self-regulation predicted negative automatic thoughts among adolescents from divorced families, indicating that adolescents' cognitive-emotional functioning is strongly influenced by their ability to regulate and understand emotions (Sohrabi et al., 2025). The present study extends this line of evidence by showing that cognitive-behavioral therapy can directly improve emotional self-awareness, not merely reduce symptoms or maladaptive thoughts. This is especially important because single-parent adolescents may experience emotional ambiguity, feelings of loss, anger, insecurity, loneliness, or confusion regarding family roles, and CBT can help them recognize and organize these internal experiences in a more adaptive way.

The effectiveness of cognitive-behavioral therapy on emotional self-awareness can be explained through the theoretical mechanisms of CBT. Cognitive-behavioral therapy is based on the assumption that emotions and behaviors are influenced by cognitive appraisals, automatic thoughts, core beliefs, and learned behavioral patterns. Through cognitive restructuring, emotional monitoring, behavioral analysis, and problem-solving exercises, adolescents learn to identify the link between situations, thoughts, emotions, bodily reactions, and behaviors (Motabi & Fati, 2018). This process naturally increases emotional self-awareness because the adolescent is repeatedly encouraged to pause, observe internal states, label emotions, examine emotional triggers, and evaluate the meaning attached to emotional experiences. General psychiatric and clinical literature also identifies CBT as a structured and evidence-based intervention for modifying maladaptive cognitive-emotional patterns and improving psychological functioning (Sadock et al., 2015). Therefore, the improvement observed in emotional self-awareness in the present study is theoretically expected, because CBT directly trains the cognitive and emotional skills required for better emotional recognition and interpretation.

The findings are also aligned with studies showing the role of cognitive-behavioral and emotion regulation-based interventions in reducing emotional and behavioral problems among adolescents. Javid and colleagues reported that cognitive-behavioral emotion regulation-based therapy improved emotion regulation and reduced symptoms of oppositional defiant disorder in adolescents (Javid et al., 2022). Shibani and colleagues also found that both cognitive-behavioral therapy and emotion regulation training were effective in improving irritability, depression, anxiety, stress, and emotional regulation among adolescents with disruptive mood dysregulation disorder (Shibani et al., 2020). These studies support the present finding because emotional self-awareness is a prerequisite for effective emotion regulation. Adolescents cannot regulate emotions adaptively unless they can first identify and understand what

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they feel. Therefore, CBT may improve emotional self-awareness by teaching adolescents to detect automatic emotional reactions, distinguish between thoughts and feelings, and replace impulsive responses with more reflective and controlled responses.

The result is further supported by research emphasizing the clinical importance of emotional regulation difficulties. Lawlor and colleagues highlighted that emotion regulation difficulties are closely associated with psychological distress and clinical dysfunction, showing that difficulties in identifying, accepting, and managing emotions represent important therapeutic targets (Lawlor et al., 2021). Margherio and colleagues also demonstrated that emotion regulation plays an important role in maladaptive behaviors among adolescents, including alcohol use among adolescents with attention-deficit/hyperactivity disorder (Margherio et al., 2020). Although the present study did not examine substance use or clinical disorders, these findings support the broader interpretation that improving emotional self-awareness can reduce vulnerability to maladaptive coping behaviors. When single-parent adolescents become more aware of their emotional states, they may become less likely to respond through avoidance, aggression, withdrawal, procrastination, or impulsive behavior.

The second major finding showed that cognitive-behavioral therapy significantly improved self-regulation strategies among single-parent adolescents. The descriptive findings indicated that the experimental group's mean score on self-regulation strategies increased substantially from pretest to posttest, whereas the control group showed only a slight change. The ANCOVA result confirmed a significant group effect after controlling for pretest scores, indicating that the intervention had a meaningful impact on participants' self-regulatory functioning. This finding suggests that CBT can help single-parent adolescents monitor their behavior, control impulses, plan responses, manage emotions, and use more adaptive strategies when facing personal, family-related, academic, or social stressors.

This finding is consistent with integrative models of self-regulation that define self-regulation as a multidimensional process involving motivation, attention, emotional control, goal-directed behavior, and behavioral adjustment (Inzlicht et al., 2021). CBT is highly compatible with this model because it does not only target emotional distress; it also trains individuals to set goals, identify obstacles, monitor thoughts, evaluate consequences, and choose alternative behaviors. In the context of adolescence, this is particularly important because self-regulation is still developing and is strongly influenced by family communication, emotional modeling, school demands, and peer interactions. Yu's work on mother-child verbal communication and self-regulation supports the idea that regulatory abilities develop through interaction, guidance, and emotional scaffolding (Yu, 2018). In single-parent families, adolescents may receive less consistent emotional scaffolding because the available parent may be under greater emotional, economic, or caregiving pressure. CBT may therefore serve as a compensatory structured environment in which adolescents learn self-monitoring, planning, and self-control strategies.

The finding is also supported by educational studies showing that self-regulation is strongly related to academic and social outcomes. Maksum and colleagues showed that self-regulation, social skills, critical thinking, and problem-solving ability contribute to social studies learning outcomes (Maksum et al., 2021). Azimi Roshan also reported that self-regulated learning strategy training improved social adjustment and academic success among elementary students (Azimi Roshan, 2022). These studies are consistent with the present finding because self-regulation strategies are not limited to emotional control; they also affect academic planning, persistence, problem-solving, and social adaptation. For single-parent adolescents, strengthening self-regulation may help them manage academic pressure, reduce avoidance behaviors, organize responsibilities, and respond more effectively to interpersonal challenges.

The effectiveness of CBT on self-regulation strategies also aligns with previous studies conducted specifically among adolescents. Koohi and Yekani reported that mindfulness intervention improved adolescents' learning self-regulation (Koohi & Yekani, 2021). Although mindfulness and CBT differ in technique and theoretical emphasis, both approaches strengthen awareness, attention, response inhibition, and reflective control. Mohammadian and Salahi also found that group cognitive-behavioral therapy reduced academic procrastination among single-parent adolescents (Mohammadian & Salahi, 2024). This finding is particularly close to the present study because academic procrastination is often a behavioral manifestation of weak self-regulation. When adolescents improve their ability to identify automatic thoughts, challenge avoidance-based beliefs, and implement behavioral plans, their self-regulatory capacity increases. Therefore, the present results reinforce the view that CBT is an appropriate intervention for improving regulatory strategies in single-parent adolescents.

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The findings can also be understood in relation to contemporary psychosocial challenges faced by adolescents. Tandon and colleagues showed that fear of missing out among social media users is associated with problematic patterns of digital engagement, emotional tension, and behavioral dysregulation (Tandon et al., 2021). Adolescents from single-parent families may be especially vulnerable to online comparison, emotional dependency on peer approval, and avoidance of family-related stress through digital overuse. CBT can reduce these risks indirectly by strengthening self-monitoring, emotional labeling, cognitive evaluation, and behavioral decision-making. In a broader conceptual sense, self-regulation is understood across disciplines as the capacity of a system to adaptively adjust to changing conditions (Zou et al., 2022). In psychological terms, this adaptive adjustment means that adolescents can regulate emotional reactions, modify maladaptive thoughts, and select behaviors that are consistent with long-term goals rather than short-term relief.

The improvement in both emotional self-awareness and self-regulation strategies suggests that these two variables may be mutually reinforcing. Emotional self-awareness provides the informational basis for self-regulation, while self-regulation provides the behavioral and cognitive mechanisms through which emotional awareness becomes adaptive action. Adolescents who can identify their emotions more clearly are better able to choose appropriate coping strategies, and adolescents with stronger self-regulation are more capable of tolerating emotions without becoming overwhelmed by them. This interpretation is supported by research on trait emotional intelligence, which shows that emotional capacities such as emotional perception, self-control, and well-being contribute to engagement and adaptive functioning (Barreiro & Treglown, 2020). It is also consistent with evidence showing that early adverse experiences may influence later relational attitudes and emotional expectations (Mirjani & Valadkhani, 2024). For single-parent adolescents, CBT may help interrupt maladaptive pathways between family stress, emotional confusion, negative thoughts, and behavioral dysregulation.

The findings are also consistent with broader evidence supporting the efficacy of CBT in improving psychological outcomes across different populations. Sun and Huang demonstrated that CBT was effective in reducing depression and anxiety and improving quality of life among early-stage breast cancer patients (Sun & Huang, 2019). Although the population and clinical context differ from the present study, the shared mechanism is that CBT helps individuals reinterpret stressful experiences, reduce maladaptive cognitive patterns, and develop more effective coping strategies. Similarly, studies of adolescents' psychosocial needs in contexts of parental loss and family disruption emphasize the importance of structured psychosocial support systems (Taukeni, 2015). The present findings suggest that CBT can function as one such structured support by helping single-parent adolescents acquire emotional and regulatory skills that support healthier adjustment.

5. Conclusion

Overall, the findings of this study demonstrate that cognitive-behavioral therapy had a significant and positive effect on both emotional self-awareness and self-regulation strategies among single-parent adolescents. These results are consistent with previous studies on self-awareness training, emotion regulation-based CBT, mindfulness intervention, self-regulated learning training, and group CBT for single-parent adolescents (Ghorbani & Sheikhan, 2025; Javid et al., 2022; Koohi & Yekani, 2021; Mohammadian & Salahi, 2024). The results indicate that CBT can be considered an effective intervention for strengthening core psychological capacities in adolescents who face the developmental and emotional challenges of single-parent family life. By helping adolescents understand their emotions, challenge maladaptive thoughts, develop alternative interpretations, and implement adaptive behaviors, CBT supports both emotional insight and behavioral regulation. Therefore, the present study contributes to the literature by highlighting the usefulness of CBT not only for reducing symptoms but also for improving developmental competencies that are essential for resilience, adjustment, and mental health in single-parent adolescents.

6. Limitations & Suggestions

This study had several limitations that should be considered when interpreting the findings. First, the sample size was limited to 30 single-parent adolescents, which may restrict the generalizability of the results to wider adolescent populations. Second, participants were selected from counseling centers in Tehran through purposive sampling; therefore, the findings may not fully represent single-parent adolescents who do not seek counseling services or who live in other cities and sociocultural contexts. Third, the study used a pretest–posttest design without a follow-up assessment, so the stability of the intervention effects over time could not be determined. Fourth, the data were

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collected using self-report questionnaires, which may be influenced by response bias, social desirability, or participants' temporary emotional states. Finally, the study did not separately examine potentially influential demographic and family-related variables, such as gender, age, socioeconomic status, reason for single-parent family structure, duration of parental absence, or quality of parent-adolescent relationship.

Future studies are recommended to replicate this research with larger and more diverse samples of single-parent adolescents from different regions, schools, and counseling settings. Researchers should also use randomized controlled trial designs with follow-up assessments to examine the long-term durability of cognitive-behavioral therapy effects on emotional self-awareness and self-regulation strategies. It would also be useful to compare cognitive-behavioral therapy with other interventions, such as mindfulness-based therapy, acceptance and commitment therapy, emotion-focused therapy, or family-based interventions, in order to determine which approach is most effective for different subgroups of single-parent adolescents. Future research may also examine mediating and moderating variables, including family communication, perceived social support, attachment style, academic stress, psychological distress, and digital media use. In addition, mixed-methods studies could provide deeper insight into adolescents' lived experiences of emotional change during cognitive-behavioral therapy.

Based on the findings, it is recommended that counseling centers, schools, and adolescent mental health services use cognitive-behavioral therapy as a structured intervention for single-parent adolescents who experience difficulties in emotional awareness and self-regulation. Counselors and psychologists can design group-based CBT programs that teach adolescents how to identify emotions, recognize automatic thoughts, challenge cognitive distortions, regulate emotional reactions, solve problems, and plan adaptive behaviors. School counselors may also integrate brief CBT-based emotional awareness and self-regulation exercises into educational and counseling programs for vulnerable students. Because single-parent adolescents may experience unique emotional and family-related pressures, practitioners should create a supportive therapeutic environment that validates their experiences while strengthening practical coping skills. Parent guidance sessions may also be added when possible so that caregivers can reinforce adolescents' emotional awareness, communication skills, and self-regulation strategies at home.

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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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