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Comparing the Effectiveness of Acceptance and Commitment Therapy and Cognitive-Behavioral Therapy on Cognitive Resilience of Adolescent Athletes with Insecure Attachment Styles

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ABSTRACT

Objective: The present study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Cognitive-Behavioral Therapy (CBT) on the cognitive resilience of adolescent athletes with insecure attachment styles.

Methods: This was a quasi-experimental study utilizing a pretest-posttest and two-month follow-up design with a control group. The statistical population comprised adolescent athletes in District 4 of Tehran, with an initial screened sample of 200 individuals. Based on Cohen's table, a final sample of 45 participants (15 per group) was selected using purposive sampling and randomly assigned to two experimental groups and one control group. The first and second experimental groups underwent nine sessions of ACT and CBT, respectively. The research instrument was the Connor-Davidson Resilience Scale (CD-RISC, 2003). Data were analyzed using repeated-measures analysis of covariance (ANCOVA) via SPSS-27.

Results: The results indicated that at the posttest stage, both intervention methods had a significant effect on improving the cognitive resilience of adolescent athletes with insecure attachment styles ($p < .01$). This improvement was also sustained significantly at the follow-up stage. Furthermore, a significant difference was observed between the effectiveness of ACT and CBT.

Conclusions: The findings demonstrated that ACT—through the acceptance of emotions, prevention of experiential avoidance, and the formation of committed action and healthy habits—as well as CBT—by focusing on adolescents' individual abilities to modify their lifestyle—both contributed effectively to enhancing the cognitive resilience of adolescents with insecure attachment styles.

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Introduction

Sport is an important part of the lives of a large group of people; some engage in it recreationally and others professionally, and growing attention to this phenomenon has led to sport being regarded as a fundamental international industry worldwide (Davis et al., 2021). Attachment styles in athletes also affect the quality of their relationships, their athletic performance, and their use of defense mechanisms, such that more secure attachments usually lead to healthier relationships and better performance (Moazen Jamshidi & Haghparast Kenarsari, 2021). Knowing one's attachment style can also help athletes identify their weaknesses and, with the help of sport psychologists, develop better coping skills in order to achieve better performance and greater satisfaction in sport and in life (Dana et al., 2019).

Attachment theory is currently one of the most promising theories of adult romantic relationships; it emphasizes the tendency of human beings to form and maintain strong emotional bonds with significant others (Ma et al., 2017). The foundation of the main tenets of this theory is that infants' relationships with their primary attachment figures during the situations of the first years of life, together with their later relational experiences, determine the basis of a unique relational style and a unique style of emotion regulation, and affect how they perceive others and how they relate to them (in general) throughout life (Dizdari & Seiler, 2020). Here the role of the mother in the individual's attachment, as one of the attachment figures, and even the effect on the mother as the main attachment figure, becomes prominent. Numerous studies have shown that attachment styles are an important determinant of personality tendencies and personality formation. After the concept of attachment style was accepted and fully understood and was added to developmental psychology research, researchers of romantic relationships began to evaluate how attachment characteristics emerge in the parties to a romantic relationship (Glazebrook et al., 2015). West and Sheldon-Keller (1994) regard adult attachment as dyadic relationships whose pursuit with a particular person leads to a sense of security. Bowlby (1973) identified three attachment styles: secure, avoidant, and ambivalent. Secure attachment is associated with relational characteristics such as intimacy and satisfaction, avoidant attachment with lower levels of intimacy and commitment, and ambivalent attachment with passion and preoccupation in relationships accompanied by low satisfaction (Feeney & Noller, 1990). It is important to note that each attachment style in its own way leads the individual to attain calm and a sense of satisfaction. This

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sense of satisfaction causes the individual to work with more energy in the workplace and to complete assigned responsibilities hopefully (Naor-Ziv, 2025). Insecure attachment style in athletes means the lack of a healthy and reliable emotional base, which does not allow them, while maintaining love and interest for those around them (such as the coach and the team), to move toward independence, the flourishing of talent, and high performance in sport; this style is accompanied by high stress and low self-confidence. Studies have shown that athletes, compared with non-athletes, tend more toward secure than insecure attachment, but the insecure style is also observed in athletes, and this characteristic affects their success and mental health (Peng et al., 2020).

The cognitive resilience of athletes is likewise their ability to bounce back strongly after failures, pressures, and sporting challenges, with a constructive outlook that sees failure as an opportunity for learning rather than the end of the road; it includes characteristics such as commitment, control, and challenge acceptance and is strengthened through exercises such as visualization and meditation so that the athlete can cope with competition stress and perform better. Resilience is the ability to adapt successfully to threatening conditions and life stressors and is a kind of self-repair with positive emotional, affective, and cognitive outcomes (Karoly & Ruehlman, 2006). Resilience is also not merely persistence in the face of harm or threatening conditions but the individual's active and constructive participation in the environment. Studies have shown that people with high resilience show lower levels of avoidance, cope with the pain caused by their illness, and do not hold a catastrophizing attitude toward pain or are less inclined to catastrophize (Newton-John et al., 2014). In one study, Djalante et al. (2020) reported that resilience is an appropriate strategy for coping with anxiety. Thus it seems that positive and negative meta-emotions and resilience are related (Alizadeh & Namazizadeh, 2020).

It can also be added that cognitive resilience in adolescent athletes with insecure attachment acts as a defensive shield. ACT- and CBT-based training probably creates new neurocognitive pathways for facing sporting setbacks by improving cognitive resilience (Budia et al., 2023). Given the importance of adolescence in consolidating identity and coping skills, this study sought to answer the question of which of the two approaches (or what difference in their effectiveness) can strengthen the psychological foundations of adolescent athletes with insecure attachment for facing professional challenges. By clarifying the link between the foundations of attachment and

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cognitive capacities, this study aims to localize common therapeutic models to the specific context of adolescent athletes. The results of Esmati et al. (2025) showed that, at the posttest stage, there was a significant difference between the control and experimental groups of adolescents with conduct disorder in resilience and flexibility, such that acceptance and commitment therapy increased the flexibility and resilience of adolescent boys with conduct disorder. The results of Khavasi et al. (2024) also showed that acceptance and commitment therapy produced a significant difference in hardiness, resilience, and quality of life among employees. On the basis of these findings, it can be concluded that acceptance and commitment therapy has a positive effect on hardiness, resilience, and quality of life among employees. It can therefore be said that this program can be used for employees in demanding jobs. According to the research literature, no study has been conducted in this area in the field of sport. Systematic reviews indicate a need to find more durable and effective theoretical treatment methods that show their effects on cognitive resilience, emotional self-regulation, and self-compassion. It is also evident that most of the existing theoretical literature has addressed some of the variables of cognitive resilience in general, that is, outside the field of sport, and that most research conducted so far on cognitive resilience has been carried out abroad in cultures that differ from that of Iran. Finally, various domestic and foreign studies have measured and examined the components of cognitive resilience separately, and there is almost no study that has measured and examined its components together. The main question of this research is therefore whether there is a difference between the effectiveness of acceptance and commitment therapy and cognitive-behavioral therapy on the cognitive resilience of adolescent athletes with insecure attachment styles.

Material and Methods

The statistical population of the study was male adolescent athletes attending sports clubs (football, futsal, volleyball, basketball, and wrestling) in District 4 of Tehran. The size of the statistical population was set at 200. According to Cohen's table, with a confidence level of .95, power of .90, and an effect size of .35, the required sample for this study was calculated as 15 per group, and, allowing for participant attrition, about 45 participants were considered for each group. The sampling method in the present study was purposive sampling. First, among male adolescent athletes attending sports clubs (football, futsal, volleyball, basketball, and wrestling), individuals

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interested in participating in the study were selected, the attachment styles questionnaire was first distributed, and individuals with a secure attachment style were identified. The sample selection steps in this study were, first, based on the inclusion criteria and the obtaining of identification conditions and, then, random assignment to two experimental groups and one control group. Through random assignment, the first experimental group (the cognitive-behavioral therapy group), the second experimental group (the acceptance and commitment therapy group), and one control group were formed. The inclusion criteria were as follows: obtaining a minimum score of 18 on the insecure attachment component of the attachment questionnaire, being between 10 and 17 years of age, no history of neurological or psychiatric illness or hospitalization, no substance abuse according to the participant's report, the ability to attend group therapy sessions, willingness to cooperate and to give informed consent to participate in the study, and at least 2 years of sports activity.

The exclusion criteria were as follows: absence from more than two intervention sessions and unwillingness to continue attending the intervention sessions. The research instrument was as follows:

Connor-Davidson Resilience Scale: This questionnaire was developed by Connor and Davidson (2003) through a review of the 1979-1991 research literature on resilience. The psychometric properties of this scale were examined in six groups: the general population, primary care attendees, psychiatric outpatients, patients with generalized anxiety disorder, and two groups of patients with post-traumatic stress disorder. The questionnaire has 25 items and aims to measure the level of resilience in different people. Responses are on a 5-point Likert scale, with the score of each option ranging from 0 to 4. The score range is from 0 to 100. The higher the score, the greater the resilience of the respondent, and vice versa. The cutoff point of this questionnaire is a score of 50; in other words, a score above 50 indicates resilient individuals, and the further the score is above 50, the higher the individual's level of resilience, and vice versa. In the study by Besharat et al. (2015), the validity and reliability of this questionnaire were confirmed (as cited in Haghranjbar et al., 2016). In the study by Haghranjbar et al. (2011), the reliability of the questionnaire was also tested using Cronbach's alpha coefficient, and an alpha of .84 was obtained for this questionnaire. This instrument therefore has good reliability (Haghranjbar & Farrokh, 2011).

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The research procedure was as follows: after obtaining approval from the ethics committee and a written permit from Islamic Azad University, Saveh Branch, the researcher went to sports clubs in Tehran, presented a letter of introduction in order to work in the research setting, and, after introducing themself to the relevant officials, explained the objectives of the study and the steps of the work to them. Sampling then began. To carry out the present study, the therapy content for each intervention was first prepared on the basis of the therapeutic approaches, using scientific and credible sources and in light of the constructs of the model under study. Then, to determine the validity of the educational content, the content was given to two specialists and experts. After the opinions were compiled, the necessary changes were made to the therapy content.

The research samples were selected by purposive sampling based on the inclusion criteria. Adolescents attending sports clubs who met the inclusion criteria and were willing to participate in the study (with written consent obtained) were divided by random assignment (using a table of random numbers) into the experimental groups and one control group, and, after random assignment, in order to observe the principle of random allocation, one of the groups was again chosen at random as the intervention group and the control group. The objectives of the study, the research steps, the confidentiality of information, and the right to withdraw freely from the study were then explained to them. All participants completed the research questionnaires at the pretest stage. The groups receiving acceptance and commitment therapy and cognitive-behavioral therapy underwent 9 weekly 90-minute sessions in accordance with the protocol of the respective therapy. Three months after the last session of these interventions, the posttest was administered to the 2 intervention groups and the control group, and the adolescents completed the questionnaires again.

Acceptance and Commitment Therapy Protocol

The therapeutic protocol (training protocol) of acceptance and commitment therapy was designed by Hayes and Bond (2004).

Table 1. Summary of the Acceptance and Commitment Therapy Sessions

Session	Session Content
First	Introduction of each member; explanation of the rules and regulations of group counseling by the group; setting underlying goals; identifying clients' previous efforts to cope with anxiety; describing thoughts and symptoms; the hungry tiger metaphor; introducing the ineffective control system to clients; reminding that control itself is the problem. Homework: How did I surrender to anxiety?
Second	Presenting the metaphor (man in the hole) and the chocolate cake metaphor; attention to the client's willingness. Homework: mindful worry worksheet

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Session	Session Content
Third	The tug-of-war with a monster metaphor; the lie detector metaphor; emphasis on the importance of enhancing and cultivating mindfulness. Homework: the worksheet "What is the function of worry?"
Fourth	The polygraph metaphor; the "milk, milk, milk" exercise; willingness as an alternative to control; the two-scales metaphor; instructions on willingness; clear emotions versus murky emotions Introducing mindfulness through the mindful breathing exercise. Homework: continuing mindfulness practice
Fifth	Introducing values; discussing the relationship between goals and values; choosing values: choices versus judgments/decisions; identifying a valued action (behavioral goal) to carry out during the week; homework: presenting the values identification worksheet and carrying out a valued action
Sixth	Identifying values: using the "tombstone" metaphor; instructions on mindfulness skills; mindfulness-enhancing exercise; homework: identifying a valued action (behavioral goal to carry out during the week)
Seventh	Instructions and discussion on the function of emotions; instructions for controlling the emotional cycle; emotional avoidance (the hot stove metaphor); clear emotions versus murky emotions; homework: mindfulness practice; identifying a valued action (setting a behavioral goal to carry out during the week)
Eighth	The chessboard metaphor; discussion of the observing self versus the conceptualized self; observing-self exercise Identifying a valued action (behavioral goal) to carry out during the week. Homework: carrying out the specified valued action
Ninth	Commitment as a process; identifying action steps (smaller goals in the service of larger goals); presenting the gardening metaphor; obstacles to reaching goals and willingness to accept them (the bubble-on-the-road metaphor); the passengers-on-the-bus metaphor; the mountain-climbing metaphor; identifying a valued action (behavioral goal) to carry out during the week; homework: carrying out a specified valued action

Cognitive-Behavioral Therapy Protocol

The therapeutic protocol (training protocol) of cognitive-behavioral therapy was designed by Dobson (2020).

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Table 2. Summary of the Cognitive-Behavioral Therapy Sessions

Session	Content
First	Discussion of post-traumatic stress disorder and its complications, such as the emergence of mental disorders such as depression and anxiety and reduced capability and quality of life, and training in relaxation. Assignment: daily collection and recording of stress factors
Second and third	Explanation of processing errors; training in reappraising thoughts and challenging them as strategies for changing the irrational thoughts of individuals with post-traumatic stress disorder. Assignment: daily collection and recording of irrational thoughts and their analysis
Fourth	Explanation of the role of stress in reducing mental health and the emergence of mental disorders such as depression and anxiety and, consequently, poor quality of life. Assignment: preparing a list of activities that are not under the individual's control in order to build a positive mindset
Fifth and sixth	Training in problem-solving, social and interpersonal relationships, and the role of physical activity in increasing the sense of mental health, self-control, and quality of life and reducing rumination. Assignment: recording daily activities regarding how to deal with others and practicing the mental imagery technique
Seventh	Strategies for building self-efficacy beliefs in stressful situations and creating favorable mental health, and identifying areas of concern and stressful thoughts. Assignment: practicing the skills learned
Eighth	Gradual termination of therapy, identifying behavioral techniques for overcoming possible problems, and a general review and practice of the skills learned in the sessions for the experimental group. Assignment: carrying out self-designed tasks to overcome future problems

Descriptive statistics (measures of central tendency and dispersion) such as frequency, percentage, mean, and standard deviation were used to display and summarize the data. For inferential statistics, repeated-measures analysis of variance was used to analyze the data and to assess the role of the intervention programs while controlling for the pretest effect. SPSS version 27 was used to analyze the data.

Results

Table 3. Means and Standard Deviations of Cognitive Resilience

Group	Stage	Mean	Standard deviation
Control	Pretest	62.00	3.910
	Posttest	62.40	4.032
	Follow-up	61.20	4.617
Acceptance and Commitment Therapy	Pretest	51.60	5.654
	Posttest	73.73	8.154
	Follow-up	76.73	13.101
Cognitive-Behavioral Therapy	Pretest	52.27	5.788
	Posttest	72.00	6.256
	Follow-up	74.53	5.436

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As shown in Table 3, in the two experimental groups the mean cognitive resilience scores increased at the posttest and follow-up stages. In contrast, no similar changes were observed at these stages in the control group.

Table 4. Levene's Test of Equality of Error Variances for the Study Variables

Pretest		Posttest		Follow-up	
Levene	Sig.	Levene	Sig.	Levene	Sig.
2.159	.056	5.033	.011	2.627	.084

The result of Levene's test in Table 4 shows that the difference in error variance of the scores on none of the components or on the total cognitive resilience score is significant across the groups and the three stages. This finding shows that the assumption of homogeneity of error variances holds for the data of the study variables.

Table 5. Results of the Test of the Assumption of Equality of Covariance Matrices of the Dependent Variables

Component	Box's M	*F*	Sig.
Cognitive resilience	20.63	0.90	.049

According to Table 5, the results of the analysis showed that the value of Box's *M* statistic is not significant for any of the components or the total scores of the dependent variables. This indicates that the assumption of homogeneity of the covariance matrices of the dependent variables holds for the cognitive resilience components.

Table 6. Mauchly's Test of Equality of the Error Covariance Matrix for the Study Variables

Component	Mauchly's W	$\chi^2\chi$	*df*	Sig.
Cognitive resilience	.878	2.58	2	.437

According to the results in Table 6, Mauchly's test showed that the chi-square value for the cognitive resilience component is not significant (p = .327). This finding indicates that the assumption of sphericity holds for that component.

Table 7. Results of the Multivariate Test Assessing the Effect of the Independent Variables on Cognitive Resilience

Dependent variable	Wilks' lambda	*F*	*df*	*p*	η^2	Power
Cognitive resilience	.509	4.82	4, 64	.002	.232	.942

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As Table 7 shows, the effect of administering the independent variables on the cognitive resilience components (Wilks' lambda = .590, η^2 = .232, p = .001, F = 4.82) was significant. Next, Table 8 presents the results of the repeated-measures analysis of variance explaining the effect of the two treatments, acceptance and commitment therapy and cognitive-behavioral therapy, on the cognitive resilience components.

Table 8. Results of Repeated-Measures Analysis of Variance Explaining the Effect of the Independent Variables on Cognitive Resilience

Effect	Sum of squares	Error sum of squares	F	p	$\eta^2\eta$
Group effect	335.69	579.31	9.56	.001	.367
Time effect	264.50	173.42	50.33	.001	.604
Group × time interaction effect	154.26	426.11	5.97	.001	.266

As Table 8 shows, in addition to the group effect and the time effect, the group × time interaction effect is significant for the cognitive resilience components (η^2 = .266, p = .001, F = 5.97). These findings indicate that administering the independent variables significantly affected the cognitive resilience components. Table 9 then presents the results of the Bonferroni test for the scores on the cognitive resilience components in the three groups and at the three stages of administration.

Table 9. Results of the Bonferroni Post Hoc Test for Pairwise Comparisons of the Effects of Groups and Times on Cognitive Resilience

Variable	Time points		Mean difference	Standard error	p
Cognitive resilience	Pretest	Posttest	3.56	0.66	.001
	Pretest	Follow-up	3.83	0.54	.001
	Posttest	Follow-up	2.28	0.59	1.000
Variable	Group difference		Mean difference	Standard error	p
Cognitive resilience	Acceptance and Commitment Therapy	Cognitive-Behavioral Therapy	−0.19	0.99	1.00
	Acceptance and Commitment Therapy	Control group	−3.83	0.99	.001
	Cognitive-Behavioral Therapy	Control group	−3.64	0.99	.001

The results of the Bonferroni test comparing the effect of time in Table 9 show that the difference between the mean scores of the cognitive resilience components was statistically significant between the pretest and posttest stages and between the pretest and follow-up stages, but the difference between the mean scores at the posttest and follow-up stages was not significant. The

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results of the Bonferroni test comparing the effects of group in Table 9 also show that the difference in mean scores of the cognitive resilience components was statistically significant between the acceptance and commitment therapy group and the control group and between the cognitive-behavioral therapy group and the control group. Thus, administering acceptance and commitment therapy and cognitive-behavioral therapy caused the mean scores of the cognitive resilience components at the posttest and follow-up stages to increase relative to the pretest stage. On this basis, in testing the hypothesis, it was concluded that acceptance and commitment therapy and cognitive-behavioral therapy have an effect on the cognitive resilience of adolescent athletes with insecure attachment styles.

Discussion

The findings showed that at the posttest stage both intervention methods had a significant effect on the cognitive resilience of adolescent athletes with insecure attachment styles. At the follow-up stage, the two interventions also significantly improved adolescents' cognitive resilience. In addition, there was a significant difference between the effectiveness of acceptance and commitment therapy and cognitive-behavioral therapy. This finding is consistent with the results of Djalante et al. (2020), Esmati et al. (2025), and Khavasi et al. (2024). In explaining the finding, it can be said that cognitive resilience refers to an individual's ability to adapt to difficult conditions, to reappraise stressful situations, and to use adaptive cognitive strategies to cope with problems. Adolescent athletes with insecure attachment styles may be more vulnerable when facing sporting failures, competitive pressure, evaluation by others, and fear of rejection, because insecure attachment patterns can affect how stressful events are interpreted, how emotion is regulated, and how personal abilities are appraised. Psychological interventions that help correct dysfunctional thought patterns and increase flexibility in the face of stress can therefore provide the ground for promoting the cognitive resilience of these adolescents (Gosling et al., 2025).

The effectiveness of cognitive-behavioral therapy can be explained by this approach's emphasis on identifying and modifying negative automatic thoughts, cognitive restructuring, testing dysfunctional beliefs, and training in problem-solving strategies. Adolescent athletes may interpret a loss in a competition or a poor performance as a sign of personal inability or worthlessness. Such appraisals can lead to more negative thoughts, reduced confidence in personal abilities, and

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difficulty adapting to pressured situations. By helping identify these thought patterns and replace them with more realistic and adaptive interpretations, cognitive-behavioral therapy can help adolescents regard negative events as manageable situations and as opportunities for learning. Training in coping and problem-solving skills can also increase their sense of cognitive mastery in difficult situations and provide the ground for improved cognitive resilience (Siu et al., 2025). On the other hand, the effectiveness of acceptance and commitment therapy can be explained by this approach's emphasis on psychological flexibility, acceptance of unpleasant internal experiences, cognitive defusion, present-moment awareness, and committed action in line with personal values. In this approach, the main goal is not to eliminate negative thoughts or unpleasant emotions entirely but to help the person change their relationship with these experiences. For example, an adolescent athlete learns to regard thoughts such as "I am not capable enough" or "If I fail, others will not accept me" merely as mental events, not as definitive facts that must determine their behavior. This process can prevent excessive entanglement with negative thoughts and allow the adolescent to continue purposeful behaviors consistent with their sporting values even in the presence of anxiety, hopelessness, or fear of failure. As a result, increased psychological flexibility can contribute to better adaptation to competitive pressures, tolerance of frustration, and maintenance of effective performance in difficult situations (Geda et al., 2021). The persistence of the effectiveness of both interventions at follow-up may also indicate that the changes were not limited to a temporary reduction in psychological distress but that some of the cognitive and coping skills learned were probably still used after the therapy sessions ended. In cognitive-behavioral therapy, acquiring skills such as identifying dysfunctional thoughts, cognitive reappraisal, and problem solving can help adolescents cope with difficult situations independently of the therapy sessions when they face later pressures. Likewise, in acceptance and commitment therapy, the practice of acceptance, cognitive defusion, and values-based action can serve as a set of skills usable in everyday life and in the sporting environment. The continued improvement in cognitive resilience at follow-up can therefore be explained by the possibility of generalizing these skills to real-life and sporting situations, although definitive confirmation of these mechanisms requires direct measurement of the mediating processes and examination of the extent to which participants used the skills they learned.

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Regarding the significant difference in the effectiveness of the two therapeutic methods, it can be suggested that this difference is probably related to differences in the mechanisms of change, the content of the sessions, the degree to which the intervention fits adolescents' cognitive and emotional needs, and the characteristics of the research sample. Cognitive-behavioral therapy focuses more on evaluating and modifying the content of thoughts and beliefs, whereas acceptance and commitment therapy emphasizes changing the person's relationship with thoughts and emotions and increasing psychological flexibility. Overall, the findings of the present study underscore the importance of using evidence-based psychological interventions to promote the cognitive resilience of adolescent athletes with insecure attachment styles, and both therapeutic approaches, by strengthening cognitive and coping skills or by increasing psychological flexibility, appear able to help adolescents show greater adaptation when facing failure, competitive pressure, and unpleasant emotional experiences. The persistence of these effects at follow-up also implies the importance of teaching skills that can be used in real-life and sporting situations. On this basis, the choice of an appropriate therapeutic approach can be made according to adolescents' individual needs, attachment characteristics, the nature of their cognitive and emotional problems, and the effectiveness observed in each intervention. Several limitations arose during the study, some of which can be mentioned: the statistical population of the study was limited to adolescent athletes with insecure attachment styles, so generalizing the results to non-athlete adolescents, adult athletes, or individuals with a secure attachment style should be done with caution. The individual and demographic characteristics of participants, including age, gender, socioeconomic status, and family circumstances, may have influenced their responsiveness to the therapeutic interventions. Consequently, the effectiveness of the two therapeutic methods may not be the same in different groups.

It is suggested that future studies compare the effectiveness of acceptance and commitment therapy and cognitive-behavioral therapy on cognitive resilience in larger samples using appropriate sampling methods in order to increase the generalizability of the findings. It is also suggested that the effectiveness of these two therapeutic approaches be examined and compared in adolescent athletes with different attachment styles, including secure, avoidant, and anxious attachment, in order to determine how far attachment style can play a role in responsiveness to therapeutic interventions. Sport psychologists and adolescent counselors are also advised to use acceptance

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and commitment therapy and cognitive-behavioral therapy, in line with athletes' individual needs, to strengthen cognitive resilience and improve their adaptation to the psychological pressures of sport. It is suggested that workshops be held in clubs and sports centers to teach identifying negative thoughts, modifying dysfunctional beliefs, realistic appraisal of failures, problem solving, and replacing thoughts with more adaptive interpretations, so that adolescents can show more effective cognitive reactions when facing frustration and competitive pressure.

Data availability statement

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics statement

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and approved by the institutional ethics committee. All participants provided informed consent prior to participating in the study, and data collection procedures ensured complete anonymity and confidentiality.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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