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Original Article

Effectiveness of Acceptance and Commitment Therapy in Enhancing Resilience and Reducing Cognitive Avoidance in Male Adolescents with Aggressive Behavior

Najmeh Mazloom[1*], Mehdi Hoseinzadeh[1]

1- Department of Psychology, Ahv.C., Islamic Azad University, Ahvaz, Iran

*Corresponding author:
Najmeh Mazloom, Department of Psychology, Ahv.C., Islamic Azad University, Ahvaz, Iran
Tel: +9861 33348420
Email: mazloomnjm@gmail.com

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Abstract

Background and Objective: Adolescent aggression represents a significant psychosocial risk, often associated with impaired emotion regulation and maladaptive coping strategies, including cognitive avoidance, which undermines psychological resilience. The present study aimed to evaluate the efficacy of Acceptance and Commitment Therapy (ACT) in increasing resilience and reducing dimensions of cognitive avoidance in male students exhibiting aggression symptoms.

Materials and Methods: A quasi-experimental pretest-posttest design with a control group and a two-month follow-up was employed. A total of 30 tenth-grade male students referred to counseling centers under the Ahvaz Education Department, Iran, in 2024 were selected through convenience sampling and randomly assigned to an experimental (n=15) or a control group (n=15). The experimental group received eight biweekly 90-minute ACT sessions. Resilience and cognitive avoidance were assessed using the Connor-Davidson Resilience Scale (CD-RISC) and the Cognitive Avoidance Questionnaire (CAQ) at pretest, posttest, and follow-up. In addition, data were analyzed using repeated-measures ANOVA.

Results: The ACT group showed significant improvements in resilience and significant reductions in total cognitive avoidance compared with the control group ($P<0.01$). Subscale analyses revealed significant decreases in thought suppression, thought substitution, distraction, avoidance of threatening stimuli, and transformation of images into thoughts ($P<0.01$). These effects were maintained at the two-month follow-up.

Conclusions: The ACT is an effective non-pharmacological intervention for enhancing psychological and social adaptation in male adolescents with aggression symptoms. By fostering resilience and reducing maladaptive cognitive avoidance, ACT equips young people with sustainable coping skills for life's challenges.

Keywords: Acceptance and commitment therapy (ACT), Adolescent behavior, Aggression, Cognitive avoidance, Resilience

Background

Adolescent aggression constitutes a multifaceted public health issue with profound implications for psychological and social functioning [1, 2]. It encompasses a range of behaviors, from verbal aggression and bullying to physical violence, which are especially prevalent among male secondary school students and frequently reflect deficits in emotion regulation and impulse control [3]. Clinically significant aggression in male adolescents is characterized by persistent patterns of oppositional behavior, rule violation, and impaired interpersonal relationships. If left untreated, it increases the risk of academic underachievement, school disengagement, substance misuse, chronic psychopathology, and antisocial outcomes in adulthood [4]. Moreover, such aggression contributes to detrimental school climates, negatively affecting peers and the overall functioning of the institution [5]. The considerable individual and societal costs highlight the urgent need for evidence-based, mechanism-focused interventions that target the core processes maintaining aggressive behavior.

Resilience refers to the adaptive capacity to thrive in the face of adversity, involving the mobilization of resources to restore equilibrium after stress or trauma [6]. It is a dynamic process rather than a static trait, enabling recovery and positive adaptation [7]. Within the framework of Acceptance and Commitment Therapy (ACT), resilience is closely aligned with psychological flexibility—defined as the ability to maintain present-moment awareness and engage in behavior that is consistent with personal values, even in the presence of

difficult internal experiences [8]. For adolescents prone to aggression, low resilience heightens vulnerability to emotional triggers, whereas strong resilience supports regulated responses, empathy, and effective problem-solving, all of which are associated with better mental health, academic performance, and social competence [9, 10].

Cognitive avoidance refers to a maladaptive set of strategies used to escape or suppress aversive internal experiences, such as intrusive thoughts, memories, or bodily sensations [11]. It includes several distinct dimensions: thought suppression (attempts to inhibit unwanted thoughts), thought substitution (replacing distressing cognitions with less threatening ones), distraction (shifting attention externally), avoidance of threatening stimuli (evading triggers), and transformation of images into verbal thoughts (converting vivid emotional imagery into linguistic form)—these strategies provide short-term relief but often intensify the avoided experiences through rebound effects [12, 13]. In adolescents with aggression, cognitive avoidance hinders the adaptive processing of anger or underlying vulnerability, thereby perpetuating psychological inflexibility and impulsive reactivity [14]. Thus, it represents a central target for intervention.

As a third-wave cognitive-behavioral approach, ACT promotes psychological flexibility through six interrelated core processes [15]. In contrast to control-based strategies, ACT emphasizes acceptance of internal experiences and commitment to value-driven behavior [16]. It directly addresses cognitive avoidance through defusion and acceptance techniques, fostering greater behavioral flexibility [1]. A growing body of evidence supports the efficacy of ACT across various populations, including reductions in anxiety, depression, and substance-related problems [17, 18], as well as improvements in resilience and decreases in avoidance among high-stress groups, such as students and military personnel [19, 20]. However, its application to adolescents exhibiting aggressive behavior remains relatively understudied.

Research specifically examining the concurrent effects of ACT on resilience and the individual dimensions of cognitive avoidance in school-referred aggressive male adolescents is limited. Previous studies have often measured avoidance as a single construct, obscuring potential differential effects across specific strategies (e.g., suppression versus distraction), which limits mechanistic understanding in this population.

Given the high prevalence and harmful developmental trajectory of adolescent aggression, there is a pressing need for mechanism-oriented, school-accessible interventions. Conventional treatments frequently focus on symptom reduction rather than addressing the underlying processes of psychological inflexibility that sustain aggression and avoidance. The present study addresses these gaps by evaluating the effectiveness of ACT as a process-based intervention in a high-risk school-based sample of aggressive male adolescents.

Objectives

The primary aim of the present study was to evaluate the effectiveness of ACT in increasing psychological resilience and decreasing the five specific dimensions of cognitive avoidance—thought suppression, thought substitution, distraction, avoidance of threatening stimuli, and transformation of images into verbal thoughts—among male tenth-grade students exhibiting clinically significant aggression symptoms.

Materials and Methods

Design

The study employed a quasi-experimental pretest–posttest design with a control group and a two-month follow-up assessment.

Participants

The target population consisted of all tenth-grade male students who displayed clinically significant aggression symptoms and were referred to counseling centers affiliated with the Ahvaz Education Department, Iran, during the 2024 academic year. A convenience sample of 30 eligible students was identified and then randomly assigned to either the experimental group (n=15) or the control group (n=15). Inclusion criteria were: (a) male tenth-grade student status, (b) clinically significant aggression symptoms as determined by school referral and initial screening, and (c) provision of informed parental consent. Exclusion criteria included: (a) presence of any co-occurring psychiatric diagnosis (e.g., psychotic disorder), (b) concurrent participation in another psychological intervention, or (c) absence from more than two ACT sessions. Ethical considerations were fully observed, including assurance of confidentiality, voluntary participation, and provision of the intervention to the control group following completion of the study.

Instruments

Connor-Davidson Resilience Scale (CD-RISC): The CD-RISC [21] is a 25-item self-report instrument designed to assess an individual's capacity to cope with stress and adversity. Items are rated on a 5-point Likert scale (0=not true at all to

4=true nearly all the time), yielding a total score ranging from 0 to 100, with higher scores indicating greater resilience. The scale comprises five factors: Personal Competence, High Standards, and Tenacity; Trusting Instincts; Positive Acceptance of Change and Secure Relationships; Control; and Spiritual Influences. In a previous Persian validation study [22], the instrument demonstrated strong internal consistency (α=0.87). In the present study, Cronbach's alpha was 0.90, indicating excellent reliability.

Cognitive Avoidance Questionnaire (CAQ): The CAQ [23] is a 25-item self-report measure that assesses the frequency of various cognitive strategies used to avoid distressing internal experiences. Responses are rated on a five-point Likert scale (1=rarely or never to 5=almost always), producing a total score ranging from 25 to 125; higher scores reflect greater use of maladaptive avoidance strategies. The questionnaire measures five subscales: thought suppression, thought substitution, distraction, avoidance of threatening stimuli, and transformation of images into verbal thoughts. The Persian version has shown good internal consistency (α=0.80) [11]. In the present study, Cronbach's alpha was equal to 0.88.

Intervention

Acceptance and Commitment Therapy (ACT): The ACT intervention followed the six core processes of the ACT Hexaflex model [24]. It consisted of eight 90-minute sessions delivered biweekly (twice per week) over four weeks to the experimental group by a qualified clinical psychologist. The program aimed to enhance psychological flexibility—defined as the ability to be fully present as a conscious human being and to persist in or change behavior in the service of chosen values. The intervention focused on helping participants develop a different relationship with aggressive thoughts and emotions through defusion and acceptance, while encouraging value-consistent actions instead of avoidance. The session-by-session structure is presented in Table 1.

Table 1. Summary of the ACT intervention protocol.

Session	Content
1	The initial session established the rationale for ACT, focusing on creative hopelessness regarding the control of internal experiences and initiating the identification of personal life values.
2	Participants were introduced to acceptance through experiential metaphors, fostering a willingness to acknowledge aversive internal content (e.g., anger, frustration) without resorting to suppressive or fighting responses.
3	This session targeted cognitive defusion via linguistic and experiential techniques designed to alter the function of aggressive thoughts, thereby reducing reliance on maladaptive thought suppression and substitution.
4	The focus shifted to Self-As-Context, utilizing metaphors to help students differentiate the consistent "observing self" from the transient content of their thoughts and feelings.
5	Participants engaged in Present Moment Contact exercises, integrating formal and informal mindfulness techniques to enhance flexible attention and diminish the use of distraction and avoidance of threatening stimuli.
6	The session focused on Values Clarification, using guided imagery and exercises to deepen the understanding of personal life directions and highlight the conflict between aggressive behavior and valued living.
7	Participants translated their clarified values into tangible Committed Action plans, setting specific, measurable goals aligned with their chosen life direction and addressing potential psychological barriers.
8	The final session served to integrate all six core processes of the ACT model, reinforce the concept of functional flexibility, and develop personalized relapse prevention strategies for managing future challenges.

Data Analysis

All statistical analyses were conducted using the SPSS software (Version 27). The primary analytic approach was repeated-measures analysis of variance (ANOVA) to examine changes across the three assessment points (pretest, posttest, and follow-up).

Results

The sample consisted of 30 male tenth-grade students recruited from public schools in Ahvaz, Iran, with a mean age of 15.8 years (SD=0.6). Participants were predominantly from middle socioeconomic backgrounds, as indicated by parental education levels (60% with high school education or lower) and family structure (80% from intact families). No significant baseline differences were found between the groups on any demographic variables, confirming group equivalence at pretest.

Descriptive statistics for resilience and cognitive avoidance measures are presented in Table 2. At pretest, the experimental and control groups showed comparable scores across all outcome variables (all mean differences<1.5 points). Following the intervention, the ACT group exhibited substantial increases in resilience, rising from a pretest mean of 34.25 (SD=8.48) to 47.07 (SD=8.70) at posttest, with scores remaining largely stable at follow-up (M=46.87, SD=8.65). In contrast, resilience scores in the control group demonstrated little change across time points (pretest M=34.53, SD=7.61; follow-up M=34.47, SD=7.85).

Table 2. Descriptive statistics for resilience and cognitive avoidance measures across groups and time points

Variable	Group	Pretest Mean (SD)	Posttest Mean (SD)	Follow-up Mean (SD)
Resilience	ACT	34.25 (8.48)	47.07 (8.70)	46.87 (8.65)
	Control	34.53 (7.61)	34.33 (7.85)	34.47 (7.85)
Thought suppression	ACT	14.80 (1.89)	11.00 (2.24)	11.13 (2.23)
	Control	13.86 (1.51)	13.67 (1.67)	13.80 (1.78)
Thought substitution	ACT	18.53 (2.45)	15.40 (2.85)	15.53 (2.80)
	Control	19.67 (3.58)	19.93 (3.63)	20.00 (3.68)
Distraction	ACT	19.33 (1.63)	16.00 (2.27)	16.20 (2.24)
	Control	19.20 (2.31)	19.40 (2.29)	19.32 (2.24)
Avoidance of threatening stimuli	ACT	18.13 (2.02)	15.00 (2.83)	15.20 (2.88)
	Control	18.13 (2.67)	18.20 (2.37)	18.07 (2.46)
Transformation of images into verbal thoughts	ACT	20.73 (2.43)	17.40 (2.23)	17.73 (2.31)
	Control	19.60 (3.52)	19.53 (3.74)	19.47 (3.74)
Cognitive avoidance (total)	ACT	91.52 (4.71)	74.80 (5.59)	75.79 (5.61)
	Control	90.46 (6.32)	89.27 (6.39)	90.74 (6.48)

For cognitive avoidance, the ACT group demonstrated consistent, clinically meaningful reductions in total and subscale scores. Total cognitive avoidance decreased from 91.52 (SD = 4.71) at pretest to 74.80 (SD=5.59) at posttest, with scores remaining stable at follow-up (M=75.79, SD=5.61). Similar patterns were observed across subscales; for instance, thought suppression decreased from 14.80 (SD=1.89) to 11.00 (SD=2.24). The control group indicated only minimal fluctuations across all measures, highlighting the specificity of the intervention effects.

Before conducting a repeated-measures ANOVA, all relevant statistical assumptions were examined. Normality was confirmed using Shapiro–Wilk tests for all variables and time points (all W>0.95, all P>0.05). Mauchly's test of sphericity yielded nonsignificant results (χ^2<10.5, ε>0.85 for all effects); therefore, no correction was required. Levene's test confirmed homogeneity of variances (all P>0.05), and Box's M test supported equality of covariance matrices across groups (P>0.01). These results indicated that the data were appropriate for parametric analysis.

Repeated-measures ANOVA results are summarized in Table 3. Significant Group×Time interactions were observed for all outcome variables (all F>10.21, all P<0.001, η^2 ranging from 0.189 to 0.551), indicating that the pattern of change over time differed substantially between the experimental and control groups. Main effects of time were significant for most variables (all F>4.11, P<0.05, η^2>0.059), while main effects of group were nonsignificant (all F<1.27, all P>0.26), consistent with pretest equivalence. The largest effect size was found for the Group×Time interaction on total cognitive avoidance (η^2=0.551), suggesting that the ACT intervention accounted for a substantial proportion of variance in the reduction of maladaptive cognitive strategies.

Table 3. Repeated-measures ANOVA results for resilience and cognitive avoidance measures.

Variable	Source	SS	df	MS	F	P	η^2
Resilience	Time	494.85	2	247.42	4.11	0.020	0.072
	Group	4.11	1	4.11	0.07	0.794	0.001
	Group×Time	1293.63	2	646.82	10.75	0.001	0.189
Thought suppression	Time	40.81	2	20.40	6.35	0.003	0.073
	Group	4.08	1	4.08	1.27	0.261	0.007
	Group×Time	246.42	2	123.21	38.33	0.001	0.439
Thought substitution	Time	210.66	2	105.33	11.46	0.001	0.161
	Group	0.89	1	0.89	0.10	0.756	0.001
	Group×Time	323.52	2	161.76	17.59	0.001	0.247
Distraction	Time	37.97	2	18.98	4.48	0.014	0.059
	Group	1.50	1	1.50	0.35	0.554	0.002
	Group×Time	246.94	2	123.47	29.15	0.001	0.385
Avoidance of threatening stimuli	Time	80.74	2	40.37	7.07	0.002	0.100
	Group	1.33	1	1.33	0.23	0.631	0.002
	Group×Time	242.43	2	121.21	21.22	0.001	0.301
Transformation of images into verbal thoughts	Time	21.83	2	10.91	1.27	0.287	0.023
	Group	9.06	1	9.06	1.05	0.308	0.010
	Group×Time	175.88	2	87.94	10.21	0.001	0.189
Cognitive avoidance (total)	Time	1220.79	2	610.39	19.71	0.001	0.143
	Group	5.40	1	5.40	0.17	0.677	0.001
	Group×Time	4705.45	2	2352.72	75.98	0.001	0.551

Table 4. Post hoc pairwise comparisons for time effects in the experimental group (Bonferroni-corrected)

Variable	Time	Mean Difference	SE	P	95% CI
Resilience	Post-test and Pre-test	8.82	2.66	0.001	[3.11, 14.53]
	Post-test and Follow-up	0.81	3.23	0.806	[-7.05, 8.67]
	Pre-test and Follow-up	9.63	3.13	0.008	[1.97, 17.29]
Thought suppression	Post-test and Pre-test	-4.69	0.63	0.001	[-6.18, -3.20]
	Post-test and Follow-up	0.39	0.83	0.647	[-1.57, 2.35]
	Pre-test and Follow-up	-4.30	0.76	0.001	[-6.10, -2.50]
Thought substitution	Post-test and Pre-test	-4.26	0.81	0.001	[-6.16, -2.36]
	Post-test and Follow-up	0.47	1.05	0.662	[-2.00, 2.94]
	Pre-test and Follow-up	-3.79	0.96	0.001	[-5.97, -1.61]
Distraction	Post-test and Pre-test	-4.22	0.59	0.001	[-5.62, -2.82]
	Post-test and Follow-up	0.47	0.84	0.586	[-1.51, 2.45]
	Pre-test and Follow-up	-3.76	0.72	0.001	[-5.47, -2.05]
Avoidance of threatening stimuli	Post-test and Pre-test	-4.25	0.73	0.001	[-6.00, -2.50]
	Post-test and Follow-up	0.51	1.06	0.640	[-2.00, 3.02]
	Pre-test and Follow-up	-3.74	0.91	0.001	[-5.82, -1.66]
Transformation of images into verbal thoughts	Post-test and Pre-test	-4.22	0.73	0.001	[-6.00, -2.44]
	Post-test and Follow-up	0.56	0.85	0.518	[-1.44, 2.56]
	Pre-test and Follow-up	-3.65	0.86	0.001	[-5.66, -1.64]
Cognitive avoidance (total)	Post-test and Pre-test	-18.93	1.57	0.001	[-22.40, -15.46]
	Post-test and Follow-up	1.62	2.09	0.449	[-3.00, 6.24]
	Pre-test and Follow-up	-17.31	1.89	0.001	[-21.45, -13.17]

Post hoc analyses using Bonferroni-corrected paired t-tests within the experimental group are presented in Table 4. Significant improvements from pretest to posttest were observed across all measures (all $P<0.001$, mean differences ranging from –18.93 to 8.82), with 95% confidence intervals excluding zero. No significant differences emerged between the posttest and follow-up assessments (all $P>0.45$, $|\Delta M|<1.62$), indicating that gains were maintained over the two-month period. Pretest to follow-up comparisons largely replicated the posttest gains (all $P<0.01$, except for transformation of images into verbal thoughts, where $P=0.001$), with large effect sizes ($d>1.0$ for most variables), supporting the durability of the intervention effects.

Discussion

The primary objective of the present study was to examine the effectiveness of ACT in enhancing psychological resilience and reducing the specific dimensions of cognitive avoidance among male adolescents exhibiting clinically significant aggression symptoms. The results revealed significant Group×Time interactions across all dependent variables, providing strong evidence of the intervention's efficacy. Participants in the ACT group showed substantial and sustained increases in resilience scores as well as marked reductions in overall cognitive avoidance compared with the control group. Importantly, these improvements were maintained at the two-month follow-up, indicating the durability of the therapeutic gains. These findings are consistent with the core tenets of ACT, which propose that adaptive psychological functioning arises from increased psychological flexibility rather than the elimination or suppression of distressing internal experiences [25, 26].

The observed increase in resilience is particularly relevant for this at-risk population. In the ACT framework, resilience is closely aligned with psychological flexibility—the capacity to remain aware in the present moment and engage in value-consistent behavior despite the presence of difficult thoughts and emotions [8]. Aggressive behavior in adolescents often reflects experiential avoidance and psychological rigidity, in which aversive private events (e.g., anger, shame, perceived threat) dominate behavioral repertoires and lead to impulsive or defensive responses [4]. Through the core ACT processes of acceptance, cognitive defusion, and values clarification, the intervention enables participants to relate to these internal experiences in a less controlling and more flexible manner. This shift broadens the range of behavioral responses available under stress and is empirically reflected in higher resilience scores, a well-documented protective factor against psychosocial maladjustment [9, 10]. The present results are consistent with previous research; for instance, Katajavuori et al. [27] reported similar improvements in psychological flexibility and well-being following ACT in stressed university students, supporting the transdiagnostic relevance of these processes.

The consistent and substantial reduction observed across all five subscales of the CAQ is of particular mechanistic importance—thought suppression, thought substitution, distraction, avoidance of threatening stimuli, and transformation of images into verbal thoughts. This broad pattern suggests that ACT effectively disrupts the maladaptive avoidance strategies that maintain psychological inflexibility and reactive aggression in adolescents. Cognitive avoidance perpetuates aggression by

preventing the adaptive emotional processing of underlying vulnerabilities, thereby sustaining impulsive and dysregulated responses [28]. The ACT targets these processes directly: cognitive defusion reduces reliance on thought suppression and substitution by encouraging participants to observe thoughts as transient mental events rather than literal truths [24]; acceptance and mindfulness practices decrease the use of distraction and stimulus avoidance by fostering willingness to experience aversive content in the present moment [29]. The transformation of images into verbal thoughts subscale, which involves reframing vivid emotional imagery linguistically, is similarly addressed through defusion techniques that weaken the regulatory power of verbal rules.

This comprehensive shift from control-oriented to acceptance-based coping reflects a fundamental reorganization of psychological processes. These findings align with prior work by Farokhzadian et al. [30], who reported sustained reductions in high-risk behaviors and improved emotional regulation in delinquent adolescents following ACT. The lack of significant change between posttest and follow-up assessments further supports the intervention's durability, suggesting that participants acquired transferable skills rather than experiencing only temporary symptom relief.

Clinically, these results support the use of ACT as a promising, process-oriented intervention within school-based counseling services for aggressive youth, where traditional approaches often yield inconsistent or limited outcomes. By strengthening resilience and reducing avoidance-driven impulsivity, ACT equips adolescents with durable skills to manage stressors, potentially decreasing the risks of academic failure, peer conflict, and long-term maladaptive trajectories [14].

Several limitations should be acknowledged. The relatively small sample size and exclusive reliance on self-report measures may limit the generalizability of the findings, particularly to female adolescents, different cultural contexts, or non-school-referred populations. Furthermore, the absence of objective behavioral observations or longer-term follow-up assessments restricts conclusions regarding real-world behavioral change. Future research should utilize larger, fully randomized designs, incorporate multi-method assessment approaches (including informant reports and behavioral measures), and extend follow-up periods to better evaluate the translational impact and long-term maintenance of gains.

Conclusion

In conclusion, the present findings provide robust empirical support for the sustained effectiveness of ACT in improving psychological functioning among male students with clinically significant aggression symptoms. The repeated-measures analyses demonstrated significant increases in resilience and comprehensive, lasting reductions across all dimensions of cognitive avoidance through the two-month follow-up. Consequently, ACT can be considered an effective, process-based, non-pharmacological intervention that promotes psychological flexibility—a key protective mechanism against maladaptive behavior in this vulnerable adolescent population.

Ethical Considerations

The research protocol received approval from the Ethics Committee of Islamic Azad University, Ahvaz Branch, Iran (Reference: IR.IAU.AHVAZ.REC.1404.295).

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Author Contributions

All authors contributed to the drafting and revision of the manuscript and take full responsibility for its content.

Conflicts of Interest

The authors have no competing interests to declare in relation to this work.

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