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Comparing the Effectiveness of Intensive Short-Term Dynamic Psychotherapy and Acceptance and Commitment Therapy on Difficulties in Emotion Regulation in Adolescents with Self-Injurious Behavior

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A B S T R A C T

Difficulties in emotion regulation are considered a central psychological mechanism underlying self-injurious behavior in adolescents. The present study aimed to compare the effectiveness of Intensive Short-Term Dynamic Psychotherapy (ISTDP) and Acceptance and Commitment Therapy (ACT) in reducing difficulties in emotion regulation among adolescents with self-injurious behavior. This applied quasi-experimental study employed a pretest–posttest design with a two-month follow-up, including two intervention groups and one control group. The statistical population consisted of 310 upper-secondary public-school students with self-injurious behavior in Gonbad-e Kavus, Iran, during the 2024–2025 academic year. Participants were initially identified through cluster random sampling. Forty-five eligible adolescents were then selected and randomly assigned to the ISTDP, ACT, and control groups, with 15 participants in each group. The two intervention groups received eight weekly treatment sessions, whereas the control group received no structured psychological intervention during the study period. Difficulties in emotion regulation were assessed using the 16-item Difficulties in Emotion Regulation Scale (DERS-16). Data were analyzed using mixed repeated-measures analysis of variance and Bonferroni-adjusted pairwise comparisons. The results showed significant main effects of time and group as well as a significant group × time interaction on difficulties in emotion regulation ($p < .001$). Both ISTDP and ACT significantly reduced DERS-16 scores from pretest to posttest compared with the control group, and these improvements were maintained at the two-month follow-up. The difference between ISTDP and ACT was not statistically significant at either posttest or follow-up, although the ISTDP group showed slightly lower mean scores at both assessment points. Both ISTDP and ACT were effective in reducing difficulties in emotion regulation among adolescents with self-injurious behavior, and their therapeutic effects were maintained over the follow-up period. The findings suggest that different therapeutic pathways, including affective processing in ISTDP and psychological flexibility in ACT, may contribute to improved emotion regulation in adolescents who engage in self-injury.

Keywords: *Intensive Short-Term Dynamic Psychotherapy; Acceptance and Commitment Therapy; Emotion Regulation; Self-Injurious Behavior; Adolescents; DERS-16.*

1. Introduction

Self-injurious behavior during adolescence has emerged as a significant psychological and public health concern because of its prevalence, recurrent nature, association with psychiatric difficulties, and potential relationship with subsequent suicidal thoughts and behaviors. Self-injury, particularly nonsuicidal self-injury (NSSI), generally refers to the deliberate and direct damage of body tissue without conscious suicidal intent and may include behaviors such as cutting, scratching, burning, hitting, or interfering with wound healing. Although the absence of an explicit intention to die distinguishes NSSI conceptually from a suicide attempt, this distinction does not imply that self-injury is clinically benign. Adolescents who engage in self-injurious behavior frequently experience substantial emotional distress, interpersonal dysfunction, depressive and anxiety symptoms, impulsivity, and difficulties managing intense negative affect. Moreover, self-injury may increase vulnerability to later suicidal behavior, making early identification and effective intervention especially important. Adolescence represents a particularly sensitive period in this respect because rapid biological maturation, changes in identity, heightened interpersonal sensitivity, increasing autonomy, academic pressures, and the development of more complex emotional experiences occur simultaneously with still-maturing regulatory capacities. Meta-analytic evidence indicates that self-injury affects a considerable proportion of adolescents and should therefore be understood not as an isolated behavioral problem but as a clinically meaningful phenomenon requiring theoretically informed and developmentally appropriate intervention (1, 2).

A central question in understanding adolescent self-injury concerns the psychological function that the behavior serves. Functional models propose that self-injury often operates as an immediate, although maladaptive, strategy for changing aversive internal states. Adolescents may experience anger, sadness, shame, anxiety, interpersonal rejection, emptiness, guilt, or emotional overload as difficult to identify, tolerate, or regulate. Under these circumstances, self-injury may temporarily decrease emotional arousal, interrupt distressing cognitions, transform diffuse emotional pain into a more concrete physical sensation, or create a subjective sense of control. The temporary relief following self-injury can reinforce the behavior and increase the probability that it will recur when similar emotional states arise. Thus, while self-injury may initially appear impulsive or inexplicable, it may have a functional relationship with emotional distress and the individual's attempts to regulate that distress. Nock emphasized that understanding why individuals harm themselves requires attention to the intrapersonal and interpersonal functions of the behavior rather than considering it solely as a symptom of a specific diagnostic condition (2). This functional perspective has important treatment implications because it suggests that lasting reductions in self-injurious behavior may depend on helping adolescents develop more adaptive ways of recognizing, tolerating, processing, and responding to difficult emotional experiences.

Among the mechanisms implicated in self-injurious behavior, difficulties in emotion regulation have received particularly strong empirical support. Emotion regulation encompasses the processes through which individuals identify, understand, accept, modulate, and express emotional experiences in accordance with situational demands and personally meaningful goals. Difficulties in emotion regulation may involve nonacceptance of negative emotions, poor emotional clarity, limited access to adaptive regulatory strategies, difficulties maintaining goal-directed behavior under distress, and reduced capacity to inhibit impulsive actions when emotionally activated. These deficits are particularly relevant during adolescence because emotional intensity may increase before regulatory capacities are fully consolidated. A systematic review and meta-analysis demonstrated a robust relationship between emotion dysregulation and NSSI, with limited access to regulation strategies, nonacceptance of emotional responses, impulse-control difficulties, and problems maintaining goal-directed behavior emerging as particularly important dimensions (3). More recent intervention research reinforces the clinical significance of this association. In a randomized clinical trial involving adolescents with NSSI disorder, treatment specifically targeting emotion regulation produced meaningful improvements in both regulatory functioning and self-injurious outcomes, suggesting that changes in emotion regulation may represent an important pathway through which treatment reduces self-harm (4). Likewise, meta-analytic evidence regarding psychosocial interventions

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for children and adolescents indicates that emotion regulation is a modifiable treatment target and that psychological interventions can produce measurable improvements in young people's ability to manage emotional experiences (5).

The centrality of emotion dysregulation to adolescent self-injury creates a strong rationale for investigating therapies that modify how individuals experience and respond to difficult affect. Intensive Short-Term Dynamic Psychotherapy (ISTDP) constitutes one such approach. ISTDP is an affect-focused psychodynamic psychotherapy that conceptualizes psychological symptoms partly as consequences of unresolved emotional conflicts, excessive anxiety surrounding emotionally significant experiences, and defensive processes that prevent the conscious experience and integration of affect. Rather than focusing exclusively on symptom management, ISTDP attempts to identify habitual defenses, regulate anxiety, clarify emotional experience, and facilitate direct contact with previously avoided feelings. Emotions such as anger, grief, guilt, shame, fear, and attachment-related pain may generate substantial anxiety, leading individuals to rely on suppression, avoidance, intellectualization, displacement, somatization, or other defensive responses. When such defensive patterns become rigid, the individual may lose access to adaptive emotional information and increasingly depend on maladaptive behaviors for affect regulation. In ISTDP, the therapist actively helps the patient recognize defenses as they occur, distinguish anxiety from underlying feelings, and gradually increase the capacity to experience emotion without becoming overwhelmed or resorting to maladaptive avoidance (6, 7).

This framework may be particularly relevant to adolescents with self-injurious behavior. When painful affect cannot be identified, tolerated, symbolized, or expressed adaptively, emotional tension may instead be discharged behaviorally. Self-injury may therefore function not only as an attempt to escape emotion but also as an indirect expression of affect that has become difficult to experience consciously. From an ISTDP perspective, adolescents may benefit from learning to differentiate the underlying emotion from the anxiety and defensive processes surrounding it. Increasing tolerance for anger, sadness, guilt, shame, fear, and attachment-related distress may reduce the necessity of using self-directed physical harm as an alternative form of emotional regulation. The broader psychodynamic literature supports the clinical relevance of working with affective and relational processes in younger populations. A narrative synthesis of psychodynamic psychotherapy with children and adolescents concluded that psychodynamic treatments have an increasingly substantial evidence base across a range of psychological disorders and may contribute to meaningful improvements in emotional and interpersonal functioning (8). More specifically, experiential dynamic therapies have demonstrated clinically meaningful effects across diverse psychiatric and psychological conditions, supporting the broader proposition that direct work with affective experience and defensive avoidance can contribute to symptom reduction and improved psychological functioning (9).

Empirical research on ISTDP also increasingly demonstrates its capacity to influence emotional processes directly. A systematic review and meta-analysis provided early evidence that ISTDP could produce meaningful improvement across a range of psychological and somatic problems, supporting the clinical utility of intensive affect-focused dynamic work (6). More recent randomized research has strengthened this evidence. In individuals with treatment-resistant depression, ISTDP significantly reduced depressive symptoms, negative affect, and emotional repression, suggesting that changes in emotional processing may constitute an important therapeutic mechanism (10). In patients with irritable bowel syndrome, ISTDP was associated with improvements not only in physical symptom severity and quality of life but also in emotion regulation and defensive functioning, further illustrating its capacity to modify psychological mechanisms related to emotional avoidance and dysregulation (11). Similarly, a randomized controlled trial among individuals with tension-type headache found that ISTDP produced improvements in emotion regulation, anger, anxiety, and symptom severity, supporting the relevance of affective processing across conditions in which emotional tension contributes to psychological or somatic distress (12). Moreover, evidence indicating reductions in suicidal ideation and anger following ISTDP suggests that this approach may have potential relevance to populations characterized by self-

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destructive tendencies and intense affective dysregulation (13). Nevertheless, despite these promising findings, controlled research directly examining ISTDP among adolescents with self-injurious behavior remains limited, making further investigation necessary.

Acceptance and Commitment Therapy (ACT) provides a theoretically different but equally relevant framework for understanding and treating emotion dysregulation. ACT is grounded in functional contextualism and seeks to enhance psychological flexibility, defined as the capacity to remain in contact with present-moment experiences while behaving in accordance with personally meaningful values. ACT does not assume that psychological health depends on eliminating painful thoughts or emotions. Instead, distress is understood to become problematic when individuals become cognitively fused with internal experiences, rigidly attempt to control or avoid them, and organize behavior around escaping discomfort rather than pursuing valued goals. The ACT model therefore targets six interconnected processes: acceptance, cognitive defusion, present-moment awareness, self-as-context, values clarification, and committed action. Through these processes, individuals learn to modify their relationship with thoughts and emotions rather than continually attempting to suppress, avoid, or eliminate them (14).

This model is highly relevant to adolescent self-injury because self-harm can be conceptualized as an extreme form of experiential avoidance. An adolescent experiencing overwhelming sadness, shame, anger, anxiety, or self-critical thoughts may engage in self-injury because the behavior provides rapid temporary relief from internal distress. From an ACT perspective, the difficulty lies not merely in the presence of negative emotion but in the rigid behavioral pattern through which the adolescent responds to that emotion. ACT seeks to reduce the dominance of experiential avoidance by teaching the adolescent to notice distressing thoughts and feelings, make room for emotional discomfort, disengage from literal belief in distressing cognitions, and select actions that are consistent with personally important values. Consequently, ACT may improve emotion regulation without requiring direct suppression or reduction of emotional intensity. A comprehensive meta-analytic review of ACT mechanisms found substantial evidence that increases in psychological flexibility and reductions in experiential avoidance, cognitive fusion, and related dimensions of psychological inflexibility are associated with therapeutic improvement, providing empirical support for psychological flexibility as a meaningful process of change (15).

Evidence regarding ACT among adolescents has also expanded. A meta-analysis of randomized controlled trials examining ACT for anxiety and depressive symptoms in adolescents found beneficial treatment effects and identified changes in psychological flexibility as an important process associated with improvement (16). These findings are significant because anxiety, depression, self-critical thinking, and avoidance frequently coexist with self-injurious behavior. ACT may therefore address processes that cut across conventional diagnostic categories rather than targeting self-injury as an isolated symptom. Broader evidence on interventions for emotion regulation among children and adolescents also suggests that psychological approaches capable of changing how young people relate to distress can produce significant regulatory benefits (5). In adolescents engaging specifically in NSSI, ACT has shown particularly relevant findings. An intervention study reported improvements in emotion regulation among adolescent patients with NSSI following ACT, indicating that acceptance-based and flexibility-oriented treatment may reduce the regulatory difficulties associated with self-harm (17). Furthermore, a recent systematic review and exploratory meta-analysis focusing specifically on acceptance-based and ACT-informed interventions for adolescent NSSI concluded that such interventions are theoretically and clinically promising because they directly address experiential avoidance, psychological inflexibility, and difficulties in emotion regulation, although the available evidence remains insufficiently developed to draw definitive conclusions regarding comparative efficacy (18).

ISTDP and ACT are therefore particularly informative candidates for direct comparison because they emerge from different theoretical traditions while converging on a critical therapeutic problem: maladaptive avoidance of emotional experience. ISTDP conceptualizes emotional difficulties largely through the interaction among underlying affect, anxiety, and defenses and attempts to increase direct, conscious, and integrated emotional experience. ACT conceptualizes psychological difficulties through

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psychological inflexibility, experiential avoidance, cognitive fusion, and behavioral restriction and seeks to increase willingness, defusion, present-moment awareness, and values-guided action. The methods differ substantially, yet both treatments encourage individuals to remain in contact with emotional experiences that might otherwise trigger avoidance. Thoma and Abbass have argued that ISTDP contains distinctive procedures for the acceptance of emotion and may therefore have important connections with contemporary process-based approaches despite its psychodynamic origins (7). This convergence raises an important theoretical possibility: two interventions using different therapeutic languages and techniques may improve emotion regulation through partially overlapping higher-order processes, particularly increased tolerance of emotional discomfort and reduced avoidance.

Comparing these approaches is especially relevant during adolescence. Adolescents who self-injure may simultaneously experience poorly processed affect, limited emotional clarity, impulsive responses to distress, defensive avoidance, cognitive fusion, and strong motivation to escape aversive internal experiences. ISTDP may be particularly useful when self-injury is embedded in unresolved affective conflicts, defensive emotional inhibition, or anxiety concerning attachment-related feelings, whereas ACT may be particularly relevant when behavioral patterns are maintained by experiential avoidance, rigid emotional control, or fusion with self-critical and hopeless cognitions. Yet existing evidence does not establish whether one of these pathways is more effective than the other in improving emotion regulation among adolescents with self-injury. The evidence base for psychodynamic psychotherapy in young people remains promising but comparatively heterogeneous (8), while newer evidence for experiential dynamic therapies supports their efficacy but also underscores the need for more population-specific trials (9). ACT similarly has a substantial theoretical and process-based foundation, yet the specific literature on adolescent NSSI remains comparatively recent and requires further controlled evaluation (18). The broader prevalence of adolescent self-injury and the strong relationship between self-harm and emotion dysregulation further increase the importance of identifying efficient interventions that can be implemented during this developmentally sensitive period (1, 3).

A further gap concerns the limited number of direct head-to-head comparisons between theoretically distinct treatments targeting the same regulatory mechanism. Demonstrating that an intervention outperforms a control condition establishes therapeutic benefit, but it does not determine whether its underlying theoretical pathway offers advantages relative to another active intervention. This distinction is important for mechanism-informed treatment planning. If ISTDP produces greater improvement, this may support the relevance of direct affective processing and work with defenses among adolescents who self-injure. If ACT produces greater improvement, the findings may underscore the importance of psychological flexibility, acceptance, and values-based responding. Alternatively, similar outcomes may suggest that multiple therapeutic pathways can improve emotion regulation despite differing theoretical assumptions. Existing evidence already indicates that targeted emotion-regulation interventions can reduce regulatory difficulties among adolescents with NSSI (4), that ACT can influence emotion regulation and flexibility in this population (17), and that ISTDP can substantially modify emotion regulation, emotional repression, anger, negative affect, and defensive processes in other clinically relevant populations (10-13). However, these separate literatures do not answer the comparative question directly.

Accordingly, a controlled comparison of ISTDP and ACT can contribute to both clinical practice and psychotherapy theory by examining whether two distinct process-focused interventions produce differential changes in a mechanism strongly associated with adolescent self-injury. Such research is also consistent with contemporary movement toward process-based treatment, in which intervention selection is increasingly informed by modifiable psychological processes rather than diagnostic labels alone. Psychological flexibility, experiential avoidance, defensive functioning, emotional acceptance, affect tolerance, and regulatory capacity may represent overlapping or complementary processes through which psychotherapy influences maladaptive behavior (7, 15). Identifying whether interventions grounded in these different models produce comparable or differential improvements may therefore help clarify the role of emotional processing and psychological flexibility in the treatment of adolescents who self-injure, while contributing

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to the development of more individualized, efficient, and theoretically coherent interventions.

The present study aimed to compare the effectiveness of Intensive Short-Term Dynamic Psychotherapy and Acceptance and Commitment Therapy in reducing difficulties in emotion regulation among adolescents with self-injurious behavior.

2. Methods and Materials

2.1. Study Design and Participants

The present study was an applied quasi-experimental study using a pretest–posttest design with a follow-up assessment and two experimental groups and one control group. The study was conducted among upper-secondary public-school students with a history of self-injurious behavior in Gonbad-e Kavus, Iran, during the 2024–2025 academic year. The two experimental conditions consisted of Intensive Short-Term Dynamic Psychotherapy (ISTDP) and Acceptance and Commitment Therapy (ACT), while the control group received no structured psychological intervention during the study period.

The study population consisted of 310 upper-secondary public-school students with self-injurious behavior in Gonbad-e Kavus during the 2024–2025 academic year. Participants in the initial population were identified through cluster random sampling. For this purpose, several public upper-secondary schools were randomly selected from the educational districts of Gonbad-e Kavus, after which classes were randomly selected from each school. Students were screened for a history of deliberate self-injurious behavior.

From the eligible population, 45 adolescents who met the inclusion criteria and agreed to participate in the intervention phase were selected and randomly assigned to three groups of 15 participants: the ISTDP group, the ACT group, and the control group. Random allocation was performed using a computer-generated random sequence after completion of the pretest assessment.

The inclusion criteria were being enrolled in an upper-secondary public school in Gonbad-e Kavus, being between 15 and 18 years of age, reporting at least one episode of deliberate self-injurious behavior during the previous 12 months, obtaining informed parental or legal guardian consent and adolescent assent, willingness to participate in all treatment sessions and assessments, and having sufficient ability to understand and complete the study questionnaires. Exclusion criteria included current psychotic symptoms, severe cognitive or developmental impairment that interfered with participation, concurrent participation in another structured psychotherapy program, absence from more than two treatment sessions, and withdrawal of consent during the study.

Because self-injury may coexist with suicidal ideation, all participants were additionally screened for acute suicide risk before entering the intervention phase. Adolescents presenting with imminent suicidal intent, a current suicide plan, or other conditions requiring urgent clinical intervention were referred to appropriate mental health services and were not enrolled in the psychotherapy comparison until clinically stabilized.

Participants completed the DERS-16 and Mental Pain Scale at three assessment points: before the intervention, immediately after completion of the eight treatment sessions, and at follow-up. The follow-up assessment was conducted two months after the posttest to examine the maintenance of treatment effects. Questionnaires were administered under standardized conditions. Participants were instructed to respond honestly according to their experiences and were assured that their individual answers would remain confidential. The same assessment procedure was applied to all three study groups.

2.2. Data Collection Tools

A researcher-developed demographic questionnaire was used to collect information on age, sex, grade level, field of study, family structure, previous psychological treatment, and selected characteristics related to self-injurious behavior.

The primary outcome variable was assessed using the 16-item Difficulties in Emotion Regulation Scale (DERS-16) developed by Bjureberg et al. The DERS-16 is a brief version of the original Difficulties in Emotion Regulation Scale and is designed to assess major deficits in adaptive emotion regulation. The scale contains 16 items covering five dimensions: lack of emotional clarity, difficulties engaging in goal-directed behavior when distressed, impulse-control difficulties, limited access to effective emotion-regulation strategies, and nonacceptance of

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negative emotional responses. The awareness dimension included in the original 36-item DERS is not included in the DERS-16. Items are rated on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). Total scores range from 16 to 80, with higher scores indicating greater difficulties in emotion regulation. The DERS-16 has demonstrated excellent internal consistency and a strong association with the original 36-item version. In its initial validation, internal consistency was reported to be approximately .92, and the short-form score correlated strongly with the full DERS.

2.3. Intervention

After obtaining the necessary educational and ethical permissions, eligible participants completed the pretest measures. They were subsequently randomly allocated to the ISTDP, ACT, or control condition. Both active interventions were delivered over eight weekly sessions to provide comparable treatment exposure. Each session lasted approximately 60–75 minutes and was conducted by therapists trained in the corresponding therapeutic approach. The control group did not receive a structured psychotherapy intervention during the intervention period but continued to have access to routine school counseling and any urgent mental health services when necessary. After completion of the research assessments, participants in the control group were offered referral for appropriate psychological services.

The ISTDP intervention consisted of eight weekly sessions based on the principles of intensive short-term dynamic psychotherapy. Treatment focused on identifying maladaptive defenses, recognizing anxiety signals, increasing awareness of underlying emotions, and helping participants experience and process previously avoided affect within a safe therapeutic relationship. The early sessions focused on establishing the therapeutic alliance, clarifying presenting emotional difficulties, and identifying habitual defenses used in response to distress. Subsequent sessions emphasized recognition of the relationship between anxiety, defenses, and underlying feelings; increasing tolerance of affect; identifying patterns of avoidance; and facilitating direct emotional experience. Particular attention was given to feelings of anger, sadness, guilt, shame, fear, and attachment-related distress that could precede urges to engage in self-injury. In the later sessions, participants were encouraged to recognize recurrent emotional-interpersonal patterns, distinguish adaptive emotional expression from maladaptive defensive behavior, and develop a greater capacity to tolerate and process intense affect without resorting to self-harm. The final session focused on consolidating therapeutic gains, reviewing changes in emotional processing, identifying high-risk situations, and developing a plan for maintaining adaptive responses after treatment.

The ACT intervention also consisted of eight weekly sessions and was based on the core processes of psychological flexibility. The intervention emphasized acceptance of difficult internal experiences, reduction of experiential avoidance, cognitive defusion, present-moment awareness, self-as-context, clarification of personal values, and committed action. Initial sessions focused on establishing rapport, identifying ineffective attempts to control or avoid unwanted thoughts and emotions, and introducing the concept of experiential avoidance. Participants were helped to recognize how efforts to escape emotional pain, including self-injurious behavior, might provide short-term relief while increasing long-term psychological difficulties. Subsequent sessions included acceptance exercises, mindfulness and present-moment awareness, cognitive defusion techniques, and exercises designed to help adolescents observe thoughts and feelings without automatically acting on them. Participants also explored the distinction between the observing self and transient internal experiences. Later sessions focused on identifying personally meaningful values in areas such as family, friendships, education, health, and personal development. Participants were encouraged to develop value-consistent alternatives to self-injury and to practice committed action despite the presence of difficult emotional experiences. The final session reviewed acquired skills, anticipated future emotional challenges, and developed individualized plans for continued values-based behavior and management of self-injury urges.

To improve treatment fidelity, separate structured treatment protocols were used for ISTDP and ACT. Therapists delivering each intervention had prior training in the relevant therapeutic model. Treatment sessions were periodically reviewed by an experienced supervisor, and

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session checklists were used to evaluate adherence to the principal components of each treatment approach.

2.4. Data Analysis

Data were analyzed using SPSS. Descriptive statistics, including mean, standard deviation, frequency, and percentage, were initially calculated to describe participant characteristics and study variables. Before inferential analyses, the assumptions of normality, homogeneity of variance, and homogeneity of covariance matrices were examined. The Shapiro–Wilk test and skewness and kurtosis indices were used to evaluate normality. Levene's test was used to assess equality of error variances, and Mauchly's test was used to evaluate the sphericity assumption where applicable.

Because the study included three measurement occasions and three independent groups, a mixed repeated-measures analysis of variance was used to examine changes in difficulties in emotion regulation over time and differences in patterns of change between the ISTDP, ACT, and control groups. The main effects of time and group and the group × time interaction were examined. When significant overall effects were obtained, Bonferroni-adjusted pairwise comparisons were conducted to identify differences between the ISTDP and ACT groups, between each experimental group and the control group, and between pretest, posttest, and follow-up assessments. Effect sizes were reported using partial eta squared. Statistical significance was set at $p < .05$.

3. Findings and Results

The analyses were conducted on 45 adolescents, with 15 participants assigned to each of the Intensive Short-Term Dynamic Psychotherapy (ISTDP), Acceptance and Commitment Therapy (ACT), and control groups. Difficulties in emotion regulation were assessed at pretest, posttest, and two-month follow-up using the DERS-16. Table 1 shows the mean and standard deviation of DERS-16 scores across the three assessment occasions. At pretest, mean scores were relatively similar across the three groups. Following treatment, substantial reductions in difficulties in emotion regulation were observed in both intervention groups, whereas scores in the control group remained relatively stable.

Table 1

Means and standard deviations of difficulties in emotion regulation across groups and measurement occasions

Group	n	Pretest M	Pretest SD	Posttest M	Posttest SD	Follow-up M	Follow-up SD
ISTDP	15	58.54	5.61	39.18	5.37	38.40	4.82
ACT	15	56.74	7.52	41.44	5.37	39.55	7.15
Control	15	56.85	8.52	57.48	7.28	57.52	6.79

The pretest means were examined using one-way analysis of variance to determine whether the groups differed before the interventions. The results indicated no statistically significant baseline difference among the ISTDP, ACT, and control groups, $F(2, 42) = 0.28$, $p = .754$, $\eta^2 = .013$. Thus, the groups could be considered comparable in terms of initial difficulties in emotion regulation.

Before conducting the main analysis, the assumptions underlying mixed repeated-measures analysis of variance were examined. The Shapiro–Wilk test indicated that the distribution of DERS-16 scores did not significantly deviate from normality in any of the three groups at any measurement occasion (all $p > .05$). Levene's test also indicated homogeneity of error variances at pretest, posttest, and follow-up. Mauchly's test of sphericity was nonsignificant, $W = .996$, $\chi^2(2) = 0.18$, $p = .915$, indicating that the assumption of sphericity was satisfied. Therefore, uncorrected degrees of freedom were used for the within-subject effects. Mauchly's test further confirmed the sphericity assumption, $W = .996$, $\chi^2(2) = 0.18$, $p = .915$. The Greenhouse–Geisser epsilon was .996, the Huynh–Feldt epsilon was 1.000, and the lower-bound estimate was .500.

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Table 2

One-way ANOVA for baseline DERS-16 scores

Source	Sum of squares	df	Mean square	F	p	η^2
Between groups	30.43	2	15.21	0.28	.754	.013
Within groups	2249.85	42	53.57	—	—	—
Total	2280.28	44	—	—	—	—

A 3 × 3 mixed repeated-measures analysis of variance was conducted with time (pretest, posttest, and follow-up) as the within-subject factor and treatment condition (ISTDP, ACT, and control) as the between-subject factor. The main effect of time was statistically significant, $F(2, 84) = 115.54$, $p < .001$, partial $\eta^2 = .733$, indicating that DERS-16 scores changed significantly across the three measurement occasions.

The main effect of group was also significant, $F(2, 42) = 21.57$, $p < .001$, partial $\eta^2 = .507$, demonstrating an overall difference in emotion-regulation difficulty scores among the three treatment conditions. Most importantly, the group × time interaction was statistically significant, $F(4, 84) = 33.07$, $p < .001$, partial $\eta^2 = .612$. This interaction indicates that changes in difficulties in emotion regulation over time differed significantly according to treatment condition.

Table 3

Mixed repeated-measures ANOVA for difficulties in emotion regulation

Source	Sum of squares	df	Mean square	F	p	Partial η^2
Between-subject effects						
Group	4071.60	2	2035.80	21.57	< .001	.507
Subjects within groups	3964.06	42	94.38	—	—	—
Within-subject effects						
Time	4182.37	2	2091.19	115.54	< .001	.733
Time × Group	2393.92	4	598.48	33.07	< .001	.612
Error (Time)	1520.33	84	18.10	—	—	—

The magnitude of the group × time interaction was large, indicating that a substantial proportion of the variability in change over time was attributable to differences among the three conditions. Because the group × time interaction was significant, Bonferroni-adjusted pairwise comparisons were conducted separately at each measurement occasion. At pretest, there were no statistically significant differences between ISTDP and ACT, ISTDP and control, or ACT and control, confirming baseline equivalence.

At posttest, both ISTDP and ACT produced substantially lower DERS-16 scores than the control condition. The difference between ISTDP and the control group was 18.30 points and statistically significant ($p < .001$), while the difference between ACT and the control group was 16.04 points and also statistically significant ($p < .001$). However, the 2.26-point difference between ISTDP and ACT was not statistically significant. A similar pattern was observed at follow-up. Both ISTDP and ACT continued to show significantly lower difficulties in emotion regulation than the control group, whereas the difference between the two active interventions remained nonsignificant.

Table 4

Bonferroni-adjusted pairwise comparisons between groups

Occasion	Comparison	Mean difference	SE	t	df	Adjusted p	95% CI
Pretest	ISTDP – ACT	1.79	2.42	0.74	28	1.000	[-3.17, 6.76]
Pretest	ISTDP – Control	1.69	2.63	0.64	28	1.000	[-3.71, 7.09]
Pretest	ACT – Control	-0.11	2.94	-0.04	28	1.000	[-6.12, 5.91]
Posttest	ISTDP – ACT	-2.26	1.96	-1.15	28	.774	[-6.28, 1.75]
Posttest	ISTDP – Control	-18.30	2.34	-7.84	28	< .001	[-23.08, -13.52]

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Posttest	ACT – Control	-16.04	2.33	-6.87	28	< .001	[-20.82, -11.25]
Follow-up	ISTDP – ACT	-1.16	2.23	-0.52	28	1.000	[-5.72, 3.41]
Follow-up	ISTDP – Control	-19.12	2.15	-8.90	28	< .001	[-23.52, -14.72]
Follow-up	ACT – Control	-17.97	2.55	-7.06	28	< .001	[-23.18, -12.75]

The effect sizes for comparisons with the control group were large. At posttest, Cohen's d was 2.86 for ISTDP versus control and 2.51 for ACT versus control. At follow-up, the corresponding effect sizes were 3.25 and 2.58, respectively. In contrast, the differences between ISTDP and ACT were small at both posttest (d = 0.42) and follow-up (d = 0.19).

Bonferroni-adjusted paired comparisons were also conducted to determine changes across time within each group. In the ISTDP group, DERS-16 scores decreased by 19.36 points from pretest to posttest, and this reduction was statistically significant ($p < .001$). The pretest-to-follow-up reduction of 20.14 points was also significant ($p < .001$). No significant difference was observed between posttest and follow-up, indicating that the therapeutic improvement was maintained during the follow-up period. In the ACT group, the decrease from pretest to posttest was 15.30 points and statistically significant ($p < .001$). The difference between pretest and follow-up was 17.19 points and was also statistically significant ($p < .001$). The posttest-to-follow-up difference was not significant, again demonstrating maintenance of treatment effects. No statistically significant change was found across any of the three measurement occasions in the control group.

Table 5

Bonferroni-adjusted within-group comparisons across measurement occasions

Group	Comparison	Mean difference	SE	t	df	Adjusted p	95% CI
ISTDP	Pretest – Posttest	19.36	1.33	14.57	14	< .001	[16.51, 22.21]
ISTDP	Pretest – Follow-up	20.14	1.32	15.22	14	< .001	[17.30, 22.98]
ISTDP	Posttest – Follow-up	0.78	1.56	0.50	14	1.000	[-2.56, 4.12]
ACT	Pretest – Posttest	15.30	1.65	9.26	14	< .001	[11.76, 18.85]
ACT	Pretest – Follow-up	17.19	1.67	10.32	14	< .001	[13.62, 20.76]
ACT	Posttest – Follow-up	1.89	1.79	1.06	14	.925	[-1.95, 5.72]
Control	Pretest – Posttest	-0.63	1.70	-0.37	14	1.000	[-4.27, 3.01]
Control	Pretest – Follow-up	-0.67	1.50	-0.45	14	1.000	[-3.90, 2.56]
Control	Posttest – Follow-up	-0.04	1.39	-0.03	14	1.000	[-3.02, 2.94]

Overall, the results showed that both Intensive Short-Term Dynamic Psychotherapy and Acceptance and Commitment Therapy significantly reduced difficulties in emotion regulation among adolescents with self-injurious behavior compared with the control group. The statistically significant group × time interaction indicated that the observed improvements could not be attributed merely to the passage of time. Both treatment groups demonstrated marked reductions from pretest to posttest, and these gains were maintained at the two-month follow-up.

Although the mean DERS-16 score was somewhat lower in the ISTDP group than in the ACT group at posttest and follow-up, the between-treatment differences were not statistically significant. Thus, the findings did not provide sufficient evidence to conclude that either ISTDP or ACT was superior to the other in reducing difficulties in emotion regulation. Rather, both interventions demonstrated substantial and relatively stable therapeutic effects compared with the control condition.

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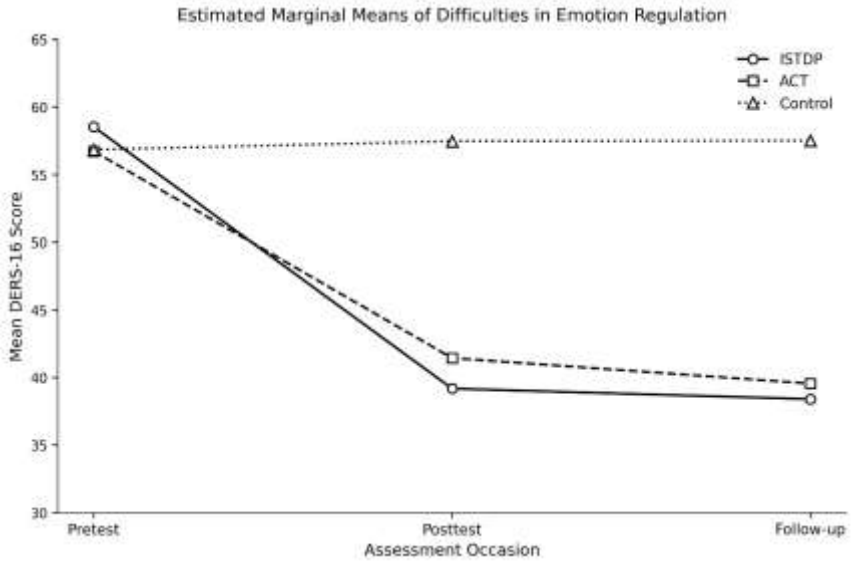
Figure 1

Changes in mean DERS-16 scores across pretest, posttest, and follow-up in the three study groups.



4. Discussion and Conclusion

The present study compared the effectiveness of Intensive Short-Term Dynamic Psychotherapy (ISTDP) and Acceptance and Commitment Therapy (ACT) in reducing difficulties in emotion regulation among adolescents with self-injurious behavior. The findings demonstrated significant effects of time and treatment condition, together with a significant group × time interaction, indicating that changes in emotion-regulation difficulties differed meaningfully across the ISTDP, ACT, and control groups. Both active interventions produced substantial reductions in DERS-16 scores from pretest to posttest, while the control group showed no meaningful improvement. These reductions remained evident at the two-month follow-up, suggesting that the therapeutic gains were sustained beyond the immediate intervention period. Although the ISTDP group obtained somewhat lower mean scores than the ACT group at both posttest and follow-up, the differences between the two active treatments were not statistically significant. Thus, the findings support the effectiveness of both interventions in improving emotion regulation among adolescents with self-injurious behavior, without establishing the superiority of either treatment. The large group × time effect further indicates that the observed improvements were unlikely to reflect the mere passage of time and were instead associated with participation in the therapeutic interventions. These findings are consistent with the broader literature identifying emotion dysregulation as a central psychological mechanism in adolescent self-injury and demonstrating that interventions capable of modifying how adolescents understand, tolerate, and respond to emotional experiences can produce meaningful clinical benefits (3-5).

The significant reduction in emotion-regulation difficulties following ISTDP can be explained through the central role that this treatment assigns to affective experience, anxiety, and defensive processes. From the perspective of ISTDP, psychological symptoms may develop and persist when emotionally significant experiences generate excessive anxiety and are consequently avoided, suppressed, displaced, or transformed through maladaptive defensive processes. Adolescents who engage in self-injury may experience anger, grief, shame, guilt, fear, rejection, or attachment-related distress as threatening or overwhelming and may therefore have difficulty experiencing these emotions in a conscious and integrated manner. When emotional experience is blocked or poorly differentiated, distress may be expressed behaviorally, including through impulsive or self-directed actions. ISTDP attempts to interrupt this pattern by helping individuals recognize defenses, distinguish anxiety from underlying

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affect, tolerate emotional activation, and directly experience feelings that have previously been avoided. In this way, the adolescent gradually develops an increased capacity to remain in contact with difficult affect without resorting to maladaptive regulatory behavior. This interpretation is consistent with the theoretical account of ISTDP as a treatment that directly facilitates emotional acceptance and reduces defensive avoidance (7). It is also supported by earlier evidence indicating that ISTDP can produce clinically meaningful improvements across psychological conditions involving emotional distress and maladaptive affective processing (6, 9).

The present findings regarding ISTDP are also compatible with randomized research demonstrating that this intervention can modify emotion-related mechanisms. Heshmati et al. found that ISTDP reduced negative affect and emotional repression in addition to depressive symptoms, suggesting that increased access to previously inhibited emotions may constitute an important mechanism of therapeutic change (10). Similarly, Shafiei et al. reported improvements in emotion regulation and defense mechanisms following ISTDP among individuals with irritable bowel syndrome, providing evidence that the approach can alter both emotional processing and defensive functioning (11). Ahmadvand Shahverdi et al. likewise found that ISTDP was effective in improving emotion regulation, anger, anxiety, and symptom severity among individuals with tension-type headache (12). These findings are relevant to the present study because adolescents who engage in self-injury often experience intense negative affect accompanied by limited regulatory strategies and difficulty expressing or processing anger and other emotionally charged experiences. The present reduction in DERS-16 scores may therefore reflect an increased ability to identify emotional states, tolerate emotional activation, remain goal-directed under distress, and reduce impulsive responses to affect. In addition, evidence that ISTDP can reduce anger and suicidal ideation among individuals with suicidal behavior provides further support for the potential relevance of affect-focused dynamic treatment to populations characterized by self-destructive tendencies (13). Although suicidal behavior and nonsuicidal self-injury are not identical, both may involve severe emotional distress, maladaptive coping, and difficulty regulating high-intensity affect. Consequently, the present findings extend the existing ISTDP literature by suggesting that the treatment may also be beneficial for emotion-regulation difficulties among adolescents with self-injurious behavior.

The significant effectiveness of ACT can similarly be understood in relation to its central therapeutic target of psychological flexibility. ACT proposes that psychological difficulties are maintained not simply by the presence of unpleasant emotions or thoughts, but by rigid attempts to avoid, suppress, control, or escape them. Experiential avoidance is particularly relevant to self-injury because adolescents may use physical harm as an immediate strategy for interrupting or reducing distressing internal experiences. Although self-injury may temporarily reduce emotional tension, this short-term relief can reinforce the behavior and prevent the development of more adaptive regulatory strategies. ACT addresses this cycle by increasing acceptance of unwanted emotional experiences, reducing cognitive fusion, strengthening present-moment awareness, clarifying values, and promoting committed action even when distress is present (14). Through these processes, adolescents may learn that emotional discomfort can be experienced without requiring immediate behavioral escape. The observed reduction in DERS-16 scores may therefore reflect greater acceptance of emotional responses, better impulse control during distress, improved capacity to remain engaged in goal-directed behavior, and increased access to adaptive responses when negative emotions arise. Such an explanation is consistent with evidence showing that psychological flexibility and reductions in psychological inflexibility represent meaningful mechanisms through which ACT produces therapeutic change (15).

The present ACT findings are also strongly aligned with previous research conducted with adolescents. López-Pinar et al. demonstrated through meta-analysis that ACT is effective in reducing anxiety and depressive symptoms among adolescents and that improvements in psychological flexibility are associated with treatment gains (16). This is clinically relevant because anxiety, depression, self-critical cognition, and emotional avoidance commonly coexist with self-injurious behavior. More directly, Yuan et al. reported that ACT improved emotion regulation in adolescents with nonsuicidal self-injury, supporting the applicability of acceptance- and flexibility-based processes to this

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population (17). The present findings therefore reinforce the proposition that adolescents who self-injure can benefit from learning to observe distressing internal experiences without automatically attempting to eliminate them through harmful behavior. Furthermore, a recent systematic review and exploratory meta-analysis concluded that acceptance-based and ACT-informed interventions are promising approaches for adolescent NSSI because they directly address experiential avoidance, psychological inflexibility, and emotion dysregulation (18). The results of the present study are consistent with this emerging evidence and provide additional support for the usefulness of ACT when emotion-regulation difficulties are a primary therapeutic target.

The effectiveness of both ISTDP and ACT also supports the broader proposition that emotion regulation represents a transdiagnostic and clinically modifiable mechanism in adolescent self-injury. Wolff et al. demonstrated a strong association between emotion dysregulation and NSSI, particularly in relation to limited access to effective regulation strategies, nonacceptance of emotional responses, difficulties maintaining goal-directed behavior, and impulse-control problems (3). These are precisely the types of difficulties that may be influenced by both treatments, although through different therapeutic routes. ISTDP may improve regulation by reducing defensive avoidance and increasing conscious processing of affect, whereas ACT may improve regulation by increasing willingness to experience distress and reducing rigid attempts to control internal events. The findings are also consistent with Bjureberg et al., who demonstrated that a targeted emotion-regulation intervention for adolescents with NSSI produced significant improvements and that changes in emotion regulation were related to reductions in self-injurious behavior (4). Similarly, meta-analytic evidence indicates that psychosocial interventions can significantly improve emotion regulation among children and adolescents, emphasizing that regulatory capacity is amenable to therapeutic modification (5). Taken together, these studies support the interpretation that the present improvements reflect meaningful change in a mechanism central to the development and maintenance of self-injurious behavior.

An important finding was that the improvements observed in both intervention groups were maintained at the two-month follow-up. There was no significant deterioration between posttest and follow-up in either ISTDP or ACT, indicating that the benefits were not limited to the immediate treatment period. This maintenance may reflect the acquisition of relatively generalizable psychological capacities rather than temporary symptom suppression. In ISTDP, adolescents may continue to benefit from increased awareness of defensive responses, improved differentiation of anxiety and emotion, and enhanced tolerance of previously avoided affect. Once individuals become more capable of identifying and experiencing emotional states directly, these capacities can potentially be applied to subsequent interpersonal conflicts, academic stressors, family difficulties, and other emotionally demanding situations. Evidence that experiential dynamic therapies can produce durable clinical effects across different psychological problems supports this interpretation (6, 9). In ACT, sustained change may derive from skills such as acceptance, defusion, mindfulness, values clarification, and committed action, all of which can be practiced beyond formal therapy sessions (14). Research identifying psychological flexibility as a core mechanism of ACT further suggests that treatment may alter relatively broad patterns of responding rather than merely reducing a specific symptom in the short term (15). Thus, the maintained effects in both groups may reflect continued application of distinct but transferable strategies for managing emotional distress.

The absence of a statistically significant difference between ISTDP and ACT is theoretically noteworthy. Although ISTDP produced numerically lower DERS-16 scores at posttest and follow-up, the differences were small and did not reach statistical significance. Consequently, the results do not support the conclusion that one treatment was superior to the other. Instead, they suggest that theoretically distinct psychotherapies may produce comparable improvement in emotion regulation through different mechanisms. ISTDP emphasizes confronting and relinquishing defenses, regulating anxiety, and facilitating direct emotional experience, whereas ACT emphasizes acceptance, defusion, present-moment awareness, psychological flexibility, and values-guided behavior. Despite these differences, both approaches ultimately reduce maladaptive avoidance of emotional experience. Thoma and Abbass have specifically noted that ISTDP includes procedures that facilitate acceptance of emotion and may

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share important features with contemporary process-based treatment models (7). ACT, likewise, does not aim to remove emotional experience but to change the individual's relationship with it (14). Therefore, the similar outcomes may reflect convergence at the level of higher-order therapeutic processes: both treatments help adolescents remain in contact with aversive internal experiences without automatically responding through avoidance, suppression, impulsivity, or self-harm. This interpretation is compatible with contemporary evidence suggesting that different therapeutic models may influence overlapping processes of emotional functioning despite substantial differences in their theoretical language and techniques (9, 15).

The comparable outcomes should nevertheless not be interpreted as definitive evidence that ISTDP and ACT are therapeutically equivalent. The relatively small number of participants in each intervention condition limits the statistical power required to identify modest differences between two active treatments. Furthermore, the study focused specifically on difficulties in emotion regulation, whereas the two therapies may differ on treatment-specific mechanisms that were not directly measured. ISTDP may exert particularly strong effects on emotional repression, defense mechanisms, affect tolerance, and unresolved interpersonal conflict, as suggested by previous studies (10, 11). In contrast, ACT may produce stronger changes in psychological flexibility, experiential avoidance, cognitive fusion, and values-consistent action (15, 16). Consequently, similar changes in DERS-16 scores may conceal distinct pathways through which therapeutic improvement occurred. The broader literature also supports caution in interpreting emerging interventions for adolescent self-injury. Although acceptance-based interventions appear promising, the current evidence base remains comparatively limited and requires additional controlled trials (18). Psychodynamic treatments for children and adolescents similarly have encouraging support, but the evidence is heterogeneous across treatment models and clinical populations (8). The present findings should therefore be considered evidence supporting further comparative investigation rather than a definitive statement regarding equal efficacy.

The findings also need to be situated within the developmental context of adolescence. Self-injury is particularly important during this period because adolescents are simultaneously experiencing increased emotional intensity, changing interpersonal relationships, emerging identity concerns, and developing regulatory capacities. The high prevalence of self-injury reported in contemporary meta-analytic research underscores the need for interventions that are both developmentally appropriate and focused on mechanisms implicated in the maintenance of the behavior (1). Nock's functional account further suggests that self-injury may persist because it provides rapid relief from emotional distress and therefore becomes reinforced over time (2). From this perspective, both ISTDP and ACT may be clinically useful precisely because they offer adolescents alternatives to this regulatory function. ISTDP provides a route toward recognizing and processing underlying affect that might otherwise be discharged through self-injury, while ACT provides a route toward tolerating internal discomfort without organizing behavior around escape. The present findings therefore reinforce the value of conceptualizing adolescent self-injury not simply as an isolated behavioral symptom but as a maladaptive response embedded within broader emotional and regulatory processes.

The study has several limitations that should be considered when interpreting the findings. First, the sample consisted of only 45 adolescents, with 15 participants in each condition, which limits statistical power and may have reduced the ability to detect modest differences between ISTDP and ACT. Second, participants were recruited from upper-secondary public schools in a single geographical area, which restricts generalizability to adolescents from other cultural, socioeconomic, educational, and clinical settings. Third, emotion-regulation difficulties were assessed using a self-report instrument, and participants' responses may have been influenced by social desirability, insight, recall, or interpretation of emotional experiences. Fourth, the follow-up period was limited to two months, which does not establish whether the therapeutic effects remain stable over longer periods. Fifth, the primary outcome was difficulty in emotion regulation rather than the frequency, severity, or recurrence of actual self-injurious behavior; therefore, improvements in DERS-16 scores should not automatically be interpreted as equivalent reductions in self-harm. Finally, the study did not directly measure treatment-specific mechanisms such as defensive

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functioning, emotional repression, affect tolerance, psychological flexibility, cognitive fusion, or experiential avoidance, making it impossible to determine precisely how each intervention produced change.

Future research should replicate the present findings using larger and more diverse samples, preferably with adequately powered randomized controlled designs that permit more precise comparisons between active treatments. Longer follow-up periods, such as six months and one year, are recommended to determine whether the observed improvements remain stable over time. Future studies should assess both emotion-regulation outcomes and direct behavioral indicators of self-injury, including frequency, severity, number of methods, urges, and recurrence. Incorporating clinician ratings, parent reports, behavioral tasks, and ecological momentary assessment could also reduce dependence on self-report measures. Mechanism-of-change analyses would be particularly valuable. Future trials could examine whether reductions in emotional repression and defensive avoidance mediate ISTDP outcomes and whether improvements in psychological flexibility, acceptance, cognitive defusion, and reductions in experiential avoidance mediate ACT outcomes. Moderator analyses should also investigate whether baseline characteristics, including type of emotional difficulty, severity of self-injury, interpersonal problems, attachment-related distress, or level of experiential avoidance, predict differential responses to ISTDP and ACT.

In clinical practice, the findings suggest that assessment and treatment of adolescents with self-injurious behavior should include systematic attention to emotion-regulation difficulties rather than focusing solely on the observable act of self-harm. Clinicians should explore the emotional states, interpersonal triggers, cognitions, and regulatory functions occurring before and after self-injury and should identify whether the adolescent primarily struggles with inhibited or poorly processed affect, rigid avoidance of internal experiences, impulsive responses to distress, or a combination of these difficulties. ISTDP may be considered when self-injury appears closely associated with defensive emotional inhibition, unresolved affective conflict, or difficulty consciously experiencing intense feelings, whereas ACT may be particularly useful when experiential avoidance, cognitive fusion, and rigid attempts to control emotional discomfort are prominent. School counselors and adolescent mental-health services may also benefit from incorporating structured emotion-regulation assessment into screening and intervention planning. Because both approaches demonstrated sustained improvement, treatment selection may reasonably consider therapist expertise, adolescent preference, clinical formulation, and accessibility while maintaining careful monitoring of self-injury and suicide risk throughout treatment.

Authors' Contributions

All authors contributed substantially to the study and to manuscript development, and all approved the final version.

Declaration

The authors declare that artificial intelligence tools were used only to assist with language editing, translation, and improvement of the manuscript's readability. All conceptualization, study design, data collection, data analysis, interpretation of findings, and final approval of the manuscript were performed by the authors. The authors take full responsibility for the accuracy, integrity, and originality of the content.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

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Ethics Considerations

The study placed a high emphasis on ethical considerations. Informed consent obtained from all

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participants, ensuring they are fully aware of the nature of the study and their role in it. Confidentiality strictly maintained, with data anonymized to protect individual privacy. The study adhered to the ethical guidelines for research with human subjects as outlined in the Declaration of Helsinki.

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