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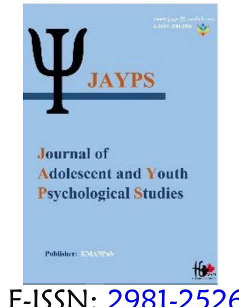
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Effectiveness of Dialectical Behavior Therapy on Distress Tolerance and Difficulties in Emotion Regulation among Adolescents with Impulsive Behaviors

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ABSTRACT

Objective: The present study was conducted to determine the effectiveness of dialectical behavior therapy on distress tolerance and difficulties in emotion regulation among adolescents with impulsive behaviors.

Materials and Methods: This was a quasi-experimental study with a pretest–posttest design and a two-month follow-up period including a control group. The statistical population consisted of adolescents aged 13 to 18 years with impulsive behaviors in Tehran in 2026. A total of 30 eligible adolescents were selected through purposive sampling and were randomly assigned to either the experimental group or the control group, with 15 participants in each group. The experimental group received dialectical behavior therapy skills training based on Linehan's treatment package during eight 90-minute sessions, whereas the control group received no intervention during this period. Data were collected using the Distress Tolerance Scale developed by Simons and Gaher and the Difficulties in Emotion Regulation Scale developed by Gratz and Roemer. Data were analyzed using the independent samples t-test, Fisher's exact test, and two-way repeated measures analysis of variance in SPSS version 26.

Findings: The results indicated that there were no significant differences between the experimental and control groups in terms of demographic characteristics. Furthermore, the results of the two-way repeated measures analysis of variance demonstrated that the interaction effect of group and time on distress tolerance and difficulties in emotion regulation was significant. Mean comparisons showed that distress tolerance scores in the experimental group increased from the pretest to the posttest stage, whereas difficulties in emotion regulation scores decreased. These changes remained largely stable at the two-month follow-up stage, while no considerable changes were observed in the control group.

Conclusion: Based on the findings of the study, dialectical behavior therapy can increase distress tolerance and reduce difficulties in emotion regulation among adolescents with impulsive behaviors. Therefore, the application of this approach in schools, counseling centers, and adolescent clinics may be beneficial for improving emotional skills, enhancing the ability to tolerate difficult situations, and reducing impulsive reactions.

Keywords: *Dialectical behavior therapy, distress tolerance, difficulties in emotion regulation, impulsive behaviors.*

1. Introduction

Adolescence is recognized as a critical developmental period characterized by profound biological, cognitive, emotional, and social transformations. During this stage, individuals experience heightened emotional sensitivity, increased reactivity to social contexts, and rapid neuropsychological development, all of which contribute to vulnerability toward impulsive and maladaptive behaviors (Cheng et al., 2024). The developmental imbalance between emotional arousal systems and executive control mechanisms during adolescence often increases susceptibility to impulsive decision-making, emotional instability, and behavioral dysregulation. As a result, impulsive behaviors are considered among the most prevalent psychological and behavioral challenges during adolescence and are associated with a wide range of adverse outcomes, including interpersonal conflict, academic difficulties, risk-taking behaviors, self-harm, substance use, and various forms of psychopathology (Carvalho et al., 2023; Ogundele, 2018). Because impulsive behaviors frequently emerge during adolescence and may persist into adulthood, understanding the psychological mechanisms underlying these behaviors and identifying effective interventions for reducing them have become major priorities in contemporary clinical psychology and adolescent mental health research.

Impulsivity is generally defined as a tendency to engage in rapid, poorly planned, and emotionally driven behaviors without adequate consideration of consequences. Traditional conceptualizations have often regarded impulsivity as a deficit in self-control or inhibitory functioning; however, contemporary perspectives suggest that impulsive behaviors may also represent maladaptive attempts to cope with distress, emotional pain, or overwhelming internal states (Kopetz et al., 2018). This perspective emphasizes the functional role of impulsive behaviors as strategies for escaping aversive emotional experiences or reducing immediate psychological discomfort. Adolescents with impulsive tendencies often demonstrate difficulties in tolerating negative emotional states and exhibit limited capacity to regulate intense affective experiences effectively. Consequently, impulsive behaviors may temporarily reduce distress while simultaneously reinforcing maladaptive emotional and behavioral patterns over time.

Emotion regulation has emerged as one of the most influential constructs in understanding adolescent psychological functioning and maladaptive behaviors. Emotion regulation refers to the processes through which individuals monitor, evaluate, modify, and express emotional experiences in adaptive ways. Deficits in emotion regulation are strongly associated with emotional instability, behavioral dyscontrol, interpersonal dysfunction, and psychological disorders during adolescence (Paulus et al., 2021). Adolescents who experience difficulties in emotion regulation often struggle to identify, understand, accept, and manage emotional experiences effectively. These deficits may contribute to emotional impulsivity, heightened reactivity, and maladaptive coping strategies such as aggression, avoidance, self-harm, or risk-taking behaviors. Longitudinal evidence has demonstrated that ineffective emotion regulation significantly predicts emotional and behavioral problems across adolescence and increases vulnerability to internalizing and externalizing psychopathology (Kökönyei et al., 2024).

Recent empirical findings further emphasize the close relationship between emotional impulsivity and deficits in emotion regulation. Emotional impulsivity refers to the tendency to react impulsively under conditions of heightened emotional arousal and has been identified as a significant predictor of psychological maladjustment. Research has shown that adolescents with high levels of emotional impulsivity are more likely to experience anxiety, depression, emotional instability, and behavioral difficulties due to their inability to regulate intense emotional states effectively (Milam, 2024). Similarly, studies examining emotion regulation strategies in everyday life indicate that adolescents who rely on maladaptive regulation strategies often experience more intense emotional distress and demonstrate reduced psychological adjustment (Kozubal et al., 2023). Therefore, improving emotion regulation abilities appears essential for reducing impulsive behaviors and enhancing psychological well-being among adolescents.

Another important construct closely associated with impulsive behaviors and emotional dysregulation is distress tolerance. Distress tolerance refers to an individual's perceived or actual ability to withstand negative emotional states and psychological discomfort without resorting to maladaptive coping behaviors. Individuals with low distress tolerance are more likely to perceive emotional distress as unbearable and respond impulsively in attempts to escape or alleviate unpleasant emotions (Leyro et al., 2010). Distress tolerance has been identified as a transdiagnostic factor implicated in various forms of psychopathology, including anxiety disorders, depression, substance use, self-injurious behaviors, and behavioral dysregulation. Adolescents with

low distress tolerance may exhibit greater emotional vulnerability and reduced capacity to cope effectively with stressful situations, thereby increasing the likelihood of impulsive and maladaptive reactions.

The significance of distress tolerance during adolescence has received increasing attention in recent years. Evidence suggests that low distress tolerance contributes to emotional and behavioral maladjustment by intensifying emotional reactivity and limiting adaptive coping responses. For example, distress tolerance has been shown to interact with stressful life experiences in predicting depressive symptoms during adolescence (Felton et al., 2019). Similarly, exposure to violence and adverse experiences may contribute to problematic behavioral outcomes through reduced distress tolerance capacities (Heleniak et al., 2021). Additional studies have highlighted the mediating role of distress tolerance in the relationship between childhood maltreatment and anxiety symptoms, emphasizing its importance as a protective psychological mechanism (Mattar et al., 2025). Furthermore, transdiagnostic research has demonstrated that distress tolerance and emotion regulation jointly mediate the relationship between anxiety sensitivity and psychological distress, indicating that these constructs are deeply interconnected within emotional functioning (Mohsenabadi et al., 2025).

Given the substantial role of emotional dysregulation and low distress tolerance in impulsive behaviors, psychological interventions targeting these mechanisms may be particularly effective for adolescents with behavioral dyscontrol. Among contemporary therapeutic approaches, dialectical behavior therapy has received considerable empirical support as a comprehensive intervention for emotional and behavioral dysregulation. Originally developed by Linehan for individuals with severe emotion dysregulation and self-destructive behaviors, dialectical behavior therapy integrates cognitive-behavioral techniques with mindfulness, acceptance-based strategies, and behavioral skills training (Linehan, 2014). The core theoretical assumption underlying dialectical behavior therapy is that emotional dysregulation emerges from the interaction between biological emotional vulnerability and invalidating environmental experiences. Consequently, the intervention focuses on helping individuals develop adaptive coping skills while simultaneously increasing emotional acceptance and behavioral flexibility.

Dialectical behavior therapy includes several core skill modules, including mindfulness, emotion regulation, distress tolerance, and interpersonal effectiveness. Mindfulness skills enhance awareness and nonjudgmental acceptance of present-moment experiences. Emotion regulation skills help individuals identify, understand, and manage emotions more effectively. Distress tolerance skills focus on surviving crises without engaging in impulsive or self-destructive behaviors, whereas interpersonal effectiveness skills aim to improve communication and relational functioning (Thomas & Rizvi, 2023). These components collectively address the central psychological difficulties observed in adolescents with impulsive behaviors, making dialectical behavior therapy a promising intervention for this population.

A growing body of research supports the effectiveness of dialectical behavior therapy for adolescents experiencing emotional and behavioral dysregulation. Early evidence demonstrated that dialectical behavior therapy significantly reduced emotional dysregulation, trauma-related symptoms, and self-injurious behaviors among adolescent females receiving community-based mental health services (Geddes et al., 2013). Qualitative investigations have further shown that adolescents participating in dialectical behavior therapy skills training perceive the intervention as helpful for improving emotional awareness, interpersonal functioning, and self-control (Pardo et al., 2020). More recent studies have expanded the application of dialectical behavior therapy to broader adolescent populations and educational settings. For example, implementation studies conducted in high schools have suggested that school-based dialectical behavior therapy skills programs are feasible, acceptable, and potentially beneficial for at-risk adolescents (Zapolski et al., 2022). Similarly, adolescents participating in adapted school-based dialectical behavior therapy groups have reported improvements in emotional coping, peer relationships, and emotional self-management (Whitener et al., 2025).

The effectiveness of dialectical behavior therapy has also been supported in populations characterized by significant emotion regulation difficulties. Randomized controlled evidence indicates that dialectical behavior therapy can substantially improve emotion regulation capacities and reduce emotional dysregulation symptoms in clinical populations with complex emotional difficulties (Bemmouna et al., 2025). Because emotional dysregulation represents a core mechanism underlying impulsive behaviors, interventions that directly target emotional processing and distress management may provide substantial benefits for adolescents struggling with impulsive tendencies.

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Despite the growing evidence supporting dialectical behavior therapy, several gaps remain in the existing literature. First, although numerous studies have examined the effects of dialectical behavior therapy on self-harm, suicidality, and emotional disorders, fewer studies have specifically focused on adolescents with impulsive behaviors as the primary target population. Second, while emotional dysregulation and distress tolerance are frequently discussed independently, relatively limited research has simultaneously investigated both constructs as treatment outcomes within adolescent impulsivity interventions. Third, cultural and contextual differences may influence emotional experiences, coping styles, and treatment responsiveness; therefore, examining the effectiveness of dialectical behavior therapy within diverse sociocultural contexts remains important. Furthermore, most previous studies have emphasized clinical populations with severe psychiatric conditions, whereas adolescents with subclinical or emerging impulsive behaviors may also benefit substantially from early psychological intervention.

The increasing prevalence of impulsive behaviors among adolescents, combined with the substantial psychological, educational, and social consequences associated with these behaviors, highlights the importance of developing effective preventive and therapeutic interventions. Adolescents with impulsive tendencies often experience chronic interpersonal difficulties, emotional instability, reduced academic functioning, and increased vulnerability to future psychopathology (Carvalho et al., 2023). Because adolescence represents a sensitive developmental period characterized by heightened emotional and sociocultural processing (Cheng et al., 2024), interventions that strengthen emotional regulation capacities and distress tolerance may have long-term protective effects on psychological adjustment and behavioral functioning.

Accordingly, the present study aimed to investigate the effectiveness of dialectical behavior therapy on distress tolerance and difficulties in emotion regulation among adolescents with impulsive behaviors.

2. Methods and Materials

2.1. *Study Design and Participants*

The present study was an applied research project conducted using a quasi-experimental design with pretest, posttest, and a two-month follow-up assessment alongside a control group. The statistical population consisted of all adolescents aged 13 to 18 years with impulsive behaviors in Tehran in 2026. After obtaining the necessary permissions and coordinating with counseling centers, psychological service clinics, and selected educational centers in Tehran, adolescents who volunteered or were referred due to symptoms of impulsive behaviors were screened according to the study inclusion criteria. The Barratt Impulsiveness Scale was used to identify adolescents with impulsive behaviors, and individuals who obtained scores above the cut-off point or above the mean score of the initial sample were considered eligible for participation. Among the eligible participants, 30 adolescents were selected using purposive sampling and were randomly assigned through a simple lottery method into either the experimental group or the control group, with 15 participants in each group.

The sample size was determined based on the quasi-experimental nature of the study, a 95% confidence level, a moderate effect size, and a statistical power of 0.83. Although the minimum required sample size for each group was estimated to be 12 participants, 15 participants were ultimately assigned to each group in order to compensate for possible attrition during the intervention process. The inclusion criteria consisted of being between 13 and 18 years old, residing in Tehran, obtaining a high score on the Barratt Impulsiveness Scale, providing informed assent by the adolescent and written consent by parents or legal guardians, the ability to participate regularly in sessions, possessing minimum reading and writing skills necessary for completing questionnaires, not receiving concurrent similar psychological interventions, and not having severe psychiatric disorders or debilitating physical illnesses that could interfere with the research process. The exclusion criteria included absence from more than two treatment sessions, withdrawal of the adolescent or parents from the study, simultaneous participation in other psychological interventions, incomplete questionnaire responses, the occurrence of acute psychological or physical conditions during the study, and lack of cooperation in completing therapeutic assignments.

2.2. *Measures*

The Distress Tolerance Scale developed by Simons and Gaher (2005) was used to assess participants' ability to tolerate emotional distress. This self-report instrument consists of 15 items and evaluates distress tolerance across four subscales, including tolerance of emotional distress, absorption by negative emotions, subjective appraisal of distress, and regulation efforts to alleviate distress. The items

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are rated on a five-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Item 6 is reverse scored. Higher scores on the scale indicate greater distress tolerance. Simons and Gaher (2005) reported Cronbach's alpha coefficients ranging from 0.70 to 0.82 for the subscales and 0.82 for the total scale, indicating satisfactory internal consistency. They also confirmed the scale's acceptable convergent and criterion validity. The Persian version of the scale has also demonstrated acceptable psychometric properties in Iranian samples, with evidence supporting its internal consistency and reliability.

The Difficulties in Emotion Regulation Scale developed by Gratz and Roemer (2004) was employed to assess deficits in emotion regulation. This instrument contains 36 items rated on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always). The scale measures difficulties in emotion regulation across six dimensions, including nonacceptance of emotional responses, difficulties engaging in goal-directed behaviors under distress, impulse control difficulties, limited access to effective emotion regulation strategies, lack of emotional awareness, and lack of emotional clarity. The total score is calculated by summing the scores of all subscales, with higher scores indicating greater difficulties in emotion regulation. Previous studies have confirmed the psychometric adequacy of the scale in both clinical and non-clinical populations, demonstrating acceptable internal consistency, test–retest reliability, construct validity, and predictive validity. The Persian version of the scale has also been validated in Iranian clinical and non-clinical samples and has shown satisfactory reliability and validity indices.

2.3. *Intervention*

Following participant selection and random assignment into the experimental and control groups, both groups completed the pretest assessments using the Distress Tolerance Scale and the Difficulties in Emotion Regulation Scale. The experimental group then participated in eight weekly dialectical behavior therapy sessions, each lasting approximately 60 minutes, based on Linehan's dialectical behavior therapy skills training package adapted for adolescents. The intervention focused on teaching mindfulness skills, emotional awareness, emotion regulation strategies, distress tolerance techniques, impulse control skills, and interpersonal effectiveness. Initial sessions emphasized establishing a therapeutic relationship, introducing the principles of dialectical behavior therapy, and increasing awareness of impulsive behaviors and emotional reactions. Subsequent sessions addressed mindfulness practices, identification and labeling of emotions, reduction of emotional vulnerability, healthy coping with distressing situations, behavioral chain analysis, impulse management, and effective interpersonal communication skills. The final session focused on reviewing learned skills, relapse prevention strategies, and developing a maintenance plan for applying the acquired skills in daily life situations at home, school, and peer relationships. During the intervention period, the control group received no psychological treatment and participated only in the assessment stages. After completion of the intervention, posttest assessments were administered to both groups, and a follow-up assessment was conducted two months later. Ethical considerations were fully observed throughout the study, including providing participants and their parents with explanations regarding the study objectives, procedures, confidentiality of information, voluntary participation, and the right to withdraw from the study at any stage. Written informed consent was obtained from parents or legal guardians, and informed assent was obtained from adolescents before participation.

2.4. *Data Analysis*

Data analysis was conducted using SPSS software version 26. Descriptive statistics, including mean, standard deviation, frequency, and percentage, were calculated to summarize the demographic and study variables. Independent samples t-tests and Fisher's exact tests were employed to evaluate the homogeneity of the experimental and control groups regarding demographic characteristics. Prior to conducting the main statistical analyses, the assumptions underlying repeated measures analysis were examined. The normality of data distribution was assessed using the Kolmogorov–Smirnov test, homogeneity of variances was evaluated through Levene's test, and the assumption of sphericity was examined using Mauchly's test. Finally, a two-way repeated measures analysis of variance was conducted to evaluate the effectiveness of dialectical behavior therapy on distress tolerance and difficulties in emotion regulation across the pretest, posttest, and follow-up stages. The significance level for all statistical analyses was set at 0.05.

3. Findings and Results

The mean and standard deviation of age in the experimental and control groups were 15.46 ± 1.30 and 15.73 ± 1.22 years, respectively. The results of the independent samples t-test indicated that there was no significant difference between the two groups in terms of age (P > 0.05). Furthermore, the results of Fisher's exact test regarding gender, educational level, and academic status demonstrated that there were no statistically significant differences between the experimental and control groups in demographic characteristics (P > 0.05). Therefore, the two groups were homogeneous with respect to demographic variables.

Table 1

Demographic Characteristics of the Participants

Variables	Components	Experimental (n = 15) Frequency (%)	Control (n = 15) Frequency (%)	P-value
Gender	Male	8 (53.33)	7 (46.67)	0.713
	Female	7 (46.67)	8 (53.33)	
Educational Level	Seventh to Ninth Grade	6 (40.00)	5 (33.33)	0.682
	Tenth to Twelfth Grade	9 (60.00)	10 (66.67)	
Academic Status	Without Academic Decline	10 (66.67)	11 (73.33)	0.690
	History of Academic Decline	5 (33.33)	4 (26.67)	

According to Table 2, the descriptive indices of distress tolerance and difficulties in emotion regulation in the experimental and control groups across the pretest, posttest, and follow-up stages are presented. As observed, the mean scores of distress tolerance in the experimental group increased from the pretest to the posttest stage, and this increase was largely maintained during the follow-up stage. Moreover, the mean scores of difficulties in emotion regulation in the experimental group decreased from the pretest to the posttest stage, and this reduction remained relatively stable during follow-up. In contrast, no considerable changes were observed in the control group for either variable. Therefore, the descriptive pattern of changes indicates that dialectical behavior therapy increased distress tolerance and reduced difficulties in emotion regulation among adolescents with impulsive behaviors.

Table 2

Descriptive Indices of Distress Tolerance and Difficulties in Emotion Regulation in the Experimental and Control Groups

Variables	Group	Pretest Mean ± SD	Posttest Mean ± SD	Follow-up Mean ± SD	Minimum	Maximum
Distress Tolerance	Experimental	34.60 ± 4.52	48.13 ± 5.26	47.20 ± 5.11	28	56
	Control	35.06 ± 4.39	36.20 ± 4.71	35.73 ± 4.64	29	45
Difficulties in Emotion Regulation	Experimental	112.46 ± 9.18	88.73 ± 8.62	90.06 ± 8.74	78	126
	Control	111.80 ± 8.95	109.93 ± 9.11	110.40 ± 8.88	96	128

To investigate the effectiveness of dialectical behavior therapy on distress tolerance and difficulties in emotion regulation, a two-way repeated measures analysis of variance was conducted. Prior to performing the main analysis, statistical assumptions were examined. The results of the Kolmogorov–Smirnov test demonstrated that the distributions of the research variables at the pretest, posttest, and follow-up stages did not significantly deviate from normality (P > 0.05). In addition, the results of Levene's test confirmed the assumption of homogeneity of variances for the research variables (P > 0.05). The results of Mauchly's test also indicated that the assumption of sphericity was met for distress tolerance and difficulties in emotion regulation; therefore, the within-group effects were reported based on the assumption of sphericity.

The results of the two-way repeated measures analysis of variance presented in Table 4 showed that the main effect of group on distress tolerance was significant, indicating that the mean distress tolerance scores differed significantly between the experimental and control groups. The main effect of time was also significant, suggesting that distress tolerance scores changed significantly across the pretest, posttest, and follow-up stages. Furthermore, the interaction effect of group and time was significant, indicating that the pattern of changes in distress tolerance differed between the two groups and that the increase observed in the

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experimental group compared with the control group resulted from the implementation of dialectical behavior therapy.

The findings also demonstrated that the main effect of group on difficulties in emotion regulation was significant. In other words, there was a significant difference between the experimental and control groups regarding the mean scores of difficulties in emotion regulation. The main effect of time was also significant, indicating that difficulties in emotion regulation changed across the measurement stages. Moreover, the interaction effect of group and time was significant. Therefore, dialectical behavior therapy significantly reduced difficulties in emotion regulation in the experimental group, and this improvement was largely maintained during the follow-up stage.

Table 3

Results of the Two-Way Repeated Measures Analysis of Variance Examining the Effects of Dialectical Behavior Therapy on Distress Tolerance and Difficulties in Emotion Regulation

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	P-value	Effect Size
Distress Tolerance	Group	812.46	1	812.46	17.35	<0.001	0.380
	Time	1046.82	2	523.41	32.64	<0.001	0.538
	Group × Time	936.28	2	468.14	29.72	<0.001	0.515
Difficulties in Emotion Regulation	Group	2486.54	1	2486.54	19.41	<0.001	0.410
	Time	3562.18	2	1781.09	41.88	<0.001	0.599
	Group × Time	3018.72	2	1509.36	37.26	<0.001	0.571

Based on Table 3, the interaction effect of group and time for distress tolerance was significant ($F = 29.72$, $P < 0.001$). This finding indicates that changes in distress tolerance scores across the three measurement stages differed significantly between the experimental and control groups. Considering the mean scores presented in Table 2, it can be concluded that dialectical behavior therapy increased distress tolerance in the experimental group. The effect size for the interaction between group and time on distress tolerance was 0.515, indicating a substantial effect of the intervention on this variable.

Similarly, the interaction effect of group and time for difficulties in emotion regulation was significant ($F = 37.26$, $P < 0.001$). This result indicates that the trend of changes in difficulties in emotion regulation differed between the experimental and control groups. Given the reduction in the mean scores of difficulties in emotion regulation in the experimental group from the pretest to the posttest stage and the relative maintenance of this reduction during follow-up, it can be concluded that dialectical behavior therapy reduced difficulties in emotion regulation among adolescents with impulsive behaviors. The effect size for the interaction between group and time on difficulties in emotion regulation was 0.571, indicating a considerable effect of the intervention on this variable.

Overall, the findings of the present study demonstrated that dialectical behavior therapy, compared with the control group, significantly increased distress tolerance and significantly reduced difficulties in emotion regulation among adolescents with impulsive behaviors. Furthermore, the relative stability of the scores during the follow-up stage indicates that the effects of the intervention were largely maintained after the completion of the treatment sessions. Therefore, the research hypothesis regarding the effectiveness of dialectical behavior therapy on distress tolerance and difficulties in emotion regulation among adolescents with impulsive behaviors was confirmed.

4. Discussion

The present study aimed to investigate the effectiveness of dialectical behavior therapy on distress tolerance and difficulties in emotion regulation among adolescents with impulsive behaviors. The findings demonstrated that dialectical behavior therapy significantly increased distress tolerance and significantly reduced difficulties in emotion regulation in the experimental group compared with the control group. Moreover, the improvements observed in the posttest stage remained relatively stable during the two-month follow-up period, indicating the persistence of the intervention effects over time. These findings support the research hypothesis and emphasize the effectiveness of dialectical behavior therapy as an intervention for adolescents experiencing impulsive behaviors and emotional dysregulation.

One of the major findings of the present study was the significant increase in distress tolerance among adolescents

who participated in dialectical behavior therapy sessions. This result suggests that adolescents who received dialectical behavior therapy became more capable of enduring emotional discomfort and stressful experiences without engaging in maladaptive impulsive reactions. Distress tolerance is considered a central component of emotional resilience and adaptive coping, and individuals with low distress tolerance often perceive emotional pain as intolerable, leading them to respond impulsively in an attempt to escape distressing internal states (Leyro et al., 2010). Adolescents with impulsive behaviors are particularly vulnerable to this process because developmental emotional sensitivity and immature executive functioning increase emotional reactivity during this stage of life (Cheng et al., 2024). Therefore, enhancing distress tolerance may play a critical role in reducing impulsive reactions and promoting psychological adjustment.

The increase in distress tolerance observed in the current study may be explained by the structure and theoretical foundations of dialectical behavior therapy. Dialectical behavior therapy emphasizes acceptance, mindfulness, emotional awareness, and crisis survival skills, all of which help individuals remain psychologically present during emotionally challenging situations instead of reacting impulsively (Linehan, 2014). Through repeated practice of distress tolerance skills, adolescents learn to recognize emotional experiences without immediately attempting to suppress, avoid, or escape them. The intervention also teaches practical strategies such as distraction techniques, self-soothing methods, grounding exercises, and delayed responding, which collectively increase an individual's capacity to tolerate distress without engaging in maladaptive behavior. Consequently, participants may gradually develop greater emotional endurance and behavioral self-control.

The findings regarding distress tolerance are consistent with previous empirical studies. Research has consistently shown that distress tolerance functions as an important protective factor against emotional and behavioral maladjustment. For example, Felton et al. demonstrated that distress tolerance interacts with stressful life experiences to predict depressive symptoms during adolescence, highlighting its importance in adaptive emotional functioning (Felton et al., 2019). Similarly, Heleniak et al. reported that low distress tolerance contributes to problematic behavioral outcomes among adolescents exposed to adverse experiences (Heleniak et al., 2021). More recent evidence has also shown that distress tolerance mediates the relationship between childhood maltreatment and anxiety symptoms, suggesting that individuals with stronger distress tolerance capacities are better able to manage emotional adversity (Mattar et al., 2025). In addition, Mohsenabadi et al. identified distress tolerance as a significant transdiagnostic mechanism associated with psychological vulnerability and emotional dysfunction (Mohsenabadi et al., 2025). The current findings extend these previous observations by demonstrating that dialectical behavior therapy can effectively improve distress tolerance specifically among adolescents with impulsive behaviors.

Another important finding of the study was the significant reduction in difficulties in emotion regulation among adolescents who received dialectical behavior therapy. Emotion regulation deficits are widely recognized as a core mechanism underlying impulsive behaviors, emotional instability, and psychopathology during adolescence (Paulus et al., 2021). Adolescents who struggle with emotion regulation often experience intense emotional responses, poor impulse control, and limited access to adaptive coping strategies. These individuals may react impulsively when confronted with anger, frustration, shame, or anxiety because they lack effective skills for processing and managing emotional experiences. Therefore, interventions that improve emotional awareness, emotional acceptance, and adaptive regulation strategies may substantially reduce impulsive tendencies.

Dialectical behavior therapy directly targets emotion regulation through multiple therapeutic mechanisms. The mindfulness component of the intervention increases awareness of emotional states and helps adolescents observe their thoughts and feelings nonjudgmentally. This process reduces automatic emotional reactivity and allows individuals to respond more deliberately to emotionally provoking situations. Emotion regulation modules further teach participants how to identify emotions accurately, understand the factors contributing to emotional vulnerability, and implement adaptive coping strategies to reduce emotional intensity (Linehan, 2014). Additionally, dialectical behavior therapy promotes acceptance of emotional experiences rather than avoidance or suppression, thereby decreasing emotional escalation and impulsive behavioral responses.

The reduction in emotion regulation difficulties observed in the present study aligns with a large body of previous research. Kökönyei et al. demonstrated that emotion regulation significantly predicts psychological adjustment

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and depressive symptoms during adolescence, emphasizing the developmental importance of effective emotional management (Kökönyei et al., 2024). Similarly, Kozubal et al. found that the selection of adaptive emotion regulation strategies is closely associated with emotional intensity and psychological functioning in daily life (Kozubal et al., 2023). Milam also reported that emotional impulsivity strongly predicts internalizing symptoms through deficits in emotion regulation capacities (Milam, 2024). The present findings support these observations by demonstrating that improving emotion regulation through dialectical behavior therapy may reduce impulsive behaviors and enhance emotional stability among adolescents.

The results are also consistent with previous investigations examining the effectiveness of dialectical behavior therapy in emotionally dysregulated populations. Geddes et al. reported that dialectical behavior therapy reduced emotional dysregulation and trauma-related symptoms among self-injurious and suicidal adolescent females receiving community mental health services (Geddes et al., 2013). Likewise, Bemmouna et al. found that dialectical behavior therapy significantly improved emotion regulation abilities among adults with emotional dysregulation difficulties (Bemmouna et al., 2025). Qualitative studies have further demonstrated that adolescents perceive dialectical behavior therapy as helpful for managing emotions, controlling impulsive reactions, and improving interpersonal relationships (Pardo et al., 2020). The present study adds to this literature by providing evidence that dialectical behavior therapy is effective specifically for adolescents with impulsive behaviors and by demonstrating the durability of treatment effects during follow-up.

The findings of the current study may also be interpreted within broader developmental and sociocultural frameworks. Adolescence is characterized by heightened sensitivity to social evaluation, emotional experiences, and interpersonal stressors, making emotional self-regulation particularly challenging during this developmental stage (Cheng et al., 2024). Impulsive behaviors often emerge as maladaptive attempts to manage overwhelming emotional states or interpersonal conflicts. Carvalho et al. emphasized that impulsive behaviors in adolescence are influenced by multiple individual, familial, peer, and community-related factors (Carvalho et al., 2023). Consequently, interventions such as dialectical behavior therapy that simultaneously address emotional processing, interpersonal effectiveness, and behavioral self-control may be especially valuable during adolescence.

Another noteworthy aspect of the present findings is the relative stability of treatment effects during the follow-up stage. The persistence of improvements in distress tolerance and emotion regulation suggests that participants were able to maintain and generalize the acquired skills beyond the immediate treatment period. This durability may be attributed to the practical and skills-based nature of dialectical behavior therapy. Unlike purely insight-oriented approaches, dialectical behavior therapy emphasizes repeated behavioral practice, real-life application of coping strategies, and active homework assignments (Thomas & Rizvi, 2023). These elements may facilitate long-term integration of therapeutic skills into daily functioning. Furthermore, the intervention encourages adolescents to apply skills across various contexts, including family interactions, school situations, peer relationships, and emotionally stressful experiences, thereby increasing the likelihood of sustained behavioral change.

The current findings also support the growing movement toward implementing dialectical behavior therapy within educational and community settings. Recent studies have demonstrated the feasibility and acceptability of school-based dialectical behavior therapy programs for at-risk adolescents (Zapolski et al., 2022). Whitener et al. similarly reported that adolescents participating in school-based dialectical behavior therapy groups experienced improvements in emotional coping and self-management and viewed the intervention positively (Whitener et al., 2025). Given that adolescents spend substantial time within school environments and may have limited access to specialized psychological services, integrating dialectical behavior therapy skills training into schools and youth counseling centers may represent an effective preventive mental health strategy.

5. Conclusion

Overall, the findings of the present study indicate that dialectical behavior therapy effectively improves distress tolerance and reduces difficulties in emotion regulation among adolescents with impulsive behaviors. These improvements likely occur because the intervention addresses core emotional and behavioral mechanisms underlying impulsive functioning. By increasing mindfulness, emotional awareness, distress management abilities, and adaptive coping skills, dialectical behavior

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therapy helps adolescents respond more flexibly and effectively to emotional challenges. Consequently, this intervention may contribute not only to the reduction of impulsive behaviors but also to broader improvements in psychological well-being, interpersonal functioning, and emotional adjustment during adolescence.

6. Limitations & Suggestions

One of the limitations of the present study was the relatively small sample size and the restriction of participants to adolescents from a single geographical area, which may limit the generalizability of the findings to broader adolescent populations. In addition, the use of self-report questionnaires may have increased the likelihood of response bias and social desirability effects. Another limitation was the relatively short follow-up period, which restricted the evaluation of the long-term stability of treatment effects. Furthermore, variables such as family functioning, socioeconomic status, and parental psychological characteristics were not controlled and may have influenced participants' emotional and behavioral functioning.

Future research is recommended to examine the effectiveness of dialectical behavior therapy using larger and more diverse samples across different cultural and socioeconomic contexts. Longitudinal studies with extended follow-up periods would provide more comprehensive information regarding the long-term maintenance of treatment effects. Researchers are also encouraged to investigate the effectiveness of dialectical behavior therapy in combination with family-based interventions, school counseling programs, and digital mental health approaches. In addition, future studies may compare dialectical behavior therapy with other evidence-based interventions targeting impulsive behaviors and emotional dysregulation among adolescents.

The findings of the present study have important practical implications for psychologists, counselors, educators, and mental health professionals working with adolescents. Incorporating dialectical behavior therapy skills training into schools, counseling centers, and adolescent mental health services may help improve emotional coping, reduce impulsive reactions, and strengthen psychological resilience. Training parents, teachers, and school counselors in basic dialectical behavior therapy principles may also support adolescents in managing emotional challenges more effectively in everyday environments. Moreover, early identification of adolescents with emotional dysregulation and impulsive tendencies, followed by timely intervention, may reduce the risk of more severe psychological and behavioral difficulties in later developmental stages.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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