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Comparison of the Effectiveness and Durability of Mentalization-Based Treatment and Dialectical Behavior Therapy on Self-Injury in Adolescents with Self-Harming Behaviors

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A B S T R A C T

Purpose: The present study aimed to compare the effectiveness and durability of the effects of Mentalization-Based Treatment (MBT) and Dialectical Behavior Therapy (DBT) on self-injury in adolescents with self-harming behaviors.

Methods and Materials: This applied study employed a quasi-experimental pretest–posttest design with a control group and a three-month follow-up period. The statistical population consisted of all adolescents aged 13 to 18 years with self-harming behaviors who were referred to counseling and psychological service centers in District 20 of Tehran during the second half of 2024. The research sample included 45 participants who were selected through purposive sampling and, after matching, were randomly assigned to three groups of 15 participants each: Mentalization-Based Treatment, Dialectical Behavior Therapy, and control. The experimental groups received 12 weekly 60-minute sessions of Mentalization-Based Treatment and 12 weekly 60-minute sessions of Dialectical Behavior Therapy, respectively, whereas the control group received no intervention. Data were collected using the Self-Injurious Thoughts and Behaviors Interview developed by Klonsky and Glenn (2009). Data were analyzed using mixed repeated-measures analysis of variance and Bonferroni post hoc tests in SPSS-26.

Findings: The results indicated that the main effect of group on self-injury was not statistically significant ($F = 0.617$, $p = .544$, $\eta p^2 = .029$); however, the main effect of time ($F = 7.27$, $p = .008$, $\eta p^2 = .148$) and the interaction effect of time and group ($F = 4.59$, $p = .042$, $\eta p^2 = .107$) were statistically significant. Bonferroni post hoc test results at the posttest stage showed that a significant difference existed only between the Dialectical Behavior Therapy group and the control group (padj = .016), whereas the differences between the Mentalization-Based Treatment group and the control group, as well as between the two treatment groups, were not statistically significant. Furthermore, pairwise comparisons across time demonstrated that only the Dialectical Behavior Therapy group showed significant differences between pretest and posttest (padj = .022) and between pretest and follow-up (padj = .034), whereas no significant changes were observed in the Mentalization-Based Treatment group or the control group.

Conclusion: Based on the findings, Dialectical Behavior Therapy was more effective than Mentalization-Based Treatment in reducing self-injury among adolescents with self-harming behaviors, and its effects remained stable through the follow-up phase.

In contrast, Mentalization-Based Treatment did not produce a statistically significant reduction in self-injury in the present study. Therefore, Dialectical Behavior Therapy may be considered a more effective intervention for reducing and stabilizing improvement in self-injurious behaviors among this group of adolescents.
Keywords: *self-injury, self-harming behaviors, Mentalization-Based Treatment, Dialectical Behavior Therapy, adolescents*

1. Introduction

Adolescence is recognized as a critical developmental period characterized by profound biological, emotional, cognitive, and interpersonal transformations that may increase vulnerability to emotional dysregulation and maladaptive coping behaviors. Among the most concerning psychological phenomena emerging during this developmental stage is non-suicidal self-injury (NSSI), commonly conceptualized as deliberate self-inflicted bodily harm without suicidal intent. Self-injurious behaviors among adolescents have become a major public mental health concern because of their increasing prevalence, chronicity, and association with severe psychological difficulties, including depression, anxiety, impulsivity, interpersonal dysfunction, and suicidal ideation (Aboobaker et al., 2019; Rice et al., 2019). Contemporary studies indicate that adolescents who engage in self-harming behaviors often experience elevated emotional instability, deficits in self-regulation, and significant disturbances in interpersonal relationships, all of which contribute to the maintenance and recurrence of self-injury (Dibaj et al., 2024; Raemen et al., 2021). Emotional and behavioral problems, particularly during adolescence, have been consistently associated with heightened vulnerability to self-destructive coping strategies and maladaptive emotion regulation mechanisms (Aboobaker et al., 2019; Liu et al., 2019). Furthermore, psychological distress during adolescence frequently co-occurs with identity confusion, interpersonal insecurity, and negative self-perceptions, thereby intensifying the risk of repetitive self-harming behavior (Sharifian et al., 2021; Sun et al., 2016).

Theoretical and empirical perspectives increasingly emphasize emotion dysregulation as one of the central mechanisms underlying self-injurious behavior. Adolescents who struggle to regulate emotional arousal often resort to self-harm as an immediate strategy for reducing psychological tension, escaping aversive emotional experiences, or communicating distress to others (Ip et al., 2024; Weatherford et al., 2024). Emotional dysregulation is closely associated with impulsivity, interpersonal conflict, shame, anger, and distorted self-concepts, all of which contribute to the persistence of self-injurious patterns over time (Dibaj et al., 2024; Weatherford et al., 2024). Research has demonstrated that adolescents with repeated self-harming behaviors frequently exhibit impairments in emotional awareness and cognitive processing of affective states, making adaptive coping responses more difficult to achieve (Burnett et al., 2022; Huang et al., 2019). In addition, media multitasking, sleep disturbances, trauma exposure, and chronic psychological distress have been shown to exacerbate emotional-behavioral dysregulation and increase susceptibility to self-harm during adolescence (Liu et al., 2019; Raemen et al., 2021). These findings suggest that self-injury should not be interpreted solely as an isolated behavioral symptom but rather as a multidimensional manifestation of underlying emotional and interpersonal dysfunction.

Another important explanatory framework in understanding adolescent self-injury concerns deficits in mentalization capacity. Mentalization refers to the ability to understand one's own and others' behaviors in terms of intentional mental states such as thoughts, feelings, beliefs, desires, and motivations. Weaknesses in mentalization impair emotional understanding and interpersonal interpretation, thereby increasing the likelihood of maladaptive coping strategies, including self-harm (Balzen & Sharp, 2024; Sundar & Bhola, 2022). Adolescents with poor mentalization skills may misinterpret emotional experiences, struggle to differentiate internal psychological states, and demonstrate heightened emotional reactivity in interpersonal contexts (Balzen & Sharp, 2024; Sundar & Bhola, 2022). Research indicates that mentalization deficits mediate the relationship between personality vulnerabilities and non-suicidal self-injury, particularly among individuals with borderline personality features and attachment disturbances (Raemen et al., 2021; Sundar & Bhola, 2022). Moreover, attachment insecurity and trauma exposure may disrupt the development of reflective functioning, thereby contributing to impaired emotional regulation and self-destructive behavior patterns (Balzen & Sharp, 2024; Raemen et al., 2021). Consequently, interventions designed to improve mentalization capacities may have significant therapeutic value for adolescents with self-harming behaviors.

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Mentalization-Based Treatment (MBT) has emerged as one of the prominent psychotherapeutic approaches for individuals exhibiting severe emotional dysregulation, interpersonal instability, and self-injurious behaviors. Rooted in attachment theory and psychodynamic principles, MBT seeks to strengthen individuals' reflective functioning and capacity to understand mental states within emotionally charged interpersonal interactions (Malberg, 2021). Through improving awareness of emotional experiences and enhancing understanding of oneself and others, MBT aims to reduce impulsive and self-destructive reactions while promoting adaptive emotional regulation strategies (Balzen & Sharp, 2024; Malberg, 2021). Existing evidence has shown promising outcomes for MBT in reducing self-harm and improving emotional functioning among adolescents with borderline features and emotional instability (Griffiths et al., 2019, 2021). Furthermore, comparative studies suggest that MBT may positively influence interpersonal functioning and identity integration through strengthening reflective capacities and attachment security (Mohajerin et al., 2024; Weijers et al., 2023). Nevertheless, despite encouraging findings, some studies have reported variability in treatment outcomes, particularly regarding the durability of therapeutic gains and the extent of symptom reduction among adolescents with severe self-injurious behaviors (Balzen & Sharp, 2024; Weijers et al., 2023). This variability highlights the need for further comparative investigations examining the effectiveness of MBT relative to other evidence-based interventions for self-harm.

Dialectical Behavior Therapy (DBT), originally developed for individuals with borderline personality disorder and chronic suicidal behaviors, is another evidence-based intervention that has demonstrated substantial efficacy in reducing self-injury and emotional dysregulation among adolescents. DBT integrates behavioral principles, mindfulness strategies, distress tolerance skills, emotion regulation techniques, and interpersonal effectiveness training to address maladaptive emotional and behavioral patterns (Kothgassner et al., 2021; Mehlum et al., 2016). One of the central assumptions of DBT is that self-harming behaviors function as maladaptive coping mechanisms for managing overwhelming emotional states, interpersonal invalidation, and impulsive reactions (Ip et al., 2024; Weatherford et al., 2024). By teaching adolescents adaptive skills for emotional regulation and distress management, DBT aims to replace self-destructive coping responses with healthier behavioral alternatives (Damavandian et al., 2021; Shahhosseini et al., 2025). Randomized controlled trials and systematic reviews have consistently supported the efficacy of DBT in reducing suicidal ideation, emotional dysregulation, and recurrent self-harm among adolescents (Kothgassner et al., 2021; Mehlum et al., 2016). Moreover, recent evidence suggests that improvements in emotion regulation and interpersonal functioning during DBT significantly contribute to reductions in non-suicidal self-injury and psychological distress (Ip et al., 2024; Weatherford et al., 2024).

The increasing clinical attention devoted to DBT and MBT reflects a broader recognition that effective treatment of adolescent self-injury requires interventions addressing both emotional dysregulation and interpersonal-cognitive vulnerabilities. Although both therapeutic models have demonstrated efficacy in reducing self-harming behaviors, they differ substantially in theoretical orientation and mechanisms of change. DBT primarily emphasizes behavioral skill acquisition, mindfulness, distress tolerance, and structured emotion regulation strategies (Kothgassner et al., 2021; Mehlum et al., 2016), whereas MBT focuses on strengthening reflective functioning, attachment security, and understanding of mental states (Balzen & Sharp, 2024; Malberg, 2021). Comparative examination of these interventions may therefore provide valuable insights into which therapeutic mechanisms are most effective for adolescents exhibiting self-injurious behaviors. Recent studies have increasingly emphasized the importance of identifying interventions that not only reduce self-harm during treatment but also sustain therapeutic effects over time (Dibaj et al., 2024; Shahhosseini et al., 2025). This issue is particularly important given the chronic and recurrent nature of self-injury during adolescence and its strong association with later psychiatric difficulties and suicidal risk (Burnett et al., 2022; Weatherford et al., 2024).

Despite growing empirical evidence supporting both DBT and MBT, relatively few studies have directly compared the effectiveness and durability of these interventions among adolescents with self-harming behaviors. Existing research on MBT has often focused on borderline personality features or emotional instability rather than self-injury specifically (Griffiths et al., 2019; Mohajerin et al., 2024), while many DBT investigations have concentrated primarily on suicidal ideation and emotional dysregulation outcomes (Kothgassner et al., 2021; Shahhosseini et al., 2025). Furthermore, cultural and contextual factors may influence treatment outcomes, making it necessary to evaluate these interventions in diverse adolescent populations and clinical settings (Damavandian

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et al., 2021; Zarei et al., 2025). In Iranian clinical contexts, limited comparative evidence is available regarding the relative effectiveness of MBT and DBT for adolescents engaging in self-injurious behaviors. Previous Iranian studies have demonstrated positive effects of DBT on aggression, emotional self-regulation, and self-harm among delinquent adolescents (Damavandian et al., 2021), while recent investigations have also reported beneficial effects of MBT on impulsivity among adolescents with self-injurious behaviors (Zarei et al., 2025). However, the comparative effectiveness and long-term stability of these interventions remain insufficiently explored.

Another important gap in the literature concerns the sustainability of treatment outcomes following intervention termination. Many adolescents who initially respond positively to treatment may later experience relapse due to persistent emotional vulnerabilities, interpersonal stressors, and inadequate coping mechanisms (Dibaj et al., 2024; Weatherford et al., 2024). Consequently, examining the durability of therapeutic effects through follow-up assessments is essential for evaluating the clinical utility of psychological interventions targeting self-injury. Research has suggested that sustained improvements in emotional regulation, reflective functioning, and interpersonal skills may play a critical role in maintaining reductions in self-harm over time (Balzen & Sharp, 2024; Ip et al., 2024). Nevertheless, comparative longitudinal evidence regarding the persistence of treatment effects in MBT and DBT remains limited, especially among adolescent populations. Understanding whether one intervention demonstrates greater long-term effectiveness than the other may therefore have significant implications for clinical decision-making, treatment planning, and mental health policy development.

Given the increasing prevalence of self-injurious behaviors among adolescents, the serious psychological and interpersonal consequences associated with these behaviors, and the limited comparative evidence regarding the effectiveness and durability of Mentalization-Based Treatment and Dialectical Behavior Therapy, the present study aimed to compare the effectiveness and durability of the effects of Mentalization-Based Treatment and Dialectical Behavior Therapy on self-injury among adolescents with self-harming behaviors.

2. Methods and Materials

2.1. Study Design and Participants

The present study was considered an applied investigation in terms of purpose and, given the nature of the topic and the predefined objectives, employed a quasi-experimental pretest–posttest design with a control group and a three-month follow-up period. Within this research framework, the independent variables, namely Mentalization-Based Treatment (MBT) and Dialectical Behavior Therapy (DBT), were implemented in two separate experimental groups, and their outcomes were evaluated at three time points in comparison with a control group that received no intervention. The statistical population consisted of all male and female adolescents aged 13 to 18 years who had been referred to counseling and psychological service centers in District 20 of Tehran during the second half of 2024 (October to March) due to self-harming behaviors. The sample selection process was conducted using a non-random purposive sampling method. Following an initial screening conducted by the clinical psychologists of the centers and administration of the self-harm questionnaire, adolescents who met the inclusion criteria, including a confirmed diagnosis of self-injurious behavior, the specified age range, no use of psychiatric medications, and no acute psychiatric disorders (based on self-report), were identified. To determine the sample size, Cohen's table (1981) was used while considering the required statistical power, and initially 10 participants were estimated for each group. However, in order to increase internal validity and account for the possibility of participant attrition during the 12 treatment sessions and follow-up period, a total of 45 participants were selected. After matching participants based on demographic characteristics such as age and gender, they were randomly assigned to three groups of 15 participants each, including two experimental groups and one control group.

Following approval of the research proposal by the academic department and initial confirmation of the study protocol, the necessary legal and ethical procedures were undertaken. First, authorization to conduct the research was obtained from the university's research deputy, followed by the required coordination with counseling and psychological centers in District 20 of Tehran. After receiving written permission from the administrators of the relevant centers, an application for an ethical approval code was submitted to the university ethics committee. The informed consent forms, explanations regarding ethical considerations, procedures for maintaining participant confidentiality, and

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details of the therapeutic interventions were thoroughly reviewed, and after any necessary revisions, the ethical approval code was issued. Following receipt of the ethical approval code, the identification and recruitment phase began. After eligible individuals were identified, comprehensive explanations regarding the objectives of the study, the nature of the therapeutic interventions, the number and content of sessions, the duration of the study, participants' rights, confidentiality principles, and the voluntary nature of participation with the option to withdraw from the study at any time without consequences were provided to the adolescents and, where necessary, to their parents. Written informed consent was then obtained from the participants, and it was emphasized that the collected information would be used solely for research purposes and that participants' identities would remain completely confidential. In the next stage, eligible participants entered the pretest phase and completed the questionnaires related to the research variables, including self-injury. After completion of the pretest stage, the participants were matched based on demographic variables such as age and gender and other related variables and were then randomly assigned to three groups, including two experimental groups and one control group. Each experimental group consisted of 15 participants, one of which received Dialectical Behavior Therapy (Mehlum et al., 2016), while the other received Mentalization-Based Treatment (Malberg, 2021). The control group also consisted of 15 participants who were placed on a waiting list and received no therapeutic intervention throughout the research period. Following group allocation, therapeutic interventions were administered to the two experimental groups in a group format according to the standard protocols of each treatment approach. Dialectical Behavior Therapy (Table 1) and Mentalization-Based Treatment (Table 2) were each conducted in 12 regular weekly 60-minute sessions. The therapeutic sessions were implemented by a trained therapist with professional qualifications, and efforts were made to ensure that environmental conditions, including time, location, and educational facilities, were identical for both experimental groups. During the implementation of the sessions, participants' attendance and participation were recorded, and absence from more than three sessions was considered a criterion for exclusion from the study. Furthermore, participants who were unwilling to continue cooperation were withdrawn from the research process.

After completion of the therapeutic intervention period, the posttest phase was administered for all three groups, and participants again completed the research questionnaires. The pretest and posttest data were stored in coded form without participants' names in order to preserve confidentiality. The control group remained on the waiting list, and after the entire research process had been completed, therapeutic services were made available to this group if desired. In order to examine the durability of the therapeutic effects, the follow-up phase was conducted three months after the posttest. At this stage, participants in the two experimental groups were reassessed and completed the questionnaires related to the research variables. The data obtained from the follow-up stage were also recorded and maintained confidentially, similar to the previous stages. Finally, the collected data were entered into the appropriate statistical software, and after examining the statistical assumptions, descriptive and inferential statistical methods appropriate to the research design were used for data analysis.

2.2. Measures

Self-Injury Questionnaire: This questionnaire was developed by Klonsky and Glenn (2009) as a self-report instrument designed to assess the frequency and functions of non-suicidal self-injurious behaviors. The questionnaire evaluates the frequency of 12 different types of self-harming behaviors performed intentionally but without suicidal intent. These behaviors include hitting/banging, biting, burning, tattooing, cutting, wound picking, severe scratching, pinching, hair pulling, rubbing skin against rough surfaces, inserting sharp objects into the body, and ingesting dangerous chemicals. The test–retest reliability of this section over a period of 1 to 4 weeks was reported as 0.85. Furthermore, the internal consistency of the questionnaire items, assessed using Cronbach's alpha, was reported as 0.84 (Klonsky & Glenn, 2009). Responses to the questionnaire items (e.g., "I have intentionally poured acid on my skin" and "I have intentionally cut my skin with a razor or another sharp object") are scored on a three-point Likert scale ranging from completely unrelated to somewhat related and completely related. Therefore, each subscale receives a score ranging from 0 to 6. The total score is calculated by summing the subscale scores and dividing them by the number of subscales. In Iran, the questionnaire was examined by Saffarinia et al. (2021), and its reliability was calculated using Cronbach's alpha coefficient, yielding a value of 0.76. Additionally, the face and content validity of the questionnaire were evaluated and confirmed by

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experts. In the present study, the reliability of the questionnaire was calculated using Cronbach's alpha and was found to be 0.75.

2.3. Interventions

The Dialectical Behavior Therapy (DBT) intervention was implemented across 12 weekly 60-minute sessions. The first session focused on introducing the participants to the treatment goals and rules, explaining the DBT framework and the concept of the invalidating environment, and providing initial relaxation training to reduce emotional tension underlying self-injurious behaviors. In the second session, foundational mindfulness skills were taught with emphasis on their role in reducing impulsive and self-harming behaviors through short-term concentration and attention to a single stimulus. The third session aimed to increase awareness of emotions, thoughts, and bodily sensations associated with self-injury through thought-recording exercises and cognitive defusion techniques designed to create distance from self-harming impulses. The fourth session concentrated on describing emotions without judgment, strengthening moment-to-moment awareness, and teaching conscious attentional shifting to prevent escalation of emotional distress and self-injury. In the fifth session, distress tolerance and radical acceptance skills were introduced, and self-injurious behaviors were replaced with safe distraction strategies during periods of severe distress. The sixth session focused on self-soothing techniques using the five senses and mindful breathing, as well as differentiating thoughts from emotions to reduce the need for emotional discharge through self-injury. The seventh session addressed emotion regulation skills, including accurate identification of emotions and self-harming behaviors and nonjudgmental self-observation to reduce emotional dysregulation. The eighth session emphasized organizing emotions and thoughts without intense emotional involvement through practice in separating thoughts, emotions, and judgments to reduce obsessive thoughts related to self-injury. In the ninth session, interpersonal effectiveness skills were taught with particular focus on situations that trigger self-injurious behavior and the application of mindfulness in interpersonal interactions. The tenth session explored maladaptive communication styles and interpersonal conflicts associated with self-injury while teaching adaptive expression of needs and requests. The eleventh session emphasized adaptive confrontation with distressing emotions, assertiveness skills, and learning to say no, with the goal of reducing the use of self-injury as a means of emotion regulation or communication. The twelfth session reviewed and integrated all previously learned skills, with emphasis on maintaining therapeutic gains and preventing relapse of self-injurious behaviors. During the follow-up phase, the four core DBT skills were reinforced through systematic daily exercises and planning for the maintenance of emotional well-being after treatment termination.

The Mentalization-Based Treatment (MBT) intervention was also conducted in 12 weekly 60-minute sessions. The first session introduced the treatment process and the concept of mentalization, explained the relationship between impairments in mentalization and self-injurious behavior, and reviewed the reasons for referral and the therapeutic framework. The second session examined indicators of poor mentalization, difficulties in understanding one's own and others' mental states, and the role of these deficits in emotional dysregulation and self-injury. The third session focused on primary and secondary emotions and the role of emotional misinterpretation in the emergence of self-harming behaviors. In the fourth session, participants practiced mentalizing their own and others' emotions, recording emotions within relationships, and learning emotional self-regulation and management of intense emotional states associated with self-injury. The fifth session explored the role of attachment in emotion regulation and self-harming behaviors, particularly the relationship between insecure attachment patterns and self-injury. The sixth session addressed attachment conflicts and disruptions in mentalization, aiming to increase awareness of intense emotional reactions in close relationships. The seventh session explained the characteristics of borderline personality disorder in adolescents, with emphasis on mentalization deficits and self-injurious behaviors. The eighth session included specialized MBT exercises designed to strengthen mentalization abilities in emotional and interpersonal situations related to self-injury. The ninth session focused on attachment dimensions within MBT and the role of supportive relationships in reducing self-harming behaviors. The tenth session addressed the mentalization of anxiety and fear and their role in activating self-injury, while emphasizing emotion regulation through interpersonal support. The eleventh session focused on mentalizing depression and depressive thoughts associated with self-injury and increasing the capacity to understand mental states during periods of low mood. The twelfth and final session reviewed and practiced the mentalization skills

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acquired throughout treatment, with emphasis on maintaining treatment effects and preventing relapse of self-injurious behaviors.

2.4. Data Analysis

Data analysis was conducted using SPSS-26 software. At the descriptive level, descriptive statistical indices and frequency tables were used. At the inferential level, considering the assumptions of normality, homogeneity of variances, homogeneity of covariance matrices, and sphericity, multivariate analysis of variance (MANOVA) and a 3×3 mixed repeated-measures analysis of variance were employed to compare the groups across the three time points. Bonferroni post hoc tests were used for more detailed examination of group differences.

3. Findings and Results

Examination of the participants' demographic characteristics indicated that in the Mentalization-Based Treatment and control groups, 73.3% of participants were male and 26.7% were female, whereas in the Dialectical Behavior Therapy group, 60% were male and 40% were female; however, this difference was not statistically significant (p = .661). Regarding educational level, the majority of participants in all three groups were studying in lower secondary school (73.3%, 60%, and 53.3%, respectively), and the differences among groups were not statistically significant (p = .589). The mean age of participants in the Mentalization-Based Treatment group was 16.53 years (SD = 2.11), in the Dialectical Behavior Therapy group was 16.37 years (SD = 2.36), and in the control group was 15.47 years (SD = 2.45), with no statistically significant difference observed among the groups (p = .250). Overall, the three groups were relatively homogeneous with respect to the principal demographic characteristics, including gender, educational level, and age.

Table 1

Descriptive Statistics of the Self-Injury Variable by Group and Time

Variable	Time	Mentalization-Based Treatment Mean	SD	Dialectical Behavior Therapy Mean	SD	Control Mean	SD
Self-Injury	Pretest	56.73	13.01	57.00	14.16	56.80	13.76
	Posttest	55.60	12.29	44.33	13.62	56.67	13.85
	Follow-up	55.80	12.24	44.47	13.72	56.53	13.82

Table 1 demonstrates that the mean self-injury score in the Mentalization-Based Treatment group was 56.73 at pretest, which decreased to 55.60 at posttest and 55.80 at follow-up, indicating a slight reduction in self-injury scores. In the Dialectical Behavior Therapy group, the pretest mean was 57.00 and the posttest mean was 44.33, reflecting a noticeable reduction in self-injury scores at both posttest and follow-up stages. In the control group, the mean self-injury score did not show any substantial change across the three assessment phases.

Table 2

Results of Repeated-Measures Analysis for Examining the Effectiveness of the Interventions on Self-Injury

Variable	Source of Effect	Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Self-Injury	Group	44.28	2	14.22	0.617	.544	.029
	Time	49.08	1.11	44.34	7.27	.008	.148
	Time × Group	30.16	2.21	13.62	4.59	.042	.107

The results of the repeated-measures analysis for the self-injury variable presented in Table 2 indicated that the main effect of group was not statistically significant (F = 0.617, p = .544, ηp^2 = .029). Therefore, no overall significant difference was observed among the three groups in terms of mean self-injury scores. However, the main effect of time was statistically significant (F = 7.27, p = .008, ηp^2 = .148), suggesting that self-injury scores changed over time. Furthermore, the interaction effect of time × group was also significant (F = 4.59, p = .042, ηp^2 = .107), indicating that the pattern of changes in self-injury differed across the research groups.

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Table 3

Bonferroni Post Hoc Test for Comparing the Effectiveness of Interventions on Self-Injury at Posttest

Variable	Group	Adjusted Posttest Mean	Standard Error	Reference Group	Comparison Group	Mean Difference	p
Self-Injury	Mentalization-Based Treatment	5.66	0.587	Mentalization-Based Treatment	Control	-1.03	.664
	Dialectical Behavior Therapy	4.25	0.587	Dialectical Behavior Therapy	Control	-2.44	.016
	Control	6.69	0.587	Mentalization-Based Treatment	Dialectical Behavior Therapy	1.41	.290

Based on Table 3, the Bonferroni post hoc test results at posttest showed that a statistically significant difference existed only between the Dialectical Behavior Therapy group and the control group. Specifically, the adjusted mean self-injury score in the Dialectical Behavior Therapy group was 4.25, compared with 6.69 in the control group, and the mean difference of -2.44 was statistically significant (p = .016). In contrast, the differences between the Mentalization-Based Treatment group and the control group (-1.03, p = .664), as well as between the Mentalization-Based Treatment and Dialectical Behavior Therapy groups (1.41, p = .290), were not statistically significant. These findings indicate that at the posttest stage, Dialectical Behavior Therapy demonstrated greater effectiveness than the control condition in reducing self-injury.

Table 4

Post Hoc Pairwise Comparisons of Self-Injury Across Time

Variable	Group	Reference Time	Comparison Time	Mean Difference	p
Self-Injury	Mentalization-Based Treatment	Pretest	Posttest	1.13	.215
		Pretest	Follow-up	0.93	.318
		Posttest	Follow-up	-0.20	.424
	Dialectical Behavior Therapy	Pretest	Posttest	2.67	.022
		Pretest	Follow-up	2.53	.034
		Posttest	Follow-up	-0.13	.546
	Control	Pretest	Posttest	0.13	.499
		Pretest	Follow-up	0.27	.301
		Posttest	Follow-up	0.13	.499

According to Table 4, the results of pairwise comparisons across time indicated that in the Mentalization-Based Treatment group, none of the differences between pretest, posttest, and follow-up assessments were statistically significant (p > .05). In the Dialectical Behavior Therapy group, the differences between pretest and posttest (2.67, p = .022) and between pretest and follow-up (2.53, p = .034) were statistically significant; however, the difference between posttest and follow-up was not significant (-0.13, p = .546). Additionally, no statistically significant changes were observed across any of the assessment phases in the control group (p > .05), indicating the relative stability of self-injury scores in this group.

4. Discussion and Conclusion

The present study aimed to compare the effectiveness and durability of Mentalization-Based Treatment (MBT) and Dialectical Behavior Therapy (DBT) on self-injury among adolescents with self-harming behaviors. The findings demonstrated that although the main effect of group was not statistically significant, the effects of time and the interaction between time and group were significant. More specifically, the results of the Bonferroni post hoc test revealed that only the DBT group showed a statistically significant reduction in self-injury scores compared with the control group at the posttest stage. Furthermore, pairwise comparisons across time indicated that significant improvements in self-injury occurred only within the DBT group between pretest and posttest and between pretest and follow-up, while no

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significant changes were observed in the MBT or control groups. These findings suggest that DBT was more effective than MBT in reducing self-injurious behaviors among adolescents and that its therapeutic effects remained relatively stable during the follow-up period.

The superiority of DBT in reducing self-injury can be explained through the central theoretical assumptions of this intervention. DBT conceptualizes self-harming behaviors as maladaptive strategies for coping with overwhelming emotional states, interpersonal invalidation, impulsivity, and psychological distress (Ip et al., 2024; Mehlum et al., 2016). Adolescents who engage in self-injury often exhibit significant difficulties in regulating emotions, tolerating distress, and expressing psychological needs adaptively, leading them to rely on self-harm as an immediate but dysfunctional mechanism for emotional relief (Dibaj et al., 2024; Weatherford et al., 2024). The structured skills-training components of DBT, including mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness, directly target these deficits and provide adolescents with practical and immediately applicable coping strategies (Damavandian et al., 2021; Kothgassner et al., 2021). Through repeated behavioral practice and reinforcement, participants gradually learn to replace impulsive self-destructive responses with adaptive methods of emotional regulation and interpersonal communication. Consequently, the reduction in self-injury observed in the DBT group may reflect improvements in emotional self-control, increased tolerance for psychological distress, and enhanced interpersonal functioning.

The present findings are consistent with previous empirical evidence supporting the effectiveness of DBT for adolescents with self-harming and suicidal behaviors. The randomized clinical trial conducted by Mehlum et al. demonstrated that DBT significantly reduced repeated suicidal and self-harming behaviors among adolescents compared with enhanced usual care (Mehlum et al., 2016). Similarly, the meta-analysis conducted by Kothgassner et al. concluded that DBT is associated with meaningful reductions in adolescent self-harm and suicidal ideation (Kothgassner et al., 2021). The current findings are also aligned with the study by Damavandian et al., who reported that DBT improved emotional self-regulation and reduced self-harming behaviors among delinquent adolescents in Tehran (Damavandian et al., 2021). Moreover, recent investigations have emphasized the mediating role of emotion regulation improvement in the effectiveness of DBT. Ip et al. found that reductions in emotion dysregulation and interpersonal dysfunction during DBT significantly contributed to decreases in non-suicidal self-injury (Ip et al., 2024). Likewise, Weatherford et al. demonstrated that reductions in shame and anger during DBT were associated with lower urges for self-injury among individuals with borderline personality disorder (Weatherford et al., 2024). The convergence of these findings suggests that DBT effectively addresses the emotional and interpersonal mechanisms underlying adolescent self-harm.

Another important finding of the present study was the durability of DBT effects during the follow-up phase. The absence of significant differences between posttest and follow-up scores in the DBT group indicates that treatment gains remained relatively stable over time. This finding may be explained by the emphasis of DBT on behavioral rehearsal, daily skill application, and generalization of coping strategies to real-life situations. Unlike interventions that focus primarily on insight or emotional exploration, DBT incorporates practical behavioral exercises that adolescents can continue using after treatment termination. Such continuity of coping skill utilization may help protect adolescents from relapse when confronted with emotional distress or interpersonal conflict. The stability of DBT outcomes observed in the present study is also supported by previous evidence indicating that sustained improvements in emotional regulation contribute to long-term reductions in self-harming behavior (Dibaj et al., 2024; Shahhosseini et al., 2025). Furthermore, systematic review findings suggest that DBT's structured approach may facilitate maintenance of therapeutic gains by increasing adolescents' confidence in managing emotional crises independently (Shahhosseini et al., 2025).

In contrast to DBT, the present findings indicated that MBT did not produce statistically significant reductions in self-injury. Although the mean self-injury scores in the MBT group decreased slightly across time, these changes did not reach statistical significance. Several explanations may account for this finding. First, MBT primarily focuses on improving reflective functioning and enhancing understanding of mental states rather than directly teaching concrete behavioral coping strategies (Balzen & Sharp, 2024; Malberg, 2021). Although deficits in mentalization are strongly associated with self-injury, changes in reflective capacity may require a longer therapeutic process before measurable behavioral improvements emerge. Adolescents with chronic self-harming patterns may need more intensive or prolonged intervention to translate gains in mentalization into observable reductions in self-injury. Therefore, the

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duration of the current intervention may not have been sufficient for MBT to produce substantial behavioral change.

Second, adolescents engaging in self-harming behaviors often experience severe emotional dysregulation and impulsivity that may require immediate symptom-focused interventions. DBT directly addresses these acute difficulties through structured emotion regulation and distress tolerance skills, whereas MBT focuses more extensively on understanding emotional experiences and interpersonal mental states (Balzen & Sharp, 2024; Sundar & Bhola, 2022). Consequently, adolescents with severe self-harm may initially benefit more from interventions that provide concrete strategies for managing emotional crises. The present findings may therefore reflect differences in the immediacy of therapeutic impact between DBT and MBT. This interpretation is partially consistent with previous research suggesting that MBT demonstrates variable effectiveness depending on symptom severity, diagnostic profile, and duration of treatment (Mohajerin et al., 2024; Weijers et al., 2023). Although MBT has shown promising effects in improving emotional awareness and interpersonal functioning, its influence on repetitive self-injurious behaviors among adolescents may require longer-term implementation.

Nevertheless, the absence of statistically significant findings for MBT should not necessarily be interpreted as evidence of ineffectiveness. Previous studies have reported beneficial outcomes of MBT for adolescents with emotional dysregulation and borderline personality features. Griffiths et al. found that MBT group therapy improved emotional functioning and reduced psychological difficulties among adolescents (Griffiths et al., 2019, 2021). Additionally, Balzen and Sharp emphasized the importance of mentalization processes in understanding and treating self-injurious behaviors among young people (Balzen & Sharp, 2024). Sundar and Bhola also demonstrated that mentalization mediates the relationship between maladaptive personality traits and non-suicidal self-injury (Sundar & Bhola, 2022). Furthermore, Zarei et al. reported that MBT contributed to reductions in impulsivity among adolescents with self-injurious behaviors (Zarei et al., 2025). These findings suggest that MBT may still have therapeutic value, particularly in improving reflective functioning, attachment security, and emotional awareness, even if immediate reductions in self-injury are less pronounced than those achieved through DBT.

The current findings may also be interpreted within broader developmental and psychosocial frameworks. Adolescence is characterized by heightened emotional reactivity, identity instability, and increased sensitivity to interpersonal experiences (Rice et al., 2019; Sharifian et al., 2021). During this developmental period, many adolescents lack mature coping skills for managing intense emotions and interpersonal conflict, increasing vulnerability to maladaptive coping behaviors such as self-injury. Trauma exposure, attachment insecurity, emotional neglect, and identity confusion further intensify this vulnerability (Raemen et al., 2021). Moreover, emotional and behavioral difficulties among adolescents are often associated with broader psychosocial stressors, including family conflict, academic pressure, social rejection, and psychological distress (Aboobaker et al., 2019; Liu et al., 2019). DBT may therefore demonstrate greater immediate effectiveness because it equips adolescents with practical coping tools that directly target these daily stressors and emotional crises.

The present findings also underscore the importance of emotion regulation as a central therapeutic target in interventions for self-harming adolescents. Previous studies have repeatedly emphasized that emotional dysregulation is one of the strongest predictors of self-injury and suicidal ideation (Dibaj et al., 2024; Ip et al., 2024). Improvements in mindfulness, emotional awareness, self-compassion, and adaptive coping capacities have been associated with reduced psychological distress and emotional-behavioral problems among adolescents (Huang et al., 2019; Sun et al., 2016). The skills-based orientation of DBT may therefore be particularly well-suited for adolescents who require immediate strategies for regulating emotional distress and reducing impulsive self-destructive behaviors. In contrast, MBT may exert more gradual effects through deeper changes in reflective functioning and interpersonal understanding.

Overall, the findings of the present study indicate that although both interventions were associated with some reduction in self-injury scores, DBT demonstrated significantly greater effectiveness and stronger durability of treatment effects compared with MBT. These findings highlight the importance of structured emotion regulation training and behavioral coping strategies in the treatment of adolescents with self-harming behaviors. Given the serious psychological consequences associated with repetitive self-injury and its strong relationship with future suicidal risk, identifying interventions with sustained effectiveness is of considerable clinical importance. The present results contribute to the growing body of evidence supporting DBT as a highly effective intervention for reducing adolescent

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self-harm while also suggesting that MBT may require longer duration or additional supportive components to achieve comparable behavioral outcomes.

One of the limitations of the present study was the relatively small sample size, which may limit the generalizability of the findings to broader adolescent populations. The use of purposive sampling and recruitment from counseling centers in a single district of Tehran may also reduce external validity. Another limitation concerns reliance on self-report measures, which may be influenced by social desirability, recall bias, or underreporting of self-harming behaviors. In addition, the follow-up period was limited to three months, making it difficult to evaluate the long-term stability of treatment outcomes over extended periods. The absence of assessment of family dynamics, trauma history, and comorbid psychiatric conditions may also have limited the comprehensiveness of the findings.

Future studies are recommended to use larger and more diverse samples drawn from different cultural and clinical settings to enhance the generalizability of findings. Researchers may also benefit from employing longer follow-up periods to examine the durability of treatment outcomes over time. Comparative studies investigating the combined or sequential use of DBT and MBT may provide valuable insights into whether integration of these approaches enhances treatment effectiveness. Additionally, future investigations should examine the mediating roles of attachment security, reflective functioning, emotional regulation, and family relationships in treatment response among adolescents with self-harming behaviors.

From a practical perspective, the findings of the present study suggest that clinicians and mental health professionals working with adolescents exhibiting self-injurious behaviors may prioritize DBT as an effective intervention for reducing self-harm and improving emotional regulation. Schools, counseling centers, and adolescent mental health services may also benefit from implementing structured DBT-based programs focused on emotion regulation, distress tolerance, and interpersonal effectiveness skills. Early identification of emotional dysregulation and self-harming tendencies among adolescents may further contribute to prevention of chronic psychological difficulties and escalation toward suicidal behaviors. In addition, incorporating family education and supportive interpersonal interventions alongside therapeutic programs may strengthen treatment outcomes and facilitate long-term emotional adjustment among adolescents.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the study and participated in the research with informed consent.

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