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Comparing the Efficacy of Skills Training Based on Dialectical Behavior Therapy (DBT-ST) and Mindfulness-Based Cognitive Therapy (MBCT) on Distress Tolerance and Psychological Well-being in Individuals with Symptoms of Borderline Personality Disorder

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A B S T R A C T

Objective: Borderline Personality Disorder is a pervasive pattern of instability in interpersonal relationships, self-image, affect, and marked impulsivity beginning in early adulthood. The current study aimed to compare the efficacy of skills training based on Dialectical Behavior Therapy (DBT-ST) and Mindfulness-Based Cognitive Therapy (MBCT) on distress tolerance and psychological well-being in individuals with symptoms of Borderline Personality Disorder.

Methods and Materials: This study was a quasi-experimental research with a pre-test-post-test design accompanied by a control group. The population consisted of all 18 to 45-year-old clients who visited counseling centers in Sari city in the first six months of the year 2022 and had a case file, among all individuals those who were willing to cooperate and had full consent for cooperation, 45 individuals were selected through purposive non-random sampling and then randomly assigned into three groups. To collect data, the Simons and Gaher (2005) Distress Tolerance Questionnaire and Ryff's (1980) Psychological Well-being Questionnaire were used. The first experimental group underwent skills training based on Dialectical Behavior Therapy by McKay, Wood, & Brantley (2007) in 12 weekly 90-minute group sessions, while the second experimental group underwent Mindfulness-Based Cognitive Therapy by Williams et al. (2002) in 8 weekly 90-minute group sessions. For data analysis, statistical tests with SPSS software, version 22, were used.

Findings: The results indicated that skills training based on Dialectical Behavior Therapy and Mindfulness-Based Cognitive Therapy were effective on distress tolerance ($p = 0.001$) and psychological well-being ($p = 0.001$) in individuals with symptoms of Borderline Personality Disorder.

Conclusion: There was a significant difference in the efficacy of skills training based on Dialectical Behavior Therapy and Mindfulness-Based Cognitive Therapy on distress tolerance and psychological well-being between the two experimental groups and the control group.

Keywords: *Dialectical Behavior Therapy, Mindfulness-Based Cognitive Therapy, Distress Tolerance, Psychological Well-being, Borderline Personality Disorder.*

1. Introduction

Borderline Personality Disorder: A pervasive pattern of instability in interpersonal relationships, self-image, emotions, and marked impulsivity beginning in early adulthood (APA, 2022). Symptoms of Borderline Personality Disorder are clustered into five core domains: affect, interpersonal relations, behavior, and a sense of self. The disorder is distinguished by turmoil in self-concept and chronic feelings of emptiness and worthlessness, with self-harm attempts being a primary indicator of the disorder (Alden, 2008; Fox, 2022).

Emotional distress tolerance, a common construct for research in emotional dysregulation, is defined as an individual's ability to experience and bear negative emotional states. Indeed, emotional distress tolerance is an individual difference variable that refers to the capacity to experience and withstand emotional discomfort. Increasingly, emotional distress tolerance is seen as an important construct in understanding the onset and maintenance of psychological disorders, as well as in their prevention and treatment. Individuals with low emotional distress tolerance engage in maladaptive behaviors to cope with their negative emotions, resorting to harmful behaviors such as substance abuse to alleviate their emotional pain (Zamani et al., 2015). Low levels of emotional distress tolerance are associated with Borderline Personality Disorder. Furthermore, emotional distress tolerance is a critical mediating factor in the relationship between Borderline Personality Disorder and suicidality, considered an important component in Dialectical Behavior Therapy to reduce suicidal behaviors in patients chronically engaging in such behaviors (Zamani et al., 2015).

Psychological well-being refers to the quality of experienced life and reflects optimal psychological functioning and experience. Psychological well-being is seen from a social psychology perspective as a sense of satisfaction (Collard et al., 2008; Frank et al., 2015) defined as welfare, happiness, and the individual's achievement of their full potential, including life satisfaction, positive and negative affect, and happiness (Soleimani & Arman Panah, 2015; Weinstein et al., 2009). According to Ryff, the construct of psychological well-being is considered the actualization of an individual's true potentials and includes six components: purpose in life, positive relations with others, personal growth, self-acceptance, autonomy, and environmental mastery (Ryff & Keyes, 1995; Ryff & Singer, 2006). Some researchers consider this construct as the individual's experience of fulfilling their goals. Given that psychological well-being has many positive psychological outcomes, examining factors affecting it is of great importance (Bailey et al., 2015; Collard et al., 2008).

Dialectical Behavior Therapy (DBT) has attracted researchers' and psychologists' attention in the last decade as a third-generation cognitive-behavioral approach, developed by Marsha Linehan, originally designed to treat suicidal and self-harming behaviors in women with Borderline Personality Disorder. Over the past 15 years, DBT has been applied to a relatively wide range of other disorders (McKay et al., 2007; Zamani et al., 2015).

Mindfulness-Based Cognitive Therapy teaches patients how to transform habitual, automatic mind rumination patterns into thoughtful and intentional mind patterns as soon as they are identified, viewing negative thoughts and feelings from a broader perspective as simple transient events in the mind. It is a group therapy program accompanied by daily homework assignments between therapy sessions (Frostadottir & Dorjee, 2019; Galhardo et al., 2013). Mindfulness-Based Cognitive Therapy is a skill-training program that helps clients identify and detach from mental states characterized by self-sustaining patterns of ruminative and negative thoughts, aiding clients in shifting their perspective towards experiences, including depressive experiences, from avoidance to openness, curiosity, and acceptance. Meditation practices derived from MBSR and psychological training methods from traditional cognitive therapy, along with group discussions, facilitate these goals (Didonna, 2009).

The findings of Zamani and colleagues (2018) indicated that Dialectical Behavior Therapy leads to improvements in distress tolerance and cognitive regulation of emotion (Zamani et al., 2015). It can be said that few studies have compared the effectiveness of skills training based on Dialectical Behavior Therapy and Mindfulness-Based Cognitive Therapy on the three dependent variables of cognitive emotion regulation, distress tolerance, and

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psychological well-being in individuals with symptoms of Borderline Personality Disorder, which is addressed in this study. The current research aims to examine whether there is a difference in the effectiveness of skills training based on Dialectical Behavior Therapy (DBT-ST) and Mindfulness-Based Cognitive Therapy (MBCT) on cognitive emotion regulation, distress tolerance, and psychological well-being in individuals with symptoms of Borderline Personality Disorder.

2. Methods and Materials

2.1. Study Design and Participants

The method of this research was a quasi-experimental design with a pre-test-post-test (two experimental groups and one control group) structure, where skills training based on Dialectical Behavior Therapy and Cognitive Therapy based on Mindfulness were applied to the two experimental groups, and the control group did not receive any treatment. Subsequently, a follow-up test was conducted after two months. The control group, considered a waiting list, underwent Mindfulness-Based Cognitive Therapy after the completion of the research and the follow-up test. The population included all 18 to 45-year-old clients who visited counseling centers in Sari city in the first six months of 2022 and had a case file. Out of all individuals, those who were willing to cooperate and had full consent for cooperation, 45 individuals were selected through purposive non-random sampling.

The sample size, considering the population size based on the following equation and values obtained from previous research with $\sigma = 4.67$, $d^2 = 4.507$, $\alpha = 0.05$, and Power = 0.90, was estimated to be 12.99, which in this research, considering the possibility of dropouts, was overestimated to 15 individuals per group. For sample selection, initially, the Rawlings et al. (2001) Borderline Personality Scale (Fox, 2022) questionnaire was administered among the population, and from those, 45 patients who exhibited symptoms of Borderline Personality Disorder were selected through purposive sampling after reviewing entry criteria and randomly divided into three groups of 15 (15 in experimental group 1, 15 in experimental group 2, and 15 in the control group). Data collection methods included both library and field methods. For data collection, the Simons and Gaher (2005) Distress Tolerance Questionnaire and the Ryff (1980) Psychological Well-Being Questionnaire were used. The Dialectical Behavior Therapy-based skills training group (2003) was conducted in 12 weekly 90-minute group sessions, and the Mindfulness-Based Cognitive Therapy by Williams et al. (2002) was conducted in 8 weekly 90-minute group sessions. At the end of the sessions, individuals from all three groups were separately invited for a post-test. After two months, all individuals responded to the Garnefski Cognitive Emotion Regulation questionnaire for the third time (follow-up phase).

Ethical standards were adhered to in this research by obtaining patients' consent for participation and assuring the confidentiality of information obtained. Participants interested in knowing their psychological status were provided only with their scores, thus participating with informed consent. The control group was assured of receiving intervention post-research if desired.

2.2. Measures

2.2.1. Distress Tolerance

The tool used to gather information on distress tolerance was the DTS questionnaire, a self-assessment index of emotional distress tolerance developed by Simons and Gaher in 2005. This 15-item questionnaire assesses distress tolerance based on an individual's ability to tolerate emotional distress, cognitive assessment of distress, attention to negative emotions upon occurrence, and regulatory actions to alleviate distress. Items are scored on a five-point Likert scale. High scores indicate high distress tolerance. The total distress tolerance score is obtained by summing all question scores, and scores for each dimension are obtained by summing the questions corresponding to that dimension. High scores in each subscale indicate higher distress tolerance in that subscale (Zamani et al., 2015).

2.2.2. Psychological Well-being

The Ryff Psychological Well-Being Questionnaire (1980) consists of 84 items designed based on the psychological well-being model and comprises six factors: purpose in life, positive relations with others, personal growth, self-acceptance, autonomy, and environmental mastery. The questionnaire is rated on a 5-point scale (strongly disagree to strongly agree), with reliability obtained using Cronbach's alpha of 0.93. This questionnaire has been standardized in a population of 850 individuals in 2012 by Kalantarkousheh and Navarbafi, reporting a total alpha of 0.92 (Soleimani & Arman Panah, 2015).

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2.3. Interventions

2.3.1. Skills Training Based on Dialectical Behavior Therapy

The Dialectical Behavior Therapy-based skills training followed the protocol by McKay, Wood, & Brantley (2007); and Linehan (1992) in 12 weekly 90-minute sessions (Linehan, 1992; McKay et al., 2007).

Session 1: Introduction and Mindfulness Skills: The initial session introduced participants to the DBT framework, emphasizing the importance of mindfulness as the foundation of emotional regulation and distress tolerance. Participants learned to observe, describe, and participate in their experiences without judgment.

Session 2: Core Mindfulness Skills (Continued): Building on the first session, deeper mindfulness exercises were introduced to help participants increase their awareness of the present moment and reduce impulsivity.

Session 3: Distress Tolerance Skills - Part 1: Focused on teaching strategies for tolerating painful emotions and situations without attempting to change them. Techniques such as self-soothing with the senses and distraction with activities were explored.

Session 4: Distress Tolerance Skills - Part 2: Continued from the previous session, introducing the concept of pros and cons of tolerating distress versus not tolerating it, and accepting reality as it is through radical acceptance.

Session 5: Emotion Regulation Skills - Part 1: Introduced the concept of identifying and labeling emotions, increasing positive emotional events, and decreasing vulnerability to emotion mind.

Session 6: Emotion Regulation Skills - Part 2: Expanded on strategies to manage and change intense emotions that are causing problems in a person's life, including opposite action and problem-solving.

Session 7: Interpersonal Effectiveness Skills - Part 1: Focused on techniques to improve relationships and interpersonal problems, emphasizing being skillful in asking for what one needs, saying no, and coping with interpersonal conflict.

Session 8: Interpersonal Effectiveness Skills - Part 2: Built on the skills from the previous session, focusing on maintaining self-respect and relationships with others while achieving objectives.

Sessions 9-12: Integration and Application: The final sessions aimed at integrating all skills learned throughout the program into daily life. Participants engaged in role-plays, shared experiences, and discussed challenges and successes in applying DBT skills. The facilitator provided feedback and strategies for maintaining gains and continuing skill development beyond the program.

2.3.2. Mindfulness-Based Cognitive Therapy

Mindfulness-Based Cognitive Therapy was conducted following the protocol by Williams et al. (2017) in 8 weekly 90-minute sessions (Williams, 2017).

Session 1: Introduction to Mindfulness: The first session introduced the concept of mindfulness, emphasizing the importance of living in the present and the distinction between being and doing modes of mind.

Session 2: Mindfulness of the Breath and Body: Participants were guided in mindfulness meditation focusing on breath and body sensations, aiming to cultivate awareness of the present moment and bodily sensations without judgment.

Session 3: Mindfulness in Daily Life: This session aimed to integrate mindfulness practices into daily activities, encouraging participants to bring mindful awareness to routine tasks and activities.

Session 4: Dealing with Barriers: Addressed common barriers to mindfulness practice, including wandering mind, boredom, and physical discomfort. Techniques to overcome these barriers were discussed.

Session 5: Mindfulness of Thoughts: Participants learned to observe their thoughts as mental events that come and go, without necessarily believing them or letting them define reality. This session aimed to reduce identification with negative thought patterns.

Session 6: Mindfulness of Emotions: Focused on allowing emotions to be present without over-identifying with them or pushing them away. Participants practiced responding to emotions with curiosity and acceptance.

Session 7: Cultivating Compassion: Emphasized the importance of self-compassion and kindness towards oneself and others. Practices aimed at developing a compassionate and non-judgmental stance towards personal experiences.

Session 8: Maintaining and Extending New Learning: The final session reviewed the skills and practices learned throughout the program and discussed strategies for maintaining mindfulness practice and integrating mindfulness into daily life to prevent relapse of emotional distress.

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2.4. *Data analysis*

Data were collected using questionnaires, medical records, interviews, and analyzed using descriptive (mean and standard deviation) and inferential statistics (repeated measures ANOVA) with SPSS V22 software.

3. Findings and Results

The mean (standard deviation) age of participants was 39.7 (9.4) for the experimental group and 37.2 (7.9) for the control group. In this section, descriptive findings of the mean and standard deviation of scores for the pre-test, post-test, and follow-up, specifically for cognitive emotion regulation in individuals with symptoms of Borderline Personality Disorder, are presented, differentiated between the two experimental groups and the control group.

Table 1

Mean and Standard Deviation of Scores for Pre-test, Post-test, and Follow-up on Cognitive Emotion Regulation in Experimental and Control Groups

Variable	Group	Pre-test		Post-test		Follow-up	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Distress Tolerance	Experimental (DBT-ST)	42.50	2.27	49.07	1.68	49.36	1.64
	Experimental (MBCT)	42.57	2.20	53.14	1.65	53.57	1.95
	Control	41.00	2.41	41.43	2.27	41.64	2.17
Psychological Well-being	Experimental (DBT-ST)	263.29	14.59	292.21	14.71	292.54	15.07
	Experimental (MBCT)	262.64	11.15	280.50	8.40	280.86	8.52
	Control	262.29	8.51	263.29	11.59	263.50	11.58

To compare the efficacy of skills training based on Dialectical Behavior Therapy and Mindfulness-Based Cognitive Therapy on distress tolerance and psychological well-being in individuals with symptoms of Borderline Personality Disorder at pre-test, post-test, and follow-up stages, repeated measures ANOVA was used (one within-subjects factor and one between-subjects factor). The three stages of pre-test, post-test, and follow-up were considered as the within-subjects factor, and the grouping of subjects into three groups was considered as the between-subjects factor. It is noteworthy that for reporting the analysis, one can either use multivariate tests or univariate statistics. This report utilized the former approach, requiring the assumption of sphericity and presenting multivariate tests. To examine significant differences between mean distress tolerance and psychological well-being scores across the two groups at the three stages of treatment, assumptions of variance homogeneity and sphericity were checked first.

The results of the multivariate repeated measures ANOVA showed that the between-subjects effect (group) was significant, indicating that at least one of the groups differs from the others in at least one of the variables of distress tolerance and psychological well-being. The within-subjects effect (time) for the research variables was also significant, meaning that there was a change in at least one of the mean variables from the pre-test to the follow-up. A summary of the repeated measures ANOVA results for within-group and between-group factors is presented in Table 2.

Table 2

Summary of Results from Mixed ANOVA with Grouping, Treatment Stages, and Interaction

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	Significance	Effect Size
Distress Tolerance	Group	1539.635	2	769.635	83.963	0.01	0.812
	Treatment Stages	798.583	1	798.583	319.550	0.01	0.891
	Group and Treatment Stages Interaction	380.452	2	190.226	76.118	0.01	0.796
Psychological Well-being	Group	1889.540	2	944.540	14.943	0.01	0.434
	Treatment Stages	5586.012	1	5586.012	50.983	0.01	0.576
	Group and Treatment Stages Interaction	2838.381	2	1419.226	12.953	0.01	0.399

The results in Table 2 indicate that the calculated F value for the effect of stages (pre-test, post-test, and follow-up) is significant at the 0.01 level. Specifically, there was a significant difference in the interaction between group and

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treatment stages for both distress tolerance and psychological well-being. Therefore, there is a significant difference between the mean scores of pre-test, post-test, and follow-up scores for distress tolerance and psychological well-being in individuals with symptoms of Borderline Personality Disorder across the three treatment stages. Bonferroni post-hoc tests were conducted to examine differences between means at different treatment stages.

Table 3

Summary of Bonferroni Post-hoc Test Results for Determining Differences Between Pre-test, Post-test, and Follow-up

Pre-test	Stage 1	Stage 2	Mean Differences	Standard Error	Significance
Distress Tolerance	Pre-test	Post-test	2.738	0.405	0.001
	Pre-test	Follow-up	2.810	0.410	0.001
	Post-test	Follow-up	0.071	0.064	0.807
Psychological Well-being	Pre-test	Post-test	1.429	0.375	0.001
	Pre-test	Follow-up	1.500	0.380	0.001
	Post-test	Follow-up	0.070	0.041	0.274

Results in Table 3 show that there is a significant difference between the scores of distress tolerance and psychological well-being in individuals with symptoms of Borderline Personality Disorder from the pre-test to the post-test and from the pre-test to the follow-up. The difference between the post-test and the follow-up was not significant, indicating treatment stability. Comparisons of means demonstrate that distress tolerance and psychological well-being in individuals with symptoms of Borderline Personality Disorder are significantly different in the post-test and follow-up stages compared to the pre-test stage.

Table 4

Summary of Tukey's Post-hoc Test Results for the Two Experimental Groups

Variable	Groups	Mean Differences	Standard Error	Significance
Distress Tolerance	MBCT Group - DBT Group	1.048	0.790	0.557
Psychological Well-being	MBCT Group - DBT Group	0.952	0.578	0.322

Results in Table 4 show that there is a significant difference between the scores of distress tolerance and psychological well-being in individuals with symptoms of Borderline Personality Disorder between the MBCT experimental group and the DBT experimental group. Given the mean indices and effect size obtained, the MBCT treatment resulted in greater changes in distress tolerance and psychological well-being in individuals with symptoms of Borderline Personality Disorder, indicating that this treatment is stronger than DBT in this group of individuals.

4. Discussion and Conclusion

The aim of the present study was to compare the efficacy of skills training based on Dialectical Behavior Therapy (DBT-ST) and Mindfulness-Based Cognitive Therapy (MBCT) on distress tolerance and psychological well-being in individuals with symptoms of Borderline Personality Disorder. The results showed a significant difference in distress tolerance scores among individuals with symptoms of Borderline Personality Disorder between the MBCT experimental group and the DBT-ST experimental group, with MBCT leading to greater changes in regulation and assessment in individuals with symptoms of Borderline Personality Disorder, indicating that this treatment is stronger than DBT-ST for this group of patients. Moreover, both treatments led to an increase in psychological well-being in individuals with symptoms of Borderline Personality Disorder, indicating significant differences in psychological well-being scores from pre-test to post-test and from pre-test to follow-up, with no significant difference between post-test and follow-up due to treatment stability. The findings are consistent with prior research (Collard et al., 2008; Creswell et al., 2019; Dalili & Bayazi, 2019; Davis & Hayes, 2011; Didonna, 2009; Frank et al., 2015; Frostadottir & Dorjee, 2019; Galhardo et al., 2013; Gleig, 2009; Godfrin & van Heeringen, 2010; Goldberg et al., 2019; Kabat-Zinn, 2003; McKay et al., 2007; Morton et al., 2012; Segal et al., 2018; Weinstein et al., 2009; Williams, 2017; Zamani et al., 2015; Zemestani & Fazeli Nikoo, 2019).

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It can be explained that one mechanism that could effectively increase distress tolerance in individuals with symptoms of Borderline Personality Disorder is the improvement of emotion regulation skills. Mindfulness-Based Cognitive Therapy helps individuals face their negative emotions, thereby improving their distress tolerance. Mindfulness-based interventions, through meditation techniques like mindfulness of breathing and increased awareness of present experiences, assist individuals in finding the ability to cope with crisis situations, accepting their physical and emotional turmoil in both the short and long term. On the other hand, many mindfulness exercises, including body scans or certain yoga practices, help individuals accept their negative physical sensations, such as pain and muscle tension. Throughout these practices, individuals learn to accept their direct sensory experiences instead of getting caught in the mind's reaction of avoiding turmoil, thereby increasing body awareness and reducing mental distress. According to Linehan et al. (2015), Dialectical Behavior Therapy skills training acts as a positive emotional regulation method, decreasing negative emotions and replacing them with positive ones, thereby enhancing psychological well-being through improved self-perception, especially in emotional and affective domains, against stressful situations and conditions (Linehan et al., 2015).

5. Limitations & Suggestions

Physical and psychological problems of Borderline Personality Disorder posed limitations during the research, especially during therapeutic sessions, limiting the generalizability of the results to other patients with different problems or disorders. The limited empirical and controlled research on Dialectical Behavior Therapy was another limitation. Future research should be conducted in a larger geographical area for more generalizable results. It's recommended that specialists consider Dialectical Behavior Therapy and Mindfulness-Based Cognitive Therapy as effective complementary treatments. Future research should utilize other therapeutic approaches for comparison. It's also suggested that future research employs a specialist as a therapist to minimize bias and consider qualitative research (grounded theory based on semi-structured interviews) for deeper insights. It's recommended that future research follows up individual counseling after group training.

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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. Patients were free to withdraw from the research at any time. This study was conducted with the ethical approval code IR.IAU.SARI.REC.1400.136 from the Ethics Committee of Islamic Azad University, Sari Branch.

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 in this article.

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