KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 23 July 2024
Revised 15 September 2024
Accepted 22 September 2024
Published online 01 October 2024

Psychology of Woman Journal

Volume 5, Issue 4, pp 131-140

PWJ Psychology of Woman Journal

E-ISSN: 3041-8515

Comparison of the Effectiveness of Acceptance and Commitment Therapy and Transdiagnostic Treatment on Psychological Distress and Mindfulness in Women with Multiple Sclerosis

Mojgan. Navaei[1], Mohammad Kazem. Fakhri[2*], Bahram. Mirzaian[2]

[1] PhD Student, Department of Psychology, Sari Branch, Islamic Azad University, Sari, Iran
[2] Assistant Professor, Department of Psychology, Sari Branch, Islamic Azad University, Sari, Iran

*** Corresponding author email address**: mk.fakhri@iau.ac.ir

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Navaei, M., Fakhri, M. K., & Mirzaian, B. (2024). Comparison of the Effectiveness of Acceptance and Commitment Therapy and Transdiagnostic Treatment on Psychological Distress and Mindfulness in Women with Multiple Sclerosis. *Psychology of Woman Journal*, *5*(4), 131-140.
http://dx.doi.org/10.61838/kman.pwj.5.4.15

A B S T R A C T

Objective: The present study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Transdiagnostic Treatment on psychological distress and mindfulness in patients with Multiple Sclerosis (MS).

Methods and Materials: This was a quasi-experimental study with a pretest-posttest and follow-up design, including a control group. The study population consisted of all women aged 20 to 40 with MS who were members of the Amol MS Society during the first six months of 2023. The research sample included 48 individuals with MS, who were selected through convenience sampling and randomly assigned to two experimental groups and one control group. The research instruments included the Kessler Psychological Distress Scale (Kessler, 2002) and the Baer et al. Mindfulness Questionnaire (Baer et al., 2006). Data were analyzed using repeated measures analysis of covariance (ANCOVA) and Bonferroni post hoc tests, with the aid of SPSS software version 24.

Findings: The results indicated that there were significant differences between the effects of ACT, Transdiagnostic Treatment, and the control group on the variables of psychological distress and mindfulness ($P < 0.05$). Moreover, the post hoc test results suggested that Transdiagnostic Treatment had a more substantial therapeutic effect on improving mindfulness in patients with MS compared to ACT. The two-month follow-up demonstrated the stability of the study results.

Conclusion: The effectiveness of both approaches suggests that clinicians and treatment teams can mitigate the severity of psychological and emotional symptoms associated with chronic illnesses by integrating psychological treatment approaches alongside biological therapies, thereby facilitating the treatment process.

Keywords: *Acceptance and Commitment Therapy, Transdiagnostic Treatment, Multiple Sclerosis, Psychological Distress, Mindfulness.*

1. Introduction

Multiple Sclerosis (MS) is a long-term central nervous system disease and one of the most common neurological disorders in humans. The most prevalent onset period is in young adulthood (ages 20 to 40) and it is more common in men (Dobson & Giovannoni, 2019). The National Multiple Sclerosis Society of the United States reported that approximately 2.5 million people worldwide are affected by MS, with 200 new cases added weekly (Patel et al., 2024). Previous studies have shown that nearly half of MS patients suffer from mental health issues, including emotional and affective problems (Silveira et al., 2019), with psychological distress being one of the most common emotional and affective problems among MS patients (Silveira et al., 2019). Psychological distress is characterized by symptoms such as low mood, stress, anxiety, depression, and other psychiatric conditions (Blay et al., 2024) and is highly prevalent among individuals with MS. Psychological distress is evident at all stages of the disease and significantly impacts the quality of life, cognition, disease symptoms, and treatment adherence in MS patients (Fattahi et al., 2023). A study conducted on a sample of MS patients in Iran indicated that 44.8% experienced moderate stress, 47.1% moderate depression, and 39.1% moderate anxiety (Karimi et al., 2022).

In addition to psychological distress, another significant emotional and psychological component in individuals with MS is mindfulness. Mindfulness refers to an individual's primary ability to be fully present in the moment and fully aware of the task at hand without reacting to or being influenced by the surrounding environment. Research findings suggest that mindfulness, as a therapeutic approach, positively impacts the psychological state of MS patients (Crescentini et al., 2018; Dizaj Khalili et al., 2023; Farhadi et al., 2021; Pourjaberi et al., 2023; Prakash, 2021).

It appears that treatments capable of reducing negative emotions, such as psychological distress, and improving mindfulness may, in the long term, lead to a reduction in psychological and emotional symptoms in individuals with Multiple Sclerosis. Among the effective treatments for MS patients is Acceptance and Commitment Therapy (ACT) (Merwin et al., 2023). ACT is a third-wave behavioral therapy that primarily aims to enhance psychological flexibility, enabling individuals to choose actions more appropriately from various options rather than avoiding distressing thoughts, feelings, or impulses imposed on them (Davis et al., 2024; Hayes, 2016; Hayes et al., 2009). Regarding the effectiveness of group-based ACT on the emotional, behavioral, and psychological characteristics of individuals with Multiple Sclerosis, Pakenham and Lundy (2023) found that ACT improved quality of life, flexibility, and reduced psychological distress in MS patients (Pakenham & Landi, 2023). Additionally, research indicates that ACT reduces emotional dysregulation in MS patients (Alizadeh et al., 2023), decreases cognitive fusion, problem-acquisition, entanglement, negative affect, attachment anxiety, obsessive-compulsive disorder, and emotional regulation difficulties in hoarding patients (Fang et al., 2023), improves emotional regulation in cardiovascular patients (Fattahi et al., 2023), and increases resilience and quality of life in individuals with Multiple Sclerosis (Karimi et al., 2022).

Another effective third-wave psychotherapy method for reducing psychological and emotional problems in MS patients is Transdiagnostic Treatment. Transdiagnostic Treatment, derived from Cognitive Behavioral Therapy, focuses on emotions and targets unpleasant emotions, providing patients with necessary training in adaptive and compatible emotion regulation strategies. Transdiagnostic Treatment emphasizes the adaptive nature and application of emotions, increasing awareness of the role of emotions, cognitions, bodily sensations, and behaviors (Barlow et al., 2017; Barlow et al., 2020). In this context, Farchione et al. (2023) found that Transdiagnostic Treatment plays a significant role in treating emotional and affective disorders, such as anxiety, depression, and stress, and the resulting psychological distress in patients with physical illnesses (Farchione et al., 2023). Furthermore, research indicates that Transdiagnostic Treatment improves emotional regulation and interpersonal relationships (Blay et al., 2024), significantly reduces emotional and affective problems (Schaeuffele et al., 2024), significantly enhances psychological well-being, positive emotion regulation strategies, and significantly reduces negative and maladaptive emotion regulation strategies in MS patients (Fragkiadaki et al., 2023), and reduces hopelessness, psychological distress, and negative emotion regulation strategies while increasing and enhancing positive emotion regulation strategies in clinical populations (Celleri et al., 2023).

Regarding the comparison between Transdiagnostic Treatment and Acceptance and Commitment Therapy on psychological, emotional, and affective characteristics in different groups, the results of previous studies have been somewhat contradictory. For instance, Kohneshin-Taromi et

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

al. (2021) found that ACT significantly reduced emotional problems in nurses. Moreover, Transdiagnostic Treatment had a significantly greater positive impact on reducing emotional problems and increasing life satisfaction among nurses compared to ACT (Kouhneshin-Taromi et al., 2021). On the other hand, Karimi and colleagues (2021) found no significant difference between the effectiveness of Transdiagnostic Treatment and ACT on illness perception and emotion regulation strategies in individuals with Irritable Bowel Syndrome (IBS) (Karimi et al., 2022). Shahkaram et al. (2024), in a clinical trial, concluded that there was no significant difference between the two therapies in terms of their effectiveness on depression, rumination, and life satisfaction, but Transdiagnostic Treatment was significantly more effective than ACT in reducing anxiety (Shahkaram et al., 2024). Joaquim et al. (2023) demonstrated that Transdiagnostic Treatment was superior to waiting list conditions and common psychological treatments, such as ACT, in reducing psychological and emotional disorders, including anxiety, depression, and stress, and in enhancing positive and adaptive psychological components (Joaquim et al., 2023). Amiri et al. (2023) found that both ACT and Transdiagnostic Treatment were effective in improving sexual function and Type D personality traits in cardiovascular patients, with no significant difference in the effectiveness of the two methods (Amiri et al., 2023). Azadmanesh et al. (2021) found that both ACT and integrated Transdiagnostic Treatment significantly reduced anxiety and symptoms of Lupus disease in the experimental group, with no significant difference in the effectiveness of the two treatments (Azadmanesh et al., 2021).

In summary, MS is a chronic and progressive central nervous system disease that severely impacts the physical and emotional health of individuals. Among the interventions and approaches aimed at reducing and improving symptoms and signs related to psychological and emotional problems arising from MS, Acceptance and Commitment Therapy and Transdiagnostic Treatment are noteworthy. However, given the limited research on the effectiveness of these two psychological treatments on the psychological symptoms of MS patients and the conflicting results regarding the comparative effectiveness of Transdiagnostic Treatment and ACT on the behavioral, psychological, and emotional characteristics of individuals with various diseases, the present study seeks to answer the question of whether there is a significant difference between the effectiveness of Acceptance and Commitment Therapy and Transdiagnostic Treatment on psychological distress and mindfulness in MS patients.

2. Methods and Materials

2.1. Study design and Participant

The present study was a quasi-experimental research with a pretest-posttest and follow-up design, including two experimental groups and one control group. The statistical population included all female MS patients who were members of the Amol MS Society in 2023, totaling 212 individuals. The inclusion criteria were: residing in Amol, age range of 20 to 40 years, having at least a high school diploma, being female, no psychological disorders as determined by a semi-structured diagnostic interview using DSM-5 criteria, and obtaining high scores on the Psychological Distress and Mindfulness questionnaires. Exclusion criteria included the use of psychiatric and psychoactive drugs, simultaneous participation in other psychological treatments, and being male. The research sample included 48 female MS patients who were selected based on the inclusion and exclusion criteria using convenience sampling. The sample size was determined using G*Power software version 3.1. The required sample size for each of the experimental and control groups was 16 individuals, totaling 48 individuals for the study, considering the following parameters: effect size = 0.5, test power = 96%, alpha coefficient = 0.05, repetitions = 3, non-centrality parameter $\lambda = 23$, critical point $F = 2.085538$, Pillai's $V = 0.4$, and actual power = 0.9549172.

To select the sample, a list of patients who were members of the Amol MS Society and met the study's inclusion criteria was prepared. In the next step, 60 individuals were selected via convenience sampling and were invited to participate in the treatment sessions through telephone contact. Among the volunteers, 48 individuals who scored high on the Mindfulness and Psychological Distress questionnaires and met the inclusion and exclusion criteria were randomly assigned to two experimental groups (16 in the ACT group and 16 in the Transdiagnostic Treatment group) and one control group (16 individuals) and were invited to attend a briefing session and complete the pretest.

After obtaining the necessary permits and introduction letters, the researcher visited the Amol MS Society to coordinate access to MS patients through the association. Volunteers were asked to participate in a briefing session, and based on the inclusion and exclusion criteria, 48 individuals were selected using convenience sampling.

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

Participants in the two experimental and control groups completed the research instruments in the pretest phase. The first experimental group received eight 90-minute sessions of ACT based on the ACT protocol by Hayes et al. (2009), and the second experimental group received ten 90-minute sessions of Transdiagnostic Treatment based on the Transdiagnostic Treatment protocol by Barlow et al. (2017), held once a week. Considering the physical condition of MS patients and their inability to participate in long sessions, each 90-minute session was divided into two 45-minute sessions with a 15-minute break, during which participants were provided with refreshments. After completing the treatment sessions for both experimental groups, a post-test was conducted for all participants (experimental and control groups), and a follow-up assessment was conducted two months after the treatment. All three groups continued their regular MS medication regimen, with the only difference being the receipt or non-receipt of the experimental treatments. To adhere to ethical principles, after the follow-up stage, the control group also received 8 or 10 sessions of either ACT or Transdiagnostic Treatment based on their choice.

2.2. Measures

2.2.1. Psychological Distress

The Kessler Psychological Distress Scale (Kessler et al., 2002), which assesses individuals' mental states over the past month, was used. The scale consists of 10 items rated on a 5-point Likert scale ranging from "all the time" (4) to "none of the time" (0), with a total score ranging from 0 to 40. Research on the Kessler Psychological Distress Scale indicates a strong correlation between high scores on the scale and the diagnosis of mood and anxiety disorders through the Composite International Diagnostic Interview (CIDI). Additionally, the Kessler Psychological Distress Scale has good sensitivity and specificity for screening individuals with anxiety and depression and is suitable for monitoring post-treatment outcomes. This questionnaire was standardized in Iran by Yaghoubi (2015). In Yaghoubi's (2015) study, confirmatory factor analysis supported the unidimensional structure of the K-10 questionnaire, with factor loadings ranging from 0.65 to 0.84 for the main factor. The Cronbach's alpha coefficient was 0.93, and the split-half and Spearman-Brown reliability coefficients were 0.91. In Mehrabi and Afshari's (2022) study, the reliability of the Psychological Distress Questionnaire was determined to be 0.88 using Cronbach's alpha coefficient (Fattahi et al., 2023). In the present study, the reliability of the Psychological Distress Questionnaire was determined to be 0.75 using Cronbach's alpha coefficient.

2.2.2. Semi-Structured Diagnostic Interview

A clinical psychologist with a master's degree in clinical psychology conducted the Semi-Structured Diagnostic Interview using DSM-5 Criteria to diagnose major psychological disorders based on DSM-5 criteria. This tool is widely used in psychiatric assessments due to its content validity and reliability, as confirmed by experts (Nasbum, 2013).

2.2.3. Mindfulness

The Baer et al. (2006) Mindfulness Questionnaire was used to measure mindfulness. The questionnaire consists of 39 items rated on a 5-point Likert scale ranging from "never" (1) to "always" (5). The internal consistency of the total score of this questionnaire was reported to be 0.90 using Cronbach's alpha coefficient (Baer et al., 2006). This questionnaire was standardized in Iran by Tamanayifar et al. (2016) among Tehran University students. According to Tamanayifar et al. (2016), the five-factor structure of the Baer et al. (2006) Mindfulness Questionnaire was confirmed, and all indices showed relatively good fit. The test-retest reliability in a sample of 58 individuals in Tamanayifar et al.'s (2016) study indicated that the test-retest reliability coefficients for the subscales of the Baer et al. (2006) Mindfulness Questionnaire ranged from 0.76 to 0.86 (Afshari & Hasani, 2020). In the present study, the reliability of the Mindfulness Questionnaire was determined to be 0.83 using Cronbach's alpha coefficient.

2.3. Intervention

2.3.1. Acceptance and Commitment Therapy

The ACT package in the present study included eight 90-minute weekly sessions of ACT based on the protocol developed by Hayes et al. (2009) (Hayes, 2016; Hayes et al., 2009).

Session 1: Introduction and Goal Setting The therapist introduces themselves and outlines the goals of the therapy. Participants are asked to introduce themselves, and the group is familiarized with Multiple Sclerosis (MS). A diagnostic interview is conducted, and the treatment structure is explained.

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

Session 2: Introduction to ACT Concepts Participants are introduced to the core concepts of Acceptance and Commitment Therapy. The focus is on building awareness of the problem, challenging the concept of control, and understanding the futility of excessive control over their symptoms.

Session 3: Creative Hopelessness and Problem Identification The session introduces the concept of creative hopelessness, helping participants recognize the ineffective strategies they have used to cope with their distress. They create a list of these issues and explore the discomfort they have tried to avoid.

Session 4: Acceptance and Cognitive Defusion Participants learn to practice acceptance and mindfulness by letting go of their efforts to control their thoughts and emotions. Cognitive defusion techniques are introduced to help them observe their thoughts without attachment. The session also reviews previous sessions and assigns relevant homework.

Session 5: Values-Based Living This session emphasizes the importance of living in accordance with one's values. Participants are guided to identify their core values and understand how their actions can align with these values. Previous sessions are reviewed, and related tasks are assigned.

Session 6: Goal Evaluation and Clarification of Values Participants evaluate their goals and actions in relation to their identified values. They discuss potential obstacles to living a values-driven life and explore strategies to overcome these challenges.

Session 7: Re-Examination of Values and Commitment The session revisits the participants' values, goals, and actions. They engage with the concept of commitment and discuss the importance of dedication to values-driven action despite challenges.

Session 8: Overcoming Obstacles and Session Summary Participants identify barriers to committed action and discuss strategies to address these obstacles. The session concludes with a summary of the therapy process, highlighting key learnings and ensuring that participants have a clear plan moving forward.

2.3.2. Transdiagnostic Treatment

The Transdiagnostic Treatment package in this study included ten 90-minute weekly sessions of Transdiagnostic Treatment based on the integrated Transdiagnostic Treatment approach by Barlow et al. (2017) (Barlow et al., 2017; Barlow et al., 2020).

Session 1: Introduction and Goal Setting The therapist introduces themselves and the therapy's objectives. Participants introduce themselves, and the group is familiarized with Multiple Sclerosis (MS). The session sets the stage for treatment by discussing the goals and structure of the therapy.

Session 2: Psychoeducation and Emotional Recognition Participants receive psychoeducation about emotions, learning to recognize and track their emotional experiences. The session introduces the three-component model of emotional experiences, which includes thoughts, feelings, and behaviors.

Session 3: The Role of Emotion Activation in Therapy The session emphasizes the importance of emotional activation as a therapeutic component. Participants are taught strategies for managing emotions and how to revisit emotional experiences. The focus is on understanding the methods used for emotional management.

Session 4: Nonjudgmental Awareness and Emotional Arousal Participants learn to increase nonjudgmental and moment-to-moment awareness of their emotional experiences. The session discourages emotional suppression and encourages emotional activation using mindfulness and emotion-induction exercises.

Sessions 5 & 6: Cognitive Evaluation and Flexibility These sessions explore the role of cognitive evaluation in the development and maintenance of emotional responses. Participants identify and re-evaluate thought patterns to enhance cognitive flexibility. The focus is on correcting fundamental cognitive distortions that contribute to psychological and emotional distress.

Sessions 7 & 8: Emotion-Driven Behaviors and Emotional Avoidance Participants are taught to identify behaviors influenced by emotions and to develop incongruent behaviors as a counter to emotional responses. The sessions focus on the impact of emotional avoidance (behavioral, cognitive, and safety signals) in maintaining emotional responses and recognize the paradoxical effects of suppressing and controlling emotions.

Session 9: Emotion Triggers and Distress Tolerance This session focuses on internal and external emotional triggers. Participants learn to increase distress tolerance related to emotions and create new contextual learning. The session includes planning an emotional avoidance hierarchy and integrating previous therapeutic skills into emotional confrontation.

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

Session 10: Treatment Summary and Relapse Prevention The final session summarizes the treatment and emphasizes relapse prevention by focusing on avoiding emotional avoidance and improving emotional tolerance. The session consolidates all learned skills to ensure long-term effectiveness.

2.4. Data Analysis

Data were analyzed using SPSS software version 24 and statistical methods, including mean, standard deviation, skewness, and kurtosis to test the normality assumption of variable distribution, Levene's test to examine the homogeneity of variances across groups, and multivariate analysis of covariance (MANCOVA) with repeated measures and Bonferroni post hoc test at a significance level of 0.05.

3. Findings and Results

The mean age of the subjects was 31.145 years, with an age range of 20 to 40 years. Regarding education, 9 participants (18.8%) held a high school diploma, 8 participants (16.6%) had an associate degree, 22 participants (45.8%) held a bachelor's degree, and 9 participants (18.8%) had a master's degree. Concerning marital status, 12 participants (25%) were single, and 36 participants (75%) were married.

Table 1

Means and Standard Deviations of Psychological Distress and Mindfulness Across the Three Research Groups

Variable	Test	Control (M ± SD)	ACT (M ± SD)	TT (M ± SD)
Psychological Distress	Pre-test	23.31 ± 1.54	23.25 ± 1.81	23.19 ± 1.22
	Post-test	22.81 ± 1.56	21.88 ± 1.75	20.75 ± 1.24
	Follow-up	22.69 ± 1.54	21.50 ± 1.37	20.50 ± 1.51
Mindfulness	Pre-test	68.19 ± 3.02	69.31 ± 2.41	70.00 ± 2.85
	Post-test	66.31 ± 4.25	74.25 ± 3.00	78.94 ± 3.23
	Follow-up	69.31 ± 2.68	75.38 ± 3.16	78.44 ± 2.03

The results also indicated that for all variables and their subscales, the skewness and kurtosis divided by the standard error fell within the range of -2 to +2, suggesting that the distribution of scores in the three groups was not non-normal, meaning this assumption was met. Box's M test examines the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups. Since the value of F (1.224) is not significant at the given error level (p = .259), the null hypothesis is not rejected. This means that the observed covariance matrices between the different groups are equal.

Table 1 presents the means and standard deviations of the variables in this study—psychological distress and mindfulness—across the three participant groups: control, ACT group, and TT group, at three stages: pre-test, post-test, and follow-up.

The results of the Shapiro-Wilk test for normality of the data related to psychological distress and mindfulness in women with MS across the three groups (one control group and two experimental groups: ACT and TT) at three stages (pre-test, post-test, and follow-up) were not statistically significant (p > .05). Therefore, the distribution of both variables, psychological distress and mindfulness, was normal in all three groups, allowing for the use of parametric tests in data analysis. The results of the Levene's test for the assumption of homogeneity of error variances in the variables of psychological distress and mindfulness across the three stages showed that the homogeneity of error variances was statistically non-significant for all variables (p > .05), indicating that the assumption of homogeneity of error variances was correctly met.

Another assumption of repeated measures ANOVA, Mauchly's test of sphericity, was tested. The results showed that Mauchly's test of sphericity was significant for the variables of psychological distress and mindfulness (p < .05), indicating that the assumption of sphericity was violated for both variables. Consequently, the Greenhouse-Geisser correction was applied to assess within-subjects effects, as shown in Table 2.

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

Table 2

Results of Repeated Measures ANOVA for Overall Scores of the Research Variables Across the Three Stages

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	Effect Size
Psychological Distress	Time	43.931	1.683	26.101	19.843	.001	.306
	Time × Group	57.111	3.366	16.966	12.898	.001	.364
Mindfulness	Factor	713.389	1.570	454.521	50.742	.001	.530
	Factor × Group	499.944	3.139	159.265	17.780	.001	.441

Based on the results presented in Table 2, the main effect of the group was significant for the research variables of psychological distress and mindfulness ($p < .001$). In other words, there were significant differences in the mean scores of psychological distress and mindfulness among the experimental groups (ACT and TT) and the control group ($p < .001$). Additionally, the interaction effect of time and group was also significant ($p < .001$), indicating that the trend of changes in the mean scores of psychological distress and mindfulness across the pre-test, post-test, and follow-up stages was significantly different among the three groups. The results of the Bonferroni post hoc test for pairwise group comparisons are presented in Table 3.

Table 3

Results of Bonferroni Post Hoc Test for Pairwise Comparison of Means of Research Variables in MS Patients

Variable	Group Comparison	Mean Difference	p
Psychological Distress	Control - ACT	1.438	.006
	Control - TT	2.208	.001
	ACT - TT	0.771	.250
Mindfulness	Control - ACT	-5.042	.001
	Control - TT	-7.854	.001
	ACT - TT	-2.813	.001

In Table 3, given the significance of the group and time interaction effects, the results of the Bonferroni post hoc test for pairwise group comparisons are presented. The results showed significant differences between the experimental groups and the control group for all research variables (psychological distress and mindfulness; $p < .05$), indicating the effectiveness of both ACT and TT. However, there was no significant difference between ACT and TT regarding psychological distress ($p > .05$), suggesting that both treatments were equally effective in reducing psychological distress in MS patients. However, there was a significant difference between ACT and TT in mindfulness ($p < .05$), with TT being significantly more effective than ACT in improving mindfulness in MS patients.

4. Discussion and Conclusion

The present study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Transdiagnostic Treatment (TT) on psychological distress and mindfulness in patients with Multiple Sclerosis (MS). The results indicated that there was a significant difference between ACT and TT in terms of their effectiveness on mindfulness in MS patients, while there was no significant difference in their effectiveness on psychological distress. Specifically, TT was significantly more effective than ACT in improving mindfulness among MS patients.

Given that no previous research has directly compared the effectiveness of ACT and TT on the psychological and emotional components of MS patients, the researcher refers to similar studies conducted on other patient groups. The findings that TT is more effective than ACT in improving mindfulness are consistent with previous studies (Joaquim et al., 2023; Karimi et al., 2022; Kouhneshin-Taromi et al., 2021; Shahkaram et al., 2024) found that TT was significantly more effective than ACT in reducing anxiety in patients with Irritable Bowel Syndrome (IBS). The greater effectiveness of TT compared to ACT in improving mindfulness in MS patients may be explained by the fact that TT helps clients modify the intensity of their reactions to negative and maladaptive emotions. This approach does not necessarily aim to reduce these emotions but emphasizes reducing emotional and cognitive avoidance of these emotions, which can ultimately enhance mindfulness (Barlow et al., 2020). On the other hand, ACT focuses on facing and accepting painful and distressing experiences in

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

the present moment, which may be less effective in reducing negative emotional reactions (Davis et al., 2024; Hayes, 2016).

Regarding the lack of significant difference between ACT and TT in psychological distress, the findings align with previous research (Amiri et al., 2023; Azadmanesh et al., 2021). Amiri et al. (2023) found no significant difference in the effectiveness of ACT and TT on sexual function and Type D personality traits in cardiovascular patients. The lack of difference between ACT and TT in psychological distress may be due to their shared focus on emotions and acceptance, as both are third-wave cognitive-behavioral therapies (Azadmanesh et al., 2021). Given that both approaches are effective in addressing a wide range of psychological and emotional disturbances, it is not surprising that there was no significant difference in their effectiveness on psychological distress.

The findings of this study, consistent with previous research (Alizadeh et al., 2023; Davis et al., 2024; Fang et al., 2023; Fattahi et al., 2023; Karimi et al., 2022), support the effectiveness of ACT in reducing psychological distress and improving mindfulness in MS patients. Alizadeh et al. (2023) found that ACT significantly reduced emotional distress in MS patients, with scores decreasing significantly during the 8-session intervention and follow-up compared to baseline. The results suggest that ACT helps patients experience their inner experiences as thoughts rather than responding to them, focusing instead on life values and what is important to them. This therapy uses mindfulness-based skills, acceptance, and cognitive defusion to enhance psychological and emotional flexibility, which can effectively reduce psychological distress in patients with physical illnesses such as MS and improve mindfulness by reducing negative and maladaptive emotions.

Similarly, the findings on the effectiveness of TT in reducing psychological distress and improving mindfulness in MS patients align with previous research such (Blay et al., 2024; Celleri et al., 2023; Farchione et al., 2023; Fragkiadaki et al., 2023; Schaeuffele et al., 2024). Farchione et al. (2023) found that TT plays a significant role in treating emotional and psychological disorders, such as anxiety, depression, and stress, and their outcomes, including psychological distress and low levels of mindfulness, in patients with physical illnesses such as MS and IBS (Farchione et al., 2023). The results suggest that TT effectively targets negative emotions (e.g., psychological distress, sadness, shame, anger) and maladaptive and avoidant reactions to these emotions. In the context of psychological distress and emotional disorders, worry, a maladaptive cognitive-emotional process, contributes to maintaining emotional and psychological problems, and TT effectively reduces it by promoting adaptive emotion regulation strategies during interventions (Schaeuffele et al., 2024).

5. Limitations and Suggestions

In summary, the findings of this study revealed no significant differences between ACT and TT in psychological distress in MS patients across the post-test and follow-up stages. However, significant differences were observed in mindfulness, with TT being significantly more effective than ACT in improving mindfulness among MS patients. Therefore, it is recommended that clinicians, psychotherapists, and specialists use TT and ACT as effective psychological treatments for the emotional and psychological symptoms of MS patients to improve psychological outcomes and enhance mindfulness. Some limitations of the present study include the lack of control over certain variables such as personality traits, socioeconomic status, and intelligence levels, as well as the selection of the research sample solely from female MS patients in the Amol MS Society. Future research is recommended to include diverse samples from other cities and male participants, match control and experimental groups by age, marital status, and pre-test scores, and examine the effectiveness of ACT and TT on other psychological and emotional variables in MS patients.

Authors' Contributions

Authors contributed equally to this article.

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.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

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

References

Afshari, B., & Hasani, J. (2020). Study of Dialectical Behavior Therapy Versus Cognitive Behavior Therapy on Emotion Regulation and Mindfulness in Patients with Generalized Anxiety Disorder. *Journal of Contemporary Psychotherapy*, *50*(4), 305-312. https://doi.org/10.1007/s10879-020-09461-9

Alizadeh, M., Alilou, M.-M., Bakhshipoor, A., & Birami, M. (2023). The effectiveness of Acceptance and Commitment Therapy (ACT) on emotional dysregulation in patients with multiple sclerosis: A single-case study. *Psychiatric Nursing*, *11*(4), 83-94. https://ijpn.ir/browse.php?a_id=2228&sid=1&slc_lang=fa&ftxt=0

Amiri, M., Khosh-Akhlagh, H., Sajadian, P.-S., & Rezaei-Jamalui, H. (2023). Comparison of the effectiveness of Acceptance and Commitment Therapy (ACT) and Transdiagnostic Therapy on sexual performance and Type D personality components in individuals with cardiovascular disease. *Knowledge and Research in Psychology*, *93*, 154-174. https://journals.iau.ir/article_704950.html

Azadmanesh, N., Shahabi-Zadeh, F., Shahraki, E., & Asadi-Younesi, M.-R. (2021). Comparison of the effectiveness of Acceptance and Commitment Therapy (ACT) and Unified Transdiagnostic Treatment on anxiety and somatic symptoms in patients with systemic lupus erythematosus. *Journal of Mashhad University of Medical Sciences*, *64*(1), 2643-2657. https://doi.org/10.22038/mjms.2021.19623

Barlow, D. H., Farchione, T. J., Sauer-Zavala, S., Latin, H. M., Ellard, K. K., Bullis, J. R., & Cassiello-Robbins, C. (2017). *Unified protocol for transdiagnostic treatment of emotional disorders: Therapist guide*. Oxford University Press. https://doi.org/10.1093/med-psych/9780190685973.001.0001

Barlow, D. H., Harris, B. A., Eustis, E. H., & Farchione, T. J. (2020). The unified protocol for transdiagnostic treatment of emotional disorders. *World Psychiatry*, *19*(2), 245. https://doi.org/10.1002/wps.20748

Blay, M., Duarte, M., Dessouli, M. A., Durpoix, A., Rufenacht, E., Weibel, S., & Perroud, N. (2024). Proposition of a transdiagnostic processual approach of emotion dysregulation based on core triggers and interpersonal style. *Frontiers in Psychiatry*, *15*, 1260138. https://doi.org/10.3389/fpsyt.2024.1260138

Celleri, M., Cremades, C. F., Etchevers, M. J., & Garay, C. J. (2023). Effectiveness of the Unified Protocol for the transdiagnostic treatment of emotional disorders in online and group format in Argentina: study protocol for a randomized controlled trial. *Trials*, *24*(1), 678. https://doi.org/10.1186/s13063-023-07428-4

Crescentini, C., Matiz, A., Cimenti, M., Pascoli, E., Eleopra, R., & Fabbro, F. (2018). Effect of mindfulness meditation on personality and psychological well-being in patients with multiple sclerosis. *International Journal of MS Care*, *20*(3), 101-108. https://doi.org/10.7224/1537-2073.2016-093

Davis, C. H., Klimczak, K., Aller, T. B., Twohig, M. P., & Levin, M. E. (2024). Reach, adoption, and maintenance of online acceptance and commitment therapy at a university: An implementation case study. *Psychological Services*. https://doi.org/10.1037/ser0000834

Dizaj Khalili, M., Makvand Hosseini, S., & Sabahi, P. (2023). Effects of Mindfulness-Based Cognitive Therapy on Anxiety Sensitivity in Patients with Multiple Sclerosis [Research Article]. *Jundishapur J Chronic Dis Care*, *12*(1), e132672. https://doi.org/10.5812/jjcdc-132672

Dobson, R., & Giovannoni, G. (2019). Multiple sclerosis-a review. *European Journal of Neurology*, *26*(1), 27-40. https://doi.org/10.1111/ene.13819

Fang, S., Ding, D., Zhang, R., & Huang, M. (2023). Psychological mechanism of acceptance and commitment therapy and rational emotive behavior therapy for treating hoarding: Evidence from randomized controlled trials. *Frontiers in Public Health*, *11*, 1084467. https://doi.org/10.3389/fpubh.2023.1084467

Farchione, T. J., Spencer-Laitt, D. M., Sauer-Zavala, S., & Barlow, D. H. (2023). The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders and physical health comorbidity: An introduction. *Behavioral Therapy*. https://doi.org/10.1016/j.beth.2024.04.007

Farhadi, M., Vaziri, S., & Pasandideh, M. M. (2021). Evaluation of Effectiveness of Mindfulness, Logotherapy, and Schema therapy on Stress, Anxiety, and Depression in Patients with Multiple Sclerosis. *Iranian Journal of Health Psychology; Vol*, *4*(1). https://www.academia.edu/download/82110969/IJOHP_Volume_4_Issue_2_Pages_21_32.pdf

Fattahi, A., Mazini, F., Jaberghaderi, N., Rajabi, F., Derakhshani, M., & Laki, M. (2023). Effectiveness of acceptance and commitment therapy upon distress, emotion regulation, and self-compassion in patients with cardiovascular disease: a randomized clinical trial. *Trends in Psychiatry and Psychotherapy*, *AheadOfPrint*, 0-0. https://doi.org/10.47626/2237-6089-2023-0685

Fragkiadaki, E., Cotterill, N., Rice, C., Smith, J. A., & Nizza, I. E. (2023). Evaluation of the feasibility and acceptability of an integrative group psychological intervention for people with Multiple Sclerosis: A study protocol. *PLoS One*, *18*(7), e0288295. https://doi.org/10.1371/journal.pone.0288295

Hayes, S. C. (2016). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies-republished article. *Behavior therapy*, *47*(6), 869-885. https://doi.org/10.1016/j.beth.2016.11.006

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2009). *Acceptance and commitment therapy*. American Psychological Association. http://personal.kent.edu/~dfresco/CBT_Readings/ACT.pdf

Joaquim, S. B., Simões de Almeida, R., & Marques, A. J. (2023). Transdiagnostic Cognitive Behavioral Group Interventions: A Systematic Review. *Cognitive therapy and research*, 1-24. https://doi.org/10.1007/s10608-023-10372-x

Karimi, M., Thani, F. N., Naqhsh, Z., & Ghazaghi, T. (2022). The effectiveness of acceptance and commitment therapy and cognitive-behavioral therapy in enhancing resiliency and quality of life among Multiple sclerosis patients: A randomized clinical trial study. *Iranian journal of psychiatry*

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

and behavioral sciences, *16*(1). https://doi.org/10.5812/ijpbs.107467

Kouhneshin-Taromi, F., Afshari-Nia, K., & Kakaberaei, K. (2021). Comparison of the effectiveness of Acceptance and Commitment Therapy (ACT) and Transdiagnostic Therapy in increasing life satisfaction among nurses working in Social Security hospitals in Kermanshah. *Journal of Psychological Methods and Models*, *12*(43), 55-69. https://civilica.com/doc/1909534/

Merwin, R. M., Nikolaou, P., Moskovich, A. A., Babyak, M., Smith, P. J., & Karekla, M. (2023). Change in body image flexibility and correspondence with outcomes in a digital early intervention for eating disorders based on acceptance and commitment therapy. *Body Image*, *44*, 131-135. https://doi.org/10.1016/j.bodyim.2022.12.010

Nasbum, A. (2013). *A Practical Guide to Diagnostic Interviews Using DSM-5 Criteria* (F Rezaei, AA Forooghi, Persian trans ed.). Arjmand.

Pakenham, K. I., & Landi, G. (2023). A pilot randomized control trial of an online acceptance and commitment therapy (ACT) resilience training program for people with multiple sclerosis. *Sclerosis*, *1*(1), 27-50. https://doi.org/10.3390/sclerosis1010005

Patel, A., Al-Bahou, R., Thakkar, R., Patel, D., Foster, D., Benjamin, J., & Lucke-Wold, B. (2024). The Role of Neuroglia in Administrating Nerve Blockers and Anesthesia to Patients. *Neuroglia*, *5*(1), 13-26. https://doi.org/10.3390/neuroglia5010002

Pourjaberi, B., Shirkavand, N., & Ashoori, J. (2023). The Effectiveness of Cognitive Rehabilitation Training on Prospective Memory and Cognitive Flexibility in Individuals with Depression. *International Journal of Education and Cognitive Sciences*, *4*(3), 45-53. https://doi.org/10.61838/kman.ijecs.4.3.5

Prakash, R. S. (2021). Mindfulness Meditation: Impact on Attentional Control and Emotion Dysregulation. *Archives of Clinical Neuropsychology*, *36*(7), 1283-1290. https://doi.org/10.1093/arclin/acab053

Schaeuffele, C., Meine, L. E., Schulz, A., Weber, M. C., Moser, A., Paersch, C., & Kleim, B. (2024). A systematic review and meta-analysis of transdiagnostic cognitive behavioural therapies for emotional disorders. *Nature Human Behaviour*, 1-17. https://doi.org/10.1038/s41562-023-01787-3

Shahkaram, H., Yaztappeh, J. S., Sadeghi, A., Kianimoghadam, A. S., Soltanabadi, S., Bakhtiari, M., & Arani, A. M. (2024). Comparing the effectiveness of transdiagnostic treatment with acceptance and commitment therapy on emotional disorders, rumination, and life satisfaction in patients with irritable bowel syndrome: a randomized clinical trial. *BMC Gastroenterology*, *24*(1), 1-12. https://doi.org/10.1186/s12876-024-03142-w

Silveira, C., Guedes, R., Maia, D., Curral, R., & Coelho, R. (2019). Neuropsychiatric symptoms of multiple sclerosis: state of the art. *Psychiatry Investigation*, *16*(12), 877. https://doi.org/10.30773/pi.2019.0106

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515