KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 09 Marh 2024
Revised 11 May 2024
Accepted 05 June 2024
Published online 10 June 2024

Journal of Adolescent and Youth Psychological Studies

Volume 5, Issue 6, pp 145-155

E-ISSN: 2981-2526

Comparison of the Effect of Schema Therapy and Mindfulness Technique on Existential Anxiety in Individuals with Multiple Sclerosis

Omid. Din Parast[1], Narges. Rasouli[2*], Seyed Iman. Ghotb[3]

[1] PhD student in Psychology, Department of Psychology, Bojnord Branch, Islamic Azad University, Bojnord, Iran
[2] Assistant Professor, Department of Psychology, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran
[3] Department of Psychology, Shandiz Non-governmental Non-profit Higher Education Institute, Mashhad, Iran

*** Corresponding author email address**: narges.rasouli@yahoo.com

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Din Parast, O., Rasouli, N., & Ghotb, S. I. (2024). Comparison of the Effect of Schema Therapy and Mindfulness Technique on Existential Anxiety in Individuals with Multiple Sclerosis. *Journal of Adolescent and Youth Psychological Studies*, *5*(6), 145-155.
http://doi.org/10.61838/kman.jayps.5.6.16

A B S T R A C T

Objective: The present study aimed to compare the effect of schema therapy and mindfulness technique on existential anxiety in individuals with multiple sclerosis.
Methods and Materials: Based on its objective, the present study is of an applied type. The research design was quasi-experimental with a pre-test, post-test design with a control group. Participants were randomly assigned to two experimental groups and one control group. The statistical population of the study included all individuals with MS in Tehran. Using purposive sampling, individuals present in the MS Society were selected based on their pre-test scores on each variable and randomly assigned to three groups, including two experimental groups and one control group (15 individuals per group). The Good Existential Anxiety Scale was used to measure the research variables. Mindfulness training sessions were conducted according to Baer's (2006) protocol, and schema therapy was based on the proposed protocol by Young et al. (2003). The intervention was implemented over 8 consecutive weeks, with each session lasting 90 minutes. In the inferential statistics section, covariance analysis was used to examine the effectiveness of the therapeutic methods.
Findings: The results indicated that the impact of schema therapy and mindfulness technique on dimensions of existential anxiety (e.g., purposelessness of tasks, worthlessness of life's meaning, inability to persuade others, disinterest in activities, and lack of responsibility towards others) was significant at the level of ($p < 0.05$).
Conclusion: The results showed that there is a significant difference between the effectiveness of schema therapy and mindfulness technique in terms of their impact on existential anxiety in individuals with multiple sclerosis. The mindfulness technique was found to be more effective than schema therapy for individuals with multiple sclerosis.

Keywords: *Mindfulness-based therapy, Schema therapy, Existential anxiety, Multiple sclerosis.*

1. Introduction

Multiple sclerosis (MS) is a progressive and inflammatory disease characterized by the destruction of the myelin sheath in the central nervous system (Krupp et al., 1988; Krupp & Elkins, 2000; Krupp et al., 2010). It commonly affects young adults, causing numerous motor problems (Krupp & Elkins, 2000). The lives of patients with MS involve various challenges, including high rates of depression and anxiety. The exact cause of the high prevalence of depression and anxiety in these patients is unknown, though a combination of psychosocial, neurological, and disease-related factors is likely involved (Côté et al., 2013; Qaderi & Merghati Khoei, 2013).

Different schools of thought and authors have attributed the origins of anxiety to various factors. Existential anxiety is considered a primary source of psychological disorders. Rollo May defines anxiety as a threat to existence or to the values by which our existence is known. Tillich divides existential anxiety into three types based on the threat of non-being: (a) anxiety of death or fate, affirming the existence of self; (b) anxiety of meaninglessness or emptiness, affirming spiritual self; and (c) anxiety of condemnation or guilt, affirming moral self (Weems et al., 2004). Weems et al. (2004) found that existential anxiety is related to personality problems, anxiety symptoms, and stress. Additionally, a study on patients revealed that 55% of participants suffer to some extent from existential emptiness. Existential anxiety plays a significant role in reducing health, often stemming from hopelessness, alienation, and a sense of emptiness (Gasiorowska et al., 2018). Existential anxiety arises when individuals deeply reflect on their existence, leading to thoughts and feelings related to freedom, responsibility, and the search for meaning in life. Failure in these areas results in alienation and isolation (Temple & Gall, 2018).

Existential anxiety primarily causes inner suffering, limits relationships, reduces life satisfaction, decreases daily performance, and increases susceptibility to psychological disorders. The subject of death and the focus on it in the form of death anxiety and mortality threaten human mental security, regarded as a fundamental issue in existentialist perspectives (Mohagheghi & Kharghani, 2021; Mohammadi et al., 2019). Simply put, death anxiety is a state where an individual experiences anxiety, worry, or fear related to death or dying. Another significant debilitating symptom of this disease is fatigue, which can affect 75% to 90% of patients. Fatigue can severely impact the quality of life, lead to serious social and economic problems, and result in significant costs, including job loss (Taylor et al., 2007; Temple & Gall, 2018). Fatigue is defined as a subjective lack of physical or mental energy. It can have extensive effects on many areas of an individual's life, causing problems in social participation, such as maintaining contact with family and friends, sustaining employment, and performing physical activities and responsibilities, ultimately leading to dissatisfaction with life (Weems et al., 2004). Patients with MS report higher levels of fatigue, greater disability, and lower quality of life (Ghabaae M et al., 2007; Gottberg et al., 2000; Iranzo et al., 2019; Motaharinezhad et al., 2016). Fatigue is one of the most common symptoms of this disease. Over 90% of patients with MS experience fatigue, with 50% to 60% identifying it as the worst symptom, significantly impacting activity, daily functioning, and quality of life. Various studies have offered different definitions of MS-related fatigue, such as excessive fatigue relative to the amount of exerted effort, inability to generate sufficient muscle force, and inability to maintain mental functions (Krupp et al., 1988; Krupp & Elkins, 2000; Krupp et al., 2010). In 1998, the Clinical Practice Guidelines of the MS Society defined MS-related fatigue as "a lack of physical and mental energy experienced by the individual or caregiver that impacts daily and desirable activities". When discussing MS-related fatigue, researchers distinguish between primary and secondary fatigue. Primary fatigue is directly caused by the disease process, while secondary fatigue results from other symptoms of the disease. Clinically, distinguishing between primary and secondary fatigue is challenging due to their similar manifestations. However, addressing factors causing secondary fatigue can mitigate its severity (Farhadi et al., 2022; Ghabaae M et al., 2007; Gottberg et al., 2000; Hauser et al., 2008). Factors such as sleep disorders (Black et al., 2014; Côté et al., 2013; Iranzo et al., 2019; Taylor et al., 2007), reduced activity and excessive rest (Farhadi et al., 2022; Krupp et al., 1988; Mohr & Cox, 2001; Wood et al., 2013), psychological factors and depression (Mohr & Cox, 2001; Wood et al., 2013), and medications (Baker et al., 2000; Hauser et al., 2008; Schwartz et al., 1996) are considered potential contributors to secondary fatigue in these patients.

In recent years, various methods have been used to treat sleep disorders and anxiety, with mindfulness-based approaches proving particularly effective. Mindfulness, defined as being present and aware of the current moment with acceptance, helps individuals respond non-judgmentally to various life events, allowing them to let go

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526

of thoughts, beliefs, emotions, and behaviors that cause mental distress (Roelofs et al., 2013). Since individuals generally avoid distressing conditions, mindfulness-based strategies can be significantly helpful. These strategies increase distress tolerance, self-regulation, and effective functioning in various situations. Initially used in the prevention of depression, mindfulness has expanded to treat anxiety, mood disorders, mental health issues, and sleep problems (Strassle et al., 1999). Furthermore, mindfulness promotes adaptive behaviors, positive psychological states, and improved individual capabilities for personal and social activities (Agha-Bagheri et al., 2012; Baer et al., 2004; Black et al., 2014; Corcoran et al., 2010; Gottberg et al., 2000; Vermetten et al., 2023). Mindful individuals are adept at confronting a wide range of thoughts, emotions, and experiences, whether pleasant or unpleasant. They tend to have fewer negative automatic thoughts and believe they can free themselves from such thoughts. Definitions of mindfulness reflect three essential features: (a) attention and awareness focused on the present moment, recognizing the available opportunities and how to access and develop them; (b) intention, adding a motivational component to attention and behavior, allowing individuals to observe their constantly interpreting minds more accurately; and (c) attitude, indicating how a person pays attention, characterized by interest, curiosity, non-judgment, acceptance, and responsiveness. This non-judgmental stance allows individuals to observe their experiences without preconceived notions of right or wrong (Mason et al., 2016; Teasdale et al., 2000; Tipsord, 2009).

Given the high levels of anxiety and depression in patients with multiple sclerosis, Formed during childhood and adolescence, schemas serve as templates for processing subsequent experiences (Khanjari & Khajevand, 2020; Mohagheghi & Kharghani, 2021). They can activate stress, dysfunctional attitudes, pessimistic explanatory styles, hopelessness, and helplessness, leading to various psychological disturbances such as depression, anxiety, job incompetence, substance abuse, interpersonal conflicts, personality disorders, and many chronic mental disorders (Roelofs et al., 2013). Research findings indicate a relationship between early maladaptive schemas and social anxiety, with individuals with social anxiety disorder exhibiting schemas across different domains (Farhadi et al., 2022; Mohagheghi & Kharghani, 2021; Mohammadi et al., 2019; Taylor et al., 2017). Schema therapy, an integrative and novel treatment, is primarily based on the expansion of traditional cognitive-behavioral therapy concepts and methods, integrating principles and foundations from cognitive-behavioral, attachment, object relations, gestalt, constructivist, and psychoanalytic schools into a single conceptual and therapeutic model (Kellogg & Young, 2006). The key concept in this approach is "early maladaptive schemas" (Young, 1999). Schema therapy targets these deep cognitive levels and aims to overcome early maladaptive schemas using cognitive, experiential (emotional), behavioral, and interpersonal strategies. The primary goal of this psychotherapy model is to create psychological awareness and increase conscious control over schemas, ultimately aiming to improve schemas and coping styles. Schema therapy integrates principles from cognitive-behavioral, attachment, gestalt, object relations, constructivism, and psychoanalysis into a conceptual and therapeutic model (Young, 1999). The formation of maladaptive schemas involves the combination of an individual's innate temperament with early adverse relational experiences. In Young's therapeutic approach, early maladaptive schemas are the primary targets of personality disorders. These schemas operate at deep levels, often outside of individual awareness, leading to psychological vulnerability to anxiety, depression, and dysfunctional relationships (Farhadi et al., 2022). Therefore, schema therapy appears to positively impact interpersonal relationships in individuals with borderline personality disorder by reducing early maladaptive schemas. However, despite being a comprehensive treatment for borderline patients, schema therapy has its limitations. Schema improvement requires a strong will to challenge the established schema. Complete schema improvement is idealistic as most schemas cannot be entirely eradicated, nor can the associated memories be entirely eliminated. Schemas never disappear; their intensity and activation reduce through treatment. Schema therapy is extensive, resulting in high costs for patients. As previously mentioned, it is a combination of different psychotherapies, indicating its complexity and making it time-consuming, costly, and challenging. Additionally, working with individuals with borderline personality disorder is difficult due to their tendency to shift from one emotional state to another, leading to the introduction of the concept of modes in therapy. However, incorporating modes into therapy has further complicated the schema therapy model for both therapists and patients (Farhadi et al., 2022; Sempértegui et al., 2013; Taylor et al., 2017; Young, 1999).

On the other hand, mindfulness techniques are often used in meditation and specific treatments due to their numerous

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

positive benefits, including stress reduction, decreased rumination and negativity, and protection against depression and anxiety. Mindfulness helps individuals identify situations that cause anxiety and stress, gain better self-awareness, recognize their strengths and weaknesses, and learn coping strategies to deal with these situations (Teasdale et al., 2000). Stress is defined as a demand that exceeds an individual's ability to cope with the challenges ahead or any pressure exerted on the mind and body (Corcoran et al., 2010). Most people experience stress daily, originating from events that make them feel helpless or nervous (Janssen et al., 2018; Kaunhoven & Dorjee, 2017). When stressed, the body releases hormones that increase heart rate, speed up breathing, and provide more energy, alerting the brain and causing muscle contraction and increased heart rate. In the short term, these reactions are beneficial as they help individuals manage stressful situations, serving as the body's way of protecting itself. The combined therapeutic approach of schema therapy with mindfulness techniques involves initially familiarizing clients with the nature and concepts of schema therapy, such as recognizing early maladaptive schemas, their formation and persistence, and their defensive and coping behaviors. Subsequently, through mindfulness skills, clients focus on the impact of schemas on their perception of relationships and the unpleasant feelings and behaviors that follow, leading to an aversion to continuing the old path and considering starting a new one (Black et al., 2014; Corcoran et al., 2010). In this phase, cognitive and experiential strategies of schema therapy are integrated with mindfulness techniques. Clients then learn about the concept of defusion from mindfulness, helping them free themselves from thoughts and emotions arising from schemas. Here, behavioral pattern-breaking skills from schema therapy combine with mindfulness and defusion techniques to achieve a common goal: freeing clients from schemas. In this stage, therapists introduce clients to the nature and concept of values, enabling them to discover their new path based on personal values (Renner et al., 2016). In other words, the flexible nature of mindfulness fills the gaps in schema therapy, creating a comprehensive yet straightforward treatment that enhances the therapist's creativity according to the session's progress. In this study, the therapy was conducted in a group format. Group therapy in this research offers specific benefits, helping group members better observe the reflective effects of their schema-driven behaviors and fostering empathy, brainstorming, and problem-solving. Ultimately, the group can represent society, where individuals face interpersonal problems, facilitating the practice of appropriate behaviors in a community setting. Therefore, the main question is: to what extent can schema therapy and mindfulness techniques affect existential anxiety in individuals with multiple sclerosis?

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental design with a pre-test and post-test control group. Participants were randomly assigned to two experimental groups and one control group. By manipulating the independent variable, namely providing schema therapy and mindfulness technique to the experimental groups, the effect on the dependent variables, existential anxiety and death anxiety, was observed and analyzed. A pre-test was administered to both the experimental and control groups before the intervention. Subsequently, schema therapy and mindfulness technique were applied to the two experimental groups. After the intervention, a post-test was conducted on the experimental groups to determine the effect of the independent variable. A post-test was also administered to the control group for comparison.

The statistical population of this research included all individuals with MS in Tehran. The sample was selected from members of the MS Society in Tehran. Considering the potential dropout of participants, 15 individuals per group were estimated. Using purposive sampling, individuals from the MS Society were selected based on their pre-test scores and randomly assigned to three groups: two experimental groups and one control group. The inclusion criteria, based on the therapeutic protocol, included: being registered in the MS Society for multiple sclerosis, consent to participate in the study, the ability to read and write, participation in educational sessions (experimental groups), and not having acute psychological disorders or chronic diseases. Exclusion criteria included simultaneous participation in other counseling sessions, absence from two or more educational sessions, and unwillingness to participate. Based on these criteria, 30 individuals with multiple sclerosis were selected for the study.

2.2. Measures

2.2.1. Existential Anxiety

Developed by Laurence Good and Katharina Good, this scale comprises 32 items measuring existential anxiety on a

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

binary scale (true = 1, false = 2). The total score indicates the level of existential anxiety, ranging from 32 to 64. The scale includes five factors: purposelessness (items 4, 5, 8, 9, 11, 14, 17, 21, 24, 27, 28, 29, 30); meaninglessness (items 1, 2, 3, 12); inability to persuade others (items 6, 13, 19, 23, 25); disinterest in activities (items 7, 10, 18, 22, 32); and lack of responsibility towards others (items 15, 16, 20, 26, 31). Holt conducted a validity study with a sample of 447 participants, demonstrating favorable convergent and divergent validity with tests of purpose in life, pursuit of cognitive goals, and depression. The overall correlation was 66%, indicating high validity. Nouralizadeh Miyanjy and Jan Bozorgi also reported a Cronbach's alpha reliability of 88% (Mohammadzadeh & Jomehri-Kohneshahri, 2016).

2.3. Intervention

2.3.1. Schema Therapy

Schema therapy aims to identify and modify early maladaptive schemas that contribute to psychological distress and dysfunctional behaviors. The therapy integrates cognitive, behavioral, and experiential techniques to help individuals recognize and change deeply ingrained patterns. Over eight sessions, participants are guided through a structured process to increase awareness, challenge negative thoughts, and develop healthier coping mechanisms (Farhadi et al., 2022; Mohagheghi & Kharghani, 2021; Mohammadi et al., 2019; Taylor et al., 2017).

Session 1: Introduction and Assessment

The first session involves an introduction to schema therapy, explaining its purpose and process. Participants complete assessments to identify their early maladaptive schemas. The therapist builds rapport and discusses the therapy goals and expectations.

Session 2: Identifying Schemas

Participants learn about different schemas and how they impact thoughts, feelings, and behaviors. The therapist helps individuals identify their specific schemas through guided discussions and self-reflection exercises.

Session 3: Schema Triggers

This session focuses on recognizing triggers that activate maladaptive schemas. Participants explore past and present situations that provoke strong emotional responses, linking these to their identified schemas.

Session 4: Cognitive Restructuring

Participants learn cognitive techniques to challenge and reframe negative thoughts associated with their schemas. The therapist guides them in developing alternative, healthier perspectives.

Session 5: Experiential Techniques

This session introduces experiential techniques such as imagery and role-playing to help participants connect with their emotions and experiences related to their schemas. These exercises aim to foster emotional awareness and healing.

Session 6: Behavioral Pattern Breaking

Participants identify and plan to change specific behaviors linked to their maladaptive schemas. The therapist assists in developing practical strategies to implement these changes in daily life.

Session 7: Strengthening Healthy Schemas

The focus shifts to reinforcing positive schemas and coping strategies. Participants practice behaviors and thoughts that support their mental health and well-being.

Session 8: Review and Maintenance

The final session reviews the progress made during therapy. Participants discuss their experiences, challenges, and successes. The therapist provides strategies for maintaining changes and preventing relapse.

2.3.2. Mindfulness-Based Intervention

Mindfulness-based intervention aims to enhance present-moment awareness and acceptance, reducing anxiety and stress. This approach helps individuals develop a non-judgmental attitude towards their thoughts and emotions. Over eight sessions, participants learn mindfulness techniques to improve emotional regulation, reduce existential anxiety, and enhance overall well-being (Aghdam et al., 2022; Ahmadi & Valizadeh, 2021; Faghfouriazar, 2023; Goodarzi et al., 2021).

Session 1: Introduction to Mindfulness

The first session introduces the concept of mindfulness, its benefits, and the structure of the intervention. Participants engage in a basic mindfulness exercise to experience the practice firsthand.

Session 2: Body Awareness

Participants learn to focus on bodily sensations through mindfulness exercises such as body scans. This practice helps increase awareness of physical experiences and fosters a connection between the mind and body.

Session 3: Mindful Breathing

This session emphasizes the importance of breath awareness. Participants practice mindful breathing techniques to enhance relaxation and present-moment focus.

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

Session 4: Dealing with Thoughts

Participants learn to observe their thoughts non-judgmentally and understand the transient nature of thoughts. Mindfulness exercises focus on detaching from automatic negative thinking patterns.

Session 5: Emotional Regulation

The session introduces mindfulness techniques for managing emotions. Participants practice recognizing and accepting their emotions without being overwhelmed by them.

Session 6: Mindfulness in Daily Life

Participants explore ways to integrate mindfulness into everyday activities. The session includes practical exercises for applying mindfulness to routine tasks and interactions.

Session 7: Compassion and Acceptance

This session focuses on cultivating self-compassion and acceptance. Participants engage in exercises to develop a kinder, more accepting attitude towards themselves and their experiences.

Session 8: Reflection and Future Practice

The final session reviews the mindfulness techniques learned throughout the intervention. Participants reflect on their progress and discuss plans for continuing mindfulness practice independently. The therapist provides resources and strategies for maintaining mindfulness in daily life.

2.4. Data analysis

Descriptive statistics (frequency, mean, standard deviation) and inferential statistics using SPSS-22 software were used for data analysis. Structural equation modeling using Amos-21 software was also employed to examine causal relationships between variables.

3. Findings and Results

Table 1 presents the descriptive statistics for the research variables in the pre-test and post-test, categorized by groups.

Table 1

Descriptive Statistics for Existential Anxiety by Experimental Groups (Mindfulness Technique, Schema Therapy, and Control)

Variable	Group	Component	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD
Existential Anxiety	Mindfulness Group	Purposelessness	24.13	1.96	13.13	1.35
		Meaninglessness	7.13	1.46	4.07	0.26
		Inability to Persuade Others	9.20	1.78	5.07	0.26
		Disinterest in Activities	9.67	0.72	5.06	0.25
		Lack of Responsibility	9.00	1.31	5.80	1.01
		Total Existential Anxiety	59.13	5.26	33.13	3.06
Schema Therapy	Schema Therapy Group	Purposelessness	23.80	2.30	16.16	1.25
		Meaninglessness	7.40	1.18	5.00	1.13
		Inability to Persuade Others	9.40	1.52	6.67	1.16
		Disinterest in Activities	9.73	0.59	6.07	1.09
		Lack of Responsibility	8.47	1.64	7.53	1.35
		Total Existential Anxiety	58.80	4.41	41.27	3.61
Control	Control Group	Purposelessness	24.53	1.90	19.73	1.86
		Meaninglessness	7.40	0.91	6.47	1.19
		Inability to Persuade Others	9.53	0.99	8.53	1.12
		Disinterest in Activities	9.00	0.86	7.47	1.19
		Lack of Responsibility	8.73	1.75	8.73	1.62
		Total Existential Anxiety	59.20	4.70	50.93	5.09

As observed in Table 1, there is a difference in the mean existential anxiety scores between the experimental groups and the control group in the post-test. To determine whether these changes are due to measurement errors, confounding variables, or the independent variables (mindfulness technique or schema therapy), inferential statistics were used.

The Kolmogorov-Smirnov test results were not significant for any dimensions of existential anxiety ($P > 0.05$), indicating that the distribution of existential anxiety for the experimental and control groups follows the assumption of normality. Given that existential anxiety includes five dimensions, multivariate analysis of covariance (MANCOVA) was used to test the research hypotheses. The results in Table 8 show that Wilks' lambda for the interaction between control variables and group membership is 0.762, and the F statistic is 2.063, which is not significant ($p < 0.095$). This indicates that the regression

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

slopes of the existential anxiety dimensions are equal in both the control and experimental groups.

The M Box test results for the homogeneity of covariance matrices of the dependent variables in the groups show that the F statistic for the M Box test (1.136) is not significant (P > 0.05), indicating that the covariance matrices are homogeneous. The Bartlett's test of sphericity results, reported in Table 10, indicate that the chi-square statistic for the correlation of dependent variables is 93.308, which is significant at the 0.001 level, showing a significant relationship between these variables.

Table 2

One-Way ANOVA Results Comparing Experimental and Control Groups on Existential Anxiety

Domain	SS Experimental	SS Error	MS Experimental	MS Error	F	p	Effect Size
Purposelessness	257.039	220.370	128.519	5.956	21.578	0.001	0.538
Meaninglessness	31.369	33.192	15.684	0.897	17.484	0.001	0.486
Inability to Persuade Others	76.363	80.701	38.182	2.181	17.506	0.001	0.486
Disinterest in Activities	40.704	26.361	20.352	0.983	20.710	0.001	0.528
Lack of Responsibility	67.273	46.208	33.637	1.249	26.934	0.001	0.593
Total Existential Anxiety	2379.085	807.581	1189.542	19.697	60.392	0.001	0.747

The results in Table 2 indicate significant differences in the dimensions of existential anxiety—purposelessness, meaninglessness, inability to persuade others, disinterest in activities, and lack of responsibility—between the experimental and control groups. Existential anxiety significantly decreased in the experimental groups. To determine which group's post-test means for existential anxiety dimensions (purposelessness, meaninglessness, inability to persuade others, disinterest in activities, and lack of responsibility) are higher after adjusting for pre-test scores, **Error! Reference source not found.** reports the corrected comparisons.

Table 3

Pairwise Comparisons Between Experimental and Control Groups on Existential Anxiety

Variables	Comparison	Mean Difference	SE	p
Purposelessness	Mindfulness - Schema	-3.044	0.913	0.006
	Mindfulness - Control	-6.268	0.955	0.001
	Schema - Control	-3.224	0.970	0.001
Meaninglessness	Mindfulness - Schema	-0.888	0.354	0.05
	Mindfulness - Control	-2.191	0.371	0.001
	Schema - Control	-1.302	0.376	0.004
Inability to Persuade Others	Mindfulness - Schema	-1.645	0.553	0.01
	Mindfulness - Control	-3.417	0.578	0.001
	Schema - Control	-1.772	0.587	0.01
Disinterest in Activities	Mindfulness - Schema	-1.024	0.371	0.027
	Mindfulness - Control	-2.496	0.388	0.001
	Schema - Control	-1.472	0.394	0.002
Lack of Responsibility	Mindfulness - Schema	-1.623	0.418	0.001
	Mindfulness - Control	-3.201	0.437	0.001
	Schema - Control	-1.578	0.444	0.003
Total Existential Anxiety	Mindfulness - Schema	-8.175	1.621	0.001
	Mindfulness - Control	-17.792	1.621	0.001
	Schema - Control	-9.616	1.621	0.001

As shown in **Error! Reference source not found.**, the mean difference between the mindfulness and schema therapy groups for purposelessness is -3.044, significant at the 0.01 level. The mean difference between the mindfulness and schema therapy groups for meaninglessness is -0.888, significant at the 0.05 level. The mean difference between the mindfulness and schema therapy groups for inability to persuade others is -1.645, significant at the 0.01 level. The mean difference between the mindfulness and schema therapy groups for disinterest in activities is -1.024, significant at the 0.05 level. The mean difference between

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526

the mindfulness and schema therapy groups for lack of responsibility is -1.623, significant at the 0.01 level.

Based on the findings in **Error! Reference source not found.**, there are significant differences in the dimensions of existential anxiety between the experimental and control groups. Therefore, it can be concluded that there is a significant difference in the effectiveness of schema therapy and mindfulness techniques on existential anxiety in individuals with multiple sclerosis, with mindfulness techniques being more effective than schema therapy. After statistically controlling for pre-test scores, there is a significant difference between the effectiveness of schema therapy and mindfulness techniques on existential anxiety in individuals with multiple sclerosis, with mindfulness techniques being more effective.

4. Discussion and Conclusion

Given that existential anxiety comprises five dimensions, multivariate analysis of covariance was used to test the research hypotheses. The findings indicated significant differences in the dimensions of existential anxiety (purposelessness; meaninglessness of life; inability to persuade others; disinterest in activities; and lack of responsibility towards others) between the experimental group (schema therapy) and the control group, with a significant reduction in existential anxiety in the experimental group. Thus, it can be concluded that schema therapy affects existential anxiety in individuals with multiple sclerosis, leading to its reduction. After statistical control of the pre-test scores, the intervention impacted existential anxiety (purposelessness; meaninglessness of life; inability to persuade others; disinterest in activities; and lack of responsibility towards others). Therefore, the research hypothesis is confirmed, demonstrating that schema therapy affects existential anxiety in individuals with multiple sclerosis, resulting in its reduction. These results align with the prior findings (Farhadi et al., 2022; Mohagheghi & Kharghani, 2021; Mohammadi et al., 2019; Taylor et al., 2017).

To explain these results, it should be noted that multiple sclerosis and the associated physical and mental decline, physical weaknesses, and chronic illnesses can be highly stressful, leading to a sense of loss of personal control and decreased life satisfaction (Mohagheghi & Kharghani, 2021). The primary causes of these disorders include losses that lead to grief reactions, such as loss of job and social status, feelings of helplessness, loss of loved ones, health, power, and ability, which in turn lead to the loss of personal freedom, economic stability, sensory reduction, and changes in self-image, all of which jeopardize the patient's mental health, and significantly increase the patient's stress levels. Schema therapy introduces the domains of schemas and early maladaptive schemas, explains their functions, identifies unmet emotional needs, teaches strategies to release blocked emotions, and prepares individuals to change schemas and ineffective coping styles (surrender, avoidance, and overcompensation). The therapy incorporates techniques such as imagery to help individuals, with the therapist's assistance, manage some of their internal anxieties rooted in deep cognitive structures and schemas effectively (Farhadi et al., 2022). Therefore, it is not surprising that schema therapy effectively reduces existential anxiety in individuals with multiple sclerosis.

The results showed significant differences in the dimensions of existential anxiety (purposelessness; meaninglessness of life; inability to persuade others; disinterest in activities; and lack of responsibility towards others) between the experimental group (mindfulness) and the control group, with a significant reduction in existential anxiety in the experimental group. To determine which group's post-test mean scores for the dimensions of existential anxiety (purposelessness; meaninglessness of life; inability to persuade others; disinterest in activities; and lack of responsibility towards others) are higher after adjusting and controlling for pre-test scores, comparisons were made. Significant differences were found between the experimental and control groups for purposelessness; meaninglessness of life; inability to persuade others; disinterest in activities; and lack of responsibility towards others. Therefore, the research hypothesis is confirmed, demonstrating that mindfulness techniques affect existential anxiety in individuals with multiple sclerosis, resulting in its reduction. These findings align with prior studies (Aghdam et al., 2022; Ahmadi & Valizadeh, 2021; Faghfouriazar, 2023; Goodarzi et al., 2021). To justify this finding, it can be noted that mindfulness training, equipped with techniques such as relaxation, body scanning, and mindful breathing, can reduce muscle pain and mental and physical tensions in individuals with multiple sclerosis. By becoming aware of their bodily sensations and physical experiences through these techniques, they enhance their awareness of their physical problems and existence, leading to a reduction in reported existential anxiety.

Mindfulness training appears to enhance mental and psychological capacity to understand the moment, clear the

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526

mind, and achieve inner peace for accurate perception of events by focusing on thoughts, emotions, behavior, and motivations. In essence, mindfulness-based cognitive therapy effectively combines meditation exercises and cognitive therapy to alleviate human suffering, particularly emotional distress (Goodarzi et al., 2021). Therefore, explaining how mindfulness skills reduce symptoms and behavioral changes, including stress, suggests that these methods—which involve exposure, cognitive changes, self-regulation, relaxation, and acceptance—create a non-judgmental, indescribable awareness based on the present moment, allowing individuals to acknowledge and accept their experiences (Ahmadi & Valizadeh, 2021). By encouraging non-judgmental awareness of the present, mindfulness minimizes engagement with thoughts and feelings (Teasdale et al., 2000), thereby reducing the negative impact of early maladaptive schemas on an individual's life. Consequently, it is not surprising that mindfulness training positively impacts existential anxiety in individuals with multiple sclerosis.

Therefore, based on the findings, it can be concluded that there is a significant difference in the effectiveness of schema therapy and mindfulness techniques on existential anxiety in individuals with multiple sclerosis, with mindfulness techniques proving more effective. Mindfulness-based therapy focuses on meeting patients' needs, with interventions aimed at managing distress related to the disease, which creates emotional challenges, and improving emotional regulation skills (Teasdale et al., 2000). Thus, a fundamental goal in mindfulness therapy is to create psychological flexibility that aids in anxiety reduction. In this therapy, cognitions and emotions are examined in the context of background phenomena (Faghfouriazar, 2023). Hence, instead of approaches like cognitive-behavioral therapy that modify dysfunctional cognitions and beliefs to correct emotions and behaviors, patients are taught to focus on the "here and now," achieving greater psychological flexibility in life.

5. Limitations & Suggestions

This study faced several limitations. Firstly, the sample size was relatively small, which may affect the generalizability of the findings. The study was conducted with participants from a single city, Tehran, which may not represent the broader population of individuals with multiple sclerosis. Additionally, the intervention period was limited to eight weeks, which may not capture the long-term effects of schema therapy and mindfulness techniques. Self-report measures were used to assess existential anxiety, which could introduce response biases. Moreover, the lack of a follow-up assessment limits the understanding of the sustainability of the treatment effects over time. Future research should address these limitations by including larger, more diverse samples, extending the duration of the interventions, and incorporating objective measures and follow-up assessments.

Future research should explore the long-term effects of schema therapy and mindfulness techniques on existential anxiety in individuals with multiple sclerosis by including follow-up assessments at multiple time points post-intervention. Studies could benefit from using larger and more diverse samples across different geographical regions to enhance generalizability. Additionally, investigating the mechanisms underlying the effectiveness of these interventions, such as changes in cognitive and emotional processes, could provide deeper insights into how these therapies work. Comparative studies examining the efficacy of schema therapy and mindfulness techniques against other therapeutic approaches, such as cognitive-behavioral therapy or acceptance and commitment therapy, would also be valuable. Finally, incorporating qualitative methods could enrich the understanding of participants' personal experiences and the subjective impact of the interventions.

The findings of this study have several practical implications for clinical practice. Mental health professionals working with individuals with multiple sclerosis should consider incorporating schema therapy and mindfulness techniques into their treatment plans to address existential anxiety effectively. Training programs for therapists should include modules on these therapeutic approaches, emphasizing their application and benefits for this population. Healthcare providers should also be aware of the importance of addressing psychological well-being in addition to physical health in individuals with multiple sclerosis. Integrating psychological interventions into routine care could improve overall quality of life and mental health outcomes. Furthermore, policy-makers should support funding for mental health services and research focused on chronic illnesses, recognizing the significant impact of psychological interventions on the well-being of patients with multiple sclerosis.

Acknowledgments

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Declaration

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

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethics Considerations

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

Transparency of Data

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

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

Authors' Contributions

All authors contributed equally.

References

Agha-Bagheri, H., Mohammad -Khani, P., Emrani, S., & Farahmand, V. (2012). The Efficacy of Mindfulness-Based Cognitive Therapy Group on the Increase of Subjective Well-Being and Hope in Patients with Multiple Sclerosis. *Journal of Clinical Psychology*, *4*(1), 23-31. https://doi.org/10.22075/jcp.2017.2076

Aghdam, L., Rezaei Jamalouei, H., & Taheri, M. (2022). The effectiveness of mindfulness-based stress reduction on post-traumatic growth and death anxiety in breast cancer patients. *medical journal of mashhad university of medical sciences*, *65*(3), 1111-1124. https://www.magiran.com/paper/2544601

Ahmadi, V., & Valizadeh, H. (2021). The Effectiveness of Acceptance and Commitment-Based Therapy on the Quality of Life and Death Anxiety in the Elderly. *Aging Psychology*, *7*(2), 166-153. https://doi.org/10.22126/jap.2021.6370.1528

Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness Skills. *Assessment*, *11*(3), 191-206. https://journals.sagepub.com/doi/abs/10.1177/1073191104268029

Baker, D., Pryce, G., Croxford, J. L., Brown, P., Pertwee, R. G., Huffman, J. W., & Layward, L. (2000). Cannabinoids control spasticity and tremor in a multiple sclerosis model. *Nature*, *404*(6773), 84-87. https://doi.org/10.1038/35003583

Black, D. S., O'Reilly, G. A., Olmstead, R., Breen, E. C., & Irwin, M. R. (2014). Mindfulness-based intervention for prodromal sleep disturbances in older adults: design and methodology of a randomized controlled trial. *Contemporary Clinical Trials*, *39*(1), 22-27. https://www.sciencedirect.com/science/article/pii/S1551714414000950

Corcoran, K. M., Farb, N., Anderson, A., & Segal, Z. V. (2010). Mindfulness and emotion regulation: Outcomes and possible mediating mechanisms. https://psycnet.apa.org/record/2009-21674-014

Côté, I., Trojan, D., Kaminska, M., Cardoso, M., Benedetti, A., Weiss, D., Robinson, A., Bar-Or, A., Lapierre, Y., & Kimoff, R. (2013). Impact of sleep disorder treatment on fatigue in multiple sclerosis. *Multiple Sclerosis Journal*, *19*(4), 480-489. https://doi.org/10.1177/1352458512455958

Faghfouriazar, M. (2023). The Effectiveness of Selected Perceptual-Motor Exercises on Working Memory and Quality of Life of Elderly Women. *Aging Psychology*, *9*(3), 310-293. https://doi.org/10.22126/jap.2023.9426.1719

Farhadi, M., Pasandideh, M. M., & Vaziri, S. (2022). Evaluation of the effectiveness of schema therapy on reducing stress, anxiety, depression and increasing self-efficacy in patients with multiple sclerosis. *Clinical Psychology and Personality*, *19*(2), 57-69. https://doi.org/10.22070/cpap.2021.14285.1082

Gasiorowska, A., Zaleskiewicz, T., & Kesebir, P. (2018). Money as an existential anxiety buffer: Exposure to money prevents mortality reminders from leading to increased death thoughts. *Journal of Experimental Social Psychology*, *79*, 394-409. https://doi.org/10.1016/j.jesp.2018.09.004

Ghabaae M, Qelichnia Omrani H, & Roostaeizadeh M. (2007). Epidemiology of multiple sclerosis in Tehran: a three year study. *Tehran University Medical Journal*, *65*(5), 74-77. http://tumj.tums.ac.ir/article-1-792-en.html

Goodarzi, M. A., Bedayat, E., & Borumand, N. (2021). The effectiveness of mindfulness-based cognitive therapy on experiential avoidance and death anxiety in elderly women [Applicable]. *Rooyesh-e-Ravanshenasi Journal(RRJ)*, *10*(8), 115-124. http://frooyesh.ir/article-1-2727-en.html

Gottberg, K., Gardulf, A., & Fredrikson, S. (2000). Interferon-beta treatment for patients with multiple sclerosis: the patients' perceptions of the side-effects. *Multiple Sclerosis Journal*, *6*(5), 349-354. https://doi.org/10.1177/135245850000600510

Hauser, S. L., Waubant, E., Arnold, D. L., Vollmer, T., Antel, J., Fox, R. J., Bar-Or, A., Panzara, M., Sarkar, N., & Agarwal, S. (2008). B-cell depletion with rituximab in relapsing–remitting multiple sclerosis. *New England Journal of Medicine*, *358*(7), 676-688. https://www.nejm.org/doi/full/10.1056/nejmoa0706383

Iranzo, A., Stefani, A., Högl, B., & Santamaria, J. (2019). Sleep and sleep disorders in Franz Kafka's narrative works. *Sleep Medicine*, *55*, 69-73. https://doi.org/10.1016/j.sleep.2018.12.015

Janssen, M., Heerkens, Y., Kuijer, W., Van Der Heijden, B., & Engels, J. (2018). Effects of Mindfulness-Based Stress Reduction on employees' mental health: A systematic review. *PLoS One*, *13*(1), e0191332. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0191332

Kaunhoven, R. J., & Dorjee, D. (2017). How does mindfulness modulate self-regulation in pre-adolescent children? An integrative neurocognitive review. *Neuroscience &*

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

Biobehavioral Reviews, *74*, 163-184. https://doi.org/10.1016/j.neubiorev.2017.01.007

Kellogg, S. H., & Young, J. E. (2006). Schema therapy for borderline personality disorder. *Journal of Clinical Psychology*, *62*(4), 445-458. https://doi.org/10.1002/jclp.20240

Khanjari, C., & Khajevand, A. (2020). The effectiveness of schema therapy on temperament and character dimensions, food craving among obese women with type 2 diabetes [Research]. *Advances in Cognitive Sciences*, *22*(3), 14-23. https://doi.org/10.30699/icss.22.3.14

Krupp, L. B., Alvarez, L. A., LaRocca, N. G., & Scheinberg, L. C. (1988). Fatigue in Multiple Sclerosis. *Archives of Neurology*, *45*(4), 435-437. https://doi.org/10.1001/archneur.1988.00520280085020

Krupp, L. B., & Elkins, L. E. (2000). Fatigue and declines in cognitive functioning in multiple sclerosis. *Neurology*, *55*(7), 934-939. https://doi.org/10.1212/WNL.55.7.934

Krupp, L. B., Serafin, D. J., & Christodoulou, C. (2010). Multiple sclerosis-associated fatigue. *Expert Review of Neurotherapeutics*, *10*(9), 1437-1447. https://doi.org/10.1586/ern.10.99

Mason, A. E., Epel, E. S., Kristeller, J., Moran, P. J., Dallman, M., Lustig, R. H., Acree, M., Bacchetti, P., Laraia, B. A., & Hecht, F. M. (2016). Effects of a mindfulness-based intervention on mindful eating, sweets consumption, and fasting glucose levels in obese adults: data from the SHINE randomized controlled trial. *Journal of Behavioral Medicine*, *39*, 201-213. https://link.springer.com/article/10.1007/s10865-015-9692-8

Mohagheghi, H., & Kharghani, P. (2021). The Effect of Schema Therapy on Anxiety, Depression, and Early Maladaptive Schemas in Individuals with Substance Use Disorder [Research]. *Research on Addiction*, *15*(60), 299-324. https://doi.org/10.52547/etiadpajohi.15.60.299

Mohammadi, F., Taleb, N., Rezaei Shojaei, S., & Emami roudi, T. (2019). The Effectiveness of Schema Therapy on Cognitive Flexibility and Resiliency in Patients with Generalized Anxiety. *medical journal of mashhad university of medical sciences*, *62*(2), 34-42. https://doi.org/10.22038/mjms.2020.16176

Mohammadzadeh, A., & Jomehri-Kohneshahri, R. (2016). The Comparison of Personality Traits, Trait â€ " State Anxiety and Existential Anxiety among Patients with Generalized Anxiety Disorder and Normal People. *Journal of Clinical Psychology*, *8*(1), 83-92. https://doi.org/10.22075/jcp.2017.2229

Mohr, D. C., & Cox, D. (2001). Multiple sclerosis: Empirical literature for the clinical health psychologist. *Journal of Clinical Psychology*, *57*(4), 479-499. https://doi.org/10.1002/jclp.1042

Motaharinezhad, F., Parvaneh, S., & Ghahari, S. (2016). Fatigue in People with Multiple Sclerosis: Cause, Evaluation and Treatment. *Journal of Paramedical Sciences & Rehabilitation*, *5*(1), 73-80. https://doi.org/10.22038/jpsr.2016.6386

Qaderi, K., & Merghati Khoei, E. (2013). FEMALE SEXUAL PROBLEMS IN MULTIPLE SCLEROSIS AND ITS ASSOCIATION WITH QUALITY OF LIFE [Review article]. *Nursing and Midwifery Journal*, *11*(7), 0-0. http://unmf.umsu.ac.ir/article-1-1486-en.html

Roelofs, J., Onckels, L., & Muris, P. (2013). Attachment Quality and Psychopathological Symptoms in Clinically Referred Adolescents: The Mediating Role of Early Maladaptive Schema. *Journal of Child and Family Studies*, *22*(3), 377-385. https://doi.org/10.1007/s10826-012-9589-x

Schwartz, C. E., Coulthard-Morris, L., & Zeng, Q. (1996). Psychosocial correlates of fatigue in multiple sclerosis. *Archives of Physical Medicine and Rehabilitation*, *77*(2), 165-170. https://doi.org/10.1016/S0003-9993(96)90162-8

Sempértegui, G. A., Karreman, A., Arntz, A., & Bekker, M. H. J. (2013). Schema therapy for borderline personality disorder: A comprehensive review of its empirical foundations, effectiveness and implementation possibilities. *Clinical psychology review*, *33*(3), 426-447. https://doi.org/10.1016/j.cpr.2012.11.006

Strassle, C. G., McKee, E. A., & Plant, D. D. (1999). Optimism as an Indicator of Psychological Health: Using Psychological Assessment Wisely. *Journal of Personality Assessment*, *72*(2), 190-199. https://doi.org/10.1207/S15327752JP720203

Taylor, C. D. J., Bee, P., & Haddock, G. (2017). Does schema therapy change schemas and symptoms? A systematic review across mental health disorders. *Psychology and Psychotherapy: Theory, Research and Practice*, *90*(3), 456-479. https://doi.org/10.1111/papt.12112

Taylor, D. J., Mallory, L. J., Lichstein, K. L., Durrence, H. H., Riedel, B. W., & Bush, A. J. (2007). Comorbidity of Chronic Insomnia With Medical Problems. *Sleep*, *30*(2), 213-218. https://doi.org/10.1093/sleep/30.2.213

Teasdale, J. D., Segal, Z. V., Williams, J. M. G., Ridgeway, V. A., Soulsby, J. M., & Lau, M. A. (2000). *Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy*

Temple, M., & Gall, T. L. (2018). Working Through Existential Anxiety Toward Authenticity: A Spiritual Journey of Meaning Making. *Journal of Humanistic Psychology*, *58*(2), 168-193. https://doi.org/10.1177/0022167816629968

Tipsord, J. M. (2009). *The effects of mindfulness training and individual differences in mindfulness on social perception and empathy* University of Oregon]. http://scholarsbank.uoregon.edu/xmlui/handle/1794/10357

Vermetten, E., Jetly, R., Smith-MacDonald, L., Jones, C., & Bremault-Phillip, S. (2023). Moral Injury in a Military Context. In C. H. Warner & C. A. Castro (Eds.), *Veteran and Military Mental Health: A Clinical Manual* (pp. 231-261). Springer International Publishing. https://doi.org/10.1007/978-3-031-18009-5_14

Weems, C. F., Costa, N. M., Dehon, C., & Berman, S. L. (2004). Paul Tillich's theory of existential anxiety: A preliminary conceptual and empirical examination. *Anxiety, Stress, & Coping*, *17*(4), 383-399. https://doi.org/10.1080/10615800412331318616

Wood, B., van der Mei, I., Ponsonby, A.-L., Pittas, F., Quinn, S., Dwyer, T., Lucas, R., & Taylor, B. (2013). Prevalence and concurrence of anxiety, depression and fatigue over time in multiple sclerosis. *Multiple Sclerosis Journal*, *19*(2), 217-224. https://doi.org/10.1177/1352458512450351

Young, J. E. (1999). *Cognitive therapy for personality disorders: A schema-focused approach*. Professional Resource Press/Professional Resource Exchange. https://psycnet.apa.org/record/1999-02395-000

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526