



Effectiveness of behavioral activation on adversity quotient, experimental avoidance, and emotion regulation in patients with multiple sclerosis

Rahil Bahadori¹, Parvin Ehteshamzadeh¹, Zahra Eftekhar-Saadi¹, Reza Pasha¹

Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

Original Article

Abstract

BACKGROUND: Patients with multiple sclerosis (MS) experience a lack of integration in psychological, social, emotional, and physical dimensions, and in addition to physical problems, they experience a variety of psychological problems in the cognitive-emotional aspect as a result of the disease-caused cognitive-emotional disorder. The present study aimed to investigate the effect of behavioral activation combined with guided imagery rescripting on adversity quotient (AQ), experimental avoidance, and cognitive emotion regulation in patients with MS.

METHODS: This was a research with a quasi-experimental design (pre-test and post-test with a control group). The statistical population included all patients with MS visiting the Caspian Physiotherapy Center of Ahvaz, Iran, in 2020. The sample consisted of 30 patients with MS (15 in the experimental group and 15 in the control group) who were selected by convenience sampling. The research instruments included the Adversity Quotient Test, Young-Rygh Avoidance Inventory (YRAI), and the Cognitive Emotion Regulation Questionnaire (CERQ). Analysis of covariance (ANCOVA) was used to analyze the data.

RESULTS: Behavioral activation combined with guided imagery rescripting increased AQ and positive cognitive emotion regulation, and decreased experiential avoidance and negative cognitive emotion regulation in patients with MS in the experimental group compared to the control group ($P < 0.001$).

CONCLUSION: Behavioral activation combined with guided imagery rescripting could be an effective method for increasing AQ and positive cognitive emotion regulation and decreasing experiential avoidance and negative cognitive emotion regulation in patients with MS.

KEYWORDS: Imagery, Psychotherapy; Adversity; Behavior; Emotional Regulation; Multiple Sclerosis

Date of submission: 23 June 2022, **Date of acceptance:** 12 Oct. 2022

Citation: Bahadori R, Ehteshamzadeh P, Eftekhar-Saadi Z, Pasha R. Effectiveness of behavioral activation on adversity quotient, experimental avoidance, and emotion regulation in patients with multiple sclerosis. *Chron Dis J* 2023; 11(4): 231-9.

Introduction

Multiple sclerosis (MS) is a chronic and progressive central nervous system (CNS) disease that causes patients to experience sensory impairment, weakness, muscle cramps, vision impairment, cognitive impairment, fatigue, tremor, voiding dysfunction, dyssynergic defecation, sexual dysfunction,

balance disorder, forgetfulness, hearing loss, numbness, blurred vision, diplopia, and speech disorder. The prevalence of MS in Iran is 100 per 100000 people, and women are affected two to three times more than men.¹ This disease primarily affects individuals who are in a productive stage of their lives. MS symptoms and complications have a negative impact on a person's self-image, as well as their adversity quotient (AQ), self-esteem, and quality of life.^{2,3}

When stressors interfere with the lives of patients with MS, their emotional states and thinking deviate from normal and balanced

Corresponding Author:

Parvin Ehteshamzadeh; Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran
Email: ehteshamzadehp@gmail.com

levels, and cognitive activities become vulnerable, and behavioral problems emerge as feelings of anxiety, depression, and a reduction in the AQ.^{4,5} According to Case *et al.*,⁶ patients with MS have a lower AQ than healthy people. In addition to psychological problems and disorders, these patients have problems in their relationships with family and children; such problems reduce their quality of life and have an impact on the patients' AQ. It should be noted that the AQ is one of the most critical cognitive dimensions in individuals. Identifying and increasing the AQ leads to a new and hopeful perspective, and the ability to adapt to patients in the face of mental stress.⁷

Patients with MS experience experiential avoidance as a result of the disease suffering and challenges, which endangers their health. Individuals engage in experiential avoidance when they attempt to confront these states or the factors that call for them, or when they resist them, change their form or frequency, and avoid or escape them.⁸ Although experiential avoidance can be followed by relief in the short term, its intensity, frequency, or duration increases in the long run. Thus, experiential avoidance can prevent people from achieving important life goals. Such emotions can lead to a mental disorder.⁹ According to Tavakoli Saleh and Ebrahimi,¹⁰ people with MS have experiential avoidance. As a result of the disease, patients with MS experience concerns which lead to mental damage and experiential avoidance.

Furthermore, patients with MS experience emotional dysregulation or the inability to regulate emotional cognition as a result of the stressors associated with the disease. When individuals are emotionally powerful, they can improve their mental health when confronted with cognitive challenges.¹¹ Patients with MS may experience emotional dysregulation as a result of the disease challenges, threatening their emotional health and self-esteem.¹² The purpose of cognitive emotion regulation is to

support, develop, and maintain a person's self-esteem, personal efficiency, and individuality.¹³ This issue can be brought up with the goal of increasing positive emotion, avoiding negative emotion in order to form a positive emotion, and a high level of appropriate cognitive emotion regulation can lead to patients' emotional recovery.^{14,15}

Some MS disease-modifying drugs such as interferon beta-1b and glatiramer acetate can reduce the frequency and severity of MS episodes or their relapse. They can also control the growth of damage to nerve fibers and reduce symptoms.¹⁶ Behavioral activation therapy is one of the most effective treatments for patients with MS who have a mental disorder. This treatment is a treatment plan that evaluates the patient's mood behavior, and the treatment process is engaged in providing alternative responses, as well as integrating these alternatives, viewing results, and evaluating them.¹⁷ In this type of treatment, cognition serves to connect practices, emotional consequences, and the systematic replacement of dysfunctional patterns of behavior with adaptive patterns of behavior.¹⁸ Quality and social function improvement are prioritized in this type of treatment. Amiri *et al.*¹⁹ reported that this treatment was a type of behavior therapy that provided objective and simple techniques to perform, and the treatment period was cost-effective due to its short duration.

Individuals with MS must learn to adapt to the challenges of living with a chronic illness. It is thought that guided imagery rescripting therapy affects adaptation to MS. Case *et al.*²⁰ reported that guided imagery rescripting therapy improved the recovery rate of patients with MS. In this study, behavioral activation therapy was integrated with guided imagery rescripting therapy. Guided imagery rescripting therapy consists of mental exercises designed to help patients mentally accept the influence of health and recovery on their bodies. This method involves using one's imagination to create views,

sounds, smells, tastes, and other senses that provide a kind of purposeful vision. In this approach, the brain's imaginations are activated during the experience, that is, the individual creates a flow of thoughts in which they can hear, feel, or press things that they desire, and then they feel them and can imagine them in themselves.²¹ Based on the above considerations, the present study aimed to investigate the effect of behavioral activation combined with guided imagery rescripting on AQ, experimental avoidance, and cognitive emotion regulation in patients with MS in Ahvaz, Khuzestan Province, Iran.

Methods

This was a research with a quasi-experimental design (pre-test and post-test with a control group). The statistical population of present study included all patients with MS admitted to the Caspian Center in Ahvaz in 2020. The sample consisted of 30 patients with MS (15 in the experimental group and 15 in the control group) who were selected by convenience sampling (Figure 1). The inclusion criteria were having MS for at least 6 months, being

able to attend treatment sessions, not using psychiatric drugs three months before and during the research, and having a minimum level of junior high school education. The exclusion criteria were suffering from psychotic disorders, beginning other psychotherapy concurrently, and missing more than two treatment sessions during the treatment process. The process of sample selection and questionnaire distribution was done by the first author. Written informed consent was obtained from the participants before conducting the research.

Adversity Quotient Test: Stoltz in 1997 developed this test to measure the AQ as an individual's adversity profile.²² While planning 14 different situations, the AQ measures individuals' reactions to each situation using four questions that are exactly repeated for each situation. The test has a total of 56 questions and proposes four scenarios for each question, which are control, ownership, reach, and endurance. This questionnaire's scoring ranges from 1 (I disagree) to 5 (I agree). Its overall score ranges from 56 to 280. Those who score between 56 and 95 have a low AQ.²²

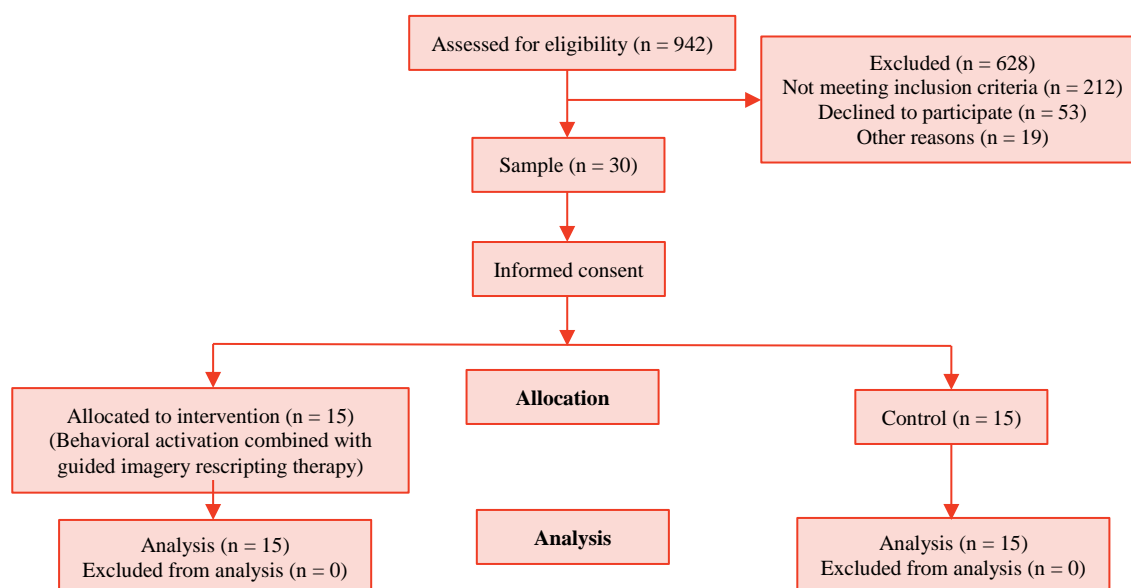


Figure 1. Flow-chart of the participants' selection

Tamizi et al.²³ reported a Cronbach's alpha of 0.82 for the Persian version of the questionnaire. The Cronbach's alpha coefficient was 0.88 in the present study.

Young-Rygh Avoidance Inventory (YRAI): Young-Rygh in 2005 developed this inventory, which contains 40 items. The items of this questionnaire include the following: intentionally not thinking about upsetting things, substance abuse, denial of unhappiness, excessive rationality and control, suppression of anger, psychosomatic symptoms, withdrawal from people, denial of memories, avoidance through sleep/lack of energy, distraction through activity, self-soothing (eating, shopping, etc.), passive blocking of upsetting emotions, passive distraction: fantasy, daydreaming, television, and avoidance of upsetting situations. This questionnaire is scored on a 6-point Likert scale from 1 to 6. The lowest and highest scores in this questionnaire are 40 and 240, respectively, with higher scores indicating that the avoidance scheme has a greater impact on the individual. Soleimani Sefat et al.²⁴ reported a Cronbach's alpha of 0.92 for the Persian version of the questionnaire. In the present study, Cronbach's alpha coefficient was 0.89 for the questionnaire.

Cognitive Emotion Regulation Questionnaire (CERQ): Garnefski and Kraaij²⁵ developed this multidimensional questionnaire to assess differences in cognitive regulation of emotions among individuals after experiencing stressful, threatening, or traumatic life events. This 36-item questionnaire is a self-report measure and has two subscales as positive cognitive emotion regulation (acceptance, positive refocusing, refocusing on planning, positive reappraisal) and negative cognitive emotion regulation (self-blame, rumination, catastrophizing, other-blame). The scores range from 1 (almost never) to 5 (almost always). The positive

cognitive emotion regulation scale has 20 items, while the negative cognitive emotion regulation scale has 16 items. The sum of the subscales yields the total score. Badie et al.²⁶ reported that the reliability of the Persian version of the questionnaire was equal to 0.88 based on Cronbach's alpha coefficient. The Cronbach's alpha coefficient was 0.83 in the present study.

Behavioral activation combined with guided imagery rescripting therapy sessions: In the experimental group of patients with MS, behavioral activation combined with guided imagery rescripting therapy was performed in eight 90-minute sessions based on a combination of the activator behavioral therapy model and guided imagery rescripting therapy. The pre-test, post-test, and intervention sessions were conducted by the first author who had attended specialized courses and workshops. Table 1 provides a summary of the sessions.

Data were analyzed by descriptive and inferential statistics, such as mean, standard deviation (SD), multivariate analysis of covariance (MANCOVA), and analysis of covariance (ANCOVA). SPSS software (version 23, IBM Corporation, Armonk, NY, USA) was further used to analyze the data. The study was approved by the Ethics Committee of Islamic Azad University, Ahvaz Branch (code: IR.IAU.AHVAZ.REC.1400.146).

Results

The participants included 30 patients with MS, aged 37.28 ± 6.42 years old. The mean and SD of research variables in the experimental and control groups in the pre-test and post-test are presented in table 2. Based on the results of the Kolmogorov-Smirnov test, the null hypothesis for the normality of the distribution of scores of the experimental group and the control group in AQ, experimental avoidance, and positive and negative cognitive emotion regulation was confirmed.

Table 1. Summary of behavioral activation combined with guided imagery rescripting therapy sessions

Sessions	Content
First	Pre-test Training behavioral conventions Developing an understanding of the concept of guided imagery rescripting The relationship between imagery rescripting and thoughts
Second	Training and focus on behavioral activation Teaching appropriate strategies Identifying irritating thoughts and images Interaction of individuals with the environment
Third	Behavioral conventions and reviewing behavioral systems Practicing muscle relaxation Visualizing irritating thoughts and images
Fourth	Focusing on aspects of stress and disease anxiety Using positive verbal reinforcement through hope therapy Training guided and directional imagery rescripting
Fifth	Focusing on the emotion-cognitive aspects of the patient Changing temperaments and mental states Training mental rotation and mental review
Sixth	Focusing on modes and behavioral judgments and their control Practicing cognitive reconstruction of negative thoughts and irritating images
Seventh	Training patients about the medical, psychological, and social components of the disease Training coping skills Applying trained techniques
Eighth	Practicing and repeating trained techniques Surveying, providing follow-up solutions, conducting post-test

That is, the hypothesis of normal distribution of scores in the pre-test was confirmed in both the experimental and control groups. The F-value of the interaction for AQ, experimental avoidance, positive and negative cognitive emotion regulation was not significant based on the test results of the study of the homogeneity of the regression slopes of the research variables in the two groups. As a result, the hypothesis of regression homogeneity was confirmed. In terms of AQ, experimental avoidance, and

positive and negative cognitive emotion regulation, Levene's test was not significant. As a result, the hypothesis of variance homogeneity was confirmed.

The significance levels of all tests indicated that among patients with MS in the experimental and control groups, at least one of the variables of AQ, experimental avoidance, positive cognitive emotion regulation, and negative cognitive emotion regulation had a significant difference based on the results of MANCOVA, by controlling for pre-test levels.

Table 2. Mean \pm standard deviation (SD) of the research variable in the experimental and control groups

Variables	Phases	Experimental group (mean \pm SD)	Control group (mean \pm SD)
Adversity quotient	Pre-test	74.93 \pm 11.75	73.60 \pm 12.25
	Post-test	106.93 \pm 12.57	72.54 \pm 11.40
Experiential avoidance	Pre-test	130.01 \pm 13.76	124.27 \pm 9.76
	Post-test	49.13 \pm 11.48	125.27 \pm 7.11
Positive cognitive emotion regulation	Pre-test	27.86 \pm 2.72	28.33 \pm 4.36
	Post-test	87.66 \pm 4.27	29.20 \pm 4.45
Negative cognitive emotion regulation	Pre-test	58.93 \pm 3.57	56.66 \pm 4.70
	Post-test	21.46 \pm 3.70	55.86 \pm 5.23

SD: Standard deviation

Table 3. Results of one-way analysis of covariance (ANCOVA) on research variables in experimental and control groups

Variables	SS	df	MS	F	P	η^2	Power
Adversity quotient	113155.97	1	113155.97	166.40	0.001	0.98	1.00
Experiential avoidance	34713.16	1	34713.16	358.48	0.001	0.95	1.00
Positive cognitive emotion regulation	19073.43	1	19073.43	991.55	0.001	0.97	1.00
Negative cognitive emotion regulation	7196.54	1	7196.54	359.47	0.001	0.93	1.00

SS: Sum of squares; df: Degree of freedom; MS: Mean squares

The effect was 0.98. The statistical power was 1, implying that no type I error could occur. To determine which variables differed between the experimental and control groups, a one-way ANCOVA was performed (Table 3).

As shown in table 3, there was a significant difference between patients with MS in the experimental and control groups in terms of AQ ($F = 166.40$, $P < 0.001$), experimental avoidance ($F = 358.48$, $P < 0.001$), positive cognitive emotion regulation ($F = 991.55$, $P < 0.001$), and negative cognitive emotion regulation ($F = 359.47$, $P < 0.001$). In other words, when compared to the control group, behavioral activation therapy combined with guided imagery rescripting therapy increased AQ and positive cognitive emotion regulation in patients with MS while decreasing experimental avoidance and negative cognitive emotion regulation.

Discussion

This study aimed to investigate the effect of behavioral activation combined with guided imagery-rescripting on AQ, experimental avoidance, and cognitive emotion regulation in patients with MS in Ahvaz. The findings revealed a significant difference between patients with MS in the experimental and control groups in terms of AQ, experimental avoidance, positive cognitive emotion regulation, and negative cognitive emotion regulation. In other words, in the experimental group, behavioral activation therapy combined with guided imagery rescripting therapy increased AQ and positive cognitive emotion regulation in patients with MS while decreasing experimental avoidance and

negative cognitive emotion regulation. Since no research had been conducted to combine these two therapies, an overlapping study was conducted. This finding is consistent with the research results of previous studies.^{27,28}

Patients with MS have severe cognitive and emotional problems, which cause disorder in cognitive-emotional dimensions and have a negative impact on their AQ, experimental avoidance, and cognitive emotion regulation. According to the findings of this study, behavioral activation combined with guided imagery rescripting therapy increased AQ and positive cognitive emotion regulation while decreasing experimental avoidance and negative cognitive emotion regulation.¹⁷ By combining behavioral-motivational problem-solving techniques with an efficient expression of thoughts and relaxation through guided imagery rescripting, behavioral activation combined with guided imagery rescripting therapy improved the consequences of negative thinking about incompetence and AQ. It caused patients with MS to improve their ability to adapt by strengthening their motivation and mental imagery, as well as their visualization of success in controlling their condition, and instead, show a higher AQ when confronted with adversity. Furthermore, the reconstruction of positive thoughts, behavior, and positive imagery about efficiency bolstered the patients' tenacity and successful construction of their condition.

By evaluating behavior and unifying the response, as well as expressing thoughts and visual overcoming on distressing situations, behavioral activation combined with guided imagery rescripting improved the ability to

adapt to adversities. When exposed to stress, patients improved their socio-behavioral competence by repairing their behavior and overcoming negative perceptions in this intervention, and were able to respond adaptively rather than repressing and avoiding negative situations. The reason for this was that behavioral activation combined with guided imagery rescripting produced a feeling of relaxation in patients by combining motivational techniques for behavior change, assessment based on imagery rescripting, and relaxation methods in the mind.¹⁹

Patients with MS with behavioral activation combined with guided imagery rescripting had a higher AQ as a result of mental introspection and evoking behavior, thoughts, and evacuating negative perceptions, as well as an ability to overcome dysfunctional thoughts. During the intervention, the technique of communication between actions and emotions, as well as the control of disturbing thoughts, helped patients overcome ineffective feelings. This integrated intervention improved behavioral efficiency, self-control, and negative thought control using guided imagery rescripting, as well as shifting patients' attention away from their minds and negative emotions.²⁰ The intervention caused patients to have positive behaviors, positive emotions, and awareness of their condition given their physical and mental conditions, and caused them to have less negative self-assessment and negative emotions, and increased positive acceptance and evaluation in the patients by establishing calmness in the situation.

It is recommended that counseling and treatment centers closely monitor the efficacy of behavioral activation combined with guided imagery rescripting in improving AQ, experimental avoidance, and positive and negative cognitive emotion regulation in patients with MS. It is recommended that healthcare experts train therapists in

behavioral activation combined with guided imagery rescripting through training workshops, so that effective steps can be taken to improve AQ of patients with MS, experimental avoidance, and positive and negative cognitive emotion regulation.

This study was performed on patients with MS visiting the Caspian Physiotherapy Center of Ahvaz; therefore, caution should be observed in generalizing the results to other communities in different time and place situations due to different cultural conditions. Because of the prevalence of coronavirus disease 2019 (COVID-19), the experimental group's sessions were held online, which created limitations in the study due to the patients' problems during the study. It is suggested that researchers use other therapeutic approaches and compare the effectiveness of these approaches in increasing AQ and positive cognitive emotion regulation and decreasing experiential avoidance and negative cognitive emotion regulation in patients with MS. It is recommended that the behavioral activation treatment be applied for other statistical communities as well.

Conclusion

Behavioral activation combined with guided imagery rescripting resulted in patients with MS receiving inner motivation, imagery rescripting, and emotional discharge to be responsible for changing their mode, increasing their flexibility, and displaying less avoidance in the face of challenges. In patients with MS, behavioral activation combined with guided imagery rescripting increased AQ and positive cognitive emotion regulation while decreasing experimental avoidance and negative cognitive emotion regulation; thus, it was an effective intervention.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

This article was extracted from a part of the PhD dissertation of Rahil Bahadori in the Department of Psychology, Islamic Azad University, Ahvaz Branch. The researchers wish to thank all the individuals who participated in the study.

Financials support and sponsorship

The present study was conducted without any financial support.

References

- Mirmosayyeb O, Shaygannejad V, Bagherieh S, Hosseinabadi AM, Ghajarzadeh M. Prevalence of multiple sclerosis (MS) in Iran: A systematic review and meta-analysis. *Neurol Sci.* 2022; 43(1): 233-41.
- Gil-Gonzalez I, Martin-Rodriguez A, Conrad R, Perez-San-Gregorio MA. Quality of life in adults with multiple sclerosis: A systematic review. *BMJ Open.* 2020; 10(11): e041249.
- Ebrahimi A, Ghahari S. The effectiveness of mindfulness-based stress reduction (MBSR) on anxiety and depression in patients with multiple sclerosis (MS). *Chron Dis J.* 2020; 8(1): 21-5.
- Turner AP, Knowles LM. Behavioral Interventions in Multiple Sclerosis. *Fed Pract.* 2020; 37(Suppl 1): S31-S35.
- Longinetti E, Frisell T, Englund S, Reutfors J, Fang F, Piehl F. Risk of depression in multiple sclerosis across disease-modifying therapies. *Mult Scler.* 2022; 28(4): 632-41.
- Case LK, Jackson P, Kinkel R, Mills PJ. Guided imagery improves mood, fatigue, and quality of life in individuals with multiple sclerosis: An exploratory efficacy trial of healing light guided imagery. *J Evid Based Integr Med.* 2018; 23: 2515690X17748744.
- Safi'i A, Muttaqin I, Sukino, Hamzah N, Chotimah C, Junaris I, et al. The effect of the adversity quotient on student performance, student learning autonomy and student achievement in the COVID-19 pandemic era: Evidence from Indonesia. *Heliyon.* 2021; 7(12): e08510.
- Potter KJ, Golijana-Moghaddam N, Evangelou N, Mhizha-Murira JR, das Nair R. Self-help acceptance and commitment therapy for carers of people with multiple sclerosis: A feasibility randomised controlled trial. *J Clin Psychol Med Settings.* 2021; 28(2): 279-94.
- Donisi V, Gajofatto A, Mazzi MA, Gobbin F, Busch IM, Ghellere A, et al. Insights for fostering resilience in young adults with multiple sclerosis in the aftermath of the COVID-19 emergency: An Italian survey. *Front Psychiatry.* 2020; 11: 588275.
- Tavakoli Saleh S, Ebrahimi ME. Effectiveness of acceptance-commitment therapy on the resilience and psychological well-being of female patients with multiple sclerosis in Hamadan, Iran. *Avicenna J Clin Med.* 2021; 28(2): 126-33.
- Grothe M, Opolka M, Berneiser J, Dressel A. Testing social cognition in multiple sclerosis: Difference between emotion recognition and theory of mind and its influence on quality of life. *Brain Behav.* 2021; 11(1): e01925.
- Sahin E, Gulec KS, Terzi M. The effect of a psychoeducation program based on the rational emotional behavioral approach in individuals with multiple sclerosis diagnosis: A randomized controlled trial. *Perspect Psychiatr. Care* 2022; 58(4): 1449-59.
- Lotfi S, Aminipozveh Z. The effectiveness of emotion-regulation skills training on blood pressure control and quality of life in patients with hypertension. *Chron Dis J.* 2020; 8(1): 8-13.
- Schirda B, Duraney E, Lee HK, Manglani HR, Andridge RR, Plate A, et al. Mindfulness training for emotion dysregulation in multiple sclerosis: A pilot randomized controlled trial. *Rehabil Psychol.* 2020; 65(3): 206-18.
- Ratajska A, Zurawski J, Healy B, Glanz BI. Computerized cognitive behavioral therapy for treatment of depression in multiple sclerosis: a narrative review of current findings and future directions. *Int J MS Care.* 2019; 21(3): 113-23.
- Filipi M, Jack S. Interferons in the treatment of multiple sclerosis: A clinical efficacy, safety, and tolerability update. *Int J MS Care.* 2020; 22(4): 165-72.
- Seid SH, Rajaei A, Borjali M. Comparing the effectiveness of behavioral activation treatment with anger management on the identity crisis of patients with multiple sclerosis. *Journal of Research in Psychological Health.* 2020; 13(4): 1-14.
- D'Elia A, Bawor M, Dennis BB, Bhatt M, Litke K, McCabe K, et al. Feasibility of behavioral activation group therapy in reducing depressive symptoms and improving quality of life in patients with depression: The BRAVE pilot trial. *Pilot Feasibility Stud.* 2020; 6: 61.
- Amiri S, Ehteshamzadeh P, Hafezi F, Borna M. Comparing the effectiveness of behavioral activation and acceptance and commitment therapy in cognitive-attentional syndrome in patients with depression. *Middle East J Rehabil Health Stud.* 2021; 8(2): e109550.
- Case LK, Jackson P, Kinkel R, Mills PJ. Guided

- imagery improves mood, fatigue, and quality of life in individuals with multiple sclerosis: An exploratory efficacy trial of healing light guided imagery. *J Evid Based Integr Med.* 2018; 23: 2515690X17748744.
21. Maier A, Schaitz C, Kroner J, Connemann B, Sobic-Vasic Z. Imagery rescripting: exploratory evaluation of a short intervention to reduce test anxiety in university students. *Front Psychiatry.* 2020; 11: 84.
 22. Wang X, Liu M, Tee S, Dai H. Analysis of adversity quotient of nursing students in Macao: A cross-section and correlation study. *Int J Nurs Sci.* 2021; 8(2): 204-9.
 23. Tamizi M, Rezai A, Kazemi S. Coefficient (AQ) difficult relationship and difficulties in social emotional regulation efficient: The criminals fund AF - correcting township Shiraz. *Crime Prevention Studies.* 2015; 10(36): 9-30.
 24. Soleimani sefat E, Saadati H, Azimian S, Amani S, Saleh manijeh H, Leshni L. Psychometric Properties of Persian Version of Young-Rygh Avoidance Inventory. *Iran J Psychiatry Clin Psychol.* 2017; 23(2): 232-43.
 25. Garnefski N, Kraaij V. Cognitive emotion regulation questionnaire- development of a short 18-item version (CERQ-short). *Pers Individ Dif.* 2006; 41(6): 1045-53.
 26. Badie A, Makvandi B, Bakhtiarpour S, Pasha R. Drug cravings and its relationship with family communication patterns and resiliency through the mediatory role of difficulty in cognitive emotion regulation. *Journal of Client-Centered Nursing Care.* 2020; 6(2): 125-34.
 27. Shahabi A, Ehteshamzadeh P, Asgari P, Makvandi B. Comparison of the effectiveness of acceptance and commitment therapy and guided imagery on the resilience of cardiac disease patients referring to the heart rehabilitation department. *The Horizon of Medical Sciences.* 2020; 26(3): 276-97.
 28. Serrano-Ibanez ER, Ramirez-Maestre C, Lopez-Martinez AE, Esteve R, Ruiz-Parraga GT, Jensen MP. Behavioral inhibition and activation systems, and emotional regulation in individuals with chronic musculoskeletal pain. *Front Psychiatry.* 2018; 9: 394.