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Relationship between Self-compassion and Cognitive Appraisal with Stressful Habits in Women with Multiple Sclerosis (MS)

Abstract

One of the main problems today's societies face is ineffective evaluations that result in stress. Therefore, it is clinically necessary to identify the causes and sources of stress as predictors of many diseases. This study aimed to investigate the relationship between self-compassion and cognitive appraisal with stressful habits in women with multiple sclerosis (MS). This research was a cross-sectional, applied descriptive-correlational study. The independence examined data independence by the Durbin-Watson test, and then they were analyzed using regression analysis. The study sample consisted of 130 female MS patients, and the data were collected by using the Self-Compassion Questionnaire (Rees *et al*., 2011), Kurdon's Standard Stress Measurement Scale (1967), and the Emotion Regulation Questionnaire (Gross and John, 2003)

The regression analysis results showed that cognitive appraisal and self-compassion significantly affected stressful habits in women with MS ($p \leq 0.01$). The results also indicated that cognitive appraisal and self-compassion explained 0.43% of the variance of stressful habits in women with MS ($R^2=0.435$). The results revealed a direct relationship between self-unkindness and the prediction of stressful habits ($\beta=0.637$). In addition, a significant and positive relationship between self-kind and stressful habits ($p<0.01$) and also a significant and negative relationship between self-compassion and stressful habits ($p<0.01$) were found. Finally, the results indicated that there was a significant relationship between cognitive appraisal and its dimensions (re-appraisal and suppression) ($p<0.05$).

Keywords: *multiple sclerosis (MS), self-compassion, cognitive appraisal, stressful habit*

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Introduction

People's lifestyles have changed in today's industrial world. However, humans are responsible for this transformation; this change has challenged them. Their mental health was also endangered, leading to a change in lifestyle. The type of life of a person, group, or culture is called lifestyle, which reflects the tendencies and values of a person or group. Habits, attitudes, tastes, moral standards, and economic level has an essential role in the way of life of a person or group [1]. Stressful lifestyles and emotional habits are the most important predictors of multiple sclerosis (MS) that cause mental disturbances in daily life. This special disease is a chronic and acute inflammatory disorder of the central nervous system, associated with clinical manifestations and severe neurological disability. Therefore, it is crucial to check the stress. Stress is a productive state of a specific biological reaction in the body with a continuous nature in constant contact with the person and the environment [2]. The person's mental health and well-being are negatively affected due to excessive stress or being in a stressful situation for a long time. These reactions and stress responses have different stages and different ways of adapting. In this case, a person's adaptation is associated with stress, and the person has gotten a kind of habit [3]. Special attention to stress and effective ways to deal with it was first proposed in Lazarus-Folkman's (1991-1996) cognitive relationship theory in stress and stress tolerance. This theory defines stress as a special relationship between a person and his environment. However, the person defines stress as a task or an excessive expectation, so this expectation can be a threat to his resources and interests or the well-being of his life. If stress continues, it leads to stressful habits due to people's stress and ineffective cognitive evaluation. Habit is generally defined as an unconscious program and a regular and repetitive behavior flow.

Psychology believes that a habit is a more or less fixed way of thinking, desires, or feelings, which has been achieved through the previous repetition of a mental breakdown. Habitual behavior is often unknown because the person does not need to analyze it while performing normal behavioral tasks. Some habits are obligatory and cause automatic behaviors called habit formation [4-5]. It is hard to abolish old habits and form new habits because repetitive behavior patterns are imprinted in human neural pathways. However, repetition makes it possible to replace other new habits. People's mental health and well-being include the opposite pole of stress and stress habits. People's evaluation of the existing situations and stress evaluation from various dimensions, such as personality and mental habits, can show the etiology of sources of stress, stressful habits, and thoughts and behaviors that a person is involved in daily. As mentioned earlier, these thoughts and behaviors could be observed in all aspects of people's lives if they continue [4].

Bolzhvak state that psychological stress causes disease activation and ineffective appraisal [6]. Therefore, researchers aim to establish the different treatment's effects on mental health to maintain the stability of the disease, adapt the patient to control stress, eliminate stressful habits, and create an efficient and accurate emotional and cognitive appraisal of the surrounding world. In addition to stress, cognition plays a decisive role in evaluating the situation in the form of a logical

confrontation. Cognition is a general concept that includes all forms of awareness, including perception, thinking, imagination, reasoning, and judgment. The cognitive revolution includes all the essential mindsets of these topics [7]. This revolution is accompanied by the emergence of the third wave of cognitive behavioral therapies, which are mainly based on mindfulness and acceptance. Evaluation of stressful situations and the person's cognitive views of these situations leads us to a new field in psychology, whose principles are awareness and acceptance: "compassion and self-compassion" [8]. Gilbert (2009) states that self-compassion is rooted in a person's primary relationships with their caregivers. It also becomes a suitable basis for creating positive emotions and is strengthened and increased through psychological interventions. Clinical studies show the importance and usefulness of self-compassion in various fields despite its novelty [9]. Self-compassion is associated with lower anxiety and depression and higher psychological well-being [10]. It can also be increased through self-compassion, mindfulness, compassion-focused therapy, mindfulness-based stress reduction, acceptance and adherence-based therapy, dialectical behavior therapy, and cognitive therapy [11-12]. These treatments have subtle differences in psychopathology and intervention strategies and mechanisms. Each of these treatments follows a specific philosophy different from traditional cognitive treatments. However, they reflect an evolutionary process in the clinical field regarding complementarity and compatibility with old treatments [13].

So far, three essential and effective variables of "self-compassion, cognitive appraisal, and stressful habits have been introduced, each of which has a decisive and crucial role in multiple sclerosis (MS). According to the geographical prevalence, this disease has engaged 70 thousand people in 2021 due to the high prevalence rate in the whole world, the unknown nature of the disease, and the increase of this disease in the last three decades and in Iran [14]. This common neurological disease in the central nervous system affects all aspects of people's quality of life. This disease is also considered one of the autoimmune diseases by inflaming the fat sheath covering the nerves, called myelin. In this disease, the body's immune system attacks the central nerves, causing the destruction of axons and their surrounding sheaths, causing permanent disability [15]. Stressful events increase the risk of relapse according to the four stages of MS disease and its relapse stage. The probability of their impact on the disease relapse is very high in all types of stress (momentary, acute, and chronic). Some researchers do not clearly confirm the relationship between MS and stress. In other words, they confirm that Multiple sclerosis is a complex disease, and the stress impact is also expressed in this complex disease because stress depends on people and the individual's coping mechanisms and skill in solving the situations [12]. Based on the previous studies, the three mentioned variables (self-compassion, cognitive appraisal, and stressful habits) had not been investigated in MS. Therefore, the present research studied and investigated the variable of self-compassion and cognitive appraisal as two new and very effective variables together and investigated the direct impact on lifestyle and stress levels and how stressful habits occur and finally its impact on multiple sclerosis. [16].

Materials and methods

The present descriptive-correlational research with the code of ethics ID IR.IAU.LIAU.REC.1400.010 has been approved by the ethics committee of the Islamic Azad University, Lahijan branch. This study investigated the relationship between self-compassion and cognitive appraisal with stressful habits in women with multiple sclerosis (MS). This study's statistical population included MS patients in the Alborz province association in 2021. For sampling, the minimum the correlation research method, and the number of predictive variables in this study (2 variables). In addition, 200 questionnaires were sent virtually through social networks as questionnaire links for people with MS disease due to the possibility of dropping out and non-cooperation of people (due to the spread of the Covid-19 pandemic and the sensitivity of MS disease). Among them, 130 people with MS aged 25 to 45 were included in the study as a sample group using the available method.1.2.

In the tables below, the participants' gender, age, and education are classified as follows.

Table 1: Abundance and Abundance percentage by education

Education	Abundance	Abundance percentage	
Diploma and below	71	54.6	
Associate and Bachelor	44	33.8	
Masters and above	15	11.5	
Total	130	100	

Table 2 : Abundance andAbundance percentage by gender

	Abundance	Abundance percentage
Single	88	67.7
Married	42	32.3
Total	130	100

Entry criteria membership in the Alborz MS Patients' Association, which has been at least five years since receiving a diagnosis of MS by a neurologist and approval of the medical treatment team and the psychology team of the MS Association. On the other hand, not completing the

questionnaires was the exclusion criterion of the present study. Three questionnaires in this research are as follows:

Self-compassion questionnaire

Reis et al. compiled this questionnaire in 2011 with 26 items to measure the three components of self-kindness (5 items) versus self-judgment (5 items), human sharing (4 items) versus isolation (4 items) and mindfulness (4 items) versus over-identification (4 items). The correlation coefficient of the six factors of this questionnaire in two separate domains of scales and self-compassion (general scale) has been confirmed at the level of 0.001 [17]. Shahbazi et al. (2015) measured self-compassion in Iran in a short form of 12 items in six subscales and two items. Shahbazi expressed this questionnaire's validity and reliability with an alpha coefficient of 0.91 for the overall scale score. Cronbach's alpha coefficient was used for each of the subscales, and the concurrent validity and convergent validity of the questionnaire were also reported as favorable [18-1]. Khosravi et al. (2013) calculated the alpha coefficient of 0.76 for the scale's total score (self-compassion). In addition, Cronbach's alpha coefficients for the subscales of self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification are 0.81, 0.79, 0.84, 0.85, 0.80, and 0.83. The validity of the questionnaire has also been reported as favorable [19]. Items are set on a 5-point Likert scale, from rarely = 1 to almost always = 5. A higher score indicates a higher level of self-compassion. In addition, items 1, 4, 8, 9, 11, and 12 are scored reversely. Table 1 The questions and subscales are stated as follows:

Table:1

Subscales	Questions related to each subscale
self-kindness	2 and 6 0.83
self-judgment	11 and 12 0.87
Common humanity experiences	5 and 10 0.91
Isolation	4 and 8 0.88
Mindfulness	3 and 7 0.92
Over-identification	1 and 9 0.77

The first component is self-kindness versus self-judgment (the first and second factors). The first factor includes questions 5, 12, 19, 23, and 26 and the second factor includes questions 1, 8, 11, 16, and 21, which includes self-judgment.

The second component: Common humanity versus isolation (third and fourth factors). It includes questions 3, 7, 10, and 15 showing common humanity, and questions 4, 13, 18, and 25, including isolation.

The third component: Mindfulness versus over-identification (the fifth and sixth factors). It includes questions 9, 14, 17, and 22, including mindfulness, and questions 2, 6, 20, and 24, including over-identification [20-21].

Kudron's standard stress measurement questionnaire (1967)

This scale has 16 questions that are answered as yes-no. This test evaluates the level of family stress and interpersonal relationships. A positive answer to questions 1, 2, 3, 4, 9, 11, 10, 20, and 14 has points. A positive answer to the 6, 5, 8, 7, 15, 16, and 5 also has points. A negative answer to each of questions 12 and 13 has 5 points. There is no satisfactory family life if the sum of points is between 15 and 40. This scale reliability coefficient is reported as 0.86 using Cronbach's alpha method. In addition, this test has been able to distinguish between people with external and internal sources of control (who differ in intensity and amount of stress). This issue shows its discriminant validity. The present study test was validated by Cronbach's alpha method of 0.81. Holmes and Rahe developed the questionnaire to evaluate different degrees of stress in different areas of life (occupational, family, and personal). This questionnaire has four tests to prepare this test, each of which evaluates stress in different fields. The first test is dedicated to managers and decision-makers and evaluates their work pressure with 32 questions. The second test evaluates life health with 17 questions. The third test evaluates the stress caused by personal life with 16 questions. The fourth test has 23 questions and reveals the stress caused by your personality and thinking habits. All four tests are answered with a yes or no. Each test is interpreted separately, and a separate score is considered for them. In the end, a total score is dedicated to the test. The questionnaire components include the work pressure of managers and decision-makers, the health of life, stress caused by personal life, and stress caused by personality and mental habits. This questionnaire's validity and reliability have been well evaluated and confirmed using the supervisor's and advisor's opinions. Its reliability was also calculated using Cronbach's alpha test. This questionnaire's alpha was 0.78, indicating this questionnaire's acceptable reliability [22-23-24].

Gross and John's (2003) cognitive appraisal test (ERQ)

Gross and John compiled this questionnaire in 2003 to measure emotion regulation strategies. Its initial form has 16 questions, and its short and revised form has ten questions that examine individual differences in cognitive re-appraisal and instrumental suppression. Its options are arranged in a seven-point Likert scale, consisting of two subscales: re-appraisal with six items and suppression with four items. Participants respond on a 7-point Likert scale from strongly disagree (with

a score of 1) to strongly agree (with a score of 7). Questions 2, 4, 6, and 9 of the questionnaire measure the suppression dimension, and the rest measure re-appraisal adjustment. Gross and John state that this questionnaire's reliability and validity are expressed as follows: internal correlation for re-appraisal is 0.79, and suppression is 0.73. Kariman and Wingerhuts reported an internal correlation of 0.83 for re-appraisal and 0.79 for suppression. In Iran, Cronbach's alpha coefficient of 0.79 has been reported for re-appraisal. In the present study, Cronbach's alpha value for re-evaluation was 0.83, and suppression was 0.79 [17]. This questionnaire scoring is designed as follows: each option is graded on a seven-point Likert scale from completely disagree (with a score of 1) to agree (with a score of 7). Three scores will be obtained after summing the scores of all the questions related to re-evaluation subscales (1, 3, 5, 7, 8, 10), suppression (questions 2, 4, 6, 9), and a total score. Higher scores indicate better emotion regulation [25].

Results

The table: 1 below presents the average and standard deviation of the participants according to the research variables

Table:1

Variable	Average	standard deviation
Stress habits	37.52	28.14
self-compassion	17.31	45.7
Self- unkindness	27.31	36.8
cognitive appraisal	22.22	80.7
Re-appraisal	10.14	76.4
Suppression	14.8	39.4

Descriptive statistics of research variables

Examining the assumptions of this research in regression analysis using the level of distance data (the level of predictor and criterion variables) and the data's independence when SPSS was used to estimate the parameters showed the distance criterion for all variables. The Durbin-Watson statistic was obtained at 1.937 to check the independence of the data. When the Durbin-Watson statistic is between 1.5 and 2.5, The table:1 it shows that this assumption has been met:

table: 1

statistics	Amount
Durbin-Watson	1.937

Normality of trait distribution

The distribution of dependent variable scores in society for each independent variable value should be standard. Kolmogorov Smirnov's statistic has been investigated using SPSS to investigate this hypothesis. The table 1 of this assumption is as follows:

Table1:

Variables	z statistic	DF	level of significance
Stress habits	0.044	130	0.200

Kolmogorov Smirnov statistic to check normality

The results of checking the normality of the variable using the Kolmogorov-Smirnov test showed that the research variable had a normal distribution. The multicollinearity of the variables was influential in the regression test. For this reason, Tolerance and VIF indices have been used for this basic assumption. The table: 1 The results showed that the Tolerance value was not less than 0.1 in all variables, and the VIF index was not more than 10. Therefore, there is no multicollinearity.

table: 1

Variable	Tolerance	VIF
self-compassion	0.883	1.132
self-unkindness	0.911	1.098
cognitive appraisal	0.837	1.194

Multicollinearity analysis

Simultaneous regression was used based on the mean and standard deviation, the independence of the data, the distance of the variables, the absence of multicollinearity, and the normality of the data distribution and also to investigate the research hypothesis based on the existence of a relationship between self-compassion and cognitive appraisal with stressful habits in women with multiple sclerosis. Regression allows a person's score in one variable to be predicted based on his score in another. In the following table, the summary of the explained variance value and the significance of the model are presented simultaneously.

Table 1: Summary of the results of the amount of variance explained and the significance of the model.

Method index	R	R^2	F	DF1	DF2	Significance level
Simultaneous	0.565	0.430	31.743	3	126	0.001

The results of Table 1 show the summary of the explained variance and the significance of the model. The F ratio and its significance level indicate the significant effect of variables of stress habits, cognitive appraisal, and self-compassion in the regression equation ($p \leq 0.01$). As observed, the R2 calculated is 0.435 in predicting the stress habits of women with MS. These variables explain 0.43% of the variance of stressful habits in women with MS.

Table 2: Coefficient resulting from the simultaneous method of regression predicting stressful habits.

Variable	Not standardized coefficients		standardized coefficients	T	Significance level
	B	SD	Beta		
Constant	48.833	6.196		7.881	0.000
self-compassion	-0.703	0.137	-0.367	-5.123	0.000
self-unkindness	0.638	0.120	0.374	5.302	0.000
cognitive appraisal	-0.310	0.133	-0.172	-2.339	0.021

Table 2 shows that self-compassion, self-unkindness, and cognitive appraisal are significant predictors of stressful habits. The positive sign of beta shows that predicting stressful habits based on self-compassion and cognitive appraisal has an inverse relationship with severity (beta coefficient) 0.703, 0.310. Predicting stressful habits based on self-unkindness directly correlates with an intensity (beta coefficient) of 0.637. In addition, Pearson's correlation investigates the relationship between self-compassion and stressful habits in women with multiple sclerosis. This method's assumptions are the same as the regression method.

Table 3: Correlation coefficient of self-compassion and its dimensions with stressful habits

Variable	Number	The correlation coefficient	Significance level
Self-compassion	130	-0.490	0.001
Self-unkindness	130	0.488	0.043

Table 3 shows a positive and significant relationship between unkindness and stressful habits at 0.01 level. Self-compassion had a negative and significant relationship with stress habits at 0.001. These results show that as a person's score in the variable of stressful habits increases, self-compassion decreases, and self-unkindness increases. Pearson's correlation was used to investigate the relationship between cognitive appraisal and stressful habits in women with multiple sclerosis, and the assumptions of this method are the same as the regression method.

Table 4: Correlation coefficient of cognitive assessment with stressful habits

Variable	Number	The correlation coefficient	Significance level
Cognitive appraisal	130	-0.400	0.001
Re-appraisal	130	-0.264	0.002
Suppression	130	-0.310	0.001

Table 4 shows a significant relationship between cognitive appraisal and its dimensions (re-appraisal and suppression) at the 0.05 level. This result shows that as a person's score increases in the variable of stressful habits, cognitive appraisal, and its dimensions (re-appraisal and suppression) decrease.

Discussion

The current research studied the relationship between stressful habits, self-compassion, and cognitive appraisal. The result showed that self-compassion has an inverse relationship and self-unkindness has a direct and significant relationship with stressful habits in women with MS, which has been in line with previous findings [26-27-28-21-14-3]. In explaining the research findings, it is mentioned that relaxation techniques and identification of negative spontaneous thoughts and replacing them with positive and real thoughts, emotion management, social support networks and how to benefit from them, and healthy social communication are happiness factors that affect stress management. Therefore, the negative relationship between cognitive appraisal, including these cases, is not unexpected with stressful habits. Reducing muscle tension increases mental health and peace and subsequently

changes the person's thoughts and beliefs. A person with experiences of mental peace tries to move his unhealthy and painful thoughts and attitudes in a direction to have less painful states and feelings [29-30]. Due to complications caused by the disease, patients with multiple sclerosis experience severe problems in movement, sex, cognitive disorders, sphincter disorders, sleep disorders, excessive fatigue, and neuropsychological symptoms (depression, anxiety, etc.). These symptoms affect the patient's duties and responsibilities and reduce the person's mood. Decreased mood causes a lack of energy and creates a vicious cycle of low mood-feeling sad, ultimately decreasing these patients' quality of life [18-30-31-32]. Ineffective and inefficient coping in stressful situations, anger management and cognitive distortions that are the source of negative thoughts and catastrophizing, and chronic and sudden mental and physical stress can worsen the MS symptoms. [14]. Enduring stress increases disease attacks twice more than normal conditions. Therefore, self-compassion and non-judgment help patients control their conditions more by calming and controlling their stress, which increases their happiness [33-34]. The relationship between self-compassion and self-unkindness with stressful habits was examined, and the current study showed that self-compassion has a negative relationship with stressful habits. In contrast, self-unkindness has a positive and significant relationship with stressful habits. These findings are consistent with previous studies results. These studies have also indicated that compassion training and treatment can effectively reduce pain and destructive damage caused by stress in patients with MS [14-19-3]. The tool for measuring self-compassion has two ranges self-compassion (including dimensions of common humanity, mindfulness, and self-kindness) and self-unkindness (isolation, self-judgment, and over-identification). It is possible that a person with mindfulness perceives internal and external realities freely and without distortion and faces a wide range of thoughts, emotions, and experiences (both pleasant and unpleasant). It means that among the participants, a person with high self-compassion coped with the stress of his illness and daily life as a reality. This person also understands that negative emotions may occur. However, they are not a fixed and permanent part of the personality and respond to events with thought instead of reacting involuntarily and thoughtlessly. The relationship between a cognitive appraisal (and its dimensions) and stressful habits was also investigated. The results indicate a significant negative relationship between cognitive appraisal and stressful habits in women with MS, which was consistent with previous findings [26-27-28-21-19]. This means that a person who cannot abandon stressful habits through re-appraisal will perceive more stressful habits. In explaining these findings, it can be said that the threat and self-protection system is severely overworked in MS patients with psychological disorders such as depression and anxiety, which cause high stress and anxiety in these people. On the other hand, the satisfaction and relief system also has a lower level of development in these people because they have never had the opportunity to transform this system. They are less damaged if there are appropriate cognitive appraisal methods to deal with stress. A person in a stressful situation can reduce the stress by re-appraisal of the situation and not having inappropriate emotional reactions.

Conclusion

The current study findings showed that stressful habits could be predicted by cognitive appraisal and self-compassion. In this way, self-compassion has been inversely related, self-unkindness has a direct relationship with stressful habits, and cognitive appraisal has a significant negative relationship with stress.

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Conflict of interest

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Ethics statement

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References

[1] Navidnia. M. Relationship between social security and lifestyle in Tehran. Journal of Iranian Social Science Studies. 2014, 11(41).[persian]

[2] Amirirnia M. Behavioral excitement, speech tone, and emotional intelligence. Arasteh Press. 2016, 56-68.[persian]

[3] Lally, P., Van Jaarsveld, C. H. M., Potts, H. W. W., & Wardle, J. How are habits formed: Modelling habit formation in the real world. European Journal of Social Psychology. 2010, 40(6): 998–1009. doi:10.1002/ejsp.674.

[4] Butler, Gillian; Hope & Tony. Managing Your Mind: The mental fitness guide. Oxford Paperbacks, 1995.

[5] Definition of Habit. Merriam-Webster Dictionary. Retrieved on August 2, 2008.b Definition of Habituation. Merriam-Webster Dictionary. Retrieved on August 29, 2008, Gamboa O. L., Tagliazucchi, E., Von Wegner, F., Jurcoane, A., Wah,l M., Laufs, H., et al. Working memory performance of early MS patients correlates inversely with modularity increases in resting state functional connectivity networks. Neuroimage. 2014, 94: 385–95. doi:10.1016/j.neuroimage.2013.12.008.

[6] Mazumder, R., Murchison, C., Bourdette, D., & Cameron, M. (2014-09-25 Ascherio, A., & Munger, K.L. (2007). Environmental risk factors for multiple sclerosis. Part I: the role of infection. Ann. Neurol. 2007. 61(4): 288–99.

[7] Arvin. J., & Sarason. B. Morbid psychology, maladaptive behavior; translated by Dehghani, M., Najarian, B., & Arab Arvin, Davood. Roshd Publication. 2013.

[8] Gilbert, P. Compassion-based therapy, from a collection of books about different manifestations of behavior in cognitive psychology; translated by Estabi, M., & Feizi, A., Ibn Sina Publication. 2016.

[9] Gilbert, P. Introducing compassion-focused the Animalbehavioronline.com. Retrieved on August 29, 2008.
[10] Neff, K. Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. Self and identity. 2003. 2(2): 85-101. Morrow, A. Stress Definition Retrieved from Dying. About.com/od/glossary/g/stress.htm. 2011.
[11]Foroughi. A., Khanjani. S., Rafiei. S., & Taheri. A. Self-compassion: Conceptualization, Studies, and Interventions (a brief review). Journal of Cognitive Psychology and Psychiatry. 2019. 6(6): 77-88.[persian]
[12]Dehghani, A., Mohammadkhan Kermanshahi, S., & Memarian. R. Prevalence of stress, anxiety, and depression in patients with multiple sclerosis (MS). Scientific research journal of Alborz University of Medical Sciences.2013.2(2): 82-88.[persian]
[13] Dimidjian, S., Martell, C. R., Addis, M. E., & Herman-Dunn, R. Behavioral activation for depression. In Barlow D. H. (Ed.), Clinical handbook of psychological disorders – manual. 2008 (pp. 328–th ed).
[14]Saloumeh. R.; Role of mRNA in MS. Shahbazi Publication. 2019. 34-55.[persian]
[15]Honarvar. S., Rahnama. N., & Nouri. R. Effects of six weeks of massage therapy on balance, fatigue, and quality of life in women with MS. Journal of Research in Sports Rehabilitation. 2014. 2 .[persian]
[16] Farazibaei, F., Mohtashami, T., Pourahmad, A., & Dehkordi, A. Journal of Research in Psychological Health. 2012. 6(4): 12-20.[persian]
[17]Mehri. G. Emotion Regulation Questionnaire (ERQ) (Gross and John, 2003). Effectiveness of emotion regulation in reducing the impressionability of preschool children; a master's thesis, Allameh Tabatabai University, Faculty of Psychology and Educational Sciences. 2013.[persian]
[18]Ashtari, F., Rezvani, R., & Afshar, H. Sexual dysfunction in women with multiple sclerosis : Dimensions and contributory factors . Journal of research in medical sciences: the official journalof Isfahan University of Medical Sciences. 2014. 19(3): 22 .[persian]
[19]Khosravi, S., Sadeghi, M., & Yabandeh. M. R. Psychometric Validity of Self-Compassion Scale (SCS). Journal of Psychological Methods and Models. 2013. 3(13): 47-5.[persian]
[20]The confirmatory factor structure of the Persian version of the revised self-compassion rating scale in a group of prisoners. Psychological Methods and Models Quarterly. 2014. 6(19): 31-46
[21]Shahbazi, M., Rajabi, G., Maggi, E., & Jalodari, A. The confirmatory factor structure of the Persian version of the revised self-compassion rating scale in a group of prisoners. Psychological Methods and Models Quarterly. 2014 (6)19: 13.[persian]
[22]Salami, F., Arsalandeh, K.,.Zahrakar, R., Davarniya, M., Shkarami. The Effectiveness of Compassion-Focused Therapy on Mental Health of Women with Multiple Sclerosis. Horizon med sci. 2018. 24(2): 125 -131.[persian]
[23]Heidari, M.. Diagnostic evaluation of Iranians performance in reading section of IELTS; Master's thesis, Shahrekord University. 2017.[persian]

[24]Bakhshipour, A., & Dezhkam. M. Factor analysis of positive and negative emotion scale, Emotion Regulation Questionnaire (ERQ) (Gross and John, 2003). Journal of Psychology. 2005. 351-365.[persian]
[25] Bigdeli, I., Najafi, M., & Rostami. M. Relationship of attachment styles, emotional regulation, and resilience with mental well-being medical students. Journal of Iranian Medical Education. 2013. 13(9): 721-729.[persian]
[26] Hosseini, F., & Esmaili, M. Relationship between multiple sclerosis (MS) and stressful habits. Journal of Nursing Research. 2008. 3(10-11) .[persian]
[27]Abdi, R., Chalabianlu, G., & Pak. R. The role of brain/behavioral systems (BIS/BAS). The role of stressful life events and disease period in predicting the severity of symptoms in patients with multiple sclerosis in Shiraz. 2015.[persian]
[28]Moradi, M. The role of cognitive appraisal, self-compassion, and emotional self-disclosure in predicting the quality of life of people with PTSD; a master's thesis, Mohaghegh Ardabili University. 2016.[persian]
[29]Moradi, B. Effects of central stability exercises, resistance exercises with rubber bands, and hybrid exercises on the functional capacity of postural control and strength of lower limb muscles in male MS patients; master's thesis, Faculty of Physical Education. Khawrazmi University. 2014.[persian]
[30]Kiani, F. Effect of sensory manipulation on the relative phase shift of bimanual coordination in adults with active and inactive MS ; master's thesis, Faculty of Physical Education and Sports Sciences Allameh Tabatabai University 2015[persian]
[31]Minder. S. L..Frankrl, D. Hadden, L., et al. the Sonya slifka longitudinal multiple sclerosis study. Handbook of clinical neurology.the Netherlands: Elsevier.mineka, S., & Zinbarg, R. (2006) .a contemporary learning theory perspective on the etiology of anxiety disorders: it is not what you thought it was.American psychologist. 2006. 61(1):10-26
[32]Comabella, T. M., & T.khory, T. S. Cognitive therapy of obsessive-compulsive disorder in d.a.clark.a.t.beck cognitive therapy's anxiety disorder .(446-462).ne york :the Guilford press. 2011.
[33].Neff, K. D., & Germer, C. K. A pilot study and randomized controlled trial of the mindful self-compassion program. J Clin Psychol. 2013. 69(1): 28-44.
[34]Neff, K. D., & McGehee, P. Self-compassion and psychological resilience among adolescents and young adults. Self and Identity. 2010. 9(3): 225–40.