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The Effectiveness of Compassion-Focused Therapy on Pain Catastrophizing, Sexual Function, and Resilience in Women with Multiple Sclerosis (MS)

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Abstract

Introduction: The present study was conducted to determine the effectiveness of compassion-focused therapy on pain catastrophizing, sexual function, and resilience in women with Multiple Sclerosis (MS).
Method: The method of the present research was semi-experimental and its design was pre-test-post-test with a control group. The study's statistical population included patients with MS in Tehran in 2022. Among the eligible patients, 30 women with MS were randomly assigned to the intervention group (n=15), and the control group (n=15). The collection tools included pain catastrophizing (Sullivan et al. 1995), women's sexual function (Isidori et al. 2010), and resilience (Connor and Davidson, 2003) questionnaires. The intervention group received eight sessions of 90-minute therapy focused on compassion, but the control group did not receive any intervention. Finally, the obtained data were analyzed by multivariate analysis of covariance by SPSS-24.
Results: The results showed that compassion-focused therapy significantly reduces rumination (39.87), magnification (53.14), helplessness (35.42), sexual function (20.27), and resilience (17.65) in women with MS (P<0.001).
Conclusion: The findings of this research indicated the effectiveness of compassion-focused therapy on women with MS. Since women experienced many problems during MS, it is necessary to take measures to improve their mental and physical health.

Keywords: Compassion-Focused Therapy, Multiple Sclerosis, Pain Catastrophizing, Resilience, Sexual Function

Introduction

Multiple Sclerosis (MS) is one of the common diseases in young people that occurs due to the breakdown of the myelin sheath of nerve cells in the central nervous system [1]. This chronic and progressive disease has an unpredictable and homogeneous course, followed by an advanced secondary stage and common mild period, and leads to a wide range of neurological symptoms such as blurred vision, loss of balance, muscle weakness, and sensory disturbances [2]. Misicka et al. [3] evaluated 56 million US electronic records. The results indicated that 226 people out of every 100,000 suffer from MS. Also, MS had the highest prevalence among women aged 50 to 69. Within the country of Iran, the results of a review study by Mirmosayyeb et al. [4] indicated a high prevalence of MS in Tehran

province and a low prevalence of MS in Khuzestan and Sistan and Baluchistan provinces.

Although the cause of the outbreak is not clear [5], according to studies, stress and psychological factors play a significant role in the exacerbation of the disease and the occurrence of new attacks [6]. More than medication and complex treatments, it is recommended for these patients to avoid anxiety, stress, and tension [7]. Among the psychological factors influencing MS disease is pain catastrophizing [8]. Pain catastrophizing is a set of cognitive and emotional processes that include the components of rumination, magnification, and helplessness about pain [9]. Catastrophizing is a cognitive process of exaggerating or magnifying the perceived threat of pain feelings [10]. Its high levels cause a constant focus on physical symptoms and avoidance of activity, and this avoidance and withdrawal aggravate the patient's pain and disability [11]. It seems that cognitive distortions in the catastrophizing mechanism, as the first active mechanism in MS patients, are involved in the interpretation of the work of each of the other variables related to pain [12]. Studies have shown that pain catastrophizing cognitions and activity avoidance in patients with MS are associated with subsequent pain outcomes, such as disability and physical dysfunction [13, 14]. Jensen et al. [15] determined the effectiveness of cognitive therapy on the severity and catastrophizing of pain in patients with MS. The obtained results indicated that the intensity and catastrophizing of the pain of the patients who were treated decreased significantly, which improved the mental health of the patients. In another study, Heitmann et al. [16] determined the prevalence of neuropathic pain in patients with MS. The findings indicated a 4% prevalence of pain in MS patients. Also, depression, anxiety, and cognitive functions were the strongest predictors of patients' pain.

According to studies, sexual dysfunction is common among women with MS [17]. Since sexual health is an integral part of people's lives, patients with MS often experience a decrease in sexual health, which can affect their overall quality of life [18]. Suffering from chronic pain affects the quality of sexual life, but its effect is less studied, and sexual dysfunction is less diagnosed [19]. As patients do not report their sexual dysfunction due to embarrassment or frustration and doctors rarely ask their patients about these disorders, the sexual function of patients is less accurately evaluated [20]. The studies indicate that one predictor of life satisfaction in MS patients is satisfaction with sex life [21, 22]. In this context, the results of Gava et al.'s [23] study determine the prevalence and psychological factors determining sexual dysfunction and related distress in women with and without MS. The obtained results indicated a 50% prevalence of sexual dysfunction in MS patients. Also, women with MS had more psychological and sexual problems compared to other women. In another study, Kołtuniuk et al. [24] discussed the relationship between sexual disorders and the quality of life of women with MS. The results showed a 44% prevalence of sexual dysfunction in women with MS. Also, women who suffered from sexual problems had low quality of life and mental health.

Resilience is known as one of the effective components in improving the mental and physical health of patients with MS [25]. Resilience can be defined as a positive adaptation to tension, crisis, and various adversities [26]. Resilience moderates internal and externalized problems with its protective role [27]. It can also prevent the occurrence of emotional-behavioral problems when facing stressful and anxiety-provoking conditions [28]. The patient can limit the destructive effects of stress factors when supported by the community in order to access primary resources and can go through treatment process successfully [29]. Giovannetti et al. [30] determined the effectiveness of resilience-based therapy on mental health and pain intensity in patients with MS. The findings showed that the patients who underwent resilience treatment reported less pain after the test and had good mental health. The findings of Swanepoel et al. [31] indicated that women with MS who had high levels of resilience and psychological flexibility had high mental health and were better able to deal with adverse life events.

Examination of MS disease shows that this disease brings many psychological problems for the patient; These physical and mental health problems and the MS disease process are effective [32]. Among the effective treatments in the form of cognitive behavioral therapy is therapy focused on compassion [33]. Self-compassion is an effective way to deal with negative emotional experiences [34]. In self-compassion therapy, people learn not to suppress their painful feelings, so they can first recognize their experience and feel compassion for themselves [35]. In exercises based on self-compassion, mindfulness, body relaxation, and flexibility are emphasized, which play an important role in calming the mind, and reducing tension, and negative spontaneous thoughts [36]. One of the results of this type of treatment is giving importance to well-being, understanding and empathizing, sympathy, not judging, not blaming others, tolerance, and resilience to pain, through attention, thinking, behavior, imagery, feeling, and compassionate feeling [37]. The review research results by Kılıç et al. [38] also show that self-compassion-based treatments reduce sexual dysfunction, depression, anxiety, ataxia, and pain catastrophizing in patients with MS.

Despite the advances in medical science in recent years, there is no proper treatment for MS, and most of the existing drug treatments only lead to a reduction in symptoms or a reduction in the rate of disease progression [39]. Considering that MS disease is increasing and many women worldwide live with this chronic disease, examining the psychological aspects of this disease is of considerable importance [40]. Since mental health is known as one of the most important factors contributing to the progress of patients' treatment process, the present study aims to determine the effectiveness of compassion-focused therapy on pain catastrophizing, sexual function, and resilience of women with MS.

Method

The design of the current research was semi-experimental with a pre-test-post-test design and a control group. The statistical population of the study included all the people with MS in Tehran in 2022, and 30 patients were selected by the available sampling method. The sample size included 15 individuals for both groups using G*Power [41]. After sampling, the research participants were randomly assigned to experimental (n=15) and control (n=15) groups. The inclusion criteria for the research included belonging to the research community, age 20 to 40 years, not receiving very serious physical and psychological treatments, and personal desire and satisfaction. The exclusion criteria of this study included being absent for more than two sessions, creating problems in the program process, lack of appropriate interaction and cooperation, lack of desire, and personal satisfaction. It is important to state that in the current study, all ethical considerations such as personal consent, personal information preservation, and informed participation were taken into account according to Helsinki's ethical principles. To carry out the pre-examination stage, the MS Association of Iran was referred and the voluntary and accessible sampling method was used to select the participants. With the cooperation of the Iranian MS Association and through contact with the patients and also the people who referred to the association without a phone call, the research questionnaires were handed out to individuals to answer.

The tools used in this study were as follows:

Pain Catastrophizing Scale (PCS): The Pain Catastrophizing Scale (PCS) was developed by Sullivan et al. [42] to evaluate different dimensions of pain catastrophizing and to better understand the mechanism of its impact on pain experience. The questionnaire has 13 items. Factor analysis showed that catastrophizing includes the subscales of ruminating, magnification, and helplessness. These three components evaluate negative thoughts related to pain [42]. Participants are asked to choose a number from 0 (never) to 4 (always) to describe the frequency of 13 different feelings and thoughts related to the pain experience. Lower scores indicate less catastrophizing and are associated with pain and disability in patients with chronic musculoskeletal pain. The content validity index and content validity ratio index of the questionnaire were obtained as 0.79 and 0.82, respectively, which show the desired content validity of the questionnaire [42]. In Mohammadi et al.'s [43] research, Cronbach's alpha coefficient of rumination (0.65), magnification (0.53), and helplessness (0.81) subscales were obtained. In the present study, Cronbach's alpha coefficients of rumination, magnification, and helplessness were reported as 0.78, 0.83, and 0.81, respectively.

Female Sexual Function Index (FSFI): The short form of the Female Sexual Function Index (FSFI) was developed by Isidori et al. [44] in six items. This questionnaire evaluates women's function and sexual problems in six areas over a period of four weeks. These areas include sexual desire, sexual arousal, slippage, orgasm, individual satisfaction, and the feeling of pain during intercourse [44]. Items related to sexual desire and satisfaction are scored based on a five-point Likert scale from 1 to 5. The items related to lubrication, arousal, orgasm, and pain are scored based on a six-point Likert scale from 0 to 5. By adding the scores of six sub-scales together, the score of the whole scale is obtained. The total score ranges from 2 to 30; higher scores indicate better sexual function. The appropriate cut-off score of the whole scale for the diagnosis of sexual dysfunction was determined to be 28. In the research of Isidori et al. [44], the internal consistency of 0.78 and the reliability-retest of 0.95 was reported for this index. The content validity index and content validity ratio index of the questionnaire were obtained as 0.85 and 0.86, respectively, which show the desired content validity of the index. In addition, this tool has high internal consistency in the studies conducted in Iran. In a study, Shairi et al. [45] reported the convergent and divergent validity of the scale of women's sexual function with the scale of women's sexual distress and desirable positive affect (0.82). In the present study, Cronbach's alpha coefficient on this index was 0.89.

Resilience Questionnaire (RQ): Connor and Davidson [46] designed a resilience questionnaire to measure the ability to deal with stress. The Connor and Davidson resilience questionnaire consists of 25 items that are answered and scored based on a 5-point Likert scale (0 to 4). The range of scores on this scale is between 0 and 100, and higher scores on this scale indicate higher levels of resilience. In the study of Connor and Davidson [46], the mean and standard deviation of the scale for the normal group were 80.4 and 12.8. Cronbach's alpha for the scale was 0.89 and item-total correlations were between 0.30 and 0.70. The test-retest reliability results in the group of generalized anxiety disorder and post-traumatic stress disorder showed a suitable intraclass correlation coefficient of the resilience scale (0.87). In Iran, Bagheri-Sheykhangafshe et al. [47] reported the internal consistency of the items for the entire questionnaire through Cronbach's alpha of 0.82. In the present study, Cronbach's alpha coefficient on this scale was 0.84.

Intervention program: After the pre-test, the intervention group underwent training and treatment for eight sessions each lasting for 90 minutes (two sessions per week). The control group did not receive training during this period and remained on the waiting list for training [48]. The intervention was conducted by a psychologist in a group setting and following the health protocols related to COVID-19 on Saturday and Tuesday in one of the psychological service centers in Tehran. There was no dropout in any of the samples of the two intervention and control groups. After completing the treatment, in the end, both groups answered the research questionnaires (post-test). The description of the intervention sessions taken from Gilbert's Self-Compassion-Focused Therapy book [48] can briefly be seen in Table 1.

Table 1. Summary of Compassion-Focused Therapy Sessions for Patients with MS [48]

Session	Target	Topic
1	Getting to know and establishing a primary therapeutic relationship	Conducting the pre-test, providing explanations about the research variables, discussing the purpose of the meetings, their role, and importance, reviewing the structure of the meetings, and getting to know the general principles of self-compassion-focused therapy.
2	Conceptualization of compassionate understanding and shaming	Familiarity with brain systems based on self-compassion, introduction and training of the three-ring model of emotion regulation, the introduction of the philosophical foundations of therapy focused on self-compassion including evolved mind, sad mind, and social mind, the introduction of the functional evolutionary model of emotions, metaphor training Diarrhea and vomiting and teaching the metaphor of the garden, teaching soothing breathing rhythm, and presenting homework for the next session.
3	Conceptualization of teaching self-compassion	Introducing its components and characteristics such as self-kindness, common humanity, and attention to awareness, getting to know the characteristics of compassionate people including strength or courage, wisdom, gentleness, and non-judgment.
4	Conceptualization of compassionate awareness	Preparing and training one's mind through mindfulness exercises, establishing a relationship that indicates acceptance and free from the judgment of thoughts, feelings, and behavior, training to focus on breathing, introducing and teaching some informal exercises, as well as introducing and teaching formal mindfulness exercises, and presenting homework for the next session.
5	Conceptualization of shame and self-criticism	Examining the forms of self-criticism, the functions of self-criticism, providing practice How do you treat a friend? Learning the metaphor of the sleeping tiger, teaching to create a self-compassionate identity, and presenting the assignment for the next session.
6	Teaching the logic of compassionate and self-compassionate imagery practice	Providing an example of an acting learning exercise, teaching self-compassion under the covers, teaching an exercise to create a safe place, and providing an assignment for the next session.
7	Learning how to write compassionate letters to yourself	Teaching unconditional self-acceptance, teaching how to apply these methods in everyday life for spouses, children, friends, and acquaintances, and presenting homework for the next session.
8	Review and practice the skills presented in previous sessions	Helping patients to deal with different conditions in their lives in different ways, providing solutions to maintain and apply this treatment method in daily life, and finally summing up and implementing post-test.

Results

The mean and standard deviation of the age of the experimental group patients was 33.49±7.65 years and for the control group patients were 34.09±7.43 years. The results of the chi-square test showed that there was no significant difference between the experimental and control groups in terms of duration of illness, marital status, and age grouping (P>0.05). The mean and standard deviation of pre-test-post-test scores of ruminations, magnification, helplessness, sexual function, and resilience in patients with MS in the experimental and control groups have been presented in Table 2. Also in this table, the results of the Shapiro-Wilk test (S-W) are reported to check the normality of the distribution of variables in both groups. According to this table, Shapiro-Wilk statistics is not significant for all variables. Therefore, it can be concluded that the distribution of variables is normal (Table 2).

Multivariate analysis of covariance was used to evaluate the efficacy of compassion-focused therapy on pain catastrophizing, sexual function, and resilience of women with MS. The results of the Levin test to examine the homogeneity of variance of dependent variables in groups showed that the variance of rumination (F=1.86, P=>0.184), magnification (F=1.84, P=>0.261), helplessness (F=1.45, P=>0.301), sexual function (F=1.94, P=>0.362), and resilience (F=1.73, P=>0.617) were equal in groups. The results of the box test which evaluates the equality of the covariance matrix of dependent variables between the experimental and control groups also showed that the covariance matrix of the dependent variables is equal (Box M= 32.84, F=0.97, P=>0.408). The significance of the box test is greater than 0.05, so this assumption is valid. Also, the results of the Chi-square-Bartlett test to examine the sphericity or significance of the relationship between rumination, magnification, helplessness, sexual function, and resilience showed that the relationship between them is significant ($\chi 2=118.62$, df=24, P<0.05). Another important assumption of multivariate analysis of covariance is the homogeneity of regression coefficients. It should be noted that the homogeneity test of regression coefficients was examined through the interaction of dependent variables and independent variables (intervention method) in the pre-test and post-test. The interaction of these pre-tests and post-tests with the independent variable was not significant and indicated the homogeneity of the regression slope. Therefore, this assumption also holds. Due to the establishment of multivariate analysis of covariance, the use of this test will be allowed. In order to find out the differences between the groups, a multivariate analysis of covariance was performed (Table 3).

According to Table 3, the results showed the effect of the

independent variable on the dependent variables. In other words, experimental and control groups have a significant difference in at least one of the variables of rumination, magnification, helplessness, sexual function, and resilience, which according to the calculated effect size, 72% of the total variance of experimental and control groups is due to the effect of the independent variable. Also, the statistical power of the test was equal to 1, which indicates the adequacy of the sample size. However, to determine in which areas the difference is significant, a univariate analysis of the covariance test was used in the MANCOVA, the results of which have been presented in Table 4.

According to Table 4, F-statistic is significant for rumination (39.87), magnification (53.14), helplessness (35.42), sexual function (20.27), and resilience (17.65) at the level of 0.001. These findings indicate that there is a significant difference between the groups in these variables. Also, according to the calculated effect size, 63% of rumination, 69% of magnification, 61% of helplessness, 46% of sexual function, and 43% of resilience were independent of the effect of the variable. As a result, it can be stated that compassion-focused therapy significantly increases sexual function and resilience, and decreases rumination, magnification, helplessness in patients with MS.

Table 2. Descriptive Indices of Study's Variables in Experimental and Control Groups

Variables		Groups	Mean	SD	S-W	P*
Rumination	Pre-test	Experimental	15.60	1.58	0.089	0.084
		Control	15.26	1.25	0.106	0.052
	Post-test	Experimental	11.40	1.63	0.094	0.060
		Control	15.73	1.42	0.095	0.080
Magnification	Pre-test	Experimental	11.06	2.14	0.109	0.063
		Control	11.01	1.84	0.052	0.059
	Post-test	Experimental	7.80	1.36	0.093	0.054
		Control	11.20	1.58	0.074	0.068
Helplessness	Pre-test	Experimental	11.46	1.39	0.132	0.059
		Control	11.60	1.07	0.055	0.085
	Post-test	Experimental	8.33	1.09	0.142	0.064
		Control	11.33	1.62	0.063	0.078
Sexual Function	Pre-test	Experimental	19.66	2.48	0.089	0.056
		Control	19.53	3.55	0.091	0.081
	Post-test	Experimental	23.86	2.63	0.102	0.093
		Control	19.73	3.42	0.068	0.052
Resilience	Pre-test	Experimental	62.53	4.69	0.074	0.068
		Control	62.13	3.59	0.085	0.055
	Post-test	Experimental	68.73	4.71	0.074	0.063
		Control	62.27	3.84	0.111	0.086

* Shapiro-Wilk test

Table 3. The Results of Multivariate Analysis of Covariance on Mean Post-Test Scores

Test	Value	F	df	Error df	P	Effect Value
Pillai's Trace	0.72	9.76	5	19	0.001	0.72
Wilks Lambda	0.28	9.76	5	19	0.001	0.72
Hoteling Trace	2.57	9.76	5	19	0.001	0.72
Roy's Largest Root	2.57	9.76	5	19	0.001	0.72

Table 4. Results of Univariate Analysis of Covariance on the Mean of Post-Test Scores of Dependent Variables in Both Experimental and Control Groups

Variables	SS	SS Error	DF	MS	MS Error	F	P	Effect Value
Rumination	157.27	90.72	1	157.27	3.94	39.87	0.001	0.63
Magnification	86.24	37.32	1	86.24	1.62	53.14	0.001	0.69
Helplessness	62.18	40.37	1	62.18	1.75	35.42	0.001	0.61
Sexual Function	112.41	127.57	1	112.41	5.54	20.27	0.001	0.46
Resilience	256.92	334.81	1	256.92	9.63	17.65	0.001	0.43

Discussion

The present study was conducted in order to determine the effectiveness of compassion-focused therapy on pain catastrophizing, sexual function, and resilience in women with MS. The results of the present study showed that compassion-focused therapy reduced pain catastrophizing (rumination, magnification, and helplessness) in women with MS. These results are consistent with studies by Jensen et al. [15] and Heitmann et al. [16].

In the explanation of these results, it can be said that in the treatment based on compassion, the patient with MS learns that this pain and disease is not unique to this person and by valuing himself, he/she can overcome these problems [15]. compassion-focused therapy causes a person to feel care for himself, gain awareness, a non-judgmental attitude towards his inadequacy and failures, and accept the fact that his experiences are a part of

normal human experiences. Self-compassion is the acceptance of the point that suffering, failure, and inadequacy are part of the conditions of life, and all human beings, including the individual himself, deserve kindness and compassion [9]. Self-kindness is self-understanding instead of self-judgment and a form of support for one's shortcomings and inadequacies. Acknowledging that all humans are flawed, make mistakes, and engage in unhealthy behaviors is a characteristic of shared human emotions [14]. In therapy focused on self-compassion, creating or increasing a compassionate relationship, instead of blaming, condemning, or self-criticizing, becomes necessary to help clients. The results of compassion-focused therapy is considering well-being, understanding, and empathy, sympathizing, not judging and not blaming others, tolerance or resilience of turmoil and pain, and suffering, through attention, thinking, behavior, visualization, and feeling [10]. Creating a rich and meaningful life while accepting the inevitable suffering involved in it is an effective action guided by one's deepest values. While he is fully ready and committed to creating a meaningful life only through conscious action [6]. Carvalho et al. [13] carried out a research to determine pain, anxiety, and alexithymia in patients with MS. The findings indicated a positive correlation between pain intensity and patients' anxiety. Also, patients who had high emotional dyslexia experienced more pain. Valentine et al. [14] determined the pathways of pain, anxiety, depression, and fatigue in patients with MS. The obtained results indicated a prevalence of 60% of pain, 62% of fatigue, 47% of depression, and 38% of anxiety. In many patients, pain aggravated depression and anxiety, which decreased the patient's mental health.

Also, findings revealed that compassion-focused therapy increased the sexual function of women with MS. This research is in line with the results of the studies of Gava et al. [23] and Kołtuniuk et al. [24].

In explaining these results, it can be acknowledged that having muscle and skeletal kinds of pain causes the patient to show the least sexual function, or not experience enough pleasure in sexual relations [18]. This issue causes the mental health and quality of life of MS patients to decrease significantly and to have very few emotional and friendly relationships [21]. In the treatment of self-compassion, the patient learns to accept all his thoughts, feelings, and emotions, to evaluate his thinking process more accurately with the help of mindfulness, and to work towards his goals and values [17]. It seems that being aware of the present moment without using judgment helps patients to communicate better about the history of sexual problems, which leads to better emotional regulation and coping strategies, which Finally, improves the treatment period [24]. It seems that in this program, instead of trying to stop their thoughts and emotions, patients learn to experience them and establish a link with the defined set of goals and their value system and be in constant contact with them and adjust their lives based on them [20]. Research results by Drulovic et al. [21] indicate the prevalence of 40-80% sexual dysfunction in women and 50-90% in men with MS. Sexual dysfunctions cause depression, anxiety, and exacerbation of the disease in people, and their treatment process is also disrupted. The findings of Polat Dunya et al.'s review research [22] identified that a significant number of women with MS suffer from sexual dysfunction, which aggravates the disease and pain in them. Desire, arousal, and orgasm problems were the most common sexual problems in women.

Other results of this study were that compassion-focused therapy increased resilience in women with MS. These findings are consistent with the research results of Giovannetti et al. [30] and Swanepoel et al. [31].

In explaining the effectiveness of compassion-focused therapy in increasing resilience in patients, it can be said that since self-compassion increases the release of oxytocin in the body, this factor causes more activity of the security and relief system, and increasing self-compassion plays an essential role in the emotion regulation system [27]. In this way, activating the security and relief system, makes people face their difficult emotions with more acceptance and understanding and manage it better and achieve higher resilience [32]. Self-compassion requires awareness along with being aware of one's emotions. Therefore, disturbing and painful feelings are not avoided, but they are treated with kindness, acceptance, and a sense of common humanity [38].

People with MS are involved with many psychological disorders such as depression and anxiety which can easily put the affected person in a bad and unfortunate situation in terms of life expectancy. On the other hand, generally human beings have not learnt about compassion and kindness towards themselves [30]. Therefore, people in this treatment first recognize their emotional experience using mindfulness and then find compassionate feedback toward their negative feelings [29]. In this regard, it has been shown that a compassionate mind towards oneself and others can increase resilience when faced with stress [27]. In compassion-focused therapy, people learn not to avoid or ignore their painful feelings. Therefore, in the first step, they can recognize their experience and feel compassion for it. In self-compassion exercises, body and mental relaxation, self-compassion, and mindfulness are emphasized, which will play a significant role in relaxing the individual's mind, and reducing tension and negative spontaneous thoughts [35]. Study results by Giovannetti et al. [28] revealed that resilience treatment reduced depression, anxiety, stress, pain, and emotional problems in MS patients. Kasser et al. [29] examined the relationship between resilience and the quality of life of patients with MS. The obtained findings showed that patients who experience favorable levels of resilience in their lives have a high quality of life.

The present study faced several limitations. Due to time constraints, pre-test and post-test evaluation and measurement was short in the present study and had no follow-up stage. Therefore, it is suggested that future studies be performed at longer intervals. The effect of individual differences, people's motivation, expectations,

and hope on treatment were effective in the research results. It is also worth considering the mere use of self-report tools to measure research variables. Therefore, it is suggested that experimental methods be used in future studies.

Conclusion

In a general summary, it can be stated that the findings of the present study show the effect of compassion-focused therapy on reducing pain catastrophizing and increasing the sexual function and resilience of MS patients. According to the approach of third-wave treatments, pain catastrophizing, low sexual function and weak resilience of MS patients are due to their thoughts that their sexual problems and pain are directly caused by their disease and because they cannot control their pain. These patients tent to avoid many activities. The findings of this research indicated the effectiveness of compassion-focused therapy for women with MS. Since women experienced many problems during MS, it is necessary to take measures to improve their mental and physical health.

Conflict of Interest

The authors of this study state that they have no conflict of interest.

Ethical Approval

Ethical principles in writing the article have been observed according to the instructions of the National Ethics Committee and the COPE regulations.

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