Effects of Self-Compassion Therapy on Perceived Stress and Anxiety Sensitivity in Women with Multiple Sclerosis

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Abstract

Background: Multiple sclerosis (MS) leads to depression and anxiety in women and often decreases the quality of life, social interaction, and occupational competency of patients. The present study aimed to investigate the effects of self-compassion therapy on perceived stress and anxiety sensitivity in women with MS.

Methods: In this field-based, quasi-experimental study, a pretest-posttest control group design was employed. The target population comprised female patients with Multiple Sclerosis (MS) who sought treatment at Ahvaz MS Society during a defined recruitment period (October 2022 - January 2023) in Ahvaz, Khuzestan Province, Iran. They were diagnosed with MS by psychiatrists and clinical specialists in clinical interviews. A convenience sampling technique was used to recruit a sample of 40 female participants diagnosed with MS. Participants were subsequently randomized into an experimental group (n=20) and a control group (n=20). The study employed validated instruments, including the Perceived Stress Questionnaire and the Anxiety Sensitivity Index, to assess the relevant constructs. The analysis of covariance (ANCOVA) was then conducted to examine group differences while controlling for potential confounding variables.

Results: In the post-test, mean±SD for the perceived stress and anxiety in the experimental group was 24.80±5.08 and 20.32±3.17, demonstrating a significant difference as compared with the control group (43.81±3.57 and 51.07±51.07) (P=0.001). According to the results, self-compassion therapy managed to reduce perceived stress and anxiety sensitivity in the experimental group.

Conclusion: Our results suggested that self-compassion therapy could effectively reduce stress and anxiety in women with MS. Therefore, therapy centers are recommended to adopt self-compassion therapy to alleviate the psychological symptoms of MS.

Keywords: Self-compassion, Stress, Anxiety, Multiple sclerosis, Women

1. Introduction

Multiple Sclerosis (MS) is a chronic, inflammatory, and demyelinating disease of the central nervous system with a complex, not fully elucidated pathophysiology. It disrupts the transmission of neural signals due to inflammatory processes, myelin sheath breakdown, and subsequent axonal damage (1). MS exhibits a higher prevalence in female individuals compared with male ones, potentially due to hormonal influences (2). The disease typically progresses to a more advanced stage within a 10-15-year timeframe (3). It results in certain symptoms such as sensory processing disorder (SPD), myasthenia gravis (MG), visual impairments, hearing impairments, speech impairments, and imbalance (4). Nearly 2.8 million people are afflicted with MS worldwide, and more than 60% of whom experience at least one period of psychological problems (5, 6). According to the Iran MS Society, there are more than 78,000 patients with MS in Iran. The highest prevalence rate of MS is observed between the ages of 20 and 30 years (7). Furthermore, MS leads to depression and anxiety in women and often decreases the quality of life, social interaction, and occupational competency of patients (8, 9).

Stress is a kind of physical or mental pressure that causes some changes to the autonomic nervous system (ANS) and imposes some demands on patients (10). If stress is severe or persists for a long time, it may cause a mental breakdown and lead to physical and mental disorders (11). Perceived stress is another factor that patients with MS face (12). Perceived stress can be operationalized as a psychological state or process characterized by an individual's appraisal of their physical and psychological well-being as being under threat (13). The emergence of stress depends on how an individual perceives situations and events. An individual's reaction to stress depends on how

he/she interprets or evaluates the importance of a threatening or challenging stressful event (14). Those who fail to tolerate stress are likely to be extremely susceptible to the slightest frustration or pressure. As stressful factors persist or intensify, a person may fail to adapt and may become incompetent to deal with future events. From a subjective perspective, perceived stress refers to the extent to which stress is serious (15).

Anxiety sensitivity, a well-established personality trait frequently observed in MS patients, reflects a heightened fear of bodily sensations associated with anxiety. Individuals with high anxiety sensitivity endorse the belief that these physiological responses will lead to detrimental consequences, such as death, psychological instability, or social isolation (16). This apprehension can manifest as a fear response even to mild physiological changes, creating a cycle of heightened anxiety (17). As a relatively stable personality trait, anxiety sensitivity serves not only as a risk factor for anxiety disorders but also predicts the development of various mental health conditions, including depression, substance abuse, and even suicidal ideation (18).

Given the difficulty and high costs of treating MS, complementary therapies such as psychological interventions must be taken into account to control and alleviate the symptoms of this condition. Self-compassion therapy emerges as a promising psychological intervention for alleviating the psychological burden experienced by MS patients. This intervention fosters a shift away from avoidance of negative emotions and cultivates self-acceptance. By acknowledging their experiences, individuals can develop a sense of compassion towards themselves and their struggles (19). Moreover, compassion means that all pains cannot be relieved or treated; however, all discomforts can be lessened through compassion (20). According to Khedri and colleagues (21), compassion-focused mindfulness education managed to mitigate rumination and perceived stress in female adolescents. Torbati and colleagues (22) indicated that self-compassion therapy alleviated COVID-19 anxiety, improved distress tolerance, and enhanced emotion regulation in patients. Maner and colleagues (23) concluded that self-compassion therapy improved psychological outcomes in patients. Crego and co-workers (24) reported that increasing self-

compassion would reduce anxiety and could finally improve mental health.

The status quo of Iran's therapy community indicates that emerging training and therapies (i.e., emotion-focused therapy) do not have satisfactory positions (25). Moreover, previous studies could not optimally meet the needs of non-pharmacotherapies for MS (26). Given the importance of mental health, psychotherapies seem to be the most extensive and available non-pharmacological complementary therapies for MS. Furthermore, these therapies must be taken into account due to the ever-increasing prevalence of psychological disorders in patients with MS and the higher prevalence of these disorders in women, adversely affecting their personal and familial functions and their social relationship (27). Overall, MS has become a considerably undeniable problem due to the relatively high and upward prevalence of MS, its role in fatality, and the growing costs of healthcare imposed on society (28). Therefore, it is essential to analyze the relevant and explanatory variables of MS to develop appropriate interventions. Generally, this study was conducted practically on a group of women with MS due to the necessity of addressing women's mental health and the implementation of more accurate control over relevant variables. Due to a paucity of empirical research on self-compassion therapy, this study also analyzed an empirical method. Therefore, the present study aimed to investigate the effects of self-compassion therapy on perceived stress and anxiety sensitivity in women with MS.

2. Methods

In this field-based, quasi-experimental study, a pretest-posttest control group design was employed. The statistical population of this study included all female patients with MS who visited the Ahvaz MS Society in Ahvaz, Khuzestan Province, Iran. Diagnosed with MS by psychiatrists and clinical specialists in clinical interviews, these patients participated in several sessions from October 2022 to January 2023. Convenience sampling technique was employed to recruit 40 participants for this study. Following recruitment, participants were randomly allocated to one of two groups (n=20 per group) using a random number table. A priori power analysis conducted with G*Power software determined a sample size of 20 participants per group to achieve adequate statistical power (0.90)

at a significance level of α=0.05. At the posttest assessment, the experimental group exhibited a mean perceived stress level of 24.80±5.08, and the control group demonstrated a mean perceived stress level of 43.81±3.57 (29). The experimental group received eight 90-minute sessions of self-compassion therapy once a week. The control group received no intervention. However, the members of the control group were assured that they would receive the intervention next time, after data collection, to prevent the factors that could threaten the internal validity; that is, the compensatory competition of the control group or demoralization. The inclusion criteria were as follows: informed consent to participate, 20–40 years of age, having senior high school education and higher, being diagnosed with MS for more than two years, having no symptoms of major depression or other psychological disorders. The exclusion criteria were as follows: no membership in the MS Society, having other severe psychological disorders, taking psychedelic drugs, using drugs, and failing to participate in therapy sessions.

2.1. Tools

2.1.1. Perceived Stress Questionnaire: Developed by Cohen and co-workers (30), the Perceived Stress Questionnaire consists of 14 items. This questionnaire is employed to measure the degree to which an individual's life situations are evaluated as stressful. It is scored on a 5-point Likert scale in which scores 0, 1, 2, 3, and 4 correspond to "never", "very rarely", "sometimes", "often", and "very often", respectively. Items 4, 5, 6, 7, 8, 9, 10, and 13 are inversely scored. The minimum and maximum scores are 0 and 56, respectively. Higher scores indicate that an individual experiences and perceives higher levels of stress in life. The psychometric evaluation of the Perceived Stress Questionnaire yielded a Cronbach's Alpha coefficient of 0.72, indicating acceptable internal consistency (31). Additionally, Khalili and colleagues (31) reported a Content Validity Index (CVI) of 0.90 and a Content Validity Ratio (CVR) of 0.89.

2.1.2. Anxiety Sensitivity Index (ASI): Developed by Floyd and co-workers (32), the Anxiety Sensitivity Index (ASI) was employed to measure anxiety sensitivity. This index has 16 items scored on a 5-point Likert scale (ranging from 0 for "very low" to 4 for "very much"). Each item reflects

the idea that feelings of anxiety are experienced unpleasantly and can lead to traumatic outcomes. The degree of experiencing fear is considered a symptom of anxiety with higher scores. ASI is a psychometric tool with a score range of 0-64. It assesses three key factors: fear of physical sensations associated with anxiety (8 items), fear of cognitive dysfunction during anxiety (4 items), and fear of social observation during anxiety (4 items) (33). Foroughi and colleagues (33) established the reliability of ASI with a Cronbach's alpha coefficient of 0.90. Additionally, the instrument demonstrated satisfactory content validity (CVI=0.85) and convergent validity (CVR=0.98) (33).

2.2. Intervention

Self-Compassion Therapy Sessions: In this study, the therapy sessions were designed concerning self-compassion therapy based on the compassion therapy package developed by Gilbert (34). The intervention was implemented in eight 90-minute sessions. Table 1 presents an overview of self-compassion therapy sessions.

2.3. Data Analysis

Descriptive statistics (means and standard deviations) were employed to characterize the collected data. Inferential analysis was conducted using analysis of covariance (ANCOVA) in SPSS version 27.0 to examine group differences while controlling for potential confounding variables. Prior to ANCOVA, the normality of data distribution within each group was assessed using the Kolmogorov-Smirnov test. A paired t-test was employed to compare means between groups. A Chi-square test was used to compare the distribution of participants across categories of a demographic variable between the groups.

3. Results

Women in the experimental group had a mean age of 35.81(±5.20) years, while women in the control group had a mean age of 37.39(±6.70) years. Demographic characteristics of the participants are further detailed in Table 2.

Baseline (pretest) data revealed similar mean scores (around 45) for perceived stress in both the experimental (45.13±3.29) and control groups (44.37±4.08) (Table 3). However, at posttest,

Table 1: Self-compassion therapy sessions

Session	Title	Content
1	Becoming acquainted with the general principles of self-compassion therapy	Making introductions; establishing relationships; explaining regulations; giving a brief description of compassion and its elements; teaching and practicing rhythmic relaxing breathing exercise
2	Becoming acquainted with self-criticizing thoughts and behaviors	Teaching self-criticism and its different types; expressing causes of self-criticism and its outcomes; presenting self-criticism reduction solutions; encouraging participants to analyze and describe their personalities as self-criticizing or self-compassionate
3	Becoming acquainted with compassion traits and perceiving the ability to withstand difficulties	Giving brief descriptions of six compassion traits (*i.e.*, components of encouragement) such as distress tolerance, nonjudgmental behavior, and sympathy; teaching how to withstand and overcome problems; teaching the acceptance of failure and unchangeable life problems; analyzing the traits of people with high and low tolerance
4	Teaching mindfulness	Becoming acquainted with mindfulness and its definition; mentioning the benefits of mindfulness in life; teaching mindfulness skills with sedentary meditation exercise
5	Accepting mistakes and forgiving oneself or others	Teaching how to accept mistakes without judgment; analyzing people's reasons for failing to forgive themselves and others; mentioning false beliefs about forgiveness; expressing the disadvantages and outcomes of unforgiving; offering some solutions to forgiving oneself and others (teaching ten steps toward forgiveness)
6	Visualization and compassionate sensory experience	Introducing visualization powers of humans in relation to three emotion regulation systems; teaching and executing visualization; creating a safe zone for compassionate traits
7	Compassionate behavior	Mentioning the concept of fear of compassion; explaining the meaning of compassionate behavior; generating some ideas for compassionate behavior; making brief remarks on self-efficacy and its effects on life
8	Reviewing the topics	Teaching how to write a compassionate letter to oneself and practicing this exercise in the class; drawing a conclusion and giving an overview of previous sessions; conducting the posttest

Table 2: Demographic characteristics of the women

Groups	Mean (±SD) age (years)	Duration of the disease (years)	Education		Marital status	
			High school education	College education	Married	Single
Experimental	35.81(±5.20)	6.77(±2.32)	5 (33.3%)	10 (66.7%)	11 (73.3%)	4 (26.7%)
Control	37.39(±6.70)	7.21(±2.80)	7 (46.7%)	8 (53.3%)	12 (80.0%)	3 (20.0%)
P	0.410	0.592	0.464		0.671	

SD: Standard Deviation

Table 3: Means and standard deviations (SD) of perceived stress and anxiety sensitivity in experimental and control groups

Variables	Groups	Pretest	Posttest	P (within group)
		Mean±SD	Mean±SD	
Perceived stress	Experimental group	45.13±3.29	24.80±8.08	0.001
	Control group	44.37±4.08	43.81±3.57	0.647
	P (between group)	0.521	0.001	-
Anxiety sensitivity	Experimental group	51.62±5.78	20.32±3.17	0.001
	Control group	50.41±5.10	51.07±5.23	0.688
	P (between group)	0.487	0.001	-

SD: Standard Deviation

the experimental group exhibited a significant reduction in perceived stress (24.80±5.08) compared with the control group (43.81±3.57). A similar trend was observed for anxiety sensitivity scores. Pretest scores showed no significant difference between groups (experimental: 51.62±5.78, control: 50.41±5.10). However, posttest scores indicated a substantial decrease in the experimental group (20.32±3.17) compared with minimal change in the control group (51.07±5.23).

The results of the Kolmogorov-Smirnov test indicated that the scores of perceived stress and anxiety sensitivity had normal distributions at the pretest and posttest stages in the experimental group and the control group.

According to the results, significant differences were observed between the two groups in terms of perceived stress and anxiety sensitivity after the pretest was controlled (P=0.001). The results of analyzing the posttest means of both groups indicated that self-compassion therapy had significant effects on the alleviation of perceived stress in the experimental group (P=0.001). There were also significant differences between the two groups in terms of anxiety sensitivity (P=0.001). Finally, the results of analyzing the posttest means of both groups indicated that self-compassion therapy had significant effects on the mitigation of anxiety stress in the experimental group.

4. Discussion

This study investigated the efficacy of self-compassion therapy in mitigating perceived stress and anxiety sensitivity in women diagnosed with MS. The findings revealed significant between-group differences in perceived stress, favoring the experimental group (self-compassion therapy). This suggests that self-compassion therapy has the potential to reduce perceived stress in women with MS. The results are consistent with the findings reported by Khedri and colleagues (21). By definition, self-compassion therapy focuses on the emotion regulation model. The relevant interventions are implemented to change the specific models of emotion regulation that underlie the change process. Additionally, self-compassion therapy is a multidimensional method of different education skills related to attention, reasoning, visualization practice, and behavioral interventions (19). This method encourages women with MS to be self-perceptive and self-compassionate along the processes of negative thinking by focusing strongly on developing self-compassion (35).

In self-compassion therapy, a new viewpoint is developed to help constantly self-criticizing individuals achieve growth and make better decisions by selecting available choices. Self-compassion therapy teaches these individuals to accept their weaknesses instead of indulging in self-criticism for failures and being self-judgmental

and unkind to one's self (34). Therefore, self-compassion therapy can gradually improve early maladaptive schemas in women with MS. All of the foregoing factors refer to the overemphasis of self-compassion therapy on emotions in female patients. However, other factors such as previous experiences can greatly contribute to the emergence of perceived stress. Therefore, ignoring those factors can reduce the effects of this therapy on perceived stress. Furthermore, the basic principles of self-compassion therapy indicate that thoughts, factors, images, and extrinsic soothing behaviors must be internalized. If so, individuals will find peace of mind in response to these intrinsic factors as they react to extrinsic factors (21). Overall, the effectiveness of self-compassion therapy in reducing perceived stress in women with MS can clearly be perceived.

Consistent with the findings for perceived stress, self-compassion therapy yielded significant between-group differences in anxiety sensitivity. This suggests that the intervention effectively reduced anxiety sensitivity in women with MS. The results are consistent with the findings reported by Mousavi and colleagues (36) and Haj Sadeghi and co-workers (37). Moreover, women with MS can be trained in specific compassion exercises to stop making strict judgments about themselves and others and achieve satisfactory levels of mental health. As a result, they will experience lower levels of anxiety sensitivity. Self-compassion, self-kindness, and openness are considered as important components of mental health (37). This approach helps women with MS learn how to be self-kind, be alert to their living conditions, and encounter problems without any judgments. Hence, they will improve their psychological health and reduce anxiety sensitivity. In other words, self-compassion means that an individual clearly observes and accepts his/her flaws instead of ignoring them (23).

Additionally, a person who correctly develops and maintains a self-compassionate attitude can experience higher levels of mental well-being. In particular, such a person encourages himself/herself gently to accept life changes and modifies his/her harmful behavioral patterns (21). Therefore, self-compassion can be considered an emotion regulation strategy in different aspects. In this strategy, annoying emotions are not ignored; however, a person tries to accept acknowledge and

embrace them with compassion. Therefore, he/she finds new ways of coping with emotions by changing negative feelings into positive ones (19). In conclusion, self-compassion therapy seems to have acceptable effects on anxiety sensitivity.

4.1. Limitations

Given the limitations of this study, the findings can only be generalized to women with MS who met the inclusion criteria. Our findings cannot be generalized to those with different demographics and inclusion criteria.

5. Conclusions

Self-compassion therapy lessens perceived stress and anxiety sensitivity in women with MS. The results of this study can effectively help psychotherapists, especially those who deal with physical disorders with mental causes, including MS. The results can also provide a practical clear outlook for the community of therapists, especially psychotherapists. Research findings can serve as empirical applied guidelines to develop an appropriate atmosphere for both personal life and familial life in addition to establishing complementary relationships between family members. Generally, there can be a promising context for the growth and excellence of women with MS to help them live happily, reduce marital conflicts, and achieve mental health.

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Authors' Contribution

Sayedeh Pegah Mousavipour: Substantial contributions to the conception and design of the work; acquisition and interpretation of data for the work; drafting the work and reviewing it critically for important intellectual content. Sasan Bavi: Substantial contributions to the conception and design of the work; analysis and interpretation of data for the work; drafting the work and reviewing it critically for important intellectual content.

All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such as the questions related to the accuracy or integrity of any part of the work.

Ethical Approval

The study was approved by the Ethical Committee of Islamic Azad University-Ahvaz Branch with the code of IR.IAU.AHVAZ.REC.1403.065. Also, written informed consent was obtained from the participants.

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