

## Effectiveness of Online Compassion-Focused Group Therapy on Depression, Anxiety and Chronic Fatigue Severity of Multiple Sclerosis in Female Patients

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### Abstract

**Introduction:** Multiple sclerosis (M.S) is the most common debilitating disease that also affects the physical, mental, and social functioning of patients. The aim of this study was to evaluate the effectiveness of online compassion therapy on depression, anxiety and chronic fatigue severity in female patients with multiple sclerosis.

**Method:** The present study was a pre-test, post-test applied and experimental study with a control group. The sample consisted of 30 patients with multiple sclerosis living in Shiraz in 2020 who were selected by convenience sampling method. They randomly divided into experimental and control groups. Participants were tested on the Depression, Anxiety, and Chronic Fatigue Scales, and an online compassion-based treatment plan was presented to the experimental group in 8 two-hour sessions. Descriptive statistics and covariance test were used to analyze the data.

**Result:** Patients showed a significant improvement in the severity of symptoms in all three variables. The results showed a significant difference in depression, anxiety and chronic fatigue severity scores between the groups at posttest ( $P < 0.001$ ).

**Conclusion:** Online CFT can be used as an effective therapy to improve mental disorders and mental health of MS patients in case of evidence for proof of effectiveness of CFT. So, online compassion-focused group therapy can reduce the negative psychological consequences of people with multiple sclerosis by reducing negative emotions and increasing a person's attention to improving their condition.

**Declaration of Interest:** None

**Keywords:** Compassion-Focused therapy, Depression, Anxiety, Chronic fatigue severity, Multiple sclerosis.

## ***Introduction***

**M**ultiple sclerosis (MS) is the most common debilitating disease with an unknown etiology and increasing prevalence in both developed and developing countries (1). It is a chronic inflammatory disease of the central nervous system leading to axonal loss and neuronal demyelination (2). It is a neurological disorder with an unknown cause and has no absolute cure (3). MS symptoms are very different and they are related to the location of damages in central nervous system (4). The protective myelin coating around nerve tissues of the brain and spinal cord is damaged in progressive and chronic stage of MS, leading to a broad spectrum of neurological disorders including blurry vision, muscle weakness and sensory disturbances (2). Physical, mental and social functioning of the patients might also be affected in the progressive MS (5). It is more common in women than men (1). The MS prevalence ratio of women to men has increased steadily since early 1900s and the F/M ratio is currently about 3:1 in most countries (1). Also, the most common age of onset is between 20 and 40 years old, which is the peak of a person's social and family responsibilities (6).

The relationship of psychological and psychiatric disorders with MS is complex and the extent to which they might be reactive to countless psychosocial factors or even be symptoms resulting from the neuropathological process itself remains unclear (7). Certainly, they aggravate physical symptoms like fatigue, leading to disability, suffering and significant disruption of family, work and social life,

thus increasing the huge burden of the chronic inflammatory disease (7).

Previous studies showed psychiatric comorbidity is common in MS patients. The most common psychiatric disorders comorbid with MS are depression and anxiety (8). Depression is experienced by 50% to 60% of patients, which can be the cause or effect of fatigue in endogenous and relapsing forms. The suicide rate in these patients is approximately 7.5 times higher than the control group (6). Studies have shown that nearly half of MS patients suffer from depression and anxiety, which severely affect their quality of life (QoL) (9). The results of these studies showed that stress and anxiety can be a trigger for MS and exacerbate the symptoms of MS (10). Depression and anxiety may increase the fatigue (6). People with MS also suffer from a variety of psychological symptoms due to this type of disease, one of which is the symptoms of chronic fatigue (11). Chronic fatigue syndrome (CFS) is another common symptom frequently reported in MS patients, which also reduces quality of life of MS patients. However, the cause of CFS in MS is still unknown (6). CFS is common in moderate form of MS, even early in the disease. Also, 50% to 100% of MS patients reported CFS depending on severity and form of their disease (12). CFS is one of the most important influential factors in various aspects of lives of MS patients. It has considerable effects on family, social and cognitive functioning of MS patients. It is also significantly correlated with psychological disorders including anxiety and depression (13). Physiological and physical factors are the most influential

causes of CFS; however, attitudes, beliefs, lifestyle and some psychological factors (e.g., negative mood) might also be the cause of CFS (14). In addition to physical symptoms, MS is also associated with several psychological problems that can affect mental health of patients and can aggravate physical symptoms of the disease (15).

Given the negative impact of mental disorders on the course and severity of the disease and the necessity to ameliorate it, it is important to assess the interaction of treatments for both physical and mental disorders (16). Various psychotherapies were suggested and effectiveness of every treatment was assessed in different studies including cognitive-behavioral therapy, psychodynamic therapy, and third wave therapies (e.g., commitment and acceptance therapy, mindfulness-based therapy and compassion-focused therapy) (16). Compassion-focused therapy (CFT) is a new therapeutic intervention that is found to be effective in improving mental health of MS patients (17). It was developed by Paul Gilbert and focuses on four realm of personal history, threat system, safety strategies, and unintended consequences (18). Compassion focused therapy (CFT) is a system of psychotherapy that integrates techniques from cognitive behavioral therapy with concepts from evolutionary psychology, social psychology, developmental psychology, Buddhist psychology, and neuroscience (18). The main technique of CFT is compassionate mind training (CMT), the therapist gradually improves CMT process by teaching the necessary skills to the patients (19). Two

main goals of CFT are reducing self-directed hostility and developing personal capabilities to foster self-confidence, kindness, and self-soothing (20). Numerous studies have shown that high levels of self-compassion are associated with lower anxiety and depression (21). Lower risk of mental disorders is also associated with higher level of mental well-being, and higher levels of resilience in stressful situations (22). Various studies have also shown the effectiveness of CFT in reducing anxiety and depression (23). CFT was also found to be effective in female patients with MS (23). CFT was also effective in increasing distress tolerance and relieving pain (24). In one study, the relationships between self-compassion, physical health, and health-promoting behavior were examined (25). The results showed that self-compassion predicts most areas of health and can promote physical and mental health (25).

Digital mental health interventions were popular since 1980s to the 1990s with the advent of computers and digital technology (26). The rationale for use of virtual reality therapy is to address the treatment gap in mental health including few numbers of therapists, long wait list, and, most importantly, social stigma (27). Online therapies were found to be more effective than face-to-face therapies (28). Studies have also shown the effectiveness of online treatment on depression (29). Online therapies were successfully replaced with face-to-face therapies in developed countries including Australia, Sweden, and Canada (30). Despite the growing evidence for the effectiveness of Internet-based and blended

treatment formats, implementation on a wider scale is progressing slowly (31). Previous studies have recently introduced six strategies to implement online therapies including acceptance, appropriateness, interaction, resources, work processes, and leadership. Some of these strategies were used in the studies on mental health professionals whose performance significantly facilitates spread of online therapies (32). Few studies addressed online CFT (33). For example, The effectiveness of online CFT on life satisfaction, self-compassion, and perceived stress was assessed in a study (24). The findings showed that CFT significantly increased life satisfaction and self-compassion and decreased perceived stress in CFT group compared to control. The results persisted in a six-month follow-up. Although the results were promising, more randomized controlled trials should be carried out to generalize the results (32). Also, Compassionate online education on quality of life for children and adolescents with chronic medical conditions has also been studied and is considered as a suitable option for high-risk groups due to the many barriers to their access to face-to-face psychological education (34).

The effectiveness of online CFT on self-criticism (as a key factor in most mental disorders), depression, anxiety and stress were assessed in another study. The results showed the effectiveness of online CFT in largely reducing depression, anxiety, stress and self-criticism and persistence of the results in a six-month follow-up (35).

The effectiveness of a six-week web-based CFT program was assessed on stress and

burnout symptoms in a group of psychologists in another study. The findings showed a decrease in these two variables following the treatment. However, further studies are needed to assess the effectiveness of CFT (33).

No study had addressed web-based and online psychotherapy in Iran although the therapy was encouraged in different parts of the world with the advent of technology. Therefore, comprehensive scientific studies should be carried out in this field. This research gap is mostly felt since COVID-19 pandemic given the necessity of social distancing. The patients suffering from both physical and mental disorders (e.g., MS patients) are categorized as high-risk and the most vulnerable group of patients who should be prioritized in virtual reality and web-based psychotherapies. Therefore, this study was to find the answer to this question that Can online compassion-based group therapy affect the symptoms of depression, anxiety, and the severity of chronic fatigue symptoms in female patients with MS?

### **Method**

This was an applied experimental study of pretest-posttest control group design. The statistical population consisted of MS patients living in Shiraz in 2020 whose disease was diagnosed by a neurologist. Of these, 30 patients were determined as sample size selected using a convenience sampling method. To conduct the study, patients with multiple sclerosis were first invited to participate in the study if they wished. They were then asked to complete the scales for this study. Clients who had psychological symptoms based on the cut-

off score on the scales were selected. At the end of these steps, participants were randomly divided into control and experimental groups. The cut-off scores used according to the previous studies were 21 for depression (36), 16 for anxiety (37) and 36 for chronic fatigue (38). Also Inclusion criteria were diagnosis of the disease by a specialist, not being in severe and acute stages of the disease, not receiving other psychological therapies in the last three months, having at least a diploma, and having smartphones to participate in the online CFT. Exclusion criteria were having acute psychiatric disorders based on psychological examination and not attending more than two treatment sessions. Objectives of the study, treatment method, the right to leave the project at any time, and data confidentiality were explained to the patients for ethical considerations. The participants were then randomly divided into two experimental and control groups. Each group consisted of 15 individuals. Depression, anxiety, and CFS scales were used to assess the patients. CFT protocol had eight sessions. Each session lasted two hours. Retest was performed. Collected data was analyzed using descriptive statistics and analysis of covariance.

### Measurements

**Beck Depression Inventory:** The Beck Depression Inventory – second edition (BDI-II) is a revised version of the Beck Depression Inventory for assessment of severity of depression (36). It contains 21 items for measuring physical, behavioral and cognitive symptoms of depression. Each item has 4 options scored from 0 (mild depression) to 3 (severe depression).

Maximum score is 63 and minimum score is zero. Reliability of the scale was confirmed in various studies (36). Cronbach's alpha was reported as 0.78 and test-retest reliability was reported as 0.73 in Iran (39).

**Beck Anxiety Scale (BAI):** it was designed to measure the severity of anxiety. It contains 21 items scored based on a four-point scale (from not at all to severe, I cannot withstand it). Each item shows a symptom of anxiety usually experienced by people with anxiety disorders (37). Sum of scores of 21 items shows total score of each patient (no symptom = 0, mild = 1, moderate = 2, and severe = 3). The range of scores is from 0 to 63 (0-7 indicates no anxiety, 8-15 indicates mild anxiety, 16-25 indicates moderate anxiety, and 26-63 indicates severe anxiety). Reliability coefficient of the scale was reported as 0.92 in 40 outpatients (37). Validity of the scale was also confirmed in the former study ( $r = 0.72$ ) ( $\alpha = 0.92$ ) (40).

**Chronic Fatigue Severity Scale:** The Krupp Fatigue Severity Scale was developed in 1989 by Krupp *et al.* to measure fatigue severity in people with multiple sclerosis and lupus. It contains 9 items and is scored based on a seven-point Likert scale (strongly disagree = 1, strongly agree = 7). The range of scores is from 9 to 63 and scores > 36 show severe fatigue. Cronbach's alphas of the scale was 0.88 in healthy people and 0.81 in MS patients. Internal consistency coefficient of the scale was also high (38). Reliability of the scale for MS patients was 0.94 using Cronbach's alpha calculation. Correlation coefficient between 9 items was 0.78, which indicated desirable validity and reliability of the scale (41).

**Therapeutic Intervention:** Treatment techniques and exercises recommended in the online CFT developed by Krieger *et al.* (33) was used in this study [table 1]. Objective and topic of each session were explained and group members discussed and

exchanged views. Summary of each session and exercises were discussed at the end of each session. It was an Internet-based program including audio files, text, SMS, and exercises. The table shows the online CFT program.

Table 1- Treatment program

Sessions	Objectives	Exercises/techniques
1	-Introduction to online CFT -How to use the platform and participation in the online CFT -Introduction to CFT -Familiarization of therapist and group members	-Discussions in the online platform -Pretest
2	-Describing compassion	-Teaching mindfulness along with physical examination and inhalation technique
3	-Characteristics of compassionate people -Being compassionate to others themselves -Acceptance and no judgment	-Discussion in online platform
4	-Self-recognition and recognizing themselves as compassionate or not -Assessment of being compassionate to others and themselves	-Discussion in online platform
5	-Teaching styles of being compassionate to themselves and others	-Compassionate talking and behavior -Writing a compassionate letter
6	-Teaching compassionate skills in the fields of compassionate attention, reasoning, and behavior	-Finding self-compassion and self-criticism in inner dialogue and finding similarities in talking with the people most important to themselves
7	-Treating fear of self-compassion -Assessment of objective and subjective barriers in fostering self-compassion and coping strategies	-Self-compassionate mental imaging technique
8	-Summary and conclusion -Answering possible questions -Assessment of all session Posttest	-Discussion in online platform -Posttest

## Results

The sample consisted of 30 female patients with MS. Mean age of the participants was 26.39 with a standard deviation of 8.14. They were randomly divided into control

and experimental groups. Table 2 presents descriptive statistics relevant to depression, anxiety and CFS in control and experimental groups.

Table 2. Mean and standard deviation of research variables before and after treatment in experimental and control groups

	Before treatment	After treatment
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	Experimental Group		Control Group		Experimental Group		Control Group	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Depression	23.14	2.87	23.07	2.75	16.09	2.34	22.46	2.03
Anxiety	22.47	3.34	23.27	3.64	15.52	2.44	24.08	3.49
Chronic Fatigue Severity	48.91	9.12	49.13	8.64	34.21	8.14	50.41	9.19

Kolmogorov-Smirnov test was used to test data normality. Leven's test was used to test uniformity of variance. Since both tests were not significant in any groups, the assumption of data normality and uniformity of variance were accepted.

Analysis of covariance was used to test the research hypotheses. Post- test depression

scores were used as the dependent variable, group (control, experimental) as the independent variable, and pretest depression scores as the covariate variable in the first hypothesis. Table 3 shows the effectiveness of online CFT in reducing depression.

Table 3. Results of univariate analysis of covariance on post-test scores with pretest covariate in depression variable

	df	Sum of Squares	F	Eta Square	p
Group	1	689.820	38.11	0.524	0.001
error	27	16.872			
all	30				

Table 3 shows a significant difference in depression scores between the groups at posttest ( $F = 38.11$  and  $P < 0.001$ ). Therefore, depression scores significantly differed in the experimental from the control group at posttest and the effectiveness of CFT was estimated as 52.4%.

Posttest anxiety scores were used as the dependent variable, group (control, experimental) as the independent variable, and pretest anxiety scores as the covariate variable in the second hypothesis. Table 4 shows effectiveness of online CFT in reducing anxiety.

Table 4. Results of univariate analysis of covariance on posttest scores with pretest covariate in anxiety variable

	df	Sum of Squares	F	Eta Square	p
Group	1	746.468	35.94	0.561	0.001
error	27	19.614			
all	30				

Table 4 shows a significant difference in posttest anxiety scores between the groups ( $F = 35.94$  and  $P < 0.001$ ). Posttest anxiety

scores in the experimental group were significantly different from the control group and the effectiveness of CFT was estimated as 56.1%.

Posttest CFS scores were used as the dependent variable, the group (control,

experimental) as the independent variable and pretest CFS scores as the covariate variable in the third hypothesis. Table 5

shows the effectiveness of online CFT in reducing CFS.

Table 5. Results of univariate analysis of covariance on posttest scores with pretest covariate in chronic fatigue syndrome variable

	df	Sum of Squares	F	Eta Square	p
Group	1	2043.87	28.85	0.548	0.001
error	27	89.614			
all	30				

Table 5 shows a significant difference in posttest anxiety scores between the groups ( $F = 28.85$  and  $P < 0.001$ ). Posttest anxiety scores in the experimental group were significantly different from the control group and the effectiveness of CFT was estimated as 54.8%.

## Discussion

The findings showed that online CFT reduced depression, anxiety and CFS in female patients with multiple sclerosis. Few studies have assessed the effectiveness of online CFT. These few studies have also confirmed the effectiveness of online CFT (32, 33). Previous studies have also confirmed the effectiveness of CFT on psychological symptoms of MS patients. The results of previous studies have also confirmed the effectiveness of CFT (21, 23 and 24).

CFT encourages the patients to not avoid painful feelings, accept the reality, recognize their current situation, and adapt with their current situation in a problem-oriented manner. It also teaches people to be compassionate toward themselves and others. Therefore, CFT helps people to raise

compassionate perspective and self-compassion. It reduces negative emotions and focuses on improving current condition, which makes incentive to participate in CFT. Research has shown that self-compassion plays an important role in regulating emotions (34). A compassionate attitude helps people feel connected to themselves and others, and thus overcome the fear of rejection (25). Thus, people with higher compassionate attitudes experience fewer negative emotions in experiencing unpleasant events, especially those that require social evaluation and comparison, such as the experience of illness (34). The component of mindfulness, in this treatment, can reduce negative emotions by reducing rumination. Studies have also shown a negative association between this component and anxiety, depression, and physical symptoms (25). Self-evaluated in compassionate people is not directly related to the outcome of their behavior, but these people, in the process of life, whether good or bad, have a kind acceptance and attitude towards themselves and circumstances (33). Online CFT also follows face-to-face CFT protocol with slight explanation in some items. The exercises should be altered to adapt to online platform, could be



understood, and be easily undertaken. Online CFT put more emphasis on data confidentiality, especially in group therapy. Other items are consistent with face-to-face CFT. Therefore, the results of online CFT are expected to be as effective as face-to-face CFT.

Given the limitations of online platform, the effectiveness of CFT depends on treatment approach and techniques. CFT is a mental and intellectual technique that engages the patient. Therefore, it can be used in an online platform.

### Conclusion

MS patients mostly face difficulty attending face-to-face sessions due to their physical problems (especially in acute phase of the disease) although they suffer from mental disorders. Online therapy sessions would be more important given the COVID-9 pandemic and the necessity of social distancing since MS patients are high-risk and the most vulnerable group of patients. Therefore, online CFT can be used as an effective therapy to improve mental disorders and mental health of MS patients in case of evidence for proof of effectiveness of CFT.

Online therapies are new approaches in psychotherapy with different advantages that are currently popular among psychotherapists and patients. It is necessary to assess different dimensions of CFT given the novelty of this approach. Therefore, it is suggested that the effectiveness of CFT on other physical diseases and different groups of patients be assessed in future studies to provide adequate scientific evidence for the right implementation of online CFT.

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