



Effect of Positive Mindfulness and Emotion-Focused Cognitive-Behavioral Therapy in Fibromyalgia Patients' Response to Stress and Subjective Well-Being

Nahid Jahanshahi Hesari ¹ , Parviz Asgari ^{2,*} , Farah Naderi ³ , Alireza Heidari ⁴

¹ PhD Candidate, Department of Health Psychology, Khorramshahr International Branch, Islamic Azad University, Khorramshahr, Iran

² Associate Professor, Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

³ Professor, Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

⁴ Associate Professor, Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

*Corresponding author: Parviz Asgari, Associate Professor, Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran. E-mail: p.askary@iauahvaz.ac.ir

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Abstract

Introduction: Fibromyalgia disease has a considerable effect on anxiety disorders such as subjective well-being. The present study aimed to investigate the effect of positive mindfulness therapy (PMT) and emotion-focused cognitive-behavioral therapy (EFCBT) in fibromyalgia patients' response to stress and subjective well-being.

Methods: The research method was quasi-experimental with a pre-test and post-test design, and a control group. The statistical population included 160 women with fibromyalgia, visiting Red Cross affiliated physiotherapy clinics in Tehran in 2020. The sample consisted of 60 patients with fibromyalgia selected by convenience sampling and randomly divided into two experimental groups (PMT and EFCBT) and a control group (n= 20 per group). Data were collected using the Self-Regulation Inventory (SRI) and the Subjective Well-Being Scale. The validity and reliability of the research instruments were confirmed. Data were analyzed at descriptive and inferential levels using SPSS software version 20.

Results: The results showed that the PMT produced significant improvements in subjective well-being and response to stress ($P = 0.001$) in patients with fibromyalgia. Furthermore, EFCBT was effective in improving subjective well-being and response to stress ($P = 0.001$) in the patients compared to the control group. The results did not imply a significant difference between the two treatment interventions.

Conclusions: PMT and EFCBT were effective in reducing response to stress and improving subjective well-being in patients with fibromyalgia. Based on the results, holding PMT and EFCBT workshops may exert beneficial effects on reducing response to stress and increasing subjective well-being in patients with fibromyalgia. According to the results, using positive mindfulness therapy and emotion-focused cognitive-behavioral therapy was effective in reducing response to stress and improving subjective well-being in patients with fibromyalgia.

INTRODUCTION

Fibromyalgia (FM) is a prevalent and debilitating syndrome associated with widespread and multisite musculoskeletal pain, multiple unstable trigger points, sleep disturbance, fatigue, and muscular inflexibility [1]. After arthritis, which is the most prevalent rheumatic disease, fibromyalgia is one of the top three prevalent diseases among adult patients in rheumatology clinics [2, 3]. These patients show symptoms of peripheral and autonomic nervous system disorders, lower cortisol response to stress, lower levels of serotonin metabolites in the cerebrospinal fluid (CSF), and higher levels of stress [4].

Fibromyalgia disease has a considerable effect on anxiety disorders such as subjective well-being (SWB) [5, 6]. One of the negative effects of anxiety is the reduction of subjective and psychological well-being. The emergence of the positive psychology movement inspired a group of psychologists to use the term "psychological well-being" instead of mental health since that term was believed to have a positive connotation [7]. There is a growing number of research regarding SWB and human capabilities on account of the development of positive psychology. SWB is a crucial structure in the research concerned with personality interpretation and is defined as a positive evaluation of life and the balance between positive and negative emotions [8, 9]. Life satisfaction is considered a cognitive aspect of SWB and positive and negative emotions, as well as a general dimension, which indicates individuals' daily emotional experiences [10]. Loge-Hagen et al. [11] argued that one of the consequences of fibromyalgia diseases is the prevalence of depression, especially stress. The feeling of stress in these people pertains to natural stressful events such as social and family relationships and communications [12]. Stress is a natural experience and has a crucial role in the continuance of human survival; however, acute or long-term stress can cause unpleasant and traumatic effects [13]. Accordingly, it is quite crucial to identify the feelings and emotions and adopt proper coping strategies [14].

Mindfulness is a treatment concerned with the reduction of stress and anxiety [15]. It is derived from cognitive-behavioral therapies and considered among the third wave therapies. A variety of studies demonstrated that mindfulness-based therapies affect various levels of life such as personal, family, and social at different age levels. It improves assertiveness and reduces anxiety, depression, and stress [16, 17]. Based on the positive psychotherapy paradigm, these treatment interventions are not rejecting or substitute for traditional treatments. In other words, instead of undergoing a paradigm change, they intend to focus on strengths and weaknesses [18]. Accordingly, combining mindfulness with other positive psychological structures

improves its capacity. Similar to other mixed positive interventions, the positive mindfulness training model emphasizes the weaknesses and strengths in order to improve the positive variables and well-being and reduce the subjective distresses [19, 20]. Self-compassion is among the structures considered in the positive mindfulness plan to deal with self-criticism and rumination in depression [21, 22].

One of the therapies affecting the psychological symptoms is the emotion-focused cognitive behavioral therapy (ECBT), which emphasizes the skills for identifying and detecting the emotions of self and others (emotional awareness), the correct way of expressing emotions with respect to the social status (understanding emotion), reducing the intensity of negative emotions prior to evoking a response (emotional regulation), plus, emphasizing the behavioral and cognitive techniques affecting anxiety and other acute negative emotions [23, 24]. Kohrt et al. [25] showed the effectiveness of mental and spiritual factors in improving chronic pain. Kim et al. [26] showed the effectiveness of exercise (strength and flexibility exercises) and cognitive-behavioral interventions in attenuating chronic musculoskeletal conditions (fibromyalgia), improving performance, and changing secondary signs. Mohammadi Zeidi et al. [27] reported that training coping approaches, which are based on mental teachings, proved fruitful in enhancing health and easing clinical disorders.

Taking into consideration the importance of SWB in the psychological structure of human life, its promotion is the objective of most psychological treatments in clinical and non-clinical situations [10, 28]. Therefore, the present research employed and compared two psychological interventions to assist these patients to cope with their diseases in order to increase their SWB and response to stress, which can lead to improvement of some of the factors that these patients are suffering from. Accordingly, the present study aimed to compare the effect of positive mindfulness therapy and emotion-focused cognitive-behavioral therapy in improving response to stress and subjective well-being in patients with fibromyalgia.

METHODS

The research method was quasi-experimental with a pre-test and post-test design, and a control group. The statistical population included 160 women with fibromyalgia, visiting Red Cross affiliated physiotherapy clinics in Tehran in 2020. Sixty patients with fibromyalgia who were willing to participate in the research were selected as the sample of the study using convenience sampling. The inclusion criteria were fibromyalgia diagnosis, the age range of 30-50 years, not receiving any simultaneous psychological or

pharmaceutical treatment, lack of mental illness, and at least high-school education. Participants were randomly divided into two experimental groups (positive mindfulness therapy and emotion-focused cognitive-behavioral therapy) and a control group ($n = 20$ per group). After filling out the informed consent forms, the participants completed the Self-Regulation Inventory (SRI) and the Subjective Well-Being Scale in the pre-test phase. The participants were also ensured about the confidentiality of the results. After sampling, the intervention programs were performed separately for the experimental groups. During this period, the controls were not given any task to avoid probable interference with the results from the EFCBT and PMT groups. Harboring ethical considerations, a brochure containing intervention guidelines was provided to the controls after the post-test phase. After the implementation of the interventions to the experimental group, both the experimental and control groups underwent the post-test phase.

Research Tools

Self-Regulation Inventory (SRI): Koh in 2001 developed this inventory to study the emotional, physical, cognitive, and behavioral aspects of stress. This inventory is a self-report comprising 39 questions. The participants should complete the inventory on the basis of the 5-point Likert scale (ranging from zero= never to 4= totally), which specifies to what extent each participant is suffering from each of the symptoms of stress (6 phrases), aggression (4 phrases), physical (3 phrases), rage (6 phrases), depression (8 phrases), fatigue (5 phrases), and failure (7 phrases) [29]. Ashkezari et al. [30] reported alpha Cronbach

coefficient of 0.87 for the scale. In the present study, the Cronbach's alpha coefficient was 0.82 for the scale.

Subjective Well-Being Scale: Molavi et al. [31] designed the Subjective Well-being Scale. This scale contains 39 items, which should be completed using the 5-point Likert scale (Completely True and Completely False). They evaluated well-being using questions such as: (Sometimes I change the way I act or think to be more like others; I feel good when I think about what I have done in the past and what I will do in the future). The following are four other subscales: 1. Vitality Subscales, 2. Grit Subscales, (the collection of these two subscales creates the subscale of positive emotions), 3. Neurotic Subscales, and 4. Stress-Depression Subscales (the collection of these two subscales creates the subscale of negative emotions). Molavi et al. [31] reported alpha Cronbach coefficient of 0.84 for the scale. In the present study, the Cronbach's alpha coefficient was 0.80 for the scale.

Intervention program

The first intervention program consisted of eight 90-minute sessions of positive mindfulness therapy [23]. (Table 1 presents summary of sessions). The second intervention program consisted of ten 90-minute sessions of emotion-focused cognitive-behavioral therapy [32]. Table 2 presents summary of sessions.

Statistical Analyses

Data were analyzed at descriptive and inferential levels using SPSS version 20. The mean and standard deviation were used at the descriptive level. The LSD post-hoc test and MANCOVA were used at the inferential level following investigating the presumptions of this analysis.

Table 1. A summary of Positive Mindfulness Training (PMT) Sessions

Session	Topic	Contents of Training Sessions	Homework
1	Self-awareness	Reviewing the structure and goals of the sessions and main rules; inviting the participant to introduce themselves; explaining depression and its psychological comorbidities; introducing mindfulness, self-consciousness, positive psychology, and meditation; acquainting members with a meditation that is focused on breathing, body, and emotion.	Keeping aware of thoughts and reactions throughout the day
2	Positive emotions	Discussing benefits of positive emotions and gratitude; implementing gratitude meditation focusing on who or what one appreciates	Expressing gratitude for positive situations
3	Self-compassion	Explaining the self-compassion concept, research review and methods to increase self-compassion; practicing loving kindness meditation focusing on self-compassion	Replacing internal criticism with statements of kindness
4	Self-efficacy	Introducing character strengths and self-efficacy including enhancement methods; Meditation focusing on a time when the participant was at his/her best and using character strengths	Completing the Values in Action (VIA) character strengths survey and using strengths
5	Autonomy	Introducing autonomy and its connection with well-being; practicing meditation on authentic self and action	Taking action in line with one's values and noticing external pressure on choices
6	Meaning	Discussing the meaning of life and wellbeing; completing writing exercise, entitled "The Best Possible Legacy Possible;" Meditation on the future vision of self, living one's best possible legacy	Taking action according to the best possible legacy and choosing meaningful activities
7	Positive relations with others	Discussing benefits of positive relations with others and methods for relationship enhancement; Loving-Kindness Meditation	Bringing feelings of loving kindness into interactions
8	Responsibility and Commitment	Commitment and enjoyment and their relationship with positive emotions; enjoyment-focused meditation	Enjoying engagement with experiences

Table 2. A summary of Emotion-Focused Cognitive-Behavioral Therapy (EFCBT) Sessions

Session	Topic	Educational Content
1	Introduction	Introducing the patient, implementing pre-test, determining treatment goals, presenting session rules, relationship therapy.
2	Relaxation	Introducing EFCBT, training relaxation technique, assigning a task.
3	Affective beliefs	Feedback from the previous session, taking note of negative and inefficient thoughts and beliefs, training relaxation technique, assigning a task.
4	Vertical Arrow Technique	Feedback from the previous session, training vertical downward arrow to identify central emotions and beliefs, training relaxation technique, assigning a task.
5	Affective beliefs	Feedback from the previous session, creating a complete list of emotional beliefs
6	Emotional judgments	Feedback from the previous session, test of clients' beliefs with objective analysis (judgment), training relaxation technique, assigning a task.
7	Evaluation of affective beliefs	Feedback from the previous session, using different cognitive analysis methods and encouraging clients to re-evaluate affective beliefs, training relaxation technique, assigning a task.
8	Affective thoughts	Feedback from the previous session, opposing autonomous affective thoughts, training relaxation technique, assigning a task.
9	Problem-solving	Feedback from the previous session, emphasizing identification of feelings; training problem-solving skills; describing various problem- and affection-centered coping styles, training relaxation technique, assigning a task.
10	Exercises	Feedback from the previous session, reviewing exercises throughout the sessions; implementing post-test; holding a closing session.

Before conducting the MANCOVA, Shapiro-Wilk and Levene's test were used to assess, respectively, data normality and homogeneity of variance; in addition, the equality of regression lines was investigated through examining the interaction between test and group membership.

RESULTS

Based on the demographic data of the participants in the mindfulness group, 30% of them had a diploma, 40% had a bachelor's degree, and 30% had a master's degree. In the cognitive-behavioral group, 40% had a diploma, 30% had a bachelor's degree, and 30% had a master's

degree. In the control group, 40% of the participants had a diploma, 30% had a bachelor's degree, and 30% had a master's degree. Given marital status, 55% of the participants were married and 45% of them were single in the mindfulness group. In the cognitive-behavioral group, 65% were married and 35% were single. In the control group, 65% were married and 35% were single. The mean age of the participants in the mindfulness, cognitive-behavioral, and control groups were 43.3 ± 6.72 , 42.8 ± 7.08 , and 42.9 ± 5.86 years old, respectively. The three groups were not significantly different in terms of age, education and marital status ($P > 0.05$). Table 3 shows the descriptive indices of the research variables in these three groups.

Table 3. Mean and Standard Deviation of Dependent Variables in the Experimental and Control Groups in the Pre-Test and Post-Test

Variables / Phases	PMT	EFCBT	Control	P (between groups)
	M ± SD	M ± SD	M ± SD	
Response to stress				
Pre-test	110.66 ± 8.30	110.46 ± 7.66	111.26 ± 7.73	0.418
Post-test	103.33 ± 7.14	101.93 ± 7.46	111.20 ± 6.97	0.001
P (within groups)	0.001	0.001	0.998	-
Subjective well-being				
Pre-test	97.13 ± 19.88	100.33 ± 16.97	96.86 ± 15.76	0.114
Post-test	115.53 ± 20.73	120.00 ± 15.41	96.53 ± 14.63	0.001
P (within groups)	0.001	0.001	0.990	-

PMT: Positive Mindfulness Therapy; EFCBT: Emotion-Focused Cognitive-Behavioral Therapy; M $\pm$ SD: Mean $\pm$ Standard Deviation

Table 4. LSD Post-Hoc Test for Paired Comparison of the Variables in the Post-Test Phase

Variable / Groups	MD	SE	P
Response to stress			
PMT - Control	7.36	0.69	0.001
EFCBT - Control	8.57	0.68	0.001
PMT - EFCBT	1.18	0.66	0.082
Subjective well-being			
PMT - Control	19.25	1.77	0.001
EFCBT - Control	20.56	1.74	0.001
PMT - EFCBT	1.31	1.70	0.440

PMT: Positive Mindfulness Therapy; EFCBT: Emotion-Focused Cognitive-Behavioral Therapy; MD: Mean Difference; SE: Standard Error

The Shapiro-Wilk test was used to examine the assumed normality of data. According to the results, the distribution of dependent variables, including response to stress and subjective well-being, was normal in both

the pre-test and post-test phases, confirming the assumed normality of dependent variables ($P > 0.05$).

The LSD post-hoc test was used to compare the effectiveness of PMT and EFCBT in response to stress and subjective well-being of fibromyalgia patients. Table

4 shows the LSD test results on the difference in mean scores of the groups in response to stress and subjective well-being in the post-test phase. According to Table 4, significant differences exist in the response to stress and subjective well-being scores between the PMT and EFCBT groups with the control group ($P < 0.05$). PMT significantly reduced response to stress among patients with fibromyalgia ($P = 0.001$). The results also indicate that the PMT and EFCBT significantly increased subjective well-being in patients with fibromyalgia ($P < 0.05$). There was not any significant difference in the effectiveness of PMT and EFCBT in improving response to stress and subjective well-being.

DISCUSSION

The present study aimed to investigate the effect of positive mindfulness therapy and emotion-focused cognitive-behavioral therapy in improving response to stress and subjective well-being in women with fibromyalgia in Tehran. The results showed that PMT and EFCBT produced significant improvements in response to stress and subjective well-being in the patients compared to the control group. It can be concluded that these intervention methods affected dependent variables. This finding is consistent with the results of previous studies [10]. Cejudo et al. [10] indicated that training the presence of mind can help develop awareness regarding all emotional and cognitive events, especially in individuals experiencing the primary symptoms of depressive relapses. Therefore, training mindfulness can improve the initial recognition of the symptoms of a problem, and employing these skills could have a considerable effect on preventing stress. Lee [33] reported that the ability to observe without judgment facilitates recognition of the consequences of a behavior. This recognition can cause effective behavioral changes. This skill enables the individual to control their attention and is a beneficial skill for individuals who face problems due to distraction caused by anxiety, memories, or negative moods [34]. Positive emotions facilitate productivity, creative thinking, and patience. The studies pertinent to the concept of stress demonstrated that individuals with stress remember the negative events more precisely and are more sensitive to the information pertaining to risk-taking [32]. Moreover, happy people overestimate their skills and remember positive events more than negative ones, making better decisions when planning for life since they search for vital strategies such as obtaining information regarding health risk-taking. Thus, intervention-oriented therapies can be effective in this regard. The results showed that there was no significant difference between PMT and EFCBT in improving subjective well-being and reducing stress response in patients with fibromyalgia. EFCBT is a neo-humanist

and experimental therapy. In EFCBT, the therapist's emphasis is not only on being aware of the subjective content, which was denied or distorted by the patient, but also on creating a new sense caused by the physical experience of the patient [9]. From the emotion-focused viewpoint, humans behave as a dynamic system, which integrates the numerous dialectical processes in various levels, i.e., from the level of a chemical neuron to the conceptual and awareness levels. This integration results in an inseparable bond of emotion and cognition [14]. Therefore, individuals constantly mix and manage the supposedly opposite biological information and cultural learnings to live more efficiently.

Research limitations included the age range of 30-50 years, non-generalizability of the results to patients in other cities, and limited information of fibromyalgia patients.

CONCLUSION

According to the results, PMT and EFCBT are effective in reducing response to stress and improving subjective well-being in patients with fibromyalgia. Moreover, there is not any significant difference in the effectiveness of these two treatment interventions. It is then recommended to conduct this research on fibromyalgia patients. Future studies on different communities are proposed to consolidate and generalize the results. Moreover, future studies are recommended to have a follow-up stage. It is also recommended to hold PMT and EFCBT workshops to reduce stress response and improve well-being.

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CONFLICT OF INTEREST

The author declares that there is no interest of conflict for this study.

AUTHORS' CONTRIBUTION

N J H: Study concept and design, acquisition of data, analysis and interpretation of data. P A: Administrative, technical, and material support, study supervision. F N. & A H: Critical revision of the manuscript for important intellectual content.

ETHICAL CONSIDERATION

The study was approved by the Ethical Committee of Islamic Azad University-Ahvaz Branch (code: IR.IAU.AHVZ.REC.1400.031).

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