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1. Assistant Professor of
Psychology, Payam-e Noor
University, Tehran, Iran. *.
Corresponding Author. Email:
salahian2020@gmail.com

2. Psychology Student, Payam-
e Noor University, Tehran,
Iran. Email:
dr.sarasouri1@gmail.com

3. Assistant Professor of
Psychology, Payam Noor
University, Tehran, Iran.
Email: nasrolahi@srbiau.ac.ir

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RESEARCH ARTICLE

The Effectiveness of Emotion-Focused Therapy on Improving Symptoms of Emotional Ambivalence and Pain Representation in Patients with Chronic Musculoskeletal Pain

Afshin Salahian^{*1} , Sara Sourì² , Bità Nasrolahi³

Abstract

The present study aimed to investigate the effectiveness of Emotion-Focused Therapy (EFT) on improving symptoms of emotional ambivalence and pain representation in patients with chronic musculoskeletal pain. The study employed a descriptive, quasi-experimental design with a pre-test-post-test control group. The statistical population consisted of all female patients with chronic musculoskeletal pain in Tehran in 2022. Using convenience sampling, 40 participants who met the inclusion criteria were selected and randomly assigned to experimental and control groups (20 participants each). The instruments included the Ambivalence over Emotional Expressiveness Questionnaire (AEQ) by King & Emmons (1990) and the Illness Perception Questionnaire (IPQ) by Broadbent et al. (2006). Data analysis was conducted using SPSS software (version 21) and Analysis of Covariance (ANCOVA). The results indicated that EFT was effective in improving symptoms of emotional ambivalence and pain representation in patients with chronic musculoskeletal pain ($p < 0.05$). Based on the findings, EFT can be utilized to improve symptoms of emotional ambivalence and pain representation in patients with chronic musculoskeletal pain.

Keywords: Emotion-Focused Therapy, Symptoms, Emotional Ambivalence, Pain Representation, Chronic Musculoskeletal Pain

Introduction

Chronic pain is one of the most significant medical challenges globally, affecting millions of people annually, many of whom do not receive adequate treatment. Chronic pain is defined as pain that persists beyond the expected normal healing time. One of the most common types of chronic pain is musculoskeletal pain (Eccleston et al., 2020). Musculoskeletal pain refers to tissue damage within the musculoskeletal system that leads to functional impairment. The hallmark of this disorder is pain in various parts of the body, such as the knee, hip, elbow, wrist, shoulder, and neck, often accompanied by lesions in those areas and limbs (Maeda & Hayakawa, 2017). Routine movements, poor posture habits, and overuse of specific muscles are contributing factors to the development and progression of this condition (Yi, Lee, & Kim, 2022). Patients with this disorder face challenges such as fatigue, sleep disturbances, and cognitive issues (Elberbery et al., 2022). Sedentary lifestyles, excessive psychological stress, mental strain, and prolonged poor posture can all lead to muscle tension, which directly affects nerve endings and contributes to chronic pain (Sugawara, Lima, & Dias, 2021). Chronic musculoskeletal pain includes both localized pain and referred pain (Martínez-Jiménez, 2022). Chronic pain has detrimental effects on both the psychological and physical functioning of patients. The presence and intensity of chronic pain are associated with anxiety (Timothy, 2007) and physical disabilities (Furlaneto, Garcez, 2007). Since chronic pain is influenced not only by biochemical factors but also by psychological and social factors, recent models examine pain from a multidimensional perspective and emphasize the role of psychological factors in the pain perception process (Taherizadeh, Samari, & Ahi, 2021).

One of the challenges faced by individuals with chronic musculoskeletal pain is emotional expression conflict. The frequent occurrence of emotions such as anxiety, distress, and anger can exacerbate pain in these individuals (Soudani et al., 2017). Emotional expressiveness refers to the external display of emotions, regardless of their valence (positive or negative) or modality (facial, verbal, or bodily). These individuals often experience emotional ambivalence. Emotional ambivalence in expression is defined as a tendency toward hesitation or conflict regarding emotional expression. It is believed that the act of expressing or not expressing an emotion is not inherently problematic; rather, the issue lies in the conflict or ambivalence the individual experiences about expressing it (King & Emmons, 1990). Ambivalence in a relationship refers to a state where an individual simultaneously holds contradictory or opposing feelings toward a person, situation, or specific aspects of the relationship. These feelings often include love and hate, satisfaction and dissatisfaction, or trust and suspicion. Ambivalence can occur in any type of relationship, including romantic, familial, or friendly ones, and can profoundly impact the relationship's dynamics and stability. Emotional ambivalence encompasses a broad spectrum, including the desire to express an emotion but an inability to do so, expressing an emotion without a genuine desire to, and regretting the expression afterward. One of the primary strategies for helping patients gain greater awareness of their emotions and overcome emotional difficulties is Emotion-Focused Therapy (EFT) (Greenberg, 2019). Ambivalence in emotional expression is defined as a strong inclination to express an emotion coupled with an inability to do so, expressing an emotion without the desire to, or expressing an emotion and later regretting it. Essentially, ambivalence in emotional

expression is a construct that points to an inability to express emotions naturally and comfortably, and this can have many negative consequences for patients (Mülle et al., 2008). Lu et al. (2017) found that patients with high levels of ambivalence experience higher levels of stress disorders. Holden et al. (2014) demonstrated that emotional expression is among the most important factors affecting pain control. Emotional control and expression processes play a fundamental role in individuals' psychological health and are considered underlying factors in psychopathology and somatic illnesses. The suppression of emotions and failure to express them lead to increased physiological arousal and the emergence of somatic symptoms such as persistent pain, weakness, and medically unexplained symptoms in individuals with chronic musculoskeletal pain (Liu et al., 2020). In a study conducted by van Middendorp et al. (2008) aimed at investigating emotions and emotional strategies in women with chronic musculoskeletal pain, results showed that emotional avoidance strategies were strongly associated with emotional distress and moderately associated with pain and fatigue. Conversely, intense emotional experiences were linked to greater pain in patients who had little difficulty describing their emotions (Saffarizadeh, Boodraj, & Alashoor, 2017).

Another challenge that chronic pain poses for patients is the perception of pain, or the emotional and cognitive representation of pain. Chronic musculoskeletal pain is a progressive and persistent condition that brings about a negative, distressing sensation and a poor emotional and cognitive representation of pain for those affected. The emotional and cognitive representation of pain can be influenced by various factors, with cognitive elements and mental functions playing a significant role. These factors can impact physical, behavioral, and mental functioning. While cognitive factors may not directly cause pain, they can contribute to heightened pain perception, its persistence, and its intensity. The ability to exercise mental control can assist these individuals in managing and reducing pain.

Given the effects of chronic musculoskeletal pain on emotional ambivalence and pain perception in patients, as well as the impact of these variables on mental health, interventions aimed at improving emotional ambivalence and emotional and cognitive representation of pain would be highly valuable. A new generation of therapies have emerged that focus not on changing cognitions but on enhancing an individual's psychological connection with their thoughts and feelings. One such therapy, which has recently garnered significant attention from researchers, is EFT. It appears that EFT can help individuals recognize negative emotions and faulty mental pathways in the process of emotional and cognitive interpretation. This enables them to manage and control their emotions and feelings, gain the ability to regulate emotional ambivalence, and ultimately improve their emotional and cognitive representation of pain. EFT has been introduced as an alternative to two major approaches of Interpersonal Therapy (IPT) and Cognitive Behavioral Therapy (CBT) in the treatment of chronic pain (Elliott & Greenberg, 2016). EFT focuses on emotion schema processes, which underline interpersonal and cognitive-behavioral determinants, and considers emotional processing as a fundamental goal of treatment (Khoshnama, Barjali, Padro, & Amiri, 2014). A review of studies indicates that Emotion-Focused Therapy is effective in improving mental health, emotional regulation, and emotional expressiveness (Monell et al., 2018).

Reviews indicate that, so far, no research has investigated the effectiveness of EFT on improving symptoms of emotional ambivalence and emotional and cognitive representation in patients with chronic musculoskeletal pain in Tehran. By conducting this research, both the existing research gaps will be addressed, and it will prevent the waste of time and resources in psychological treatment and training by providing a more targeted direction for therapy. The aim of the present study was to investigate the effectiveness of EFT on improving symptoms of emotional ambivalence and emotional and cognitive representation in patients with chronic musculoskeletal pain in Tehran. The research question is: Is EFT effective in improving symptoms of emotional ambivalence and emotional and cognitive representation in patients with chronic musculoskeletal pain in Tehran?

Methods

The present study was applied in terms of its purpose and was a type of quasi-experimental research with a pre-test-post-test design with a control group. The statistical population included all female patients aged 25 to 70 with chronic musculoskeletal pain in Tehran in the second half of 2024. The required sample size was calculated using G*Power software and considering factors such as alpha level (0.05), statistical power (0.82), effect size (0.16), 18 people for each group. For greater certainty, 20 people were selected as the sample, 60 individuals were selected from patients with chronic musculoskeletal pain in Tehran using convenience sampling. Then, 40 individuals who met the study's inclusion criteria were selected from this pool and were randomly assigned to either the experimental group or the control group.

The inclusion criteria consisted of the diagnosis of chronic musculoskeletal pain being confirmed by a specialist; not receiving other concurrent psychological treatments; and the absence of psychological disorders. The exclusion criteria consisted of absence from more than 2 sessions, and a diagnosis of Alzheimer's or dementia.

Furthermore, to adhere to ethical considerations, items such as obtaining informed consent for participation in the research, maintaining the confidentiality of participants' information, and a commitment to provide similar therapy sessions for the control group after the completion of the research were observed.

For data analysis, descriptive and inferential statistics were used. In the descriptive section, the mean and standard deviation of the dependent variables were reported. To address the research hypotheses, Analysis of Covariance (ANCOVA) was performed using SPSS software version 21. Due to the unwillingness of the participants in the follow-up phase of the research, this research did not have a follow-up phase.

Instruments

Ambivalence over Emotional Expression Questionnaire (AEQ)

This questionnaire originally consisted of 28 items, but in its Iranian version, the number of items was reduced to 23. It was developed by King & Emmons in 1990 and comprises two factors: ambivalence over the expression of positive emotions and ambivalence over the

expression of negative emotions. In the study by Alavi et al. (2017), the AEQ demonstrated high internal consistency (Cronbach's alpha of 0.89 for the entire questionnaire, 0.87 for the ambivalence over expressing positive emotions subscale, and 0.77 for the ambivalence over expressing self-righteous emotions subscale) and appropriate test-retest reliability (0.78 after 6 weeks). Furthermore, the convergent validity of this questionnaire was confirmed through a significant positive correlation with the Raulin Ambivalence Scale (1984) and the Beck Depression Inventory (1974). The Cronbach's alpha of the questionnaire in this study was 0.84.

The Illness Perception Questionnaire (IPQ)

The Illness Perception Questionnaire (IPQ) was developed by Broadbent et al. (2006). This tool is a 9-item questionnaire designed to assess the emotional and cognitive representation of illness. The revised form of this questionnaire (IPQ-R) is answered on a 5-point Likert scale (from 1 = strongly disagree to 5 = strongly agree). An examination of the subscales' internal consistency showed that it ranged from 0.23 (Attribution to Chance or Accident) to 0.89 (Acute/Chronic Timeline). Test-retest reliability of the subscales after three weeks ranged from 0.46 (Personal Control) to 0.88 (Risk Factor Attribution), and after six months, it ranged from 0.35 (Consequences) to 0.81 (Emotional Representations). Additionally, the scale's convergent and discriminant validity were confirmed (Sararoudi et al., 2010). The test-retest reliability coefficient for each subscale ranged from $r = 0.48$ to $r = 0.70$ (Moss-Morris et al., 2002). Bagherian et al. prepared the Persian version of this scale. The Cronbach's alpha for the R version was 0.71. Overall, the evaluation of the Persian version of this scale indicates its good and satisfactory validity. Cronbach's alpha of the questionnaire in this study was 0.78.

Results

In this study, 60% of participants were female and 40% were male. The largest age groups were 36-45 years and 56-65 years, while the smallest age group consisted of individuals over 66 years old. Furthermore, the most common level of education among the sample group was an associate degree, and the least common was a master's degree or higher.

Table 1. Mean and standard deviation of variables in the study group

Variable	Stage	EFT group	Control group
		Mean $\pm$ SD	Mean $\pm$ SD
Emotional ambivalence	Pre-test	70.85 $\pm$ 4.62	71.35 $\pm$ 3.91
	Post-test	97.70 $\pm$ 4.10	70.16 $\pm$ 7.01
Emotional and cognitive representation of pain	Pre-test	21.95 $\pm$ 3.53	20.01 $\pm$ 3.07
	Post-test	33.30 $\pm$ 2.84	21.50 $\pm$ 2.66

To increase the confidence coefficient of the results of the parametric tests, Levin's test was used to measure the equality of variance for each variable. The results of this test are presented in Table 2.

Table 2. Results of Levin's test on the assumption of equality of variances in all variables

Variable	F	Df1	Df2	P-value
Emotional ambivalence	3.44	1	38	0.179
Emotional and cognitive representation of pain	4.22	1	38	0.62

As can be seen in Table 2, there is no significant difference between the variances of the groups in each of the research variables in the two groups and the variances of the groups are equal. Therefore, the assumption of equality of variances has been met for all variables and parametric tests can be used to analyze the data.

Table 3. Investigating the normality of anxiety sensitivity distribution by groups/

Group	Variable	Shapiro-Wilk	df	P-value
Control Group	Emotional ambivalence	0.94	20	0.41
	Emotional and cognitive representation of pain	0.91	20	0.11
Experimental Group	Emotional ambivalence	0.92	20	0.24
	Emotional and cognitive representation of pain	.094	20	0.76

Since the sample size of each group is less than 30, the assumption of normality should be used for each group separately using the Shapiro-Wilk test. The results showed that the distribution of all variables is normal ($P > 0.05$).

Table 4. Results of the Kolmogorov-Smirnov test for examining the normal distribution of the data.

Variable	Stage	K value	P-value
Emotional ambivalence	Pre-test	0.70	0.71
	Post-test	0.95	0.32
Emotional and cognitive representation of pain	Pre-test	0.81	0.53
	Post-test	1.10	0.18

Table 4 represents the results of the Kolmogorov-Smirnov test. As can be seen, the significance level (p-value) for none of the variables is statistically significant ($p > 0.05$).

Accordingly, the assumption of normal distribution of the data is properly met, and the use of parametric tests is permissible.

Table 5. Results of the test to check the assumption of homogeneity of the regression slopes of the research variables of groups in society.

Variable	F	P-value
Emotional ambivalence	3.35	0.512
Emotional and cognitive representation of pain	4.39	0.524

As can be seen in Table 5, the F value of the interaction is not significant for all research variables. Therefore, the assumption of homogeneity of regression slopes is confirmed. Accordingly, the sixth assumption of the underlying assumptions of the analysis of covariance has also been met.

Table 6. Results of the Analysis of Covariance (ANCOVA) to investigate the effect of EFT intervention on emotional ambivalence.

Source of changes	SS	df	MS	F	P-value	Eta
constant	4.78	1	40.78	1.24	0.27	0.03
Pretest	7524.01	2	7524.01	229.08	<0.0001	0.86
Group	7321.08	1	7321.08	189.25	0.001	0.81
Error	1215.22	56	32.84			

According to the results in Table 6, the obtained F-value for the variable of emotional ambivalence is significant. Based on this, it can be concluded that the emotion-focused intervention led to a significant increase in the mean scores of emotional ambivalence in the experimental group compared to the control group ($F = 189.25$; $p < 0.01$). The effect size for this test was calculated to be 0.86.

Table 7. Results of the Analysis of Covariance (ANCOVA) to examine the effect of the EFT intervention on the emotional-cognitive visualization of pain.

Source of changes	SS	df	MS	F	P-value	Eta
constant	0.03	1	0.003	0.03	0.95	0.000
Pretest	1377.24	1	1377.24	182.53	<0.0001	0.83
Group	1277.22	1	1277.22	141.31	0.05	0.78
Error	279.17	56	7.54			

Based on the results in Table 7, the obtained F-value indicates that EFT had a significant effect on the cognitive-emotional representation of pain. Accordingly, it can be concluded that the emotion-focused intervention led to a significant increase in the mean scores of the cognitive-emotional representation of pain in the experimental group compared to the control group ($F = 141.31$; $p < 0.01$). The effect size for this test was calculated to be 0.83.

Discussion

The aim of the present study was to investigate the effectiveness of EFT on improving symptoms of emotional ambivalence and emotional-cognitive representation in patients with chronic musculoskeletal pain in Tehran. The results indicated that EFT is effective in improving symptoms of emotional ambivalence in patients with chronic musculoskeletal pain. This finding is consistent with the results of studies by Moatakkar et al. (2022), Chan, Yu, and Li (2021), Padros-Gascón et al. (2021), and Day and Thorn (2016). In explaining this finding and the congruent results, it can be stated that pain, as a disabling factor, always brings limitations for individuals depending on its intensity and location. To help individuals adapt to pain, alongside primary treatment, complementary therapies such as cognitive, emotional, and behavioral interventions can be implemented. These not only impact pain management but can also aid in improving psychological variables like symptoms of emotional ambivalence.

EFT, through the application of its specific techniques and by influencing the emotional and behavioral factors affecting pain symptoms, emotions, and feelings, brings about fundamental psychological changes in these individuals via cognitive, physiological, and motivational processes (Greenberg & Goldman, 2019). Gradually, as cognitive perspectives and processes shift through repeated practice, individuals acquire mental and personal skills for managing their pain and emotions. This, in turn, impacts their emotions and control over symptoms of emotional ambivalence, progressively improving emotional expression processes and reducing emotional conflicts. EFT is a structured treatment method with a philosophical basis, whose experiential techniques have a significant effect on reducing pain symptoms (Greenberg & Goldman, 2019). The reduction in pain symptoms also facilitates a decrease in symptoms of emotional ambivalence. In this approach, individuals learn to heighten their emotional awareness, process their emotions, and, by accepting their emotions and modifying fear and anxiety, work to ameliorate and treat symptoms of emotional ambivalence. Furthermore, coping with pain catastrophizing, avoiding negative feelings and emotions, and replacing them with positive, well-adapted emotions, along with mental reprogramming, helps them engage in daily activities. Alongside these factors, given the reciprocal interaction of thoughts, feelings, and behavior, the process of improving emotional ambivalence symptoms based on chronic pain gradually becomes apparent.

The results also indicated that EFT is effective in improving the emotional and cognitive representation of pain in patients with chronic musculoskeletal pain. This finding aligns with the results of studies by Azizi and Mohammadi (2017), Torabi and Arab Sheibani (2016), Chan, Yu, and Li (2021), Padros-Gascón et al. (2021), and Day and Thorn (2016). In explaining this finding and its consistency with previous research, it can be stated that the emotional and cognitive representation of pain not only influences the perception of pain but also affects

individuals' physical and psychological functioning. Conversely, emotion regulation training and techniques can significantly impact how individuals emotionally and cognitively represent their pain (Das, Kumar, & Sharma, 2018). EFT by teaching cognitive and behavioral techniques to individuals with chronic pain, helps them acquire mental and behavioral skills to manage their emotions. Over time, this can contribute to better control over their emotional and cognitive representation of pain, as well as their subjective experience of pain, ultimately leading to improvements in how they perceive and relate to their pain.

Pain, as a sensory and emotional experience, is significantly linked to emotions (Mackey & Kao, 2019). The emotional components of pain are highly important and are often associated with negative emotions such as anxiety, depression, and anger. Negative emotions are highly prevalent in individuals with chronic pain. As pain becomes chronic, patients' cognition and emotions undergo significant changes. In fact, emotional difficulties and psychological distress can manifest as physical symptoms, masking underlying pain and transforming the individual's emotional and cognitive representation of pain. The neurobiological and neuropsychological interplay between pain and emotions is well-supported (Vitale et al., 2020). Regulating negative emotions can influence pain thresholds in patients and reduce symptoms associated with the emotional and cognitive representation of pain (Sweta, Abhinav, Ramesh, 2019). The reason emotion regulation impacts the emotional and cognitive representation of pain lies in the fact that emotional processing, pain facilitation, and the emotional dimension of pain share many common neural pathways (Asso et al., 2016). Therefore, by influencing an individual's emotions, EFT can effectively improve symptoms related to the emotional and cognitive representation of pain.

Among the limitations of this study is the inability to include all patients with chronic musculoskeletal pain in Tehran, as the sample was restricted to a specific geographical area. Thus, generalizing the results should be done with caution. The lack of a follow-up phase was another limitation of the study (the lack of access to 15 people from the research sample due to relocation and unwillingness to cooperate in completing the questionnaires did not have a follow-up phase). It is recommended that this study be replicated in other geographical and cultural regions to enhance the reliability and generalizability of the findings. Additionally, future research should include a follow-up phase to examine the stability of the results over time. Given the obtained results, it is recommended that healthcare and psychological centers utilize EFT interventions to improve symptoms of emotional ambivalence and the emotional-cognitive representation of pain in patients with chronic musculoskeletal pain.

Conclusion

The obtained results demonstrate that EFT is effective in improving symptoms of emotional ambivalence and emotional-cognitive representation of pain in patients with chronic musculoskeletal pain. Accordingly, it is recommended that psychologists, counselors, and psychotherapists utilize EFT to address symptoms of emotional ambivalence and emotional-cognitive representation in patients suffering from chronic musculoskeletal pain.

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