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The Effectiveness of Emotion Focused Therapy on the Pain & Time Metaphorical Perception in the Patients with Musculoskeletal

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ABSTRACT

Aims: The purpose of the present study was to investigate the effectiveness of emotion focused therapy on the metaphorical perception of pain and time in patients with musculoskeletal pain.

Method and Materials The study method was semi-experimental with a pre-test-post-test design and control group. The population was all people with chronic pain in 2024 in Tehran. According to this purpose, 30 patients with musculoskeletal pain were selected voluntarily and randomly assigned to intervention and control groups (experimental group=15, and control group=15). The Questionnaire of the study was Raiisi`s Pain Metaphorical Perception and Raiisi`s Time Metaphorical Perception. The experimental group received twelve sessions of 90-minute emotion focused therapy. The control group did not receive any intervention. The data were analyzed using multivariate analysis of covariance by SPSS-26.

Findings: The results indicated that emotion focused therapy significantly increased components of pain (object, force, human, and causality), and time metaphorical perception (matter, place, and object) in patients with musculoskeletal pain (P<0.001).

Conclusion: The findings of this research emphasized the effectiveness of emotion focused therapy on the pain, and time metaphorical perception. As a result, evidence-based psychotherapeutic approaches such as emotion focused therapy can influence metaphorical understanding.

Keywords: : : Pain Metaphorical Perception, Time Metaphorical Perception, Emotion Focused Therapy, Musculoskeletal Pain, Patients

Introduction

Musculoskeletal patients struggle with chronic pain that may reduce their self-efficacy, disable them, and cause depression [1]. Chronic pain can affect the quality of life of patients [2]. Chronic pains such as musculoskeletal pains have cognitive aspects in addition to psychological aspects. In other words, pain is a physical feeling that requires the use of metaphors to express it. Because using metaphors, it can be communicated to others regarding the intensity and state of pain [3]. Lakoff [4] believe that the mental, and cognitive systems of humans are inherently metaphorical and these metaphors can be achieved through language. The opinion of cognitive science experts in the field of language is that language is a model, and it reflects the thoughts and characteristics of the human mind [5]. Therefore, the study of language from this point of view, the study of patterns is conceptualization or cognitive [6]. A metaphor is a mapping between two conceptual domains. In the conceptual metaphor, there is an empirical or concrete domain based on human physical characteristics, which is called the source domain and is mapped onto another domain that is intangible or abstract and is called the target domain [7]. Common domains of origin for pain are object, human, causality, and force [3]. Time and perception of it are not tangible and experimental, but it is the basis of all human perceptions. Perception of time is an adaptive process that predicts events and regulates behavior in the future [8]. Humans do not have a conscious understanding of time

their cognitive system, but time controls and directs their behavior and performance and plays a role in cognitive construction [9]. Due to the subjective and abstract nature of time, understanding of time is required conceptual metaphors [10]. In general, it is not possible to understand time without conceptual metaphors [11].

Emotion focused therapy is a new type of psychotherapy that aims to remove negative emotions, and unpleasant memories and changes beliefs [12]. Trans diagnostic emotion focused therapy is an effective treatment for common symptoms of depression, anxiety, and related disorders [13]. Due to the high co-morbidity of mental symptoms and our growing understanding of psychological trauma, transdiagnostic treatments are becoming more prominent day by day [14]. Emotion focused therapy is conceptualized as a transdiagnostic approach to the treatment of various psychological problems, which is based on access to the fundamental vulnerability of core emotional pain, its transformation, and the treatment of symptoms such as anxiety [15]. This treatment approach combines symptom-level emotion-focused tasks (tasks aimed at facilitating the regulation of emotional disturbances) with tasks that treat self-concern, rumination, perfectionism, and other symptoms [16]. While understanding the importance of meaning-making, this feeling considers feeling as basic data of human experiences and sees feelings and cognition as inextricably intertwined [17]. A systematic review indicated emotion focused therapy is related to time management [18]. In Emotion focused therapy, it is suggested that emotions have an inherent ability to adapt, which, if activated, can help patients change their emotional states or unwanted experiences [19]. As a study indicated, emotion-focused coping and therapy manage our time perspective [20]. A study showed; Emotion focused therapy is effective in pain coping strategies and pain catastrophizing in patients with pain disorders [21]. Another study indicated; emotion focused therapy alleviated pain catastrophizing in patients with chronic pain [22]. Emotion focused therapy can be effective in accepting pain [23]. Researchers found emotion focused therapy targets the core of pain [24]. A study indicated emotion focused Therapy can alleviate pain severity and resistance in women with chronic headaches [25].

Kinds of pain and related emotions are often expressed metaphorically. As the results of literature studies show, emotion focused therapy can facilitate and change emotions caused by pain and perceived time. Therefore, the place of metaphors in emotions caused by pain and perceived metaphorical time is undeniable. In other words, we cannot deny the metaphorical thinking and capacities in the emotions caused by pain and time perception. Hence, the purpose of this study was to investigate the effectiveness of emotion focused therapy on the metaphorical perception of pain and time in patients with musculoskeletal pain.

Method and Materials

The method of the study was semi-experimental with a pre-test-post-test design and a control group. The population was all people with chronic pain in 2024 in Tehran. According to the purpose, 30 patients with chronic pain were selected voluntarily and randomly assigned to intervention and control groups (experimental group=15, and control group=15). According to Cohen's formula [26] and considering the first and second type error and the expected average difference in the study groups, 15 people were randomly assigned to each group. No intervention was given to the control group. The inclusion criteria were; having musculoskeletal pain for at least one year, aging between 35 to 55 years, and not under any other psychological treatment. The exclusion criteria were the absence of at least two sessions during this psychotherapy, leaving psychotherapy due to continuing physical therapy, and not being satisfied with continuing this psychotherapy. To perform the treatment, the researchers referred to the physiotherapy centers in Tehran and after obtaining permission from the physiotherapy centers of Sina and Milad hospitals, they selected their sample from among those who

were willing to participate in this psychotherapy. Two questionnaires of this study were completed before and after intervention by two groups. The researchers of this study followed all the ethical principles of the research.

The used tools in this study were as follows:

Demographic Information Inventory: This inventory collected the personal information of the patients, including age, education, marital status, history, and type of illness.

Pain Metaphorical Perception Questionnaire: This questionnaire was designed, and validated in Persian speakers by Raiisi [27] and it has 25 questions. The four subscales of this questionnaire are object, force, human, and causality. Its scoring is based on a five-point Likert scale (completely agree= 1, to completely disagree=5). The minimum score is 25 and the maximum score is 125. The content validity was confirmed by experts' opinions using the Waltz and Bassel method. The whole Cronbach's alpha coefficient method was (0.75). Cronbach's alpha for object (0.73), force (0.76), human (0.72), and causality (0.77) were obtained. The factor analysis showed that the Pain Metaphorical Perception Questionnaire consists of subscales that explain 24.66% of the total variance of the questionnaire. In the present study, the reliability of the test was calculated through Cronbach's alpha coefficient of 0.93.

Time Metaphorical Perception Questionnaire: This questionnaire was designed, and validated by Raiisi, and Moghadasin [28] and it has 30 questions. The three subscales of this questionnaire are matter, place, and object. Its scoring is based on a five-point Likert scale (completely agree= 1, to completely disagree=5). The minimum score is 30 and the maximum score is 150. The content validity was confirmed by the Waltz and Bassel method. The whole Cronbach's alpha coefficient method was (0.75). Cronbach's alpha for matter (0.77), place (0.71), and object (0.77) were obtained. The factor analysis showed that the Pain Metaphorical Perception Questionnaire consists of subscales that explain 37.12% of the total variance of the questionnaire. In the present study, the reliability of the test was calculated through Cronbach's alpha coefficient of 0.91.

Emotion focused therapy: This therapy was performed on the first experimental group for 12 sessions, once a week for 90 minutes as a group.

Findings

The mean and standard deviation of the age of the experimental group was 43.27±5.83, and the mean and standard deviation of the age of the control group was 42.95±5.79. As the test of Shapiro-Wilk test (S-W) showed; the scores distribution in the two groups was normal. Because, Shapiro-Wilk statistics and scores were not significant for all variables, and its subscales. As the pre-test and post-test mean indicate, the metaphorical perception of pain and time and their subscales has increased due to emotion focused therapy. Therefore, it seems the distribution of variables and their subscales is normal in the descriptive data and Shapiro-Wilk results and mean and standard deviation in pre, post-tests are shown in Table 2. The results of the Levine test to examine the homogeneity of variance of dependent variables in two groups. In other words, the two experimental and control groups have a significant difference in the variables of pain (object, force, human, and causality), and time metaphorical perception (matter, place, and object), which according to the effect size measuring, 91% of the total variance of the experimental and control groups is rooted in the effect of the emotion focused therapy. The significant results of univariate analysis of covariance indicated; emotion focused therapy F score for pain metaphorical perception subscales is object (46.5), force (35.4), human (35.5), and causality (34.2) with P=0.01. Emotion focused therapy F score for time metaphorical perception subscales is matter (37.4), place (36.2), and object (36.8), with P=0.01. The emotion focused therapy effect size, for pain metaphorical perception subscales as object is 0.52, for force is 0.55, for human is 0.56, and for causality is 0.59.

Table 1) Emotion focused therapy sessions according to Greenberg [10]

1	Statement of goals and rules of the group	• Introduction of therapist and group members. • Explanation of the general process of emotional therapy and the logic of working with emotions. • Explaining the importance of honest acceptance and empathy and encouraging members to create a safe environment. • Explanation of chronic pain disorder and metaphors of pain and time. Pain is an obstacle, pain time is moving. • Conducting the pre-test.
2	Encouragement of members to talk about feelings and emotions caused by pain	• The enthusiasm of the members to talk about the problem that they joined the group to solve. • Providing focused attention, support-validation, and empathy for members' unpleasant feelings. Talking about emotions related to the metaphor of timed pain. • Expanding awareness of inner experiences.
3	Connection, agreement, and awareness	• Identification of occupational therapy focuses, which means the conditions of creation and underlying processes of clients' emotional problems, and implicit or explicit shared formulation about the treatment focus for each member. Talking about the metaphor of pain takes time and the emotions associated with it.
4, 5	Call, explore, and discover	•Arousing unpleasant feelings and painful experiences of members living in a therapy session. •Expressing negative feelings about acute and transient pain or persistent pain. •Paying attention to avoidances, interruptions, and emotional destructions and neutralizing them using emotion focused techniques in this model of treatment.
6 & 7	Achieving emotional schemas	• Helping members to overcome primary feelings or underlying maladaptive emotional schemas. •Explaining the metaphor of long-term kinds of pain. • Persuading members to accept basic emotions and basic emotional schemas.
8 & 9	Emotional change and reconstruction	• Continuing to focus on accepting primary emotions and fundamentally incompatible emotional schemas. •Creating emotional metaphors of pain and time by the group. • Challenging incompatible beliefs and accepting and facilitating emotional schema reconstruction.
10 & 11	Encourage acceptance of needs	• Helping to create new emotional responses to interpret changes in fundamental emotional schemas, and metaphors. •Helping members create new meaning by organizing themselves. •Encouraging members to try expressing feelings and needs to each other in a safe group environment. •Supporting and validating the emergence of self-affirmation, self-soothing, self-empathy, and emotion regulation capabilities. •Encouragement to transfer the changes by metaphors made outside the group environment.
12	Help to consolidate the situation and new learnings.	• Talk about obstacles, setbacks, and conditions that may occur in the future and interfere with positive therapeutic achievements. • How to cope and resolve them. • Discussion and review of the effective factors and triggers for the return and recurrence of the disease. Discussion and review of time, and pain metaphors. • Talking about the end of the treatment and expressing the processing of feelings around it. •Post-test implementation.

The emotion focused therapy effect size, for time metaphorical perception subscales as the matter is 0.63, place 0.66, and object is 0.64, these effect sizes show the meaningful effects of emotion focused therapy on pain metaphorical perception, and time metaphorical perception subscales as shown in Table 3.

Table 2) Descriptive Indices of variables in experimental and control groups

Variables		States	Groups	Mean	SD	Shapiro Wilk	P
Pain	Object	Pre-test	Experimental	27.43	1.26	0.163	0.062
			Control	27.44	1.17	0.107	0.056
		Post-test	Experimental	35.21	1.35	0.115	0.071
			Control	27.45	1.12	0.125	0.032
	Force	Pre-test	Experimental	28.21	1.44	0.142	0.064
			Control	28.22	1.63	0.151	0.048
		Post-test	Experimental	32.46	1.09	0.176	0.058
			Control	28.25	1.27	0.153	0.051
	Human	Pre-test	Experimental	27.24	1.69	0.124	0.042
			Control	27.26	1.07	0.135	0.048
		Post-test	Experimental	33.31	1.79	0.132	0.051
			Control	27.16	1.01	0.146	0.059
	causality	Pre-test	Experimental	28.37	2.69	0.161	0.051
			Control	28.35	2.59	0.163	0.042
		Post-test	Experimental	31.47	2.81	0.174	0.053
			Control	28.34	2.54	0.189	0.060
Time	Matter	Pre-test	Experimental	22.09	1.65	0.174	0.058
			Control	22.07	1.64	0.174	0.061
		Post-test	Experimental	25.11	1.83	0.179	0.048
			Control	22.05	1.62	0.172	0.048
	Place	Pre-test	Experimental	23.34	1.35	0.166	0.057
			Control	23.31	1.33	0.164	0.056
		Post-test	Experimental	25.67	1.56	0.162	0.052
			Control	23.33	1.34	0.160	0.054
	Object	Pre-test	Experimental	31.24	1.67	0.167	0.056
			Control	31.26	1.68	0.164	0.048
		Post-test	Experimental	36.77	1.74	0.163	0.047
			Control	31.25	1.65	0.168	0.063

Table 3) Results of Univariate Analysis of Covariance on the Mean of Post-Test Scores of the Pain and Time Metaphorical Perception Subscales

Variables	Subscale	SS	SS Error	DF	MS	MS Error	F	P	Effect Value
Pain	Object	189.26	73.13	1	189.26	4.07	46. 5	0.01	0.52
	Force	145.23	46.09	1	145.23	4.10	35.4	0.01	0.55
	Human	153.43	54.45	1	153.43	4.32	35.5	0.01	0.56
	Causality	157.83	46.75	1	157.83	4.61	34.2	0.01	0.59
Time	matter	136.78	51.09	1	136.78	3.65	37.4	0.01	0.63
	place	139.65	49.89	1	139.65	3.85	36.2	0.01	0.66
	object	147.62	52.23	1	147.62	4.01	36.8	0.01	0.64

Discussion

The purpose of the present study was to investigate the effectiveness of emotion focused therapy on the metaphorical perception of pain and time in patients with musculoskeletal pain. As results indicated; emotion focused therapy increased the pain (object, force, human, and causality), and time metaphorical perception (matter, place, and object) in patients with musculoskeletal pain.

These results are consistent with the findings of previous research [18, 20-25]. In mentioned studies, it has been shown that emotion focused therapy is effective on pain, pain perception, and kind of emotions due to pain severity. In the mentioned studies, emotion focused therapy is often considered for clinical communities, where the psychological aspects of the disease are considered more than the physical aspects. For example, headache, pain alexithymia, and so on. But in this study, we emphasized musculoskeletal

pain. Because the physical aspect of pain in these diseases is considered more than its psychological aspect. In this study, an attempt has been made to look at musculoskeletal pain from an interdisciplinary and innovative perspective. Metaphorical perception can form schemas or connect emotions with schemas. Therefore, this study adds a new dimension to the existing literature on emotion-focused therapy and pain and time management during chronic pain from a metaphorical perspective.

Another finding of this study is emotion and time perception in therapeutic settings. But in this study, musculoskeletal pain has been looked at from another perspective. This point of view is completely cognitive and dependent on mental-verbal capacity, that is, metaphorical. The interdisciplinary perspective is a metaphorical view with a new and accurate horizon that can affect the psychological aspects of pain perception and, as a result, the perception of time.

According to emotion-focused tasks (tasks that regulate the emotional disturbances) with tasks that treat self-concern, rumination, perfectionism, and other symptoms to help patients change their thinking about how to control the pain [29]. Strategies (such as two-chair conversation and self-restraint) that target pain-onset syndrome categories are explained with detailed transcripts in treatment sessions for complete patients [30]. The main goal of this treatment on pain perception is neither to reduce emotion nor to control it; Rather, excitement grows in this type of treatment and leads to the organization of attachment behaviors [31]. Therefore, this treatment facilitates the achievement of emotional vulnerability for patients with powerful pain and emotional regulation. They guide emotional transformation processes and encourage them to create healthy interpersonal experiences [32]. Metaphorical perception becomes possible as a result of creating healthy interpersonal experiences. In this therapy, the patients become aware of the metaphors of their time and pain and try to change the metaphors of their emotions. In this method of therapy, the therapist practices with his clients so that they can get closer and closer to the emotions caused by pain and tolerate them. This causes awareness of emotions caused by pain, which plays a significant role in emotional transformation [33]. This awareness of emotion leads to emotional regulation; It means that people are affected by their emotions, but they can easily experience and analyze them; It means that a person knows well when, where, and how to express his emotions instead of suppressing them. Since emotion-focused therapy involves control and management of emotions, the regulation of these emotions will change and improve the patient's metaphors for pain and perception of time. In other words, emotion focused therapy forces the pain sufferers to express their feelings and emotions, and this can sensitize the person to the understanding of time and improve its expression through metaphor.

This study has some limitations. One of the main limitations of this study was the metaphor perception, because the understanding and perception are sub-conscientious, and during the treatment, understanding it needed homework and training. Due to the recurrence of the disease, the patients could not fully cooperate. For this reason, we did not plan for follow-up. For this reason, it is suggested that researchers teach metaphors for future studies and include them as an intervention protocol in their research.

Conclusion

The findings of this research emphasized that emotion focused therapy increased pain (object, force, human, and causality), and time-metaphorical perception (matter, place, and object) in patients with musculoskeletal pain. As a result, by changing the metaphors of pain, and time in patients, the interpretation of pain and related time can be changed. Cognitive and health therapists can use the data of this study in the treatment, and interpretation of kinds of pain that are rooted in our mental and psychological settings. Therefore, this study opens new viewpoints as an interdisciplinary study in psychological and medical investigation in the fields of pain.

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Conflict of Interest: The authors declare that they have no conflict of interest.

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