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Comparing the Effectiveness of Compassion Therapy and Acceptance and Commitment Therapy on the Body Image in Patients with Chronic Musculoskeletal Pain

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ABSTRACT

Aims: Chronic pain can change the body image in patients with musculoskeletal pain. The purpose of this study was to investigate the effectiveness of compassion therapy and acceptance and commitment therapy on the body image in patients with chronic musculoskeletal pain.

Method and Materials: This study is a semi-experimental research in nature with an unequal control group and pretest/post-test-follow-up , which was conducted in 2023. The statistical population of this research included all patients with musculoskeletal pain in Tehran. The sample of this study included 45 patients with musculoskeletal pain whose scores were low on the body image scale which were selected by convenience sampling method. These people were divided into two groups of experimental and control and one group of control (15 participants in each group). For intervention group eight 90-minute sessions of compassion therapy and for control group nine 90-minute sessions of acceptance and commitment therapy were held weekly Body image questionnaire was completed by all three groups pre-test, post-test, and follow-up stages. The data were analyzed with SPSS software version 26.

Findings: The analysis of covariance with repeated measurements indicated there is no significant difference between experimental groups of compassion therapy and acceptance / commitment therapy (P<0.05), but both experimental groups were significantly different from the control group (P=0.001).

Conclusion: It seems, compassion therapy and acceptance / commitment therapy can improve body image in patients with chronic musculoskeletal pain.

Keywords: Body Image, Compassion Therapy, Acceptance /Commitment Therapy, Chronic Musculoskeletal Pain

Introduction

Kinds of chronic pain such as musculoskeletal pain are one of the most important medical problems in today's world. Chronic pain is defined as pain that lasts more than three months to heal from an illness or injury [1]. In addition to interacting with demographic characteristics [2], musculoskeletal pain affects the quality of life of these patients [3], and increases pain anxiety [4]. Not coping with pain reduces the person's self-efficacy [5], and ultimately challenges the patient's body image [6].

Body image refers to a person's perceptions, feelings and thoughts about the body. Body image is usually conceptualized as a construct consisting of body size estimation, body attractiveness evaluation, and feelings related to body size and shape [7]. In the past, body image was considered a one-dimensional construct. But today, body image is considered a multidimensional structure consisting of cognitive components and emotional states [8]. Therefore, body image is a multidimensional structure including thoughts, beliefs, feelings and behaviors related to the perceived body [9]. As a result, body image is considered a central concept for self-concept and has important implications for various fields of psychological health and quality of life [10]. Therefore, body image is not only a psychological phenomenon caused by the social structure, but also related to the issue of how a person regulates her interactions with others based on his/her body [11].

One of the third wave of psychological interventions,

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compassion therapy is one of the treatments that are effective in pain management and relief [12]. Neff and co- workers consider three components of self-compassion that are interrelated. In their conceptualization, each component has two positive parts and a negative aspect is placed against each positive aspect. Which include self-compassion against self-judgment, shared human experience against individualism, and mindfulness against excessive identification or avoidance [13]. In general, compassion-focused therapy strives to achieve a compassionate mind, which consists of the ability to be compassionate about oneself and others, as well as the ability to receive compassion from others [14]. Furthermore, one of the areas in which acceptance and commitment therapy has been successfully used is health issues [15]. Acceptance and Commitment Therapy (ACT) is one of the approaches that through increasing mindfulness, cognitive distancing (observing thoughts), making a commitment to actively engage in the external world and trying to achieve a meaningful and authentic life with a purpose. Increasing psychological flexibility helps people to cope with stressful situations, as anxiety due to chronic pain [16]. Therapy based on acceptance and commitment does not seek to eliminate or suppress these experiences, but emphasizes the pursuit of valuable areas and paths in life, such as intimate relationships, meaningful work, and personal growth in the face of these painful experiences [17]. This therapeutic approach has six central processes that ultimately lead to psychological flexibility. These six processes include acceptance, cognitive diffusion, self as a context, connection with the present, values and committed action [18].

A review of the research literature shows that these two treatment and intervention methods are effective on the studied variable separately. In previous research [19] it was found that ACT reduces fear of negative body image. Furthermore, one study [20] found compassion therapy is effective in improving the body image of women with breast cancer. Another study [21] indicated that ACT and schema therapy based on acceptance and commitment are effective on the body image of dialysis women. Seeks, et al. [22] found compassion therapy has reduced body image dissatisfaction. Hill, et al. [23] concluded compassion therapy and ACT are effective on body image flexibility. Griffiths, et al. [24] found ACT is effective in reducing body image dissatisfaction. Fogelkvist, et al. [25] showed ACT is effective in reducing body image concerns.

Yet, there are some challenges with this comprehensiveness that can cover these two therapeutic interventions together on body image, and this issue was one of the reasons for conducting this research. On the other hand, the existence of their influence separately in different studies, communities confirmed and focused in different researches. In this research, the researcher seeks to answer this question that if there is a difference between the effect of compassion therapy and ACT on body image in patients with musculoskeletal pain.

Method and Materials

This semi-experimental with an unequal control group was conducted in 2023. The statistical population of this research included all patients with musculoskeletal pain in Tehran. According to Cohen's formula, the sample of this study included 45 patients with musculoskeletal pain whose scores were low on the body image scale. These people were divided into two experimental groups (15 participants in each group) and one control group (N=15). According to the nature of the research population, the convenience sampling method was used to select the initial sample of this research, and in the next step, random allocation was used to select the participants in each group. The including criteria were as consent to participate in the study, having one of the musculoskeletal pain for six months, being in age range of 35-55 years. Exclusion criteria were as not complying with research procedures. To conduct the research, after coordinating with the physical medicine and rehabilitation clinics in Tehran/ Iran, the researcher asked the clients who had musculoskeletal pain to participate in the present study if they wish.

Then the satisfied individuals were assessed according the inclusion/exclusion criteria and if they were eligible for the study they were divided into three groups (two intervention and one control groups) randomly. The first intervention group took part in compassion therapy for eight weekly 90-minute sessions and the second intervention group participated in nine weekly 90-minute acceptance and commitment therapy. There was no intervention gore control group.

Before the intervention (as a pre-test), after that (as a post-test) and two months after the intervention (as a follow-up), the body image questionnaire was completed by all three groups. In order to comply with ethical principles, the researcher also committed to conduct the combination of interventions for the control group after the end of the research. The data was analyzed with SPSS software version 26.

In the present study, the tools which were used were as following:

Multidimensional Body Image Questionnaire (MBSRQ): This questionnaire contains 69 items that are answered by the individual and is designed to evaluate the individual's attitude about the different dimensions of the body image structure [26]. The scoring of this questionnaire is on a five-option Likert scale (1= strongly disagree, 5 =strongly agree) and the range of scores is between 69 and 345. The multidimensional body image questionnaire includes three subscales of characteristics related to the body itself, satisfaction with different body parts, and characteristics related to a person's attitude about weight. The content and formal validity of the questionnaire were confirmed and its reliability was reported as 0.81 [25]. In Iran, its psychometric properties were confirmed in previous study [27].The intervention programs for first and second intervention was shown in Table 1 and Table 2.

Findings

The mean and standard deviation of the age of the patients in the compassion therapy group was 43.95 (7.48), in the ACT group 44.30 (8.84) and in the control group was 45.25 (6.81). One of the assumptions of the repeated measurements analysis test is to check the equality of the covariance matrix of the errors. Therefore, the Mauchly's test of sphericity was used. Considering that if the P value is not significant, it means the equality of the covariance matrices of the errors in the study groups. Therefore, considering the lack of significance, the equality of variances within subjects in body image variables (P=0.086, X2=4.914, W=0.858) is confirmed. These results indicate that the assumption of equality of error covariance matrix among repeated measurements is maintained. The results of Bonferroni's follow-up test showed that there was no significant difference between the post-test and the follow-up of the patients' body image averages (P<0.05), which indicates that the lasting effect has been established. The results showed that the performance of compassion therapy on body image was better than the ACT group.

Table 1) Self-Compassion Training Protocol [28]

Session	Subject	Content
First session	Getting to know and explaining the rules of the meetings and the current problem	Introducing and communicating and creating a good relationship and therapeutic alliance and explaining the rules of the group. Listening to patients' stories about their pain and empathizing with each other (empathy training). Explanation about self-compassion and its elements. Homework: giving patients calming breathing exercises.
Second session	Introducing self-compassion and self-criticism	Reviewing the previous meeting and examining how the members deal with themselves (with critical and compassionate style). Definition of self-criticism, its causes and consequences, and compassion. Homework: How compassionate are you to yourself?
Third session	Introducing the characteristics and skills of self-compassion and how it affects a person's mental states	Examining homework and reviewing the previous session; What is self-compassion? Introducing three emotional regulation systems and how to interact with them. Homework: Identifying self-critical thoughts and behavior.

Fourth session	Introduction to mental imagery	Reviewing the previous session and introducing mental imagery and its logic. Teaching imaging practice and its implementation in the group. Homework: Exercise mental imagery
Fifth session	Cultivating self-compassion and introducing concepts: wisdom, ability, warmth and responsibility	Checking the previous homework. Cultivating self-compassion and introducing concepts: wisdom, ability, warmth and responsibility in creating compassion. Homework: self-compassionate mental imagery.
Sixth session	Compassion letter writing training	Checking the previous homework. Compassion letter writing training. Homework: "Imagine your compassionate self is writing you a letter, visualize the conversation and write it down."
Seventh session	Explaining the fear of self-compassion and identifying thoughts that hinder the cultivation of self-compassion	Checking the previous homework. Fear of self-compassion. Identifying thoughts that hinder the development of self-compassion and the user on them. Homework: Focus on the barriers to cultivating self-compassion and practicing self-compassion towards them.
Eighth session	Summarizing the concepts examined in the meetings, and sessions	Checking the previous homework. Summarizing the concepts examined in the meetings, and sessions. Homework: Continuing with imaging exercises

Table 2) Content of Acceptance and Commitment Therapy Sessions (ACT) [29]

Sessions	Purpose	Content
First session	Fully understanding the nature of pain and knowing strategies to deal with it	Introducing each member, explaining the rules and regulations of group counseling by the group. Determining the clients' previous efforts to deal with severe pain. Describing thoughts and symptoms of pain with the metaphor of a hungry tiger. Introducing inefficient control systems to clients. Homework: How did I give in to my intense pain?
Second session	Managing severe pain as a problem/personal event control	Presenting the metaphor of the man in the pit and the chocolate cake. Attention to the passion of the clients. Homework: Conscious Mind Concern Worksheet.
Third Session	Dealing with the client's experience and strengthening and recognizing that (self-control is a problem)	Presenting the metaphor of tug-of-war with the giant. Emphasizing the importance of promoting and cultivating mindfulness. Homework: "What is the function of worry" worksheet?
Forth session	Creating an orientation to develop mindfulness skills as an alternative to worry and introducing the concept of fault	Presenting the polygraph metaphor. Introducing mindfulness through mindful breathing practice. Homework: Continue practicing mindfulness
Fifth session	Introducing the importance of values and how to distinguish them from goals and determine simple behavioral goals in order to achieve specific values	Discussing the relationship between goals and values. Identify a valuable action (behavioral goal) to perform during the week. Homework:
		Presenting the values identification sheet, performing a valuable action.
Sixth session	Continue to develop an orientation towards mindfulness and provide more practical ways to cultivate diffusion	Mindfulness Skills Manual. Homework: identify a valuable action (behavioral goal to be done during the week)
Seventh session	Attention to the function of emotions, the habit of behavioral avoidance and the distinction between clear and ambiguous emotions	Instructions and discussion about the function of emotions. Clear emotions versus ambiguous emotions. Homework: Practicing mindfulness.
Eighth session	Introducing the distinction between observer selves and conceptual selves and identifying the relationship between self-conceptualizations and anxiety and worry	Identifying a valuable action (determining a behavioral goal to perform during the week) Discussion about self-observer versus self-concept. Homework: perform an action with a specific value.
Ninth session	The meeting presented the idea of commitment as a tool to move towards specific goals and strengthen choices to achieve those goals	Identification of operational steps (smaller goals in the service of bigger goals) Obstacles to reach goals and passions to accept them. Homework: perform an action with a specific value

As ///a result, repeated analysis of variance can be used. The results of Table 3 show that the mean of the body image in the group of compassion therapy and ACT increased compared to the control group. It shows that the effect of time factor (within groups) (P<0.001, F=106.102) and the interaction effect of group and time (P=0.003, F=15.755) are significant on the body image of patients. In other words, by referring to Table 3, it can be seen that the post-test and follow-up averages of body image of the patients who were treated in the two experimental groups (compassion therapy and ACT) have improved compared to the control group who were not treated. Furthermore, the effect size for group interaction and time for body image is equal to (Eta=0.43). In order to check which study groups (compassion therapy, ACT, control) were different, Bonferroni's post hoc test was used to compare the body image of the patients. The results of this test showed that there was no significant difference between both experimental groups (P<0.05), but both experimental groups were significantly different from the control group (P<0.001). In other words, the body image of the patients in the experimental groups improved

Table 3) Mean and standard deviation of body image in patients in the studied groups

Groups	Compassion Therapy and		Acceptance and Commitment Tetapy		Control	
Stages	Mean	SD	Mean	SD	Mean	SD
Pre-test	182.67	82.19	186.33	77.94	180.67	84
Post-test	209.32	81.48	210.07	74.59	181	83.94
Follow-up	208.53	78.95	208.93	73.42	184.40	80.74

One of the assumptions of the repeated measurements analysis test is to check the equality of the covariance matrix of the errors. Therefore, the Mauchly's test of sphericity was used. Considering that if the P value is not significant, it means the equality of the covariance matrices of the errors in the study groups. Therefore, considering the lack of significance, the equality of variances within subjects in body image variables (P=0.086, X2=4.914, W=0.858) is confirmed. These results indicate that the assumption of equality of error covariance matrix among repeated measurements is maintained. As a result, repeated analysis of variance can be used. The results of Table 3 show that the mean of the body image in the group of compassion therapy and ACT increased compared to the control group. It shows that the effect of time factor (within groups) (P<0.001, F=106.102) and the interaction effect of group and time (P<0.001, F=15.755) are significant on the body image of patients(Table 4).

Table 4) The results of mixed analysis of variance in the body image of patients

Dependent variables	Sources of changes	Sum of squares	df	Mean square	F	Sig	Eta
Body image	Time	8834.77	2	4417.38	106.102	<0.001**	0.72
	Group and time interaction	2141.26	2	1070.63	15.75	<0.001**	0.43

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the patients in the experimental groups improved. The results of Bonferroni's follow-up test showed that there was no significant difference between the post-test and the follow-up of the patients' body image averages (P<0.05), which indicates that the lasting effect has been established. The results showed that the performance of compassion therapy on body image was better than the ACT group.

Discussion

The purpose of this study was to investigate the effectiveness of compassion therapy and ACT on body image in patients with musculoskeletal pain. The results indicated the compassion therapy and ACT can promote the body image of patients. This result is consistent with the previous studies [10-25]. In this study, unlike previous studies, an attempt has been made to target the body image of musculoskeletal patients with two important approaches of cognitive third wave treatment and to check how stable both treatments are over time.

In explaining this finding, it can be said that in compassion therapy, patients get to know the feelings related to their body and react to it again. As a result, self-compassionate neural circuit is formed in the patient's brain [30]. Fears about the body diminish or disappear. The patient stops rumination or judgment about the whole body or a part of the body. In the course of this intervention, there are usually trainings about facing pain and the body in a metaphorical way. In other words, the metaphors used in this therapy help the therapist and the client to face them in a more effective way and accept their characteristics [31]. But in ACT group, the patient accepts the problems related to the body and tries to commit to changing it, even if chronic or acute pains have distorted it. Acceptance and commitment therapy techniques teach patients to examine their personal experiences. In this therapeutic approach, patients find wrong attitudes about the whole body or a part of the body [32]. Therefore, they challenge negative images caused by chronic pain and try to replace positive body images during treatment without personal judgment about it.

One of the significant limitations of this study was that the pain of the patients became severe and this lowered the possibility of cooperation. Therefore, according to research literature, third wave cognitive therapy is effective on pain, it is also effective on body image, and researchers are suggested for future studies to pay attention to other types of this treatment approach in their studies.

Conclusion

This study showed that compassion therapy and acceptance and commitment therapy are effective on the body image of patients with musculoskeletal pain. Psychiatrists, clinical psychologists, nutritionists, physicians, and other health professionals can benefit from the results of this study. Because third wave therapies can target the cognitive system of patients, so they can be suitable treatments for improving body image.

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Authors' Contribution

This study is derived from the doctoral thesis of the first author, which was carried out under the supervising of the second author and the advice of the third author. MS: Methodology, and writing up. RG: Conceptualization and supervising. H A. Data consultant.

Conflict of Interest

There is no conflict of interest between authors.

Ethical Permission

This research has been approved by the ethic committee of Islamic Azad University, Tonkabon branch, with ID:IR.IAU.TON.REC.1402.081.

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