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Clinical Case

Effects of a dancing intervention on mood states in a woman with fibromyalgia: A case report



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ABSTRACT

The objective of this study was to verify the effects of a dancing intervention on mood states in a woman with fibromyalgia. A case report in which an intervention protocol consisted of dance classes of 2 sessions per week for 6 weeks, totaling 12 sessions. The List of Mood States - Reduced and Illustrated version (LOMS-RI) was applied before and after each intervention session. The LOMS-RI contains 14 adjectives, and each is represented by a drawing of a face with its corresponding expression. Each of the adjectives presented a scale of four values. A descriptive analysis was performed. The proposed protocol promoted a positive influence in which there was an increase in the positive adjective set score after each session. In addition, there was a decrease in the negative adjective set score after all sessions, except the first session. So, the dance protocol can positively influence the mood states in woman with fibromyalgia.

Keywords: Dance therapy; Exercise; Conservative treatment; Fibromyalgia; Rheumatic diseases.

Efectos de un protocolo de intervención de danza en los estados de ánimo de una mujer con fibromialgia: un caso clínico

RESUMEN

El objetivo de este estudio fue verificar los efectos de una intervención de danza en los estados de ánimo de una mujer con fibromialgia. Un caso clínico que consistió en un protocolo de intervención compuesto por clases de danza, con 2 sesiones por semana, durante 6 semanas, totalizando 12 sesiones. Se aplicó una Lista de Estados de Ánimo Reducida e Ilustrada (LEA-RI) antes y después de cada sesión de intervención. La LEA-RI contiene 14 adjetivos y cada uno es representado por la figura de una cara con su expresión correspondiente. Cada uno de los adjetivos tiene, asimismo, una escala de cuatro valores. Se realizó un análisis descriptivo. El protocolo propuesto tuvo una influencia positiva, dado que hubo un aumento de la puntuación en el conjunto de los adjetivos positivos después de cada sesión. Además, hubo una disminución en la puntuación en el conjunto de los adjetivos negativos después de cada sesión, a excepción de la primera sesión. Por lo tanto, el protocolo de danza puede influir positivamente los estados de ánimo en una mujer con fibromialgia.

Palabras clave: Terapia a través de la Danza; Ejercicio físico; Tratamiento conservador; Fibromialgia; Enfermedades reumáticas.

Efeitos de um protocolo de intervenção de dança nos estados de ânimo de uma mulher com fibromialgia: um relato de caso

RESUMO

O objetivo deste estudo foi verificar os efeitos de uma intervenção de dança nos estados de ânimo de uma mulher com fibromialgia. Um relato de caso no qual o protocolo de intervenção consistiu em aulas de dança, sendo 2 sessões por semana durante 6 semanas, totalizando 12 sessões. A Lista de Estados de Ânimo Reduzida e Ilustrada (LEA-RI) foi aplicada antes e após cada sessão de intervenção. A LEA-RI contém 14 adjetivos e cada um deles é representado por um desenho de uma figura de face com sua expressão correspondente. Cada um dos adjetivos apresentou uma escala de quatro valores. Foi realizada uma análise descritiva. O protocolo proposto promoveu uma influência positiva no qual houve um aumento na pontuação do conjunto dos adjetivos positivos após cada sessão. Além disso, houve uma diminuição na pontuação do conjunto dos adjetivos negativos após todas as sessões, exceto na primeira sessão. Assim, o protocolo de dança pode influenciar positivamente os estados de ânimo em uma mulher com fibromialgia.

Palavras-chave: Terapia através da dança; Exercício físico; Tratamento conservador; Fibromialgia; Doenças reumáticas.

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Introduction

Fibromyalgia is a rheumatic disease characterized by diffuse chronic pain, complaints of fatigue, muscle stiffness, sleep disturbance, cognitive dysfunction, anxiety and depression, and which mainly affects women.¹ Due to chronic pain, it is very common for fibromyalgia to lead to changes in interpreting nervous system pain.² In addition, the association of cognitive and physical symptoms of fibromyalgia can negatively affect physical, psychological and emotional well-being.

Although there is no consensual definition yet, mood can be understood as a psychological state composed of both positive and negative feelings which can vary in intensity and duration, and is an indicator of psychological well-being. According to Gutierrez's mood definition,³ moods have a prolonged duration, are slower, are produced gradually, and are less differentiated and intense than emotions.

Regular exercise has been shown to be associated with several psychological benefits such as reduced stress reactivity, decreased anxiety, depression, improved mood and psychological well-being in both healthy patients and those with chronic illness and disability.⁴

Dance is a body-based exercise modality characterized as aerobic exercise which has shown effects on pain, sleep, fatigue and depression in patients with fibromyalgia,⁵ and there is a release of substances which modulate pain and improve general well-being, such as endorphins.⁶ A meta-analysis showed that dance movement therapy decreases depression and anxiety, and increases quality of life and interpersonal and cognitive skills.⁷ In addition, studies have shown that dance regulates the mood of healthy individuals following short-term 50-minute dance exercise interventions^{8,9} and for a longer period of 7 weeks,¹⁰ in which positive mood is increased and negative mood is decreased. However, the effects of dance on moods in women with fibromyalgia is not known. In view of this evidence, dance has become a non-pharmacological, economic, healthy and more adherent alternative in preventing and treating psychological disorders and to promote mental health. Therefore, the objective of this case study was to verify the influence of dance on the positive and negative moods of a woman with fibromyalgia.

Case Report

This is a case report that followed the recommendations of Case Reports Guidelines. A 40-year-old female participant, black, married, body mass index (BMI): 35.2kg/m², diagnosed in 2013 with fibromyalgia, sedentary, housewife, using antidepressant and anxiolytic medication, and had a diagnosis of ulcerative colitis, without other associated diseases. She signed a written Informed Consent Form to confirm agreement to participate in the study (project approved by the Human Research Ethics Committee of the Federal University of São Carlos - CAAE: 96933118.9.0000.5504). Then, an initial evaluation consisting of anamnesis and physical examination was performed. In the anamnesis, sociodemographic data (name, age, race, civil status, educational level, occupation, telephone) and health status (diagnosis and time of diagnosis of the disease, medication, associated diseases, patient's complaint, physical status – sedentary or physically active) were collected. On physical examination, anthropometric data (body mass, height, BMI) were collected and vital signs (blood pressure, pulse rate, respiratory rate) were checked. In addition, before and after each intervention section vital signs were checked.

List of Mood States - Reduced and Illustrated version (LOMS-RI)¹¹ contains 14 adjectives, and each is represented by a drawing of a face with its corresponding expression. Each of the adjectives presented a four-value scale in response with the following score: Very Strong = 4, Strong = 3, Low = 2, Very Low = 1. The adjectives were divided into seven positive adjectives (happy, active, pleasant, calm, spiritual, light and energetic) and seven negative

adjectives (heavy, nervous, unpleasant, sad, useless, shy and afraid), and then the scores were summed for each adjective for both the positive and negative groups. Thus, it is considered that the higher the score for the positive adjectives, the better the mood in this set, while the higher score for the negative adjectives refers to a worse mood in this set.

After the evaluation, the treatment consisted of dance classes that mix Latin, Pop and Hip-hop dance style with a focus on promoting physical conditioning, and these musical genres were also chosen. The dance classes were supervised by a dance teacher and physical therapist in which he taught the choreography movements to the participant. The intensity was controlled with a slower start of warming up, progressing to faster and more elaborate movements, and then ending with to smoother and slower movements. Breathing and cooling down exercises were performed after dance classes. The classes were performed in pairs. The proposed protocol consisted of 2 sessions per week for 6 weeks, each with a duration of 60 minutes. The experimental sessions were developed as follows:

I) Pre-exercise: period for filling out the LOMS-RI.

II) Physical exercise (60 minutes).

Phase 1 - Warm-up (10 minutes): stretching exercises of the upper limbs, lower limbs and spine, and mobility exercises;

Phase 2 - Dance Class (40 minutes): the dance session consisted of predetermined choreography composed of large and rhythmic movements, involving the entire axial skeleton and upper and lower limbs, taught in a room with mirrors. The choreography was limited to simple forward, backward and sideways movements combined with simple upper limb movements.

Phase 3 - Cool down (10 minutes): stretching exercises were performed on the main muscle groups of the upper limbs, lower limbs and spine, and breathing exercises.

III) Post-exercise: period for filling out the LOMS-RI.

The participant was able to benefit from 11 sessions as she could not attend one session due to medical appointments. Thus, the results presented are from 11 intervention sessions.

There was an increase in the positive adjective set score after all sessions (Figure 1). It is possible to observe an increase of 5 points in the first session, while there was an increase of 10 points in the fifth session, and it was from this session that the participant had the maximum score on the scale. Finally, there was an increase of 16 points in the last session (Figure 1). The participant scored 8 before the intervention in the ninth session, and scored 28 after the protocol, thus obtaining an increase of 20 points, showing to be extremely happy, active, pleasant, calm, spiritual, light and energetic.

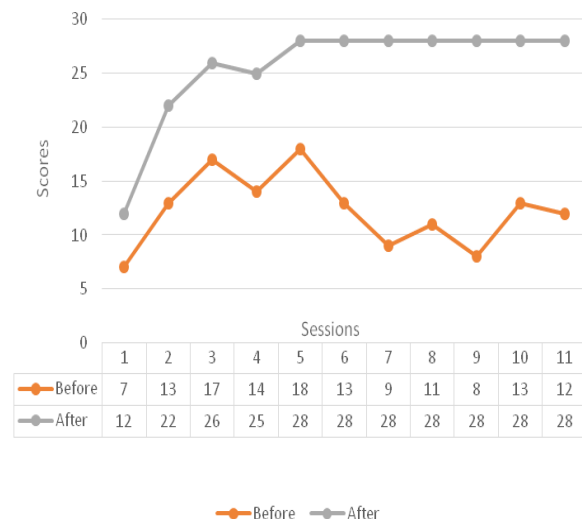


Figure 1. Average positive adjective scores before and after each intervention session.

There was a decrease in the negative adjective set score after all sessions, except in the first session in which there was a minimum increase of 2 points (Figure 2). A reduction of 17 points was observed in the fifth session, and there was a reduction of 12 points in the last session (Figure 2). It is noteworthy that the participant scored 27 points before the intervention in the eighth session, and scored 7 after the protocol, thus obtaining a reduction of 20 points, and presenting very low feelings of heavy, nervous, unpleasant, sad, useless, shy and afraid after applying the dance protocol.

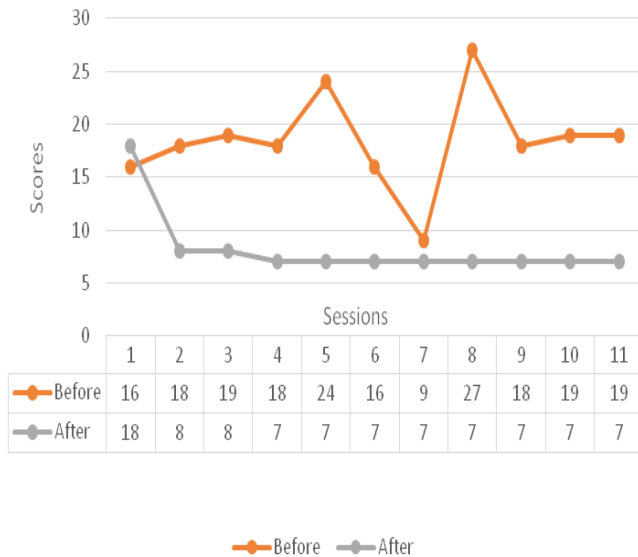


Figure 2. Average negative adjective scores before and after each intervention session.

The average positive adjectives pre-intervention was 12.3 points, while the average post-intervention was 25.5 points. The negative adjectives pre and post intervention were 18.5 and 8.2, respectively. In addition, it can be observed that the participant scored the highest in the post-session positive adjective set from the fifth session until the last session. Furthermore, the participant scored the minimum on the negative post-intervention adjective set from the third session to the last.

Discussion

Our study is a pioneer in investigating the influence of a dancing intervention on moods of a woman with fibromyalgia. A positive influence was observed in which there was an increase in the positive adjective set score after each session. In addition, there was a decrease in the negative adjective set score after all sessions, except in the first session.

The present study found that mood states can be altered by dancing, as occurred with the participant. Previous studies have shown that dancing regulates mood so that the positive mood is increased and the negative mood is decreased after dance exercise interventions in progressive periods of up to 50 minutes in healthy subjects,^{8,9} corroborating our findings.

It is known that there is a neurochemical imbalance in the central nervous system in individuals with fibromyalgia, leading to a central amplification of pain perception.² There is an increase in the concentration of neurotransmitters that act on pain transmission, such as glutamate and substance P, and a reduction in substances such as norepinephrine, serotonin and dopamine. Several studies have shown that pain inhibits descending system activity, which is responsible for exerting an inhibitory and modulating effect on distal structures, and is decreased in these individuals.^{12,13} Thus, as norepinephrine and endorphin are

released by exercise,¹⁴ this may result in improved moods, since such hormones influence the state of euphoria.

Music in conjunction with exercise is capable of altering mood. Felipe et al.¹⁵ compared mood behavior of cardiac patients before and after aerobic exercise with music and without music. The results showed that the use of motivational auditory stimulus during aerobic exercise was an effective strategy for mood change evaluated by the Brunel Mood Scale, since it increased the positive factor (vigor) and reduced the negative factors (tension, depression, anger, fatigue and mental confusion), thus corroborating our findings. In a review study, Gangrade¹⁶ confirmed the widespread use of music to improve the general well-being of patients.

An important aspect to be highlighted is the choice of dance and how it was applied which requires concentration by the participant, creating a need for attention that would provide a "disconnection" of personal stressors, and may influence the mood states. In addition, the environment in which the individual is inserted may positively or negatively interfere in their quality of life, but during the sessions the participant was inserted in another context in which she devoted herself entirely to herself, thus also performing self-care.

In the first session, there was an increase of only two points in the negative adjectives set score. This may have possibly occurred due to the patient was not used to the protocol or the type of exercise, because in the other sessions the patient scored the minimum in the negative adjectives set score. So, the participant was feeling minimally heavy, nervous, unpleasant, sad, useless, shy, and afraid, after each intervention session.

The participant's perspective after the protocol was: "This treatment is very important for life because it raises self-esteem and makes you want to live. If everyone knew the importance of this, everyone would exercise. I felt a sense of freedom and wanting to live because it gives a lot of joy and I feel more pleasant".

Conclusion

The dance protocol can positively influence the mood states in a woman with fibromyalgia. Therefore, future randomized and controlled trials are suggested.

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