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ORIGINAL ARTICLE

Walking improves sleep quality and mood status of women with fibromyalgia syndrome*

Praticar caminhada melhora a qualidade do sono e os estados de humor em mulheres com síndrome da fibromialgia

Ricardo de Azevedo Klumb Steffens[1], Carla Maria de Liz[2], Maick da Silveira Viana[2], Ricardo Brandt[2], Lays Guimarães Amorim de Oliveira[3], Alexandro Andrade[4]

** Received from the Laboratory of Sports Psychology and Exercise (LAPE), University of the State of Santa Catarina (UDESC). Florianópolis, SC.*

SUMMARY

BACKGROUND AND OBJECTIVES: Fibromyalgia syndrome (FMS) is difficult to diagnose and treat and is characterized by musculoskeletal pain associated to sleep disorders, morning stiffness, chronic headache and psychical disorders. The objective of this study was to evaluate the effects of 32 oriented walking sessions on sleep quality, mood status, depression and FMS impact on quality of life of FMS women.

METHOD: Participated in this study nine FMS women, with mean age of 48 ± 10 years. Sleep quality was evaluated by Pittsburgh Sleep Quality Index (PSQI), mood status by Brunel Mood Scales (BRUMS), depression by Beck Depression Inventory (BDI) and FMS impact on quality of life by FMS Impact Questionnaire (FIQ). Participants were evaluated before and after 32 sessions of oriented walking. Data were analyzed by Paired t test with significance level of 0.05 ($p < 0.05$).

RESULTS: After 32 sessions of oriented walking, participants presented significant sleep quality and mood status improvement, especially in the variables tension, depression, anger and mental confusion. There were no significant differences in depression and FMS impact on quality of life.

CONCLUSION: Walking has significantly improved sleep quality and mood status of FMS women.

Keywords: Exercise, Fibromyalgia, Mood, Quality of life, Sleep.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A síndrome da fibromialgia (SFM) é de difícil diagnóstico e tratamento, caracterizada pela ocorrência de dores musculoesqueléticas associadas a distúrbios do sono, rigidez matinal, cefaleia crônica e distúrbios psíquicos. O objetivo deste estudo foi avaliar os efeitos de 32 sessões de caminhada orientada, sobre a qualidade do sono, estados de humor, depressão e impacto da SFM sobre a qualidade de vida de mulheres com SFM.

MÉTODO: Foram incluídas nove mulheres com diagnóstico clínico de SFM, com média de idade de 48 ± 10 anos. A qualidade do sono foi avaliada por meio do Índice de Qualidade do Sono de Pittsburgh (PSQI), os estados de humor pela Escala de Humor de Brunel (BRUMS), a depressão pelo Inventário de Depressão de Beck (BDI) e o impacto da SFM sobre a qualidade de vida pelo Questionário de Impacto da SFM (FIQ). As participantes foram avaliadas antes e após a prática de 32 sessões de caminhada orientada. Os dados foram analisados utilizando-se o teste t Pareado com α de 0,05 ($p < 0,05$).

RESULTADOS: Após as 32 sessões de caminhada orientada as participantes apresentaram melhora significativa na qualidade do sono e nos estados de humor, em especial nas

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1. Specialist in Exercise Physiology. Especialista em Fisiologia do Exercício. Student of the Máster Course in Human Movement Sciences, University of the State of Santa Catarina (UDESC). Florianópolis, SC, Brazil.
2. Máster and Doctoral Student of Human Movement Sciences, University of the State of Santa Catarina (UDESC). Florianópolis, SC, Brazil.
3. Graduated in Physical Education, University of the State of Santa Catarina (UDESC). Florianópolis, SC, Brazil.
4. Doctor in Production Engineering and Post-Graduation Professor of Human Movement Sciences, University of the State of Santa Catarina (UDESC). Florianópolis, SC, Brazil.

Correspondence to:
Ricardo de Azevedo Klumb Steffens
Rua Pascoal Simone, nº 358 – Coqueiros
88080-350 Florianópolis, SC.
Phone: 55 (48) 3321-8677 – Fax: 55 (48) 3321-8607
E-mail: ricardoaksteffens@gmail.com

variáveis tensão, depressão, raiva e confusão mental. Não foram observadas diferenças significativas na depressão e no impacto da SFM obre a qualidade de vida.

CONCLUSÃO: A prática de caminhada melhorou de forma significativa a qualidade do sono e os estados de humor de mulheres com SFM.

Descritores: Exercício, Fibromialgia, Humor, Qualidade de vida, Sono.

INTRODUCTION

Fibromyalgia syndrome (FMS) has unknown aetiopathology and primarily affects females, being characterized by musculoskeletal pains associated to sleep disorders, morning stiffness, chronic headache and psychical disorders[1]. Its diagnosis is fundamentally clinical without evidences of lab tests and exams abnormalities[2]. In 1990, the American College of Rheumatology has developed criteria to classify FMS. Official guidelines were defined and FMS was described as "diffuse and chronic pain syndrome characterized by the presence of at least 8 of the 11 anatomically specific points called tender points, painful at palpation of approximately 4 kgf"[2].

FMS has important psychological components, both inherent and arising from syndrome characteristics. Due to the difficulty in diagnosing and treating, patients feel vulnerable and helpless, starting a series of emotional processes, including mood changes[3]. So, an intervention aimed at improving FMS patients' health should take into consideration the improvement of both physical and psychological symptoms.

A treatment recommended for FMS is the practice of physical exercises which, if regularly maintained, may improve quality of life of this population[4,5]. Most prescribed exercise is low impact aerobic exercise, with gradual load increase and intensity of up to 65% to 70% of maximum heart rate[6]. Among the benefits of aerobic exercises for this population there are pain decrease, sleep, mood and cognition improvement and a well being sensation[7].

This study aimed at evaluating the effect of 32 oriented walking sessions on sleep quality, mood status, depression and FMS impact on quality of life of women with FMS.

METHOD

After the approval of the Human Research Ethics Committee of the University of the State of Santa Catarina (UDESC) under protocol 18/2009, this study was carried out following the ethical standards required by the Declaration of Helsinki and according to resolution 196/96 of the Ministry of Health.

This is a quasi-experimental study with design involving the following stages: a) data collection where the following questionnaires were applied: Socio-Demographic and Clinic – SDCQ, Pittsburgh Sleep Quality Index – PSQI[8]. Brunel Mood Scale – BRUMS[9], Beck Depression Inventory – BDI[10] and FMS Impact Questionnaire – FIQ[11]; b) practice of 32 oriented walking sessions; c) new data collection with the re-application of all questionnaires of item "a", except SDCQ with was only applied during the first data collection.

Participated in this study nine women with clinical FMS diagnosis, living in the region of Florianópolis, with mean age of 48 years ± 10 years.

SDCQ is composed of several socio-demographic and clinical variables to characterize fibromyalgia patients. Questions are related to age, marital status, education level, occupation, time since diagnosis, use of medications, FMS triggering causes or events, most frequent symptoms, factors increasing pain intensity and other FMS-associated clinical conditions.

PSQI[8] has nine questions to evaluate sleep quality and pattern in adults, which are grouped in the seven subjective quality components: latency, duration, normal effectiveness, disorders, use of medication and daytime dysfunctions. Each component is evaluated by a scale from zero to three points with the same weight, where three is the scale negative extreme. The sum of the values is the total PSQI index, which when equal to or above five means poor sleep quality.

BRUMS is made up of 24 items with 5 levels (0 = nothing / 4 = extremely), where people report how they are feeling at the evaluation moment. Items are grouped in six dimensions (mood status) and may go from zero to 16 for each mood status. Items are: stress, depression, anger, vigor, fatigue and mental confusion. The higher the value, the higher the manifestation of the respective mood status. Positive mood is characterized by high vigor level (positive factor) and low fatigue, stress, depression, confusion and anger (negative factors).

BDI[10] has 21 questions with scores resulting from the choice of statements going from zero to three points, related to symptoms and feelings such as sadness, pessimism, sensation of failure, dissatisfaction, guilt feeling, punishment feeling, self-depreciation, self-charges, suicidal ideation, crying spells, irritability, social retraction, indecision, body image distortion, inhibition for work, sleep disorders, fatigue, loss of appetite, somatic concerns and loss of libido. Highest score is 63 points and the higher the value, the higher the level of depression.

FIQ[11] is made up of 10 questions to evaluate FMS impact on 10 quality of life components: functional capacity, well being, and absence from work, ability to work, pain, fatigue, morning tiredness, stiffness, anxiety and depression. The first component has questions related to the ability to perform physical and functional tasks measured in four points of a Likert-type scale. Components two and three are analyzed by the indication of the number of days with regard to well being and the number of days of medical leave due to FMS. A linear horizontal scale with grades from zero to 10 is used for the remaining seven components. Questions were answered considering activities and perceptions of the last seven days. Total score varies from zero to 100. When scores are equal to or above 70 cases are considered severe.

First contact with potential participants was made by presenting information regarding the research. It was emphasized that their identification would be secret and that participation was voluntary. Those accepting to participate have signed the Free and Informed Consent Term. Then, the questionnaire was individually applied in a location without interference of third parties.

Walking sessions were carried out twice a week and lasted 60 minutes. From these, 15 minutes were dedicated to stretching exercises, 30 minutes to walking and 15 minutes to relaxation. Intensity prescribed by professionals orienting the walking has varied from 60% to 75% of maximum estimated heart rate (220 – age = maximum heart rate)[6].

Participated in the sample just nine women (n = 9) who attended to 70% or more of the sessions. After 32 walking sessions, participants were re-evaluated by a new application of questionnaires.

Descriptive data analysis was carried out by frequencies assessment, means and standard deviations. After confirming data normality (Shapiro-Wilk test), Paired t test was used to check variable differences: sleep, mood status, depression and FMS impact on quality of life from pre to post-test. Statistical significance was 0.05 ($p < 0.05$).

RESULTS

SDCQ has shown that most participants had incomplete basic education, with mean family income of approximately three minimum wages. Major FMS-related symptoms were generalized pain (8), memory failure (8), joint stiffness (8), tingling (8), localized pain (7), restless sleep (7), fatigue (6) frequent headache (6), tiredness (6) and bad mood (6).

According to participants' perception, exaggerated physical effort (55.6%), depression (44.4%) and genetic inheritance (44.4%) were the factors influencing FMS manifestation.

Table 1 shows results of sleep quality, mood status, depression and FMS impact on quality of life before and after 32 walking sessions.

PSQI results show that there has been significant improvement after the intervention ($p < 0.05$) in sleep quality (9.78 / 6.22), depression (9.56 / 6.88), anger (7.33 / 3.66) and mental confusion (8.56 / 5.11). BRUMS has shown significant improvement ($p < 0.05$) in stress (9.78 / 6.22), depression (9.56 / 6.88), anger (7.33 / 3.66) and mental confusion (8.56 / 5.11).

BDI has not shown significant depression improvement (24.63 / 20.00 – $p > 0.05$). The same was true for FIQ, which has not evidenced significant change (57.35 / 56.56 – $p > 0.05$) in FMS impact on quality of life. Walking has not influenced participants' pain.

Table 1 – Impact of fibromyalgia syndrome on sleep quality, mood status, depression and quality of life of FMS women before and after 32 sessions of oriented walking [$\bar{x}$ (±)].

Variables	Pre-Test	Post-Test
Sleep quality	11.29 (4.30)	9.57 (3.82)*
Mood status		
Stress	9.78 (4.20)	6.22 (4.79)*
Depression	9.56 (5.38)	6.88 (4.62)*
Anger	7.33 (5.05)	3.66 (4.55)*
Vigor	5.44 (5.38)	8.00 (5.52)
Fatigue	10.00 (5.33)	8.00 (5.29)
Mental confusion	8.56 (4.85)	5.11 (4.70)*
Depression	24.63 (15.32)	20.00 (15.15)
Impact of FMS on quality of life	57.35 (26.10)	56.56 (19.16)

*Significant difference between pre and post-test at the level of $p < 0.05$.

DISCUSSION

Considering that walking is inexpensive and that the literature has shown its benefits, studies with such aim contribute for the discussion of treatments involving positive cost-benefit ratio for FMS patients, especially with regard to psychological aspects.

Most common symptoms in our study were the same previously identified by the literature as major FMS symptoms[5]. Generalized pain is considered the major FMS symptom, being a pre-requisite for the diagnosis, according to criteria proposed by the American College of Rheumatology[1]. Although not being the objective of our research, it is important to stress that studies have confirmed that physical exercises are beneficial to decrease FMS patients' pain levels[6].

Participants improved their sleep quality after participating in the proposed intervention, similar to a study which has identified sleep improvement after aerobic exercises associated to relaxation techniques[12]. Sleep disorders are a major FMS symptom[1,2] and were among the most commonly referred by the participants of our study. Another study ratifies that interventions to improve sleep quality may be beneficial to health and quality of life of FMS patients[13].

Among mood factors, the levels of stress, depression, anger and mental confusion were significantly decreased after the 32 oriented walking sessions. There are evidences that supervised aerobic exercises contribute to physical function and to improve the mood of FMS individuals[14]. A study investigating the mood of FMS women has concluded that they had depressed mood, with low vigor level associated to high stress, depression, anger, fatigue and mental confusion[3], similarly to our study, which has confirmed that walking is important to improve the health status of FMS people.

Depression associated to FMS is common[3]. Although the levels of participants' depression have decreased from pre to post-test, this was not statistically significant. In a study where psychological improvements were observed in FMS patients after interventions with physical exercises, depression level changes were also not significant[12]. It seems that the benefits of aerobic exercises are lower on depression of FMS people, or that more practice time is needed to make such benefits more evident.

Walking as intervention has not significantly interfered with FMS impact on quality of life, as opposed to other studies. A previous study has confirmed the benefits of physical exercises for general quality of life of FMS patients[12].

Another study has compared high and low intensity walking and after 24 weeks of practice it has observed that the impact of FMS on quality of life has significantly decreased, with stronger effect on the group practicing low intensity walking[15]. So, the intensity proposed in our study might have been a limiting factor for apparent improvements because it may be considered from moderate to high[15]. These results should encourage further studies to evaluate possible benefits of physical exercises for FMS people, thus contributing to improve their treatment.

CONCLUSION

Walking has improved sleep quality and mood status of women with fibromyalgia syndrome.

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