# Depression, anxiety and kinesiophobia in women with fibromyalgia practitioners or not of dance

*Depressão, ansiedade e cinesiofobia em mulheres com fibromialgia praticantes ou não de dança*

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## ABSTRACT

**BACKGROUND AND OBJECTIVES**: Fibromyalgia is defined as a chronic and diffuse pain syndrome, with greater prevalence in women aged 40 to 55 years and affects 2 to 4% of the world population, causing physical and psychological symptoms that decreases the quality of life of those affected. The aim of this study was to evaluate the symptoms of depression, anxiety and kinesiophobia in women with fibromyalgia who practice dance.
**METHODS**: A cross-sectional study, with a quantitative approach, in which 40 women with fibromyalgia were evaluated, 20 of whom were dance practitioners (dance group - DG) and 20 who were non practitioners (non-dance group - NDG). All women responded to the Beck Depression Inventory, the Beck Anxiety Scale and the Tampa Kinesiophobia Scale.
**RESULTS**: The average depression scores were considered mild for the dance group and moderate for the non-dance group. Anxiety was considered moderate in dance group and severe for non-dance group. Regarding kinesiophobia, both groups had a moderate degree, despite having differences in their scores. The dance group obtained significantly lower results than the non-dance group for all independent variables in this study.
**CONCLUSION**: The symptoms of depression, anxiety and kinesiophobia showed higher values in the group of fibromyalgia patients who did not practice dance. Thus, dance practice seems to be associated with lesser presence of symptoms such as depression, anxiety and kinesiophobia in women with fibromyalgia.
**Keywords**: Dance therapy, Exercise, Fibromyalgia, Physical therapy, Rheumatology.

## RESUMO

**JUSTIFICATIVA E OBJETIVOS**: A fibromialgia é definida como uma síndrome de dor crônica e difusa, com maior prevalência em mulheres de 40 a 55 anos de idade, acometendo de 2 a 4% da população mundial e causando sintomas físicos e psicológicos que diminuem a qualidade de vida dos afetados. O objetivo deste estudo foi avaliar os sintomas de depressão, ansiedade e cinesiofobia em mulheres com fibromialgia que praticam dança.
**MÉTODOS**: Trata-se de um estudo transversal, com abordagem quantitativa, em que foram avaliadas 40 mulheres com fibromialgia, sendo 20 praticantes de dança (grupo dança - GD) e 20 que não realizavam essa prática (grupo não dança - GND). Todas as mulheres responderam ao *Beck Depression Inventory*, à *Beck Anxiety Scale* e à *Tampa Kinesiophobia Scale*.
**RESULTADOS**: A média dos escores de depressão foi considerada leve para o grupo dança e moderada para o grupo não dança. A ansiedade foi considerada moderada no grupo dança e grave para o grupo não dança. No que diz respeito à cinesiofobia ambos os grupos apresentaram grau moderado, apesar de apresentar diferenças nos seus escores. O grupo dança obteve resultados menores do que o grupo não dança para todas as variáveis independentes desse estudo, de forma significativa.
**CONCLUSÃO**: Os sintomas de depressão, ansiedade e cinesiofobia apresentaram maiores valores no grupo de fibromiálgicas que não praticavam dança. Desta forma, a prática de dança parece estar associada a menor presença de sintomas como depressão, ansiedade e cinesiofobia em mulheres com fibromialgia.
**Descritores**: Exercício, Fibromialgia, Fisioterapia, Reumatologia, Terapia através da dança.

## INTRODUCTION

Fibromyalgia (FM) is defined as a syndrome that features musculoskeletal chronic and diffuse pain throughout the body. It presents greater prevalence in women aged 40 to 55 years old[1] and affects 2 to 4% of the world population[2]. In addition to musculoskeletal pain, FM may result in fatigue, insomnia, morning stiffness, depression and anxiety[3]. Depression is a condition that affects 300 million people worldwide, the equivalent to 4.4% of the world's population, having a direct impact on people's mood[4].
FM also shows relation to anxiety, or to the group of anxiety disorders. These are characterized by feelings of an-

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xiety and fear and include the generalized anxiety disorder (GAD), panic disorder, phobias, social anxiety, obsessive compulsive disorder (OCD) and post-traumatic stress disorder (PTSD). These disorders affect 264 million people worldwide, 21% of which only in the American continent[4]. Among other symptoms, the sensation of persisting pain caused by FM may lead individuals to reduce their movements due to fear of feeling more pain. Such fact suggests that this syndrome may be associated with kinesiophobia, a term that defines the phobia related to performing movements or physical activity[5]. These psychological symptoms related to FM may increase the primary syndrome symptoms, like pain and disability, having a negative impact on people's quality of life[6].

The dancing practice has had good adherence from individuals with FM diagnosis, be it by the movement characteristics, or the visual, auditory, sensory stimulus or the motor learning that it provides[7]. Also, it can be considered a low cost, easy access form of aerobic exercise[8]. When performed as a group, dance promotes socialization and interaction among participants, besides contributing to motivation and creation of fraternal bonds. Dance may also provide improvement of pain, of functional and cognitive capacity, effects on mood and contribute to balance, motor coordination, physical conditioning, proprioception and quality of life[7,9]. A systematic review evaluated the effects of dance practice in the reduction of pain in individuals with FM and observed that the dance programs were effective in reducing the pain scenario[8].

Nevertheless, other variables, besides pain, from individuals with FM that practice dancing compared to individuals that don't practice dancing have not yet been assessed. It is believed that dance as a form of aerobic exercise can promote changes in the FM symptoms, like depression, anxiety and kinesiophobia.

Thus, the aim of this study was to evaluate the symptoms of depression, anxiety and kinesiophobia in women with FM who practice dance in comparison to those that don't.

## METHODS

A cross sectional study whose sample consisted of 40 women with FM diagnosis, according to the American College of Rheumatology 1990's criteria[1], distributed in two groups. Twenty participants comprising the dance group (DG) of the UFRN physiotherapy extension course project, entitled *"DançaFibro"*, which had 1h Zumba type dace sessions twice a week. The other 20 participants were selected through the waiting list of the UFRN physiotherapy clinic-school, diagnosed with FM and not taking part of the dance group (NDG). All DG participants should have been part of the group for at least three months. For the NDG, the women with FM should not had practiced physical exercise for the past three months.

All participants signed the Free and Informe Consent Term (FICT) and answered a sociodemographic questionnaire elaborated by the researchers. The following assessment tools were used: Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI) and Tampa Scale for Kinesophobia (TSK). BDI is a tool used worldwide for the identification of depressive symptoms, validated for Brazil in 2012[10]. It has 21 questions each with 4 alternatives, scoring from zero to 3. Depression is classified as mild (zero to 18 points), moderate (19 to 29) and severe (30 to 62)[11].

The BAI is widely used for the evaluation of anxiety symptoms, it has 21 questions with alternatives scoring from zero to 3. It was translated into Portuguese in 2001[12] and classifies anxiety as mild (0 to 15 points), moderate (16 to 25) or severe (26 to 63)[11].

The TSK is composed of 17 questions with 4 alternatives (totally disagree, partially disagree, partially agree and totally agree) scoring from 1 to 4, respectively. Questions 4, 8, 12 and 16 need to have their scores reversed to obtain the final score. It was translated into Portuguese and validated in 2007[5]. The degree of kinesophobia is classified as mild (17 to 34 points), moderate (35 to 50) or severe (51 to 68)[11].

In the end, two participants were excluded from the study because they could not answer the BDI, being one from DG and one from NDG, totaling a final sample of 38 women, 19 in DG and 19 in NDG. Assessments were made during August and November 2018.

This study was approved by the Research and Ethics Committee of the *Universidade Federal do Rio Grande do Norte*, FACISA (CEP/FACISA) unity, under opinion number 3.652.631.The norms of the *Resolução do Conselho Nacional de Saúde 466/12* for research with humans were followed. The research was also based on the STROBE checklist suggestions[13].

**Statistical analysis**

The statistical analysis was performed in the Statistical Package for the Social Sciences (SPSS) version 20.0. Firstly, the Kolmogorov-Smirnov was applied to verify the data distribution. As all data was considered normal, the unpaired t test verified the differences between the groups' means. The results were presented as mean and standard deviation, with a level of significance of 5% ($p \leq 0.05$), with a confidence interval of 95%.

## RESULTS

The mean age of the DG participants was 50 years old, and the NDG was 51 years old, confirming the samples' homogeneity. In both groups the time of diagnosis varied greatly, from 10 months to 16 years of clinical diagnosis.

The mean score for depression was 17.22 in the DG, considered mild, and 26.4 in the NDG, considered moderate. For anxiety, the DG had a mean score of 24.3 (moderate), while in the NDG the value reached 37 (severe). Regarding kinesiophobia, the mean scores were 40.8 in DG and 47.7 in NDG, both considered moderate (Figures 1, e and 3).

There was difference in all independent variables in this study, depression, anxiety and kinesiophobia, when comparing DG and NDG. The values were considered significant when p<0.05, as shown in table 1.

**Table 1.** Depression, anxiety and kinesiophobia scores in women with fibromyalgia from both groups

| Variables | DG (n=19) | NDG (n=19) | |
|---|---|---|---|
| | Mean ± SD | Mean ± SD | p-value |
| Depression | 17.22 (11.3) | 26.4 (11.0) | 0.015* |
| Anxiety | 24.3 (19.7) | 37 (17.4) | 0.043* |
| Kinesiophobia | 40.8 (7.8) | 47.7 (5.5) | 0.003* |

*Unpaired t Test; DG = dance group; NDG = non-dance group.

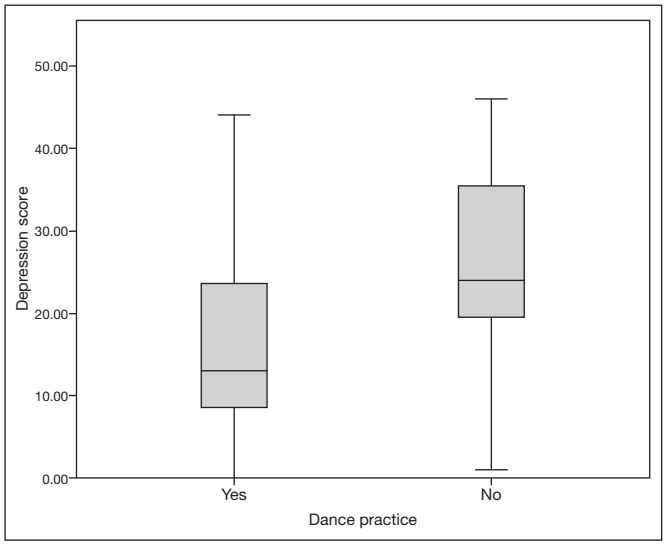


**Figure 1**. Depression score in individuals with fibromyalgia from both groups

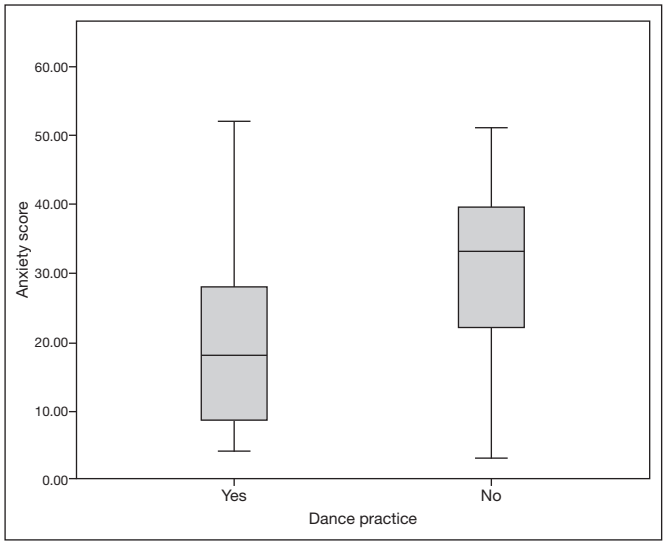


**Figure 2**. Anxiety score in individuals with fibromyalgia from both groups

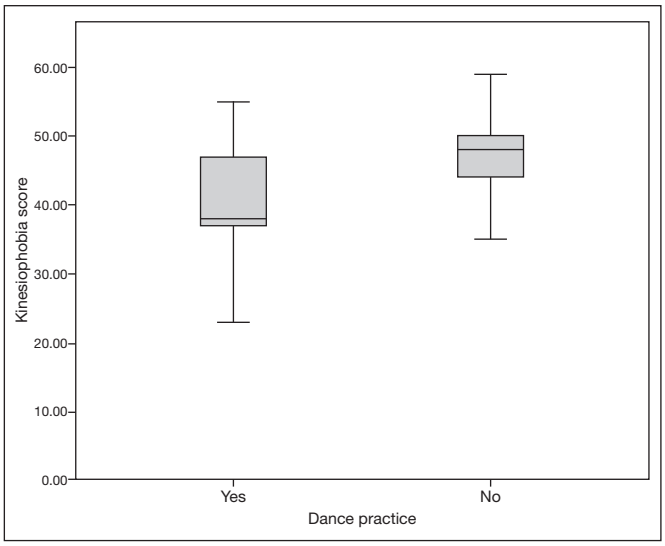


**Figure 3**. Kinesiophobia score in individuals with fibromyalgia from both groups

## DISCUSSION

This study sough to identify the influence of the dance practice on individuals with FM concerning depression, anxiety and kinesiophobia. According to the results found, the scores for depression, anxiety and kinesiophobia were associated with less intensity in the DG.

Previous studies confirmed the relation between anxiety and depression in FM. A study done in 60 individuals with FM showed that 50% presented depressive symptoms and 88% presented anxiety symptoms[14]. A study showed the relation between kinesiophobia and individuals with FM[15]. Thus, the association between the present study's independent variables, depression, anxiety and kinesiophobia are confirmed[16]. However, up to the present moment there are few studies that relate these variables with the dance practice in individuals with FM diagnosis.

Dance programs are already widely indicated for the treatment of depression. A review with meta-analysis was favorable to the use of dance therapy in people suffering from depression[17]. A study done in Spain obtained similar results with the improvement of depression and anxiety in women with FM submitted to a Spanish dance program for six weeks[18]. Such fact corroborates the results obtained in the present study, which also assessed better scores for the variables in the individuals practicing dance. Group dancing has an important role in social interaction. Moreover, Moreover, being in an environment in which other people share the same problem creates a sensation of belonging and favors the creation of a support network that stimulates personal development and problem confrontation[19]. Another study done in 2018 reports that the Zumba style of dance was effective in the improvement of pain and functionality in women with FM[20]. Zumba practitioners indicated improvement on pain, sleep and self-esteem, as well as reported that, when they discontinued the dancing practice, the FM symptoms worsened[21]. The dance practice in this study was also Zumba and showed satisfactory results from its practitioners.

Although pain was not the outcome variable of this study, it is believed that the improvement obtained in the psychological domains could influence in the better control of this symptom and, consequently, in the functional capacity of these individuals, which is normally reduced.

The Zumba style can be considered an aerobic exercise, due to its characteristics of movement intensity, frequency and repetition[22]. A study highlighted the benefits of aerobic exercise in the improvement of quality of life of individuals with FM, using the Fibromyalgia Impact Questionnaire (FIQ). From the 284 participants of that study, 52.5% were using antidepressants and, after participating in the research, the depression domain evaluated by FIQ had a significant improvement in those that practiced aerobic exercise[23]. It's well known that physical exercise is capable of improving depressive symptoms in patients with somatic disorders, including FM[24]. Cochrane reviews point out that aerobic exercise improves physical capacity and FM symptoms and is effective in reducing symptoms of depression[25,26], in addition to its anxiolytic effects[27]. Thus, the present study's findings are in line with current scientific literature, showing that dance, a form of aerobic exercise, can promote significant benefits in individuals with FM.

One of the study's limitations was the lack of a sample calculation, that would allow a larger inference of results, even though the size of the study's sample was not particularly small.

The selection of participants was intentional, including the women who were part of the dance group extension project from the university. The cross-sectional design of the study does not extrapolate the cause-effect analysis due to its non-prospective character but allows for an on-point analysis of two groups under different conditions. This can be reinforced in further studies, monitoring individuals that practice dancing through a determined time and inserting a control group.

## CONCLUSION

The depression, anxiety and kinesiophobia scores were lower in GD. Therefore, the dance practice seems to have a positive influence in the symptoms of depression, anxiety and kinesiophobia in women with FM.

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