



ISSN: 2230-9926

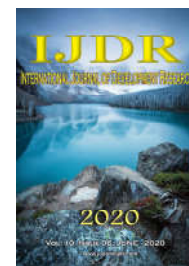
Available online at <http://www.journalijdr.com>

IJDR

International Journal of Development Research

Vol. 10, Issue, 06, pp. 37378-37381, June, 2020

<https://doi.org/10.37118/ijdr.19037.06.2020>



RESEARCH ARTICLE

OPEN ACCESS

EFFECTS OF PILATES METHOD IN FIBROMYALGIA PATIENTS: AN INTEGRATIVE REVIEW

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Brazil

ARTICLE INFO

Article History:

Received 17th March, 2020

Received in revised form

19th April, 2020

Accepted 20th May, 2020

Published online 30th June, 2020

Key Words:

Physiotherapy, Pilates, Fibromyalgia.

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ABSTRACT

Introduction: Fibromyalgia (FM) is a potentially disabling syndrome and is also a rheumatologic disease in which its main feature is generalized chronic musculoskeletal pain. **Objectives:** to list publications on the theme Effects of the Pilates method in patients with fibromyalgia, addressing the theme through a literature review. **Methodology:** Data collection was performed through electronic search, in the National Library of Medicine (Pubmed), Scientific Electronic Library Online (Scielo), and Latin American and Caribbean Health Sciences (Lilacs) databases, on the theme in question, referring to the period from 2016 to 2020. **Results:** from the meeting of findings on the subject, it was possible to notice that Pilates is becoming popular and individuals with fibromyalgia have increasingly adhered to the technique, as it promotes physical and mental health. Being considered a low-intensity exercise, its benefits are multiple. **Conclusion:** It was concluded that the Pilates method contributes to muscle strengthening, also ensuring the reduction of generalized pain, reduction of muscle tension, and other symptoms present in FM. Thus, it is possible to perceive that Pilates contributes to better development of daily activities of the patient, along with a better quality of life and psychological functions.

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Citation: Amanda Silva de Aguiar, Janayni Nunes do Amaral, *Cassia Alvesde Carvalho, Warly Neves de Araújo et al. "Effects of pilates method in fibromyalgia patients: an integrative review", *International Journal of Development Research*, 10, (06), 37378-37381.

INTRODUCTION

Fibromyalgia (FM) is a potentially disabling syndrome and also a rheumatologic disease in which its main feature is generalized chronic musculoskeletal pain. Fm pain is not only related to an injury or pathology that affects the somatic-sensitive nervous system but is also related to a change in the central nervous system that compares-to a deficiency of the pain-suspending mechanisms. Thus, it is characterized as a dysfunctional pain (Senna, 2004). Thus, the prevalence of FM is approximately 2% in the general population and increases with age, occurring in 8% of women between 35 and 60 years of age. In Brazil, it is present in up to 2,5% of the general population. FM affects women both before and after menopause, but there are cases in older people and also children and adolescents (Antônio, 2002). Therefore, its etiology and pathogenesis are still imprecise (Atzeni, 2008). Among the most common symptoms of FM, spontaneous and generalized pain and increased sensitivity stand out.

There are local pains, usually present in the muscles, abdomen, elbows, knees and that can be characterized as acute, diffuse, or chronic pain. In addition to muscle spasms, tingling, fatigue, stiffness, cold sensitivity, high stress, depression, anxiety, and non-restorative sleep. There are changes in the gastrointestinal tract, such as constipation, nausea, or excessive amounts of gas. Thus, the fibromyalgia patient has difficulty working normally, negatively interfering in the performance of their activities of daily living (ADL's) (Skaer, 2014). In the treatment of Fibromyalgia, there is the prescription of medication, by the intervention of simple analgesics or non-pharmacological treatment, such as the practice of regular physical activity, physiotherapy, hydrotherapy, and acupuncture. An individualized evaluation is indicated for the prescription of the ideal treatment for each case. Treatment is aimed at reducing symptoms, such as pain control, improved physical fitness, quality of life gain, and return to their ADL's (Heymann, 2010). The Pilates method has broad and different objectives, being constantly used in the treatment of FM to

Table 1. Articles on the effects of the Pilates method in patients with Fibromyalgia

AUTHOR	DATE	MAGAZINE	METHODOLOGY	RELEVANT RESULTS
COSTA <i>et al.</i> [9]	2020	Current Science	Bibliographic review	The Method showed satisfactory results on the symptomatology of patients with Fibromyalgia, such as improved functional capacity, sleep quality, decreased pain, muscle tension, increased flexibility, improved respiratory capacity, and decreased anxiety.
LADIVG <i>et al.</i> [10]	2016	Colloquim Viate Magazine	Case report	The results showed, in the Fibromyalgia Impact Questionnaire (FIQ), the success of patients in all domains, except for the anxiety domain only for one patient. The overall improvement also applies to the results in the number of tender-points, third finger test on the ground, and the SF-36. The exercises based on the Pilates Method were effective in the treatment, mainly in the aspects of quality of life, pain, and flexibility.
KOMATSU <i>et al.</i> [11]	2016	Dor Magazine - São Paulo	Randomized clinical study	Statistically, significant improvement was observed in pain intensity and the number of painful regions ($p < 0.05$) in the treated group. Strong correlations were found mainly between the number of active tender points and the Fibromyalgia Impact Questionnaire ($r > 0.8$, $p < 0.05$).
KUMPEL <i>et al.</i> [12]	2016	ConScientiae Health	Prospective self-control	A correlation was found between the impact of fibromyalgia and sleep quality. That is, the effects of the Pilates Method are positive for pain reduction.
CRUZ <i>et al.</i> [13]	2018	FAIPE Magazine	Bibliographic review	The Pilates Method can help people with fibromyalgia because it contributes to muscle strengthening and reduction of general muscle tension, relieving the pain of generalized fibromyalgia, focusing on gentle strengthening and low impact movement, avoiding any sudden movements that can cause injury.
SILVA <i>et al.</i> [14]	2018	BMJ OPEN	Randomized clinical trial	The protocol used served to investigate the benefits of Pilates in reducing pain and disability in women with the Pilates Method (FM). Therefore, there were positive impacts on the disease, functional capacity, sleep quality, and quality of life in general.
DELFINO <i>et al.</i> [15]	2015	Magazine motricity	Case Report	The result of the study shows significant improvements in pain, symptoms of depression, anxiety, fatigue, and health-related quality of life, after an exercise protocol of the Pilates method. There are few published experimental studies on the effects of the Pilates method on the treatment of fibromyalgia.
CURY; VIEIRA <i>et al.</i> [16].	2016	Physical Therapy Magazine Brazil	Case Report	The results showed improvement in all variables analyzed, except for BP that remained unchanged. It is concluded that MP is an alternative treatment to minimize the deleterious effects of the disease, but further studies are needed to better understand the observed effects.
CHAVES <i>et al.</i> [17]	2019	Physical Therapy Magazine Brazil	Retrospective analytical observational study	The mean pain intensity in the initial evaluation was 6,4 ($\pm 2,7$), with a mean pain time of 20,3 months. The mean pain intensity after telephone contact was 4,37 ($\pm 3,9$). The analysis of the perceived overall effect showed improvement in most participants (16,7% completely recovered; 39,7% improved greatly, 26,7% improved little).
CONTE <i>et al.</i> [18]	2018	Medicine Journal (Ribeirão Preto, Online)	Retrospective observational study	The data suggest a significant impact of physical activity, including Pilates as a technique of choice, on the improvement of pain symptoms, quality of life, and depression in patients with fibromyalgia.

gain muscle strength, improving flexibility and pain. It provides an improvement in physical fitness, promoting blood oxygenation, flexibility, and joint amplitude gain through muscle contraction of the central region (Souza, 2006). In FM Pilates is applied with low impact exercises, improving neuromuscular functions, correcting posture, reducing contractures through muscle relaxation. Therefore, it improves physical and mental conditioning, as well as providing relief from stress and anxiety (Burckhardt, 2005). Given what was exposed, it was noted the importance of gathering information on the theme to enrich knowledge by the academic and professional community about the effects of the Pilates method in fibromyalgia patients. Without the pretense of exhaustion of the subject, it is believed that the present work serves as a way to improve prevention and intervention strategies in the face of injuries that may be caused by this pathology because it lists relevant information that can be used later. In this context, this study aimed to list publications on the theme Effects of the Pilates method in patients with fibromyalgia, addressing the theme through a literature review.

MATERIALS AND METHODS

The study is bibliographical research, of the integrative review type, which, according to Soares *et al.* (2014) is configured, therefore, as a type of literature review that gathers

findings from studies developed through different methodologies, allowing reviewers to synthesize results without harming the epistemological affiliation of the empirical studies included. Qualitative and quantitative character; with data collection in research databases for discussion conducted from February to May 2020. Data collection was performed through electronic search, in the National Library of Medicine (Pubmed), Scientific Electronic Library Online (SciELO), and Latin American and Caribbean Health Sciences (Lilacs) databases, on the theme in question, referring to the period from 2016 to 2020. As a locator of the articles, the descriptors Fibromyalgia, Exercise, and Movement Technique, Quality of Life were used. This research included the articles made available in full, in the databases that were chosen; in the proposed publication period, and which are related to the objectives of the work. Articles that did not refer to the proposed theme and were not in the given period were excluded. In this scenario, 70 articles were found, of which 10 were repeated and 50 did not meet the inclusion criteria; therefore, 10 articles were selected for this research. For the selection of inclusion criteria were used: complete articles in Portuguese, English, and Spanish; whose approach is qualitative, quantitative, exploratory, descriptive, cross-sectional or experience reports; available electronically and that meet the above-mentioned theme.

Abstracts, theses, monographs, dissertations, publications in congress enables as well as other publications that are not complete scientific articles; articles that do not meet the proposed theme were considered as exclusion criteria.

Thus, for content analysis and classification of articles, the following steps were followed, according to Bardin:

- a) Pre-analysis: floating reading of the collected material; the constitution of the corpus of research;
- b) Exploitation of the material: clipping in context record units; coding and classification according to empirical and theoretical categories;
- c) Data processing and interpretation: final analysis of the data obtained. It is not necessary to approve by a Research Ethics Committee because it is bibliographical research.

Cruz *et al.* (Da Cruz, 2018), conducted a literature review based on scientific articles aiming to report the benefits of the Pilates Method on the symptoms of fibromyalgia patients. From this, it was concluded that Pilates showed positive results, as it seeks treatment of an individualized nature with exercises in association with a wide range of versatile equipment. Therefore, because of Fibromyalgia, it is difficult to adapt the patient to physical activities. Another study on the practice of Pilates in the rehabilitation of Fibromyalgia showed that the Method provides good results throughout the patient's development, and maybe a treatment option for a variety of musculoskeletal dysfunctions and that this Method is an exercise that has the possibility of being proposed according to the particularities of each individual, making its benefits multiple (Pessoa, 2012). In this line of reasoning, Kumpel (Kumpe, 2016) evaluated the efficacy of the Pilates Method in pain improvement in fibromyalgia patients. A group of 20 female individuals aged between 40 and 65 years, with a medical diagnosis of FM, participated in the study. As a result, all aspects evaluated improved immediately after treatment, from this it is possible to analyze that the Pilates Method was extremely effective for fibromyalgia patients. In 2018, Lima *et al.* (Lima, 2018) conducted a literature review to evaluate the effect of the Pilates Method applied to Fibromyalgia and concluded that the Method can be indicated to this public, as it improves aspects of generalized pain relief, reduction of muscle tension and also contributes to muscle strengthening. Lima also presented good results regarding the individual's sleep, and consequently, the improvement of quality of life.

Costa (Pessoa, 2012) analyzed the benefits of the Pilates Method on fibromyalgia symptoms from a literature review. In this perspective, through all its symptomatology, FM is treated as a chronic, non-inflammatory painful syndrome of unknown etiology, which manifests itself in the musculoskeletal system. Therefore, the most recent studies show that Pilates patients may have improved functional capacity, sleep quality, decreased pain, muscle tension, increased flexibility, improved respiratory capacity, and decreased anxiety. Silva and Mannrich (Silva, 2009) state that their research goal was to present a synthesis of the practice of the Pilates Method in rehabilitation. They explained that Pilates provides good results as it is being improved, and can be used to treat a variety of dysfunctions in different individuals and that this method is an exercise that has the possibility of adapting to the particularities of each person, and its benefits are related to fidelity to its principles during practice. Another study conducted in 2016 also used pilates method exercises in the

treatment of four individuals with fibromyalgia, female between 30 and 60 years of age, 20 Pilates sessions were performed and the evaluation was performed through the Fibromyalgia Impact Questionnaire (FIQ), verification of tender points; Quality of Life Questionnaire (SF-36) and the Third Finger-Floor Test. As a result, it was possible to notice that the method was beneficial in daily life, because there was an improvement in symptoms, pain intensity and the number of tender points, positive results were also obtained for the Third Finger-Ground Test. Finally, functional capacity and quality of life were evaluated using the Fibromyalgia Impact Questionnaire (FIQ). The results of the study showed that the Pilates Method provides positive effects on flexibility, pain, quality of life, and physical conditioning. In the physical examination, the Fischer Pressure Algometer and the Visual Analog Scale (VAS) were used to classify the pain threshold. Then, the flexibility index was evaluated by flexitest and by the distance of the 3^o finger-ground. Therefore, these authors suggest that measures be taken to mitigate these effects of fibromyalgia syndrome, since such effects have been reducing ambulation mobility, alerting to the fact that, perhaps, the practice of physical exercises is a principle for changing this behavior (Cury, 2016).

CONCLUSION

In short, from this study, it is possible to realize that the treatment of fibromyalgia through the Pilates method brings multiple benefits in the symptomatology of patients. Thus, Pilates acts by minimizing pain, improving flexibility, fitness, and quality of life. The individual is assisted globally through low-impact exercises, within body limits. Thus, its methodology has guaranteed an increasing number of accessions. In this line of reasoning, this work becomes extremely relevant to our growth as academics, since, through it, there was the opportunity to delve into the theme in question and on all the steps to develop quality scientific research. Therefore, it is a great opportunity during graduation since new knowledge is gained and can be used throughout the professional future, in addition to making room for new research to be carried out.

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