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REVIEW ARTICLE

Pain evaluation in patients with fibromyalgia: integrative review

Avaliação de dor em pacientes com fibromialgia: revisão integrativa

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ABSTRACT

Introduction: Fibromyalgia is a difficult disease to control, which impacts on the social and professional life of individuals, incapacitating them from carrying out activities of daily living and which leads to pain. **Objective:** To identify instruments in the literature to assess pain in patients with fibromyalgia. **Methods:** Integrative review study carried out on the VHL portal, in the PubMed, Embase and Cinahl databases. The following inclusion criteria were used: articles published between 2014 to 2019, in Portuguese, English, and Spanish. **Results:** The sample consisted of 30 studies developed in several countries. Fibromyalgia has been described as a chronic pathology, difficult to control, spread throughout the world. Categorization and quantitative of articles: level of evidence I: 1, level of evidence II: 14 (46.66%) and level of evidence III: 15 (50%). Nonrandomized clinical trial: 13 (43.33%), randomized clinical trial: 12 (40%), clinical trial with control group: 3 (10%), meta-analysis: 1 (3.33%) and intervention study, quasi-experimental: 1 (3.33%). **Discussion:** The use of more than 20 methods for pain assessment was observed, with the majority of studies combining instruments for this. **Conclusions:** Pain assessment is essential to promote effective care for people with fibromyalgia. Health professionals, at all levels of care, must be trained to use instruments that facilitate the understanding and assessment of pain by the health network user, promoting comprehensive and humanized care.

Keywords: Fibromyalgia; Pain; Chronic pain; Pain measurement.

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RESUMO

Introdução: A fibromialgia é doença de difícil controle, que gera impactos na vida social e profissional dos indivíduos, incapacitando-os de realizar atividades de vida diária e que cursa com dor. **Objetivo:** Identificar na literatura instrumentos para avaliação de dor em pacientes com fibromialgia. **Métodos:** Estudo de revisão integrativa realizado no portal BVS, nas bases de dados PubMed, Embase e Cinahl. Foram utilizados os seguintes critérios de inclusão: artigos publicados entre 2014 a 2019, nos idiomas português, inglês e espanhol. **Resultados:** A amostra foi composta por 30 estudos desenvolvidos em diversos países. A fibromialgia foi descrita como uma patologia crônica, de difícil controle, disseminada em todo o mundo. Categorização e quantitativos dos artigos: nível de evidência I: 1, nível de evidência II: 14 (46,66%) e nível de evidência III: 15 (50%). Ensaio clínico não randomizado: 13 (43,33%), ensaio clínico randomizado: 12 (40%), ensaio clínico com grupo controle: 3 (10%), metanálise: 1 (3,33%) e estudo de intervenção, quase experimental: 1 (3,33%). **Discussão:** Foi observado o uso de mais de 20 métodos para avaliação de dor, sendo que a maioria dos estudos combinou instrumentos para tal. **Conclusões:** A avaliação da dor é fundamental para a promoção de uma assistência efetiva às pessoas com fibromialgia. Os profissionais de saúde, em todos os níveis de atenção, devem estar capacitados para utilizar instrumentos que facilitem a compreensão e avaliação da dor do usuário da rede de saúde, promovendo uma atenção integral e humanizada.

Palavras-chave: Fibromialgia; Dor; Dor crônica; Medição da dor.

Introduction

Unpleasant physical and emotional experience related to injury and pain is experienced in a peculiar manner for each individual, according to its own life's history[1]. It's a source of human suffering, which may cause inabilities, creating social and economic damage to the individual, family and society[2].

Acute pain is the fifth vital sign, according to the American Pain Society, and, as such, should be evaluated along with the rest of the vital parameters. It's a defense mechanism that warns the individual about a danger[3]. Differently, chronic pain does not have the protection feature, it's slow and badly delimited, created by persistent chemical and/or mechanical and thermal stimuli. Furthermore, chronic pain is a disease, which can be associated with other chronic pathologies, such as fibromyalgia[4,5].

Fibromyalgia is of idiopathic cause and has a negative impact on the quality of life. It manifests as generalized fatigue, non-restorative sleep, memory impairment, morning joint stiffness, dyspnea, anxiety, depression, among others[6,7]. It is, above all, a chronic pathology that compromises the musculoskeletal system in a generalized way, which manifests itself mainly in women aged between 35 and 44 years old. It is verified that approximately five million people, 2.5% of the Brazilian population, have fibromyalgia[6,7].

In 1990, seeking to facilitate the medical diagnosis, the American College of Rheumatology described 18 specific pain points, the "Tender points", for the diagnosis of fibromyalgia. Such points are bilaterally located in the occipital region, trapezius muscle, supraspinatus muscle, gluteus muscle, greater trochanter, lower cervical, second rib, lateral epicondyles and knees[6].

A positive diagnosis of fibromyalgia is made when pain is present with palpation in at least 11 of the 18 specific points. In addition, the pain condition must be present for more than three months, on one side or the other of the body, above and below the waist[6].

In 2010, the American College of Rheumatology started to consider as preliminary diagnostic criteria for fibromyalgia parameters other than the number of painful regions of the body, such as fatigue, non-restorative sleep, cognitive difficulty and other somatic symptoms, mainly anxiety, depression and chronic pain. It is worth noting that the use of the criteria established in 1990 associated with those of 2010 increases the diagnostic accuracy[6].

The treatment of fibromyalgia must be interdisciplinary, addressing the physical, emotional and social aspects that make up the pain. In this context, it is emphasized that nurses have an essential role in an interdisciplinary team, in pain control. It is up to the nurse to carry out an evaluation, prepare nursing diagnoses, implement therapeutic measures, as well as evaluate the results of the implemented treatment. Therefore, it is essential that the nursing team, at all levels of health care, have access to tools that facilitate the understanding and assessment of the pain of the user of the healthcare system[2,7].

It is known that most professionals present in the nursing team have difficulty in evaluating pain, whether chronic or acute. This deficit is often due to a lack of knowledge about the assessment tools, leading to a low adherence of the team to this care practice[8]. In the daily routine of Nursing, it is possible to observe, among the professionals, a difficulty in measuring pain and difficulty in interpreting the various scales, which are often not standardized in the institution. Thus, with this problem stated, the execution of the present study is justified in order to identify adequate chronic pain assessment tools.

Considering the gap in knowledge about methods and tools for pain diagnosis, especially in fibromyalgia, which is a complex pathology, an integrative literature review is necessary, seeking methods for evaluating patients with pain due to fibromyalgia. In this sense, the objective of this study was to identify in the literature the tools used to assess chronic pain in patients with fibromyalgia.

Methods

The integrative literature review (ILR) is an evidence-based research method developed in medicine that allows a more comprehensive search, including experimental and non-experimental studies, leading to a broader and more detailed analysis of the subject addressed[9].

In order to standardize the quality of scientific studies, they can be divided according to the level of scientific evidence. Research can be classified into: level 1 - meta-analysis studies of multiple controlled studies; level 2 - evidence from individual studies with a randomized experimental design; level 3 - evidence from quasi-experimental studies; level 4 - evidence of descriptive, non-experimental studies, or with a qualitative approach; level 5 - case/experience reports and level 6 - expert opinions[10].

For the elaboration of this study, the following six steps were followed: 1. identification of the theme and selection of the hypothesis or research question for the elaboration of the integrative review; 2. establishment of a criteria for the inclusion and exclusion of studies/sampling or literature search; 3. definition of the information to be extracted from the selected studies; 4. evaluation of the studies included in the integrative review; 5. interpretation of results; and 6. presentation of the review/synthesis of knowledge[11].

In the first stage of the ILR, a guiding question was created from the aforementioned strategy in order to answer the following guiding question: "What tools have been used to assess pain in patients with fibromyalgia?". This method is viable when an analysis and summary of the results obtained in the literature is desired, on the subject in question, in a systematic and comprehensive manner[12].

Data was extracted between July and November of 2019. A bibliographic search criteria was developed on the PubMed, Embase and Cinahl databases, from the intersection of the health sciences descriptors: Fibromyalgia, Pain, Chronic Pain and Pain Measurement. The bibliographic search resulted in 789 articles, in which inclusion and exclusion criteria were applied. The inclusion criteria established were: articles published in the years between 2014 and 2019, in Portuguese, English and Spanish. The exclusion criteria encompassed: qualitative and descriptive studies, case reports, literature review, duplicate studies, studies on animals, children under 18 years of age and those whose theme did not fit the guiding question. In order to facilitate the understanding of the article selection process, we prepared the following flowchart (Figure 1):

A chart was created in order to facilitate the visualization and interpretation of the information analyzed. The table consisted of the following information: study title, database used, results that answered the guiding question, year of publication, country of origin, study objective, methodology and level of scientific evidence.

Results

The present study obtained as a result 30 articles that addressed the guiding question. Of the studies that composed the sample, 6 articles (20%) from Brazil, 6 articles (20%) from Turkey, 6 articles (20%) from the USA, 5 articles (16.66%) from Spain, 1 article (3.33 %) from Belgium, 1 article (3.33%) from Egypt, 1 article (3.33%) from France, 1 article (3.33%) from Finland, 1 article (3.33%) from Japan, 1 article (3.33%) from Portugal, and 1 article (3.33%) from Spain-Argentina-Peru (Chart 1). In view of this, it is inferred that it is a pathology that manifests worldwide, reinforcing the importance of this study for greater effectiveness in the evaluation of affected individuals.

It was observed that 1 article (3.33%) was categorized as evidence level I, 14 articles (46.66%) as evidence level II and 15 articles (50%) as evidence level III, which indicates the quality of the sample. In addition, 13 articles of the non-randomized clinical trial type (43.33%), 12 articles of the randomized clinical trial type (40%), 3 articles of the clinical trial type with a control group (10%), 1 article of the meta-analysis type of randomized studies (3.33%) and 1 article of the intervention study type, quasi-experimental (Chart 2).

Discussion

Chronic pain, unlike acute pain, is not a protective factor for the body, resulting in physical and mental damage. It can be said that an individual's pain is chronic when it lasts for more than six months or is associated with chronic pathological processes[43]. From this perspective, fibromyalgia is a pathology that aligns with chronic pain, with great potential for interfering in the daily life activities of those affected. In addition to pain, patients with fibromyalgia often experience fatigue, insomnia, anxiety disorders, depression, among other symptoms, with a great impact on activities of daily living[44]. Therefore, it is necessary for professionals to be trained to assess pain systematically, through anamnesis and complete physical examination, using validated tools (A1, A3, A4, A5, A8, A11, A14, A18, A21, A24).

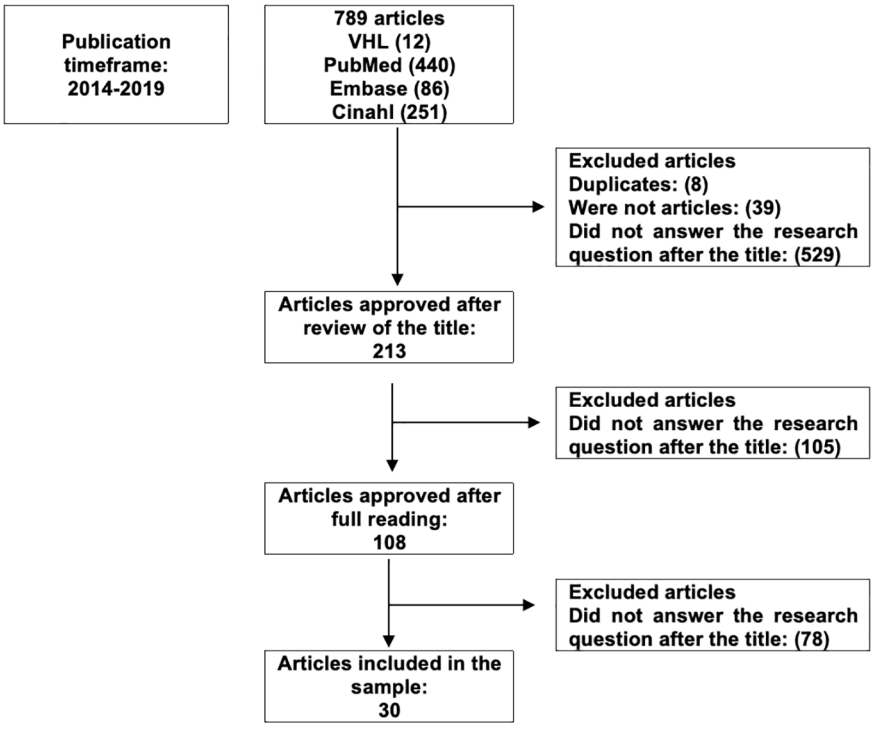

Figure 1. Sample selection flowchart.
Source: Research data.

Chart 1. Data collection summary.

Article	Title	Authors	Year/Country
A1	Stimulation magnétique transcrânienne à large champet fibromyalgie, étude de preuve de concept: essai clinique ouvertréalisé chez 21 patients.	Menet et al.[13]	2017 France
A2	Clinical utility of the cold pressor test: evaluation of pain patients, treatment of opioid-induced hyperalgesia and fibromyalgia with low dose naltrexone.	Oaks et al.[14]	2018 USA
A3	Effects of physical-agent pain relief modalities for fibromyalgia patients: a systematic review and meta-analysis of randomized controlled trials.	Honda et al.[15]	2018 Japan
A4	Physical activity is related to function and fatigue but not pain in women with fibromyalgia: baseline analyses from the Fibromyalgia Activity Study with TENS (FAST).	Merriwether et al.[16]	2018 USA
A5	*A dança de zumba pode melhorar a dor e a capacidade funcional em mulheres com fibromialgia.*	Assunção Júnior et al.[17]	2018 Brazil
A6	Pulsed electromagnetic field therapy in the treatment of pain and other symptoms in fibromyalgia: a randomized controlled study.	Multanen et al.[18]	2018 Finland
A7	*Massagem terapêutica no ritmo circadiano do cortisol, intensidade da dor, índice de estresse percebido e qualidade de vida de pacientes com síndrome da fibromialgia.*	Oliveira et al.[19]	2018 Brazil
A8	Effects of acupuncture treatment on fibromyalgia symptoms, serotonin, and substance p levels: a randomized sham and placebo-controlled clinical trial.	Karatay et al.[20]	2018 Turkey
A9	*Estudo randomizado, cego e controlado sobre a eficácia da terapia de fotobiomodulação e treinamento físico no tratamento da fibromialgia.*	Silva et al.[21]	2018 Brazil
A10	Effects of whole-body vibration therapy in pain, function and depression of the patients with fibromyalgia.	Alev et al.[22]	2017 Turkey

A11	Effects of transcranial direct current stimulation on pain, mood and serum endorphin level in the treatment of fibromyalgia: a double blinded, randomized clinical trial.	Khedr et al.[23]	2017 Egypt
A12	The effects of local cold application on fibromyalgia pain.	Yilmaz et al.[24]	2017 Turkey
A13	Evoked pressure pain sensitivity is associated with differential analgesic response to verum and sham acupuncture in fibromyalgia.	Zucker et al.[25]	2017 USA
A14	Pain extent is associated with pain intensity but not with widespread pressure or thermal pain sensitivity in women with fibromyalgia syndrome.	Barbero et al.[26]	2017 Spain
A15	Performance of Fibromyalgia Rapid Screening Tool (FiRST) to detect fibromyalgia syndrome in rheumatic diseases.	Fan et al.[27]	2016 USA
A16	Rule based fuzzy logic approach for classification of fibromyalgia syndrome.	Arslan et al.[28]	2016 Turkey
A17	The effects of long- and short-term interdisciplinary treatment approaches in women with fibromyalgia: a randomized controlled trial.	Saral et al.[29]	2016 Turkey
A18	The Discriminatory Ability of the Fibromyalgia Rapid Screening Tool (FiRST): an international study in Spain and Four Latin American Countries.	Collado et al.[30]	2016 Spain, Argentina and Peru.
A19	The association of total and central body fat with pain, fatigue and the impact of fibromyalgia in women; role of physical fitness.	Segura-Jiménez et al.[31]	2016 Spain
A20	Effects of music on pain in patients with fibromyalgia.	Alparslan et al.[32]	2016 Turkey
A21	Relationships between widespread pain and thresholds pain tolerance on tender points in Portuguese women with fibromyalgia: impact on daily life.	Tomas-Carus et al.[33]	2015 Portugal
A22	*Acupuntura na fibromialgia: um estudo randomizado e controlado abordando a resposta imediata à dor.*	Stival et al.[34]	2014 Brazil
A23	OMERACT-based fibromyalgia symptom subgroups: an exploratory cluster analysis.	Vincent et al.[35]	2014 USA
A24	Pain characteristics in fibromyalgia: understanding the multiple dimensions of pain.	Plazier et al.[36]	2015 Belgium
A25	Validation of the modified 2010 American College of Rheumatology diagnostic criteria for fibromyalgia in a Spanish population.	Segura-Jiménez et al.[37]	2014 Spain
A26	*Terapia a laser de baixo nível para tratar a fibromialgia.*	Ruaro et al.[38]	2014 Brazil
A27	Responses to slowly repeated evoked pain stimuli in fibromyalgia patients: evidence of enhanced pain sensitization.	Coba et al.[39]	2017 Spain
A28	Preliminary validation of the Michigan Body Map.	Brummett et al.[40]	2016 USA
A29	*Efeitos do Watsu na qualidade de vida e quadro doloroso de idosas com fibromialgia.*	Antunes et al.[41]	2016 Brazil
A30	Validity and reliability of the Spanish version of the 10-item CD-RISC in patients with fibromyalgia.	Notario-Pacheco et al.[42]	2014 Spain

Source: Research data.

Chart 2. Data collection summary.

Article	Objective	Method	Results	Level of evidence	Validity - % of agreement
A1	To evaluate the effect of repetitive transcranial magnetic stimulation in reducing fibromyalgia symptoms.	Nonrandomized clinical trial	Fibromyalgia Impact Questionnaire (FIQ), numerical rating scale, Fibromyalgia Rapid Screening Tool (FIRST), Holy Questionnaire – Antoine (QDSA), widespread pain index, symptom severity scale (WPI SSS).	III	FIQ - 85%; numerical rating scale - 88%; FIRST - 85,1%; QDSA - 80%; WPI SSS - 78%.
A2	To evaluate the effect of the cold pressor test on the reduction of fibromyalgia symptoms.	Controlled clinical trial	Faces pain scale and physical examination in search of painful points.	II	Faces pain scale - 88%; Physical examination in search of painful points – Not found in the literature.
A3	To evaluate the effect of pain relief modalities with a physical agent on fibromyalgia symptoms.	Meta-analysis of randomized trials	Fibromyalgia Impact Questionnaire (FIQ), visual analogue scale and score for quality of life (QOL).	I	FIQ - 85%; Visual analogue scale - 88%; QOL – Not found in the literature.
A4	To evaluate the effect of physical activity on fibromyalgia symptoms.	Nonrandomized clinical trial	Verbal rating scale, Brief Pain Inventory (BPI) and pressure algometer.	III	Verbal rating scale – 88%; BPI – Not found in the literature; Pressure algometer - Not found in the literature.
A5	To evaluate the effect of Zumba dancing in the improvement of fibromyalgia pain.	Nonrandomized clinical trial	Visual analogue scale and 36-Item Short Form Health Survey (SF-36).	III	Visual analogue scale - 88%; - SF-36 - Not found in the literature.
A6	To evaluate the effect of pulsed electromagnetic field therapy on fibromyalgia symptoms.	Randomized clinical trial	Fibromyalgia Impact Questionnaire (FIQ) and Visual analogue scale (VAS).	II	FIQ - 85%; Visual analogue scale - 88%.
A7	To evaluate the effect of therapeutic massage on fibromyalgic endings.	Nonrandomized clinical trial	McGill questionnaire.	III	McGill questionnaire – 80%.
A8	To evaluate the effect of acupuncture on fibromyalgia symptoms.	Randomized controlled clinical trial	Fibromyalgia Impact Questionnaire (FIQ) and Visual analogue scale (VAS).	II	FIQ - 85%; Visual analogue scale - 88%.
A9	To evaluate the effect of photobiomodulation and physical training on fibromyalgia symptoms.	Randomized controlled clinical trial	Visual analogue scale (VAS) and Instrutherm DD-200® algometer.	II	Visual analogue scale - 88%; Instrutherm DD-200® algometer - Not found in the literature.
A10	To assess the effects of whole body vibration on fibromyalgia symptoms.	Randomized clinical trial	Fibromyalgia Impact Questionnaire (FIQ), Visual analogue scale (VAS) and Beck Depression Inventory (BDI).	II	FIQ - 85%; Visual analogue scale - 88%; BDI – Not found in the literature.

A11	To evaluate the effects of transcranial direct current stimulation on pain relief.	Randomized clinical trial	Visual analogue scale (VAS) and scales for detection of pain threshold.	III	Visual analogue scale - 88%; Scales for detection of pain threshold - Not found in the literature.
A12	To evaluate the effects of local application (trapezius muscle) of cold on pain.	Nonrandomized clinical trial	Visual analogue scale (VAS).	III	Visual analogue scale (VAS) - 88%.
A13	To assess whether pressure pain would modify the response in the treatment of fibromyalgia symptoms.	Randomized clinical trial	Visual analogue scale (VAS).	II	Visual analogue scale (VAS) - 88%.
A14	Assess whether the extent of pain is associated with the measurement of quantitative sensory tests.	Nonrandomized clinical trial	Numeric Pain Rating Scale (NPRS). In addition, patients received images of the human body in order to shade, in pencil, the painful parts. In this case, tracing strength was used to measure pain intensity.	III	NPRS - Not found in the literature.
A15	To evaluate the effectiveness of the FIRST questionnaire for detecting fibromyalgia associated with inflammatory rheumatic diseases.	Nonrandomized clinical trial	Fibromyalgia Rapid Screening Tool (FIRST).	III	FIRST - 85,1%.
A16	To evaluate the effectiveness of the fuzzy logic method to verify fibromyalgia symptoms.	Controlled clinical trial	Fibromyalgia Impact Questionnaire (FIQ), Visual analogue scale (VAS), American College of Rheumatology tender point count, and verbal pain scale (VPS).	II	FIQ - 85%; Visual analogue scale - 88%; Tender point count - 78%; VPS - Not found in the literature.
A17	To assess the effects of multidisciplinary treatment approaches on fibromyalgia symptoms.	Randomized clinical trial	Visual analogue scale (VAS) and American College of Rheumatology tender point count.	II	Visual analogue scale - 88%; Tender point count - 78%.
A18	To assess the cross-cultural equivalence of the Spanish version of the Fibromyalgia Rapid Screening Tool (FiRST) and its discriminatory capacity in different Latin American samples.	Nonrandomized clinical trial	Visual analogue scale (VAS) and Pain Catastrophizing Scale (PCS), a self-administered questionnaire.	III	Visual analogue scale - 88%; PCS - Not found in the literature.
A19	To assess the individual and combined association of body fat in fibromyalgia symptoms and the role of physical fitness in controlling them.	Nonrandomized clinical trial	Revised Fibromyalgia Impact Questionnaire (FIQR), Visual analogue scale (VAS) and American College of Rheumatology tender point count.	III	FIQR - Not found in the literature; Visual analogue scale - 88%; Tender point count - 78%.
A20	To evaluate the effects of music on fibromyalgic pain.	Randomized clinical trial	Visual analogue scale (VAS).	II	Visual analogue scale - 88%.

A21	To evaluate the relationship between generalized pain and pain tolerance thresholds in women with fibromyalgia.	Nonrandomized clinical trial	Fibromyalgia Impact Questionnaire (FIQ), pressure algometer and American College of Rheumatology tender point count.	III	FIQ - 85%; Pressure algometer - Not found in the literature; Tender point count - 78%.
A22	To evaluate the effectiveness of acupuncture on symptoms of fibromyalgia.	Randomized clinical trial	Visual analogue scale (VAS).	II	Visual analogue scale - 88%.
A23	Identify subsets of fibromyalgia patients with similar symptom profiles using the main symptom domains, outcome measurement in rheumatology (OMERACT).	Nonrandomized clinical trial	Brief pain inventory (BPI).	III	BPI – Not found in the literature.
A24	To assess the characteristics of fibromyalgia pain.	Nonrandomized clinical trial	Fibromyalgia Impact Questionnaire (FIQ) and Visual analogue scale (VAS).	III	FIQ - 85%; Visual analogue scale - 88%.
A25	Validate the modified ACR 2010 preliminary criteria for FM in a Spanish population	Controlled clinical trial	Fibromyalgia Impact Questionnaire (FIQ), pressure algometer and American College of Rheumatology tender point count.	II	FIQ - 85%; Pressure algometer - Not found in the literature; Tender point count - 78%.
A26	To evaluate the effects of low-level laser therapy on symptoms of fibromyalgia.	Randomized clinical trial	Fibromyalgia Impact Questionnaire (FIQ), Visual analogue scale (VAS) and McGill questionnaire.	II	FIQ - 85%; Visual analogue scale - 88%; McGill questionnaire - 80%.
A27	Evaluate laboratory protocol assessing responses to slowly repeated evoked pain stimuli (SREP) that can cause central sensitization to pain in fibromyalgia.	Randomized clinical trial	McGill questionnaire.	II	McGill questionnaire - 80%.
A28	Validate the Michigan body map.	Randomized clinical trial	Patients received images of the human body in order to shade, in pencil, the painful parts. In this case, tracing strength was used to measure pain intensity.	II	Not found in the literature.
A29	To analyze the effect of Watsu on quality of life and pain in elderly women with fibromyalgia.	Intervention study, quasi-experimental	Visual analogue scale (VAS).	III	Visual analogue scale - 88%
A30	To assess the validity and reliability of the Connor-Davidson Resilience (10-item CD-RISC) in a sample of Spanish patients with fibromyalgia.	Nonrandomized clinical tria	Fibromyalgia Impact Questionnaire (FIQ) and Visual analogue scale (VAS).	III	FIQ - 85%; Visual analogue scale - 88%.

Source: Research data.

It is worth mentioning that the assessment of chronic pain must be comprehensive, as it is necessary to consider several aspects: intensity, location, improvement factor, worsening factor, among others[45]. In the studies that made up the sample of this research, there was no systematic and broad assessment, since the analyzed studies used more than 20 different methods for pain assessment (A6, A8 - A11, A14, A16 - A19, A21, A23 - A26, A30), while some implemented only one tool (A7, A12, A13, A15, A20, A22, A23, A27 - A29) and others combined several assessment tools (A1 - A6, A8 - A11, A14 , A16 - A19, A21, A24 - A26, A30).

Until the 1960s, pain was considered a phenomenon directly related to the extent of tissue injury, and unidimensional tools to measure pain intensity predominated. In the sample, the use of unidimensional tools was frequent, which considered only one dimension of pain for evaluation (A1 - A6, A8 - A13, A16 - A20, A22, A24, A26, A29, A30). In this sample, most tools measured pain intensity through the visual analogue scale, numerical rating scale, faces pain scale and verbal rating scale (A1 - A6, A8 - A14, A16 - A20, A22, A24, A26, A29, A30). These scales work with scores from 0 (no pain) to 10 (worst pain imaginable), except the faces pain scales that use facial expressions to represent pain intensity.

Another methodology present in the sample used tools that evaluated pain intensity and location, such as: widespread pain index, symptom severity scale (WPI SSS), physical examination in search of painful points, pressure algometer, scales for detection of pain threshold, American College of Rheumatology tender point count, verbal pain scale and imaging instruments (A1, A2, A4, A9, A11, A14, A16, A17, A19, A21, A25, A28).

As for the structure of such tools, they can be grouped into three subgroups. The first subgroup, composed of widespread pain index, symptom severity scale (WPI SSS), pain threshold detection scales and verbal pain scale (VPS) (A1, A11, A16). The second subgroup consisted of physical examination for painful points, pressure algometer and counting of tender points, according to the American College of Rheumatology (A2, A4, A9, A16, A17, A19, A21, A25). The third subgroup consisted of imaging instruments (A14, A28).

The first subgroup consisted of tools that measured pain intensity, from 0 (no pain) to 10 (worst pain imaginable), as well as assessing the location of pain in the individual's body. In these tools, the patient first marked his/her pain score on the intensity graph, after which s/he located the pain. Regarding location, the widespread pain index, symptom severity scale (WPI SSS) and pain threshold detection scales, did not work with body image, only recording the part of the body where the pain is located. The verbal pain scale (VPS) brings the image of the spine, where the patient can mark with the number of pain intensity, the place where it hurts (A1, A11, A16).

The second subgroup has in common the physical examination of the patient. All tools required the professional to perform palpation in search of pain in the patient, what differentiated them was the reference used for the physical examination. According to the American College of Rheumatology, the professional applies pressure of 4 to 5 kg of weight/cm² with the index finger at the place where the patient feels the pain. In order for the exam result to be successful, the examiner's training is necessary (A2, A16, A17, A19). The pressure algometer is a device that allows controlling the pressure exerted, which should be 3 to 4 kg/cm² in the physical examination, under the sensitive site (A4, A9, A21, A25).

The third subgroup, composed of imaging instruments, presented an illustration of the human body, posterior and anterior. The patient used a pencil and shaded the place where it hurt. In this way, the professional aimed to identify the location of pain. Intensity was assessed by the strength of the shading: the lower the filling force, the lower the pain intensity; and the greater the filling force, the greater the pain intensity (A14, A28).

In the research sample, multidimensional tools were also presented (A1, A3 - A8, A10, A15, A16, A19, A21, A23 - A27, A30), which explored different aspects of pain such as intensity, location, interference in daily life. This group consisted of the Fibromyalgia Impact Questionnaire (FIQ), Fibromyalgia Rapid Screening Tool (FIRST), Holy Questionnaire – Antoine (QDSA), Brief Pain Inventory (BPI), 36-Item Short Form Health Survey and McGill questionnaire, all of which were validated.

Regarding the method of application, the tools described above were divided into two subgroups: the first consisting of the McGill questionnaire and the Holy Questionnaire - Antoine (QDSA) (A1, A7, A26, A27). The second consisted of the Fibromyalgia Impact Questionnaire (FIQ), Fibromyalgia Rapid Screening Tool (FIRST), Brief Pain Inventory (BPI) and 36-Item Short Form Health Survey (A1, A3 - A6, A8, A10, A15, A16, A19, A21, A23 - A26, A30).

The first subgroup consisted of two questionnaires, McGill and Holy Questionnaire - Antoine (QDSA), which is the validated translation of the McGill questionnaire in France. It is a questionnaire composed of 20 groups of words so that the patient can describe their painful experience. It contains 10 groups of words to describe the physical sensation, five groups of words to describe the affective aspect, one group to describe the cognitive/evaluative aspect of the painful experience and four groups that do not fit into the above groups, called miscellaneous.

In the end, the points obtained with the sum of the subgroup indexes result in the total pain index. An index was also evaluated for the sensory-discriminative, affective-motivational and cognitive-evaluative dimensions, which make up the painful experience. In this way, the professional is able to have a comprehensive view of that individual's pain experience, through the interpretation of the scores obtained, being able to plan their care according to the patient's report.

The second subgroup addressed the following aspects in its scales: pain intensity, location, self-declaration of general health status, ease and difficulty in performing

activities of daily living, interference of pain in interpersonal relationships and emotional state. Only the Fibromyalgia Impact Questionnaire (FIQ) addressed all these pillars focused solely on fibromyalgia. In this subgroup, only the Fibromyalgia Rapid Screening Tool (FIRST) is used for diagnostic purposes, being a quick and objective questionnaire to detect specific aspects of fibromyalgia, evaluating descriptions related to fibromyalgia, such as reports of pain in the whole body or pain accompanied by continuous general fatigue. If five or more sentences in this questionnaire are compatible with the patient's clinical condition, the indication was fibromyalgia.

Another tool present in the sample (A18) is the Pain Catastrophizing Scale (PCS), a self-administered questionnaire that shows the patient's thoughts about their pain experience. This tool brings statements related, for example, to constant concern about the duration of pain, with scores ranging from 0 (not at all) to 4 (all the time), representing the frequency with which these thoughts are produced. In the end, the scores for each item are added together to verify the level of pain catastrophizing for that patient. In this way, the professional will be able to plan interventions that consider the individual's relationship with pain, that is, the impact of pain on the individual's quality of life.

It is also observed, in the studies that composed the sample, the use of two questionnaires, the score for quality of life (QOL) and "Beck Depression Inventory (BDI)", to assess quality of life and level of depression (A3, A10), concomitantly with tools that assess pain. Although these questionnaires do not address pain, they allow professionals to assess other aspects of fibromyalgia with a direct impact on the patient's painful experience, as well as allow professionals to plan integrated interventions in partnership with other health professionals, for example, with psychologists and/or psychiatrists.

The quality of life (QOL) score allows evaluating the activities that the patient can develop in their daily lives, their well-being and emotional health. The Beck Depression Inventory (BDI) addresses how the person feels, the content of thought, interest in interpersonal relationships and others. The individuals answer 21 questions that can be scored (0 to 3). In the end, these scores were added and interpreted. The patient who scored from 10 to 18 had evidence of mild depression, 19 to 29 had evidence of moderate depression and 30 to 63 had evidence of severe depression.

The sample quality of this study is highlighted, since all the studies that make up the sample have a level of evidence from I to III, that is, the quality of the research does not interfere with the choice of pain assessment methods. It is worth noting that the instruments used in the sample had a validity index above 70%, considered high. The articles did not address the justification for choosing the evaluation methodology, nor did they discuss the impacts of using the chosen tools.

Adequate pain assessment makes possible an effective clinical management, which, if not performed, could cause damage to the individual's life[46]. Qualified listening to the patient's pain experience is considered the gold standard in pain assessment. The ideal is to explore intensity, location, improvement factor, worsening factor, the impacts that pain causes on the individual, considering the interference in activities of daily living, ideally associating assessment tools, in addition to rigor in the anamnesis and physical examination[47].

In this sense, the evaluation is complex for professionals, as pain assessment is subjective, based on the unique and individual experiences of each human being. Each person, when reporting their experience, does so based on their experiences and contexts[2].

It is worth mentioning the need for a multidisciplinary and comprehensive monitoring, considering the particularities of each human being affected by fibromyalgia. In addition, it is important that these patients are accompanied by an interdisciplinary team composed of doctors and nurses. Nursing brings its own important wealth of knowledge for dealing with biological, social and mental aspects[48].

The professional nurse will have a broad approach, evaluating and intervening in various aspects such as sleep quality, leisure activities, hydration, non-pharmacological pain control; allowing a more detailed monitoring of the condition. Therefore, it is essential that these professionals are trained to assess pain in all its aspects, always looking for the best methods to do so[48,49].

The importance of this study is emphasized, since it brought a compilation of the pain assessment methods in patients with fibromyalgia, with details of the evaluation points of those tools, contributing to the improvement of pain assessment.

Conclusion

Fibromyalgia is a disease that is difficult to control, which impacts the social and professional life of individuals, disabling them to perform activities of daily living and that leads to chronic pain. In order to assist with quality thepatients affected by this pathology, in a comprehensive and human way, it is essential that the professional knows how to evaluate the painful experience of these individuals, since the systematic evaluation of pain allows nurses to plan their assistance and monitor the results of the treatment.

It is noteworthy that there are several methodologies for pain assessment, which consider aspects such as intensity, location, worsening factor, improvement factor, interference of pain in activities of daily living and others. It is up to the professional to know how to use these tools properly, taking into account the subjectivity of each individual's painful experience, shaped by the unique experiences of each patient.

As a limitation of this study, it is highlighted that none of the studies that compose the results justified the pain assessment methodologies, as well as did not show the benefits or harms when using the methods.

Finally, it is evident that educational institutions in the health area should invest in training students to assess pain,

since there are professionals who have difficulties in carrying out this care practice. Thus, it is important to emphasize that health professionals, at all levels of care, must be able to use tools that facilitate the understanding and assessment of the pain of users of the Health Network, promoting comprehensive and humanized care.

It is added that the objective of this study was achieved considering the extensive literature review found in the national and international scenario. Thus, it should be a reason for discussion among health professionals for strategic actions in favor of controlling the pain condition. It is hoped that this work can contribute as a source of research for health professionals and nursing academics. For the researchers, it was a way of improving their knowledge on the subject, thus being better prepared to deal with patients with clinical pain, especially fibromyalgia. The purpose of the article was to discuss pain assessment tools used in research on fibromyalgia, so it was not intended to choose the best assessment strategy, as it is not a primary study.

Authors Contribution

Conceptualization, Research, Methodology, Visualization & Writing – Analysis and Editing: Author Célia Maria de Oliveira; Project Management, Research, Methodology, Visualization & Writing – Original Draft: Author Helena Pereira de Souza; Research, Methodology, Visualization & Writing: Author Kely Cristine Aparecida Fonseca Lana; Visualization & Writing Analysis: Author Selme Silqueira de Matos; Visualization & Writing Analysis: Daniela Mascarenhas de Paula Campos; Visualization & Writing Analysis and Editing: Author Amanda Damasceno de Souza.

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References

1. Miranda CCV, Seda Junior LF, Pelloso LRCA. Nova classificação fisiológica das dores: o atual conceito de dor neuropática. Rev Dor. 2016;17(Suppl 1):S2-S4.
2. Queiróz DTG, Carvalho MA, Carvalho GDA, Santos SR, Moreira AS, Silveira MFA. Pain – 5th vital sign: nurses' knowledge. J Nurs UFPE On-line. 2015 Apr;9(4):7186-92.
3. Valério AF, Fernandes KS, Miranda G, Terra FS. Difficulties faced by nurses to use pain as the fifth vital sign and the mechanisms/actions adopted: an integrative review. BrJP. 2019 Jan/Mar;2(1):67-71.
4. Barreto IG, Sa KN. Prevalência e fatores associados à dor neuropática crônica em trabalhadores de uma universidade pública brasileira. BrJP. 2019 Apr/Jun;2(2):105-11.
5. Souza I, Vasconcelos AGG, Caumo WBAF. Perfil de resiliência em pacientes com dor crônica. Cad Saúde Pública. 2017;33(1):e00146915.
6. Heymann RE, Paiva ES, Martinez JE, Helfenstein Junior M, Rezende MC, Provenza JR, et al. Novas diretrizes para o diagnóstico da fibromialgia. Rev Bras Reumatol. 2017;57(Suppl 2):S467-S76.
7. Besset VL, Gaspard JL, Doucet C, Veras M, Cohen RHP. Um nome para dor: fibromialgia. Rev Mal-Estar Subj. 2010 Dec;10(4):1245-70.
8. Santos AF, Machado RR, Ribeiro CJN, Mendes Neto JM, Ribeiro MCO, Menezes MGV. Nursing students' knowledge about pain assessment. BrJP. 2018 Oct/Dec;1(4):325-30.
9. Souza MT, Silva MD, Carvalho R. Revisão integrativa: o que é e como fazer. Einstein (São Paulo). 2010;8(1):102-6.
10. Galvão CM. Níveis de evidência. Acta Paul Enferm. 2008;19(2):1-5.
11. Ganong LH. Integrative reviews of nursing research. Res Nurs Health. 1987 Feb;10(1):1-11.
12. Soares CB, Hoga LAK, Peduzzi M, Sangaleti C, Yonekura T, Silva DRAD. Revisão integrativa: conceitos e métodos utilizados na enfermagem. Rev Esc Enferm USP. 2014;48(2):335-45.
13. Menet A, Chastan N, Trouvin AP, Bourhis-Zaimi M, Deleens R, Pouplin S. Stimulation magnétique transcrânienne «à large champ» et fibromyalgie, étude de preuve de concept: essai clinique ouvert réalisé chez 21 patients. Douleurs. 2017 Sep;18(4):174-82.
14. Oaks Z, Stage A, Middleton B, Faraone S, Johnson B. Clinical utility of the cold pressor test: evaluation of pain patients, treatment of opioid-induced hyperalgesia and fibromyalgia with low dose naltrexone. Discov Med. 2018 Nov;26(144):197-206.
15. Honda Y, Sakamoto J, Hamaue Y, Kataoka H, Kondo Y, Sasabe R, et al. Effects of physical-agent pain relief modalities for fibromyalgia patients: a systematic review and meta-analysis of randomized controlled trials. Pain Res Manag. 2018;2018:2930632.
16. Merriwether EN, Frey-Law LA, Rakel BA, Zimmerman MB, Dailey DL, Vance CGT, et al. Physical activity is related to function and fatigue but not pain in women with fibromyalgia: baseline analyses from the Fibromyalgia Activity Study with TENS (FAST). Arthritis Res Ther. 2018;20(1):199.
17. Assunção Júnior JC, Silva HJA, Silva JFC, Cruz RS, Lins CAA, Souza MC. Zumba dancing can improve the pain and functional capacity in women with fibromyalgia. J Bodyw Mov Ther. 2018 Apr;22(2):455-9.
18. Multanen J, Häkkinen A, Heikkinen P, Kautiainen H, Mustalampi S, Ylinen J. Pulsed electromagnetic field therapy in the treatment of pain and other symptoms in fibromyalgia: a randomized controlled study. Bioelectromagnetics. 2018 Jul;39(5):405-13.
19. Oliveira FR, Gonçalves LCV, Borghi F, Silva LGRV, Gomes AE, Trevisan G, et al. Massage therapy in cortisol circadian rhythm, pain intensity, perceived stress index and quality of life of fibromyalgia syndrome patients. Complement Ther Clin Pract. 2018;30:85-90.

20. Karatay S, Okur SC, Uzkeser H, Yildirim K, Akcay F. Effects of acupuncture treatment on fibromyalgia symptoms, serotonin, and substance p levels: a randomized sham and placebo-controlled clinical trial. Pain Med. 2018 Mar;19(3):615-28.

21. Silva MM, Albertini R, Camillo T, Carvalho P, Leal-Junior ECP, Bussadori SK, et al. Randomized, blinded, controlled trial on effectiveness of photobiomodulation therapy and exercise training in the fibromyalgia treatment. Lasers Med Sci. 2018 Feb;33(2):343-51.

22. Alev A, Mihriban A, Bilge E, Ayça E, Merve K, Şeyma C, et al. Effects of whole body vibration therapy in pain, function and depression of the patients with fibromyalgia. Complement Ther Clin Pract. 2017;28:200-3.

23. Khedr EM, Omran EAH, Ismail NM, El-Hammady DH, Goma SH, Kotb H, et al. Effects of transcranial direct current stimulation on pain, mood and serum endorphin level in the treatment of fibromyalgia: a double blinded, randomized clinical trial. Brain Stimul. 2017 Sep/Oct;10(5):893-901.

24. Yilmaz N, Kiyak E. The effects of local cold application on fibromyalgia pain. Int J Rheum Dis. 2017 Aug;20(8):929-34.

25. Zucker NA, Tsodikov A, Mist SD, Cina S, Napadow V, Harris RE. Evoked pressure pain sensitivity is associated with differential analgesic response to verum and sham acupuncture in fibromyalgia. Pain Med. 2017;18(8):1582-92.

26. Barbero M, Fernández-de-Las-Peñas C, Palacios-Ceña M, Cescon C, Falla D. Pain extent is associated with pain intensity but not with widespread pressure or thermal pain sensitivity in women with fibromyalgia syndrome. Clin Rheumatol. 2017 Jun;36(6):1427-32.

27. Fan A, Tournadre A, Pereira B, Tatar Z, Couderc M, Malochet-Guinamand S, et al. Performance of Fibromyalgia Rapid Screening Tool (FiRST) to detect fibromyalgia syndrome in rheumatic diseases. Rheumatology (Oxford). 2016 Oct;55(10):1746-50.

28. Arslan E, Yildiz S, Albayrak Y, Koklukaya E. Rule based fuzzy logic approach for classification of fibromyalgia syndrome. Australas Phys Eng Sci Med. 2016 Jun;39(2):501-15.

29. Saral I, Sindel D, Esmaeilzadeh S, Sertel-Berk HO, Oral A. The effects of long- and short-term interdisciplinary treatment approaches in women with fibromyalgia: a randomized controlled trial. Rheumatol Int. 2016;36(10):1379-89.

30. Collado A, Torres X, Messina OD, Vidal LF, Clark P, Ríos C, Solé E, et al. The Discriminatory Ability of the Fibromyalgia Rapid Screening Tool (FiRST): an international study in Spain and four Latin American countries. Pain Med. 2016 May;17(5):931-9.

31. Segura-Jiménez V, Castro-Piñero J, Soriano-Maldonado A, Álvarez-Gallardo IC, Estévez-López F, Delgado-Fernández M, et al. The association of total and central body fat with pain, fatigue and the impact of fibromyalgia in women; role of physical fitness. Eur J Pain. 2016 May;20(5):811-21.

32. Alparslan GB, Babadağ B, Özkaraman A, Yıldız P, Musmul A, Korkmaz C. Effects of music on pain in patients with fibromyalgia. Clin Rheumatol. 2016 May;35(5):1317-21.

33. Tomas-Carus P, Branco JC, Raimundo A, Garcia J, Sousa PM, Biehl-Printes C. Relação entre a dor generalizada e o limiar de tolerância à dor nos pontos sensíveis em mulheres portuguesas com fibromialgia: impacto sobre a vida diária. Acta Reumatol Port. 2015;40(3):254-61.

34. Saray MSR, Rechetello CP, Stasiak C, Galdino DT, Hoekstra BE, Schafranski BD. Acupuntura na fibromialgia: um estudo randomizado-controlado abordando a resposta imediata da dor. Rev Bras Reumatol. 2014 Nov/Dec;54(6):431-6.

35. Vincent A, Hoskin TL, Whipple MO, Clauw DJ, Barton DL, Benzo RP, et al. OMERACT-based fibromyalgia symptom subgroups: an exploratory cluster analysis. Arthritis Res Ther. 2014 Oct;16(5):463.

36. Plazier M, Ost J, Stassijns G, De Ridder D, Vanneste S. Pain characteristics in fibromyalgia: understanding the multiple dimensions of pain. Clin Rheumatol. 2015 Apr;34(4):775-83.

37. Segura-Jiménez V, Aparicio VA, Álvarez-Gallardo IC, Soriano-Maldonado A, Estévez-López F, Delgado-Fernández M, et al. Validation of the modified 2010 American College of Rheumatology diagnostic criteria for fibromyalgia in a Spanish population. Rheumatology (Oxford). 2014 Oct;53(10):1803-11.

38. Ruaro JA, Fréz AR, Ruaro MB, Nicolau RA. Low-level laser therapy to treat fibromyalgia. Lasers Med Sci. 2014 Nov;29(6):1815-9.

39. Coba P, Bruehl S, Moreno-Padilla M, Reyes Del Paso GA. Responses to slowly repeated evoked pain stimuli in fibromyalgia patients: evidence of enhanced pain sensitization. Pain Med. 2017 Sep;18(9):1778-86.

40. Brummett CM, Bakshi RR, Goesling J, Leung D, Moser SE, Zollars JW, et al. Preliminary validation of the Michigan Body Map. Pain. 2016 Jun;157(6):1205-12.

41. Antunes MD, Vertuan MP, Miquilin A, Leme DEC, Morales RC, Oliveira DV. Efeitos do Watsu na qualidade de vida e quadro doloroso de idosas com fibromialgia. ConScientiae Saúde. 2016;15(4):636-41.

42. Notario-Pacheco B, Martínez-Vizcaíno V, Trillo-Calvo E, Pérez-Yus MC, Serrano-Parra D, García-Campayo J. Validity and reliability of the Spanish version of the 10-item CD-RISC in patients with fibromyalgia. Health Qual Life Outcomes. 2014 Feb;12:14.

43. Dionísio GH, Salermo VY, Padilha A. Central sensitization and beliefs among patients with chronic pain in a primary health care unit. BrJP. 2020;3(1):42-7.

44. Oliveira JPR, Berardinelli LMM, Cavaliere MLA, Rosa RCA, Costa LP, Barbosa JSO. O cotidiano de mulheres com fibromialgia e o desafio interdisciplinar de empoderamento para o autocuidado. Rev Gaúcha Enferm. 2019;40:e20180411.

45. Mazo JPS, Estrada MG. Implicaciones deld olor crônico em la calidad de vida de mujeres con fibromialgia. Psicol Estud. 2018;23:e2308.

46. Araújo, LC, Romero B. Pain: evaluation of the fifth vital sign. A theoretical reflection. Rev Dor. 2015 Oct/Dec;16(4):291-6.

47. Nascimento LA, Cardoso MG, Oliveira SA, Quina E, Sardinha DSS. Manuseio da dor: avaliação das práticas utilizadas por profissionais assistenciais de hospital público secundário. Rev Dor. 2016;17(2):76-80.

48. Medrano JCR, Rojas JG. Fibromialgia ¿Qué deben saber y evaluar los profesionales de Enfermería? Invest Educ Enferm. 2011 Jul/Dec;29(2):305-14.

49. Cruz DALM, Pimenta CAM. Avaliação do doente com dor crônica em consulta de enfermagem: proposta de instrumento segundo diagnósticos de enfermagem. Rev Latino-Am Enfermagem. 1999 Jul;7(3):49-62.