Physiotherapists' perspectives on exercise prescription for fibromyalgia: a qualitative study

Visão de fisioterapeutas sobre a prescrição de exercícios na fibromialgia: estudo qualitativo

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Abstract

Introduction: Fibromyalgia (FM) is a debilitating chronic pain syndrome. Physical exercise is recommended for treatment; however, there is low adherence to exercise, alongside high levels of kinesiophobia and catastrophizing, as well as low self-efficacy, all of which facilitate sedentary behavior. **Objective:** To investigate physiotherapists' perspectives on exercise prescription and to understand factors related to adherence and progress in FM cases. **Methods:** This is a qualitative study involving content analysis of interviews, based on the Consolidated Criteria for Reporting Qualitative Research (COREQ) and Standards for Reporting Qualitative Research (SRQR). Interviews were conducted by a physiotherapist, involving the interviewer, the participant, and an observer. A pilot test, expert consultation, and field notes were utilized. Data analysis was performed using MAXQDA 2022 software, employing data triangulation to enhance reliability and credibility. **Results:** Twenty-seven physiotherapists with clinical experience in FM were evaluated. Factors related to the clinical presentation and professional competencies influence adherence to and progress in physical therapy treatment. Individualized care and biopsychosocial factors were highlighted. Barriers regarding exercise were associated with the patient's clinical condition. Prescriptions are typically gradual and include muscle strengthening, aerobic exercise, Pilates, and hydrotherapy. **Conclusion:** Physiotherapists' perspectives emphasize that the patient experience can be improved through physiotherapist skills, particularly active listening during treatment. Factors related to clinical condition influence patient adherence and progress during treatment. Both mixed exercise regimens and isolated modalities are prescribed during treatment.

Keywords: Fibromyalgia. Physiotherapists. Pain. Physical exercise.

Resumo

Introdução: *Fibromialgia (FM) é uma síndrome de dor crônica incapacitante. O exercício físico é recomendado para o tratamento, entretanto, há baixa adesão ao exercício e elevados níveis de cinesiofobia, catastrofização e baixa autoeficácia que facilitam o comportamento sedentário.* ***Objetivo:*** *Investigar a visão de fisioterapeutas sobre a prescrição do exercício, bem como compreender fatores relacionados à adesão e evolução na FM. Métodos: Trata-se de um estudo qualitativo por análise do conteúdo de entrevistas baseado no* Consolidated Criteria for Reporting Qualitative Research *(COREQ) e* Standards for Reporting Qualitative Research *(SRQR). As entrevistas foram conduzidas por uma fisioterapeuta, com a participação da entrevistadora, participante e observadora. Foram realizados o teste piloto, análise de consultoria e notas de campo. A análise dos dados foi realizada no software MAXQDA 2022, utilizando o método de triangulação dos dados para aumento de confiabilidade e credibilidade.* ***Resultados:*** *Foram avaliados 27 fisioterapeutas com experiência clínica na FM. Fatores relacionados ao quadro clínico e competências do profissional influenciam na adesão e evolução do tratamento fisioterapêutico. A individualidade do atendimento, além de fatores biopsicossociais foram descritos. Barreiras envolvendo o exercício foram associados ao quadro clínico do paciente. A prescrição comumente é feita de forma gradual e envolve exercícios de fortalecimento muscular, aeróbico, Pilates e hidroterapia.* ***Conclusão:*** *A visão de fisioterapeutas ressalta que a experiência do paciente pode ser melhorada mediante as habilidades dos fisioterapeutas, especialmente envolvendo a escuta ativa no tratamento. Fatores relacionados ao quadro clínico influenciam na adesão e evolução dos pacientes durante o tratamento. Exercícios mistos e modalidades isoladas são prescritos durante o tratamento.*

Palavras-chave: *Fibromialgia. Fisioterapeutas. Dor. Exercício físico.*

Introduction

Fibromyalgia (FM) is considered one of the most prevalent, costly, and disabling chronic pain conditions worldwide.[1] FM affects approximately 2% to 4% of the general population and is diagnosed more frequently in women than in men.[2] Pain is the hallmark symptom of FM and commonly coexists with a range of other symptoms, including fatigue, insomnia, cognitive dysfunction, and mental health disorders.[3]

The management of individuals with FM remains a challenge for healthcare professionals. To date, the most strongly recommended approach is a multimodal intervention that combines pharmacological and non-pharmacological treatments.[4] Among non-pharmacological interventions, the European Alliance of Associations for Rheumatology (EULAR) strongly recommends exercise as the gold-standard intervention.[5,6] Several systematic reviews[7-11] support the recommendation of exercise for individuals with FM. Despite this, people with FM often do not adhere to physical activity recommendations because they frequently associate exercise with increased pain intensity during its performance.[1]

Both the initiation and maintenance of exercise in chronic pain involve self-regulatory processes in which motivational perspectives may play an important role.[12] Individuals with pain may anticipate negative consequences of physical activity or exercise, such as exacerbation of pain.[12,13] Exercise adherence in chronic pain conditions has been explained by different theoretical models. The fear-avoidance model suggests that fear of movement and avoidance behaviors may contribute to reduced physical activity and the persistence of disability.[14] In addition, self-efficacy is considered one of the main predictors of exercise adherence among individuals with FM.[15]

Despite the importance of incorporating exercise into the treatment of individuals with FM and the fundamental role of physical therapists in promoting gradual exercise exposure, surprisingly, physical therapists' perspectives specifically on exercise and the factors that may influence adherence and clinical outcomes in individuals with FM have not been investigated. Only a few studies have specifically explored physical therapists' perspectives on FM.[13,16,17] Among these, one study found that physical therapists perceive FM as a complex syndrome with uncertain diagnosis and significant psychological influences, making the management of these individuals a professional challenge.[13] Other studies have examined the perspectives of physical therapists and occupational therapists regarding the care provided to individuals with FM through a questionnaire[16] and investigated physical therapists' perceptions of the condition, again highlighting limited knowledge regarding the management of individuals with FM.[17]

Previous studies have investigated physical therapists' experiences primarily in relation to general treatment approaches and knowledge of FM, limiting conclusions specifically regarding exercise prescription and the

potential barriers and facilitators associated with exercise dosage and strategies applicable to clinical practice. Accordingly, the present study seeks to enhance understanding of how physical therapists prescribe exercise for individuals with FM by providing in-depth insights that may contribute to improving therapeutic planning and strategies to promote exercise adherence.

In this context, the study was guided by the following research question: *How do physical therapists prescribe exercise for individuals with FM, and which factors do they perceive as barriers and facilitators to exercise adherence and clinical outcomes?* Based on this, the aim of this study was to investigate physical therapists' perspectives on exercise prescription and to understand the factors related to exercise adherence and clinical outcomes in individuals with FM.

Methods

This was a qualitative study using content analysis of interview data,[18] conducted in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ)[19] and the Standards for Reporting Qualitative Research (SRQR).[20] These guidelines provide standards and recommendations for qualitative research, promoting transparency and the quality of methodological reporting.

This study is part of a master's research project approved by the Human Research Ethics Committee of the Federal University of Sergipe (No. 5.531.931; CAAE: 57965922.5.0000.5546). All participants were informed about the study procedures and provided electronic informed consent by signing and informed consent form and an authorization for the use of image and voice.

Data collection was standardized, with invitations sent by email or telephone by a single researcher using a structured recruitment script for scheduling the interviews. The interviews were conducted via web conferencing using the Google Meet platform and lasted approximately 60 minutes. Participants were encouraged to respond freely, without interviewer influence, while clarification was provided whenever necessary.

Instruments and technologies

Structured, individual qualitative interviews were conducted to explore physical therapists' experiences, perceptions, and beliefs regarding pain and the physiotherapeutic management of individuals with FM. The final interview guide comprised 43 questions (Supplement A), and the selected sections are described below:

Exercise prescription for individuals with FM

1) Do you usually prescribe exercise for individuals with FM?

2) What type of exercise have you prescribed in your clinical practice?

3) What exercise dosage have you prescribed in your clinical practice?

4) Have you experienced difficulties or facilitators when incorporating physical exercise into the routine of individuals with FM? Could you elaborate on this?

5) What strategy do you recommend to facilitate the initiation of exercise practice in the routine of these individuals?

6) What strategy do you recommend to facilitate exercise adherence in the routine of these individuals?

Adherence and clinical outcomes of individuals with FM undergoing physiotherapy treatment

1) Can you identify factors that may influence treatment adherence and clinical outcomes in individuals with FM? If so, which factors? If not, why?

2) What have you observed regarding self-efficacy among individuals with FM? Could you elaborate on this?

3) Would you recommend any strategies to improve self-efficacy among individuals with FM?

Pilot testing of the interview and consultation analysis

The interview guide underwent pilot testing to assess its comprehensiveness, relevance, duration, and the functionality of the platform. This process was conducted by the primary researcher with two researchers experienced in qualitative studies. Additionally, the instrument was reviewed by three experts in pain and clinical research, who provided feedback through an electronic form to improve its structure and content as part of the expert review process.

Collection procedures, scheduling process, and data management

Participants received informational materials and support regarding the use of Google Meet. The interviews,

which were recorded with participants' consent, were conducted between September 2, 2022, and December 19, 2022, with only the interviewer, participant, and observer present. One participant withdrew due to health-related reasons, and no other sample losses occurred.

Interviewer characteristics and reflexivity

The interviews were conducted by a physical therapist who was a member of the Laboratory of Neuroscience Research (LAPENE) and had no previous contact with the participants. The interviewer introduced herself as a member of the research group and a graduate student, without disclosing personal objectives, in order to minimize potential influences during data collection. She was the first author of the study and had previous experience in qualitative research.

Observer characteristics, reflexivity, and field notes

The interviews included an observer from LAPENE who was trained and had no previous contact with the participants. The observer recorded field notes to help minimize potential interviewer influence.

Sampling and eligibility criteria

Participants were recruited using criterion sampling, which involves the selection of information-rich participants who meet predefined criteria. Eligible participants were physical therapists of both genders with experience in the physiotherapeutic management of fibromyalgia. Physical therapists without an active professional registration or without clinical experience in the management of fibromyalgia were excluded.

Sampling strategy

The sample consisted of volunteers recruited through public calls on social media platforms, emails, and national physiotherapy associations and scientific societies. Interested individuals registered through an electronic form (Google Forms), providing their email address, telephone number, and information for sample characterization.

Sample size and data saturation

Recommendations suggesting an estimated sample size between 15 and 20 participants for qualitative studies were followed.[21] It has been suggested that approximately 85% of concepts are identified after 10 interviews, more than 90% after 15 interviews, more than 95% after 20 interviews, and nearly 100% after 25 interviews.[19] In the present study, 100% concept representation was achieved. Data saturation was monitored throughout the data analysis process through investigator triangulation, involving more than one researcher in the identification and comparison of emerging codes and themes. Saturation was considered achieved when the final interviews did not generate new codes or relevant themes related to the study objectives.

Study participants

The sample consisted of 27 participants with experience in the clinical management of FM, with no gender restrictions, representing diversity in professional qualifications and geographic regions across Brazil.

Double transcription

After data collection, the audio recordings were subjected to double transcription using the online RESHAPE platform. Investigator 1 performed the full transcription and reviewed the content through repeated readings and active listening to the audio recordings to correct potential errors. Subsequently, Investigator 2 validated the transcripts by reviewing the material again through reading and active listening to the recordings, with the transcripts then returned to the participants.

Data processing and analysis

The subcategories were developed through the identification and interpretation of elements and participants' statements from the interviews using content analysis. The categories were previously established based on the specific objectives of the study. The categories were previously established based on the specific objectives of the study and are described in Table 1.

Interview transcripts were analyzed and coded using MAXQDA software (version 22) based on the frequency and relevance of the terms identified in the participants' reports.

Data triangulation was used through investigator triangulation, involving two researchers in coding decisions to ensure systematic classification and the identification of common themes.[22]

Table 1 - Categories and subcategories identified from the analysis of interview transcripts

Categories	Subcategories
Exercise prescription	Exercise modalities and dosage of exercise prescription Barriers and facilitators to exercise initiation Strategies to facilitate exercise initiation and adherence
Adherence and clinical outcomes during treatment	Self-efficacy in individuals with FM Strategies to improve self-efficacy Factors influencing adherence and clinical outcomes

Analyses were conducted independently and blindly, followed by peer review to ensure interpretative convergence. Triangulation enhanced the reliability and credibility of the findings, contributing to the determination of data saturation and sample size. For anonymization purposes, participants were identified bynumbers, and an audit trail was conducted through methodological review by an experienced researcher.

Results

The sample consisted of 27 physical therapists, being 77.7% female and 22.2% male, aged between 25 and 53 years (mean ± standard deviation [SD]: 37.6 ± 8.6 years), as shown in Table 2.

Table 2 - Sociodemographic characteristics and educational background of physical therapists

Variables	n = 27
Age	37.6 ± 8.6
Sex	
Female	21 (78.0)
Male	6 (22.0)
Years of clinical experience	8.2 ± 6.5
Estimated number of cases	18.6 ± 31.7
Undergraduate pain-related course exposure	
Yes	8 (29.6)
No	19 (70.4)
Dealing with a difficult course during graduate studies	
Yes	21 (78.0)
No	6 (22.0)
Contact regarding fibromyalgia research	
Yes	10 (37.0)
No	17 (63.0)

Participants had clinical experience in the physiotherapeutic management of FM (mean ± SD: 8.2 ± 6.5 years) and an estimated number of FM cases treated per year of 18.6 ± 31.7. Among the participants, 70.3% had not taken any undergraduate course on pain, while 77.5% had received pain-related education during postgraduate training (Table 2).

Information regarding region of practice, pain education, and professional de-velopment activities is available in Supplement B.

Exercise prescription

The first category analyzed exercise prescription in individuals with FM, including modalities, dosage, barriers, facilitators, and adherence strategies, organized into three subcategories: types and dosage of exercise, factors influencing exercise practice, and strategies to maintain adherence.

Exercise modalities and dosage

Physical therapists prescribed a variety of modalities, most commonly Pilates, aerobic exercise, muscle strengthening, and hydrotherapy. Additional interventions included stretching, mobility and breathing exercises, passive kinesiotherapy, and distraction activities (Table 3).

It was also reported that mixed exercise selection was used to assist in disease management: (...) *exercises, passive kinesiotherapy combined with manual therapy, relaxation techniques, active exercises, or active kinesiotherapy both on land and in water, with active kinesiotherapy involving low resistance or low-load exercises* (P1). In contrast, other participants reported the use of passive interventions in the clinical management of the disease: (...) *most of the time, they are stretching exercises* (P2).

Table 3 - Exercise modalities and dosage reported by physical therapists (n = 27)

Variables	Reported practice
Exercise modalities	Pilates (n = 11)
	Aerobic exercise (n = 9)
	Strengthening/resistance exercise (n = 9)
	Hydrotherapy (n = 5)
Prescription dosage	Individualization of dosage according to the patient's clinical and functional characteristics (n = 15)
	Rating of perceived exertion (n = 9)
	Maximum heart rate (n = 2)
	One-repetition maximum (n = 1)

The dosage of resistance exercise was primarily prescribed using the one-repetition maximum test, with 2 to 3 sets of 5 to 12 repetitions. For aerobic exercise, maximum heart rate and rating of perceived exertion were used, with light to moderate intensity, a frequency of 2 to 3 times per week, and a duration of 10 to 50 minutes. Regarding exercise dosage, the need for individualized prescription according to clinical characteristics, rating of perceived exertion, maximum heart rate, and one-repetition maximum testing was highlighted (Table 3).

(...) *So, this therapeutic dosage varies considerably because there are different levels of disability.* (P4)

(...) *I work with resistance exercises, and the load will depend greatly on the patient. The intention is always to introduce it by starting with gradual exposure, but it varies from patient to patient.* (P8)

It is possible to observe how the intensity of aerobic exercise and muscle strengthening are prescribed by some participants, as well as the distribution of sets and repetitions volume:

(...) *Around 55% to 70% of the maximum heart rate, not exceeding that.* (P1)

(...) *Rating of perceived exertion, and perhaps a perceived exertion level from 0 to 10, around 6 or 7.* (P1)

(...) *It is a set of five repetitions, initially two sets, and then progressing...* (P5)

Barriers and facilitators to exercise implementation

The main barriers to exercise prescription by physical therapists include pain intensity, fear of movement, catastrophizing, comorbidities, previous experiences, difficulties with engagement, and the patient's clinical condition: (...) *and they do not want to do it because of their previous experiences. So, it takes around four sessions for me to help them understand that they need to engage in physical activity and that exercise is important, even if it is light.* (P4)

The following participant's report reinforces one of the psychological factors associated with FM: (...) *the greatest difficulty is catastrophizing, the issue of widespread pain, and the fact that the person perceives or understands that if they perform exercises alone at home, they will experience more pain* (P5).

Another difficulty faced by physical therapists in clinical practice is kinesiophobia: (...) *the belief that exercise will worsen their pain, that they need to remain at rest, and that resting will improve their condition* (P8).

The facilitators identified by physical therapists for exercise implementation were patient acceptability, patient commitment to treatment, professional training, patient education, and time since diagnosis of the disease (n = 2/27), with emphasis on patient commitment: (...) *so, I think that this is the facilitator or the difficulty: the patient's commitment, sometimes, to maintaining the stability of the clinical condition* (P10).

Strategies to facilitate exercise implementation

Patient education and pain education, informational materials, gradual exposure to movement, supervised exercise, patient preferences, flexibility and scheduling adjustments, highlighting the educational process to improve patient adherence to exercise, were cited as physiotherapeutic strategies:

(...) *the strategy is always education; when they understand how pain works in their bodies and how exercise can act as an analgesic, they show greater adherence.* (P17)

Participants also reported strategies such as group exercises, supervised exercise, playful interventions, habit management, patient support, therapeutic alliance, multidisciplinary teams, and daily assessment. Among the participants, the importance of supervised exercise was emphasized: (...) *performing an exercise with you. A guided exercise, so that they feel safe* (P27).

Adherence and treatment progression

The second category analyzed factors related to adherence, self-efficacy, and clinical progression of patients

with FM during physiotherapy, including modification strategies and factors influencing adherence and clinical oucomes.

Self-efficacy in patients with FM

Some participants reported that self-efficacy among patients with FM is perceived as low (n = 6/27): (...) *it is usually very low, and they end up being somewhat catastrophic* (P25).

The following report highlights observed variables that influence self-efficacy, such as the presence of depression: (...) *it depends, it will depend on the patient, I think. It depends on the medication they are using, the level of depression they have or do not have, and whether the patient is more informed. I think it will depend on the patient's level of understanding for them to be able to achieve this* (P13).

One of the participants highlighted that self-efficacy is related to gains achieved during treatment: (...) *when they are able to observe the benefits of treatment in relation to fibromyalgia, this perception becomes much easier* (P18).

Self-efficacy modification strategies

The self-efficacy modification strategies reported by participants included patient education, pain education, habit management, family support, patient self-responsibility, and professional training: (...) *I would positively recommend education, pain education* (P1).

Some participants reported modification strategies involving the development of the therapist-patient relationship, multidisciplinary and interdisciplinary approaches, and the use of checklists. Other participants highlighted the importance of (...) *setting these goals together* (P3) and (...) b*ut the responsibility lies with them. So, I think the best strategy is to make patients understand this* (P21).

Factors influencing adherence and progression

Participants identified factors influencing adherence and clinical progression among patients with FM. Low adherence was associated with psychoemotional aspects, professional training, occupational and social factors, pain intensity, inadequate exercise dosage, and patients' routines. Increased pain during treatment was highlighted as an important barrier: (...) y*es, increased pain. If they come to the clinic and, in consecutive sessions, they experience significant discomfort and do not perceive improvement, then we have negative adherence to treatment* (P3).

The following report reinforces the importance of an appropriate exercise dosage: (...) *yes, worsening occurs when you lose control of the process and they experience increased pain due to kinesiophobia. This is a very important factor for the person to say, 'I will not continue because I got worse'* (P6).

Finally, factors related to the professional were highlighted: (...) *when the healthcare professional does not have this sensitivity, they are unable to demonstrate empathy, put themselves in the person's position, and instead only want to show their own work, being there to serve their own ego. This greatly hinders patient engagement* (P21).

Discussion

This study investigated physical therapists' perceptions of exercise and factors related to adherence and clinical progression among patients with FM. It was observed that physical therapists' perceptions of exercise involve challenges related to the optimal dosage, as well as factors associated with the clinical condition of the disease. Adherence and clinical progression among patients with FM were perceived as being influenced by factors involving biopsychosocial aspects and professional training.

It is well established that EULAR strongly recommends physical exercise for the treatment of FM.[6] In our findings, some physical therapists reported using passive interventions in the clinical management of the condition, whereas others selected mixed exercise approaches and applied isolated modalities in their clinical practice, such as aerobic exercise and muscle strengthening. The preference for active strategies was also observed in the study by Alodiabi et al.,[17] in which 49% to 81% of physical therapists recommended active physiotherapy or effective interventions, such as aerobic and strengthening exercises.

Despite the strong recommendation for the use of exercise in the treatment of FM, the optimal dosage remains unclear. In efforts to investigate exercise prescription parameters, it has been identified that, in addition to

the ideal frequency, patient preferences and clinicians' skills contribute to exercise prescription.[8] Based on the participants' reports, it is possible to observe that patient preferences and individuality are determining factors in exercise prescription by physical therapists. It has been suggested that adherence to exercise programs may be increased when exercise prescriptions are based on preferred exercise intensity, due to the inverse association between exercise intensity and adherence rates.[21]

In addition to individual preferences, cognitive and behavioral factors influence exercise adherence in FM, with self-efficacy highlighted as a determinant of the adoption and maintenance of health behaviors. This study demonstrated that physical therapists perceive self-efficacy among patients with FM as low. Self-efficacy can be defined as a construct referring to an individual's belief in their ability to exert control over their behavior and environment to achieve a goal[4] and may buffer the relationships between health, perceived stress, and negative life events in pain populations.[23] Health professionals should focus on patients' self-efficacy, as well as pain intensity, since self-efficacy may contribute to improving activities of daily living among individuals with chronic pain.[24]

In a previous study, one of the factors identified as potentially influencing physical exercise levels was when perceived barriers to becoming more active (e.g., worsening of symptoms) outweigh the potential benefits.[25] The findings indicate that many patients with FM do not develop self-efficacy or change their perceptions regarding exercise, resulting in sedentary behavior, as pain associated with activity makes the recommendation to exercise paradoxical.[24]

In the present study, some physical therapists stated that fear of movement hinders treatment, as well as catastrophizing and coping with barriers associated with pain intensity. From this perspective, the behavioral barriers identified by participants can be understood through the fear-avoidance model, which is widely used to explain the relationship between pain, fear of movement, and disability. Fear is an anticipatory emotional response to an imminent threat.[14] Avoidance behavior is an observable behavior that prevents or delays exposure to an aversive stimulus, is persistent, and generally maintains pain-related fear.[14]

From a treatment planning perspective, individual characteristics such as physical fitness, function, symptom severity, and goals should be considered to achieve optimal benefits and ensure long-term effects and adherence.[25] In efforts to investigate exercise prescription parameters, it has been identified that, in addition to optimal dosage, patient preferences and clinicians' skills also influence this process, highlighting the importance of gradual exposure to exercise, regardless of the modality used, as a strategy to promote engagement and therapeutic progression.[8] In our study, participants also highlighted physiotherapeutic strategies such as pain education, gradual exposure to movement, and consideration of patients' individual preferences during exercise prescription. Especially in the context of chronic pain, clinical guidelines for the management of FM emphasize the importance of disease-related education to reduce patient anxiety and empower individuals to self-manage their symptoms.[26] Patients with FM who do not understand the mechanisms underlying chronic pain tend to experience negative emotions, which may intensify pain through descending pathways.[27]

In our findings, participants identified factors that facilitate adherence and clinical progression among patients with fibromyalgia. Increased pain intensity during treatment was identified as a barrier faced by physical therapists. FM pain varies significantly over time, depending on the period, season, and activities.[28] Certain factors exacerbate pain, with inactivity being the most important.[28] The experience of persistent pain prompts a search for understanding that initially focuses on diagnosis and the identification of a treatment approach that will eliminate pain.[29]

In our study, inadequate exercise dosage was identified as one of the factors influencing patient adherence and clinical progression during treatment. Increased pain during exercise among individuals with chronic pain is often a barrier to regular exercise, leading to a sedentary lifestyle that worsens painful conditions and makes treatment even more challenging.[30] The relationship between daily pain, catastrophizing, and physical activity in patients with FM is noteworthy, indicating that catastrophizing increases acute pain during physical activity and that fear of movement may intensify this perception.[31]

Furthermore, relationships between patients with fibromyalgia and healthcare professionals tend to be challenging.[32] Mutual dissatisfaction has been observed between patients and healthcare professionals regarding FM management. In general, patients report a lack of moral support from the professionals who care for them, limited empathy, and minimal effort to provide attention, support, and understanding.[32] It is known that the

patient experience is positively improved when care encompasses both clinical and emotional aspects.[33] Active listening, aligned with narrative knowledge, allows for a better understanding of patients' experiences, strengthening the therapeutic relationship, promoting collaborative communication, and improving treatment adherence and outcomes.[33] Similarly, professional-related factors were highlighted in our findings, emphasizing the importance of follow-up with a multidisciplinary team, physical therapists' skills in active listening, and patient-centered support as factors that promote adherence to physiotherapy treatment for FM.

The findings of the present study may assist physical therapists in identifying barriers and facilitators related to exercise adherence among individuals with FM. Factors such as pain intensity, fear of movement, self-efficacy, gradual exposure to movement, and patient preferences were highlighted by participants and may contribute to a more individualized approach. Understanding the strategies used in clinical practice may support therapeutic planning and improve the care provided to this population. However, it is important to acknowledge that, despite the clinical experience of physical therapists in FM management, not all participants had knowledge of some topics, which may have influenced the provision of less detailed descriptions by some professionals. This finding may indicate educational aspects that should be reinforced in the development of continuing education protocols, including training for physical therapists to establish therapeutic plans that facilitate adherence to exercise protocols. Conversely, conducting interviews via web conferencing enabled the participation of a greater number of physical therapists experienced in FM from different Brazilian regions, which may have strengthened the study findings.

Conclusion

The perspective of physical therapists highlights that the patient experience can be improved through physical therapists' skills, particularly those involving active listening during treatment. Factors related to the clinical condition and professional competencies influence patients' adherence and clinical progression throughout treatment. Physical therapists prescribe mixed exercises and isolated modalities using gradual strategies and educational resources, emphasizing the importance of screening subjective factors related to exercise adherence, such as fear of movement, self-efficacy, individual preferences, pain-related beliefs, and perceived barriers, in the development of a more individualized and patient-centered therapeutic plan.

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Author contribution

MOS was responsible for conceptualization, data collection, data analysis, and interpretation. ICMG contributed to data curation, acting as an observer. FAS conducted the formal analysis of the data. MJS participated in the validation of interview transcripts. MAAV contributed to the methodology and visualization of the interview guide. JMS was responsible for project administration, conceptualization, supervision, review, and editing, coordinating the overall conduct of the study.

Data availability statement

The data supporting the findings of this study are openly available in Mendeley Data at https://www.doi.org/10.17632/878pky5t5p.4.

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Supplement A - Interview structure

SECTION 1. Clinical decision-making in the assessment of patients with fibromyalgia (FM)
This section aims to better understand physical therapists' decision-making regarding the assessment of patients with FM.

1) In your clinical practice, what strategies do you use to assess patients with FM?
2) In your clinical practice, do you observe facilitators or difficulties in the assessment of patients with fibromyalgia? What are they?

SECTION 2. Prescription of interventions in physical therapists' clinical practice
This section aims to better understand the physiotherapeutic interventions used by physical therapists. We seek to understand perceptions regarding physiotherapy approaches and clinical prescription in FM.

1) What do you think about the current physiotherapy approach for FM in Brazil?
2) What do you think patients know about their own condition?
3) What do you think patients know about physiotherapy for FM?
4) Could you describe your strategies and objectives for pain treatment in patients with FM?
5) In your opinion, what are the difficulties or facilitators when treating patients with FM?

SECTION 3. Pain education strategies for patients with FM
This section aims to better understand pain education strategies used by physical therapists.

1) Have you been working with pain education for patients with FM? If so, what strategies do you recommend for clinical practice?
2) What is the number, duration, and distribution of sessions that you commonly dedicate to pain education for patients with FM?
3) In your opinion, what are the difficulties or facilitators when implementing pain education interventions for patients with FM in clinical practice?

SECTION 4. Exercise prescription for patients with FM
This section aims to understand how exercise is prescribed by physical therapists for patients with FM.

Additional support provided by the interviewer: "Adherence" refers to the patient's behavior regarding recommendations provided by a healthcare professional.

1) Do you usually prescribe exercises for patients with FM?
2) What exercise modality(ies) have you prescribed in your clinical practice?
3) What exercise dosage have you prescribed in your clinical practice?
4) Have you experienced difficulties or facilitators in incorporating physical exercise into the routine of patients with FM? Could you elaborate?
5) What strategy do you recommend to facilitate the initiation of exercise practice in the routine of these patients?
6) What strategy(ies) do you recommend to facilitate exercise adherence in the routine of these patients?

SECTION 5. Adherence and clinical progression of patients with FM during physiotherapy treatment
This section aims to understand physical therapists' perceptions regarding adherence and clinical progression among patients with FM.

Additional support provided by the interviewer: "Adherence" refers to the patient's behavior regarding recommendations provided by a healthcare professional. "Clinical progression" refers to the process of improving and developing throughout the treatment provided by the physical therapist. "Self-efficacy" refers to an individual's ability to organize and execute actions to achieve goals.

1) Can you identify factors that may influence treatment adherence and clinical progression in patients with FM? If so, what are they? If not, why?
2) What have you observed regarding self-efficacy among patients with FM? Could you elaborate?
3) Would you recommend any strategies to modify self-efficacy in patients with FM? Which ones?

SECTION 6. Physical therapists' expectations regarding physiotherapy treatment and pain management in FM

This section aims to understand physical therapists' expectations regarding physiotherapy treatment and its influence on treatment outcomes. In addition, we seek to understand physical therapists' perceptions regarding pain management in FM.

1) In your opinion, can expectations, beliefs, or attitudes of physical therapists influence the treatment of patients with FM? How do you think they influence treatment?
2) In your clinical practice, how have you felt when managing pain in patients with FM? Please elaborate.
3) Do you believe it is possible to discharge patients with FM from physiotherapy care?

SECTION 7. Physical therapists' perceptions of pain in FM

This section aims to understand physical therapists' perceptions regarding pain in patients with FM.

1) In your opinion, how have your patients been dealing with painful conditions in their daily lives? Do you think your patients are able to apply the strategies provided during sessions?
2) In your clinical practice, have you observed possible factors that contribute to increases or decreases in pain in FM?
3) Do you think patients are satisfied or dissatisfied with the physiotherapeutic approach to pain management? Could you elaborate?

SECTION 8. Relationship with the multidisciplinary team and therapist–patient relationship

This section aims to understand physical therapists' perceptions regarding their relationship and interaction with the multidisciplinary team involved in the care of patients with FM, as well as the therapist–patient relationship.

Multidisciplinary team

1) Do you provide home-based physiotherapy care for patients with FM?
2) Do you provide outpatient physiotherapy care for patients with FM?
3) Do you have contact with the multidisciplinary team during the treatment of patients with FM?
4) In your opinion, what are the difficulties or facilitators in communication between physical therapists and the multidisciplinary team, and what do you recommend to improve communication and interaction among professionals?

Therapist–patient relationship

1) How has your experience been regarding the therapist–patient relationship?
2) Have you used strategies to improve the therapist–patient relationship? If so, could you describe these strategies?
3) In your opinion, what are the difficulties or facilitators in communication between physical therapists and patients?

SECTION 9. Healthcare delivery models

This section aims to understand physical therapists' experiences regarding different healthcare delivery models.

Additional support provided by the interviewer: Refers to different complementary theoretical and practical approaches in healthcare for patient treatment. This section does not address healthcare system levels.

1) Do you usually base your clinical practice on any healthcare delivery model? Which one?
2) What strategies have you used in clinical practice to treat patients with FM according to healthcare delivery models?
3) Have you based your clinical practice on the principles of the biopsychosocial model, International Classification of Functioning, Disability and Health (ICF), and/or Evidence-Based Practice?

4) What are the facilitators or barriers to applying the biopsychosocial model, International Classification of Functioning, Disability and Health (ICF), and Evidence-Based Practice in patients with FM in clinical practice?

SECTION 10. Physical therapists' experiences with healthcare systems and public policies for patients with FM

This section aims to understand physical therapists' experiences and perceptions regarding the care of patients with FM, considering the healthcare system in Brazil.

1) What do you think about the reception and support provided to patients with FM in different healthcare systems in Brazil?
2) How has your experience been when providing care to patients with FM in public, private, and/or health insurance-based systems?
3) In your opinion, what are the facilitators or difficulties in addressing patients with FM within different healthcare systems in Brazil?
4) What is your estimated number of patients with FM treated per year?
5) What do you think about public policies aimed at patients with FM?
6) In your opinion, are public policies for patients with FM adequate or inadequate? What do you think could be improved?

Supplement B - Qualitative descriptive data of the sample

Participants	Region	Pain education in professional training	Sources of knowledge and continuing education on pain
P1	Northeast	Master's and doctoral research focused on pain neurobiology and the mechanisms of action of electrotherapeutic modalities.	Scientific articles
P2	Southeast	"Although I did not agree with it, I learned that pain is managed through rest and analgesic modalities."	Scientific articles and following professionals who are references in the field
P3	Southeast	"In my professional training, pain became an actual subject of study only from 2016 onward, but I graduated in 2004."	Articles searched in PEDro and PubMed
P4	South	PhD in Health Sciences – Neuroscience (PPGS/UniSul), Master's degree in Human Movement Sciences (UDESC), Professional Specialist in Aquatic Physiotherapy (COFFITO/ABFA)	Articles, books
P5	Southeast	"I believe that pain is the most common symptom that leads patients to seek our care, whether due to orthopedic or neurological conditions."	Online courses
P6	–	"I had specific courses on chronic diseases. In practice, I had internships with fibromyalgia groups. During postgraduate training, it was the same: theory and practice in pain management."	Scientific articles
P7	Northeast	"The significant increase in the number of patients with chronic pain and their search for treatments that often have no positive effect on their lives sparked my desire to better understand pain management."	SBED channel/materials, courses, and scientific articles
P8	Northeast	"During undergraduate training, pain was viewed as a symptom and a patient complaint. After graduation, through courses in manual therapy, the McKenzie method, and clinical experiences with patients, I realized that pain needs to be addressed through an integrated approach."	Psychology and myofascial release
P9	Southeast	"I completed my undergraduate education in the United States and worked in a hospital setting since 1994, already providing pain management... When I returned to Brazil, I pursued postgraduate training in pain and never stopped studying the subject."	Scientific articles, conferences, faculty colleagues, and specializations
P10	–	"Since I began studying pain in greater depth, I have realized that pain goes far beyond physical aspects; sometimes it comes from within."	Postgraduate specialization in pain
P11	Midwest	Postgraduate Program in Pain (Albert Einstein Hospital), PETDor and Exercise Prescription (Artur Padão), Acupuncture and Pain Neuroscience (Dr. Marcos Lisboa)	Scientific articles, interaction with colleagues in the field of pain, and participation in the SBED committee
P12	North	"A vital sign arising from actual or potential tissue injury."	Postgraduate specialization in pain
P13	–	"Knowledge of pain is fundamental to clinical practice."	Scientific articles
P14	North	"Most of the patients I treat have chronic pain, and some already have a confirmed diagnosis of fibromyalgia."	PubMed reviews on clinical management
P15	North	"Despite the challenges in education at that time, I realized that, in order to understand pain, I needed to deepen my knowledge."	PubMed, LILACS, CAPES, BVS, SciELO, etc.
P16	North	"Most patients experience extreme pain."	Experience with hydrotherapy
P17	North	"I completed the postgraduate program in pain at Einstein Hospital (2021–2022), which greatly contributed to my clinical practice."	Scientific articles
P18	Southeast	"I address this aspect every day; most of my patients over 50 years old have fibromyalgia."	Articles
P19	Southeast	"It was an extremely important concept to learn because it allows me to have a more appropriate approach to the management of individuals with fibromyalgia and chronic pain."	Lectures, intensive courses, and scientific articles
P20	North	"Pain is an unpleasant sensation. There are three types of pain: nociceptive, neuropathic, and nociplastic, along with their subcategories."	(All About Pain*), PubMed, PEDro, etc.
P21	Southeast	"During my undergraduate education, some courses focused on fibromyalgia, pain, and pain-related dysfunctions."	Clinical experience with patients and complementary courses

P22	Southeast	"I work with patients experiencing chronic pain and teach about the different factors that modulate pain, including biological, psychological, social, and spiritual factors."	Works as an assistant coordinator and faculty member of the Postgraduate Program in Pain Medicine at the Israelita Albert Einstein Hospital.
P23	South	"During my undergraduate education, I had no contact with pain-related studies. After graduation, I read a book about pain, which motivated me to seek further knowledge and study more about the subject. I later decided to pursue a specialization in pain."	IASP, PAIN® journal, and courses with experts in the field
P24	Southeast	"Pain was treated as a vital sign, purely associated with biomechanics, with no multifactorial approach."	Postgraduate training, continuing education, short courses on the subject, and scientific content through active searches
P25	South	"I have always worked with pain, since my residency in orthopedics and traumatology at UEL."	PubMed
P26	Northeast	"I sought to deepen my knowledge of pain when I realized that simply applying techniques and providing pain relief to patients was not enough. Therefore, I decided to further expand my understanding of the subject."	Lectures, intensive courses, and scientific articles
P27	South	"I learn a large part of it through self-directed study."	"Scientific articles from IASP and courses offered by physical therapists who work with pain."

Note: ABFA = Brazilian Association of Aquatic Physiotherapy; COFFITO = Federal Council of Physiotherapy and Occupational Therapy; IASP = International Association for the Study of Pain; PETDor = Pain Education and Training Program; PPGS/UniSul = Graduate Program in Health Sciences at the University of Southern Santa Catarina; UDESC = Santa Catarina State University; UEL = State University of Londrina; SBED = Brazilian Society for the Study of Pain. Leonardo Ávila's YouTube channel.