

## REVIEW ARTICLE

# Multidisciplinary Care Models for Managing Fibromyalgia

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## KEYWORDS

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## ABSTRACT

Fibromyalgia (FM) is a prevalent syndrome characterized by widespread chronic pain, fatigue, sleep disturbances, and cognitive difficulties. Diagnosis is primarily clinical, often involving exclusion of other conditions.

Effective management of FM requires a multidisciplinary approach that utilizes a stepwise methodology. Rather than aiming to eliminate disease, the focus should be on improving quality of life, primarily by providing symptomatic relief. Nonpharmacologic treatments, including patient education, exercise (especially aerobic), and cognitive behavior therapy (CBT), are crucial for improving pain and function. Pharmacologic options that are FDA approved for FM include duloxetine, milnacipran, and pregabalin. Amitriptyline, though not FDA approved for FM, has also demonstrated effectiveness in patients with FM. More conventional pain medications commonly prescribed in other chronic conditions, such as opioids and nonsteroidal anti-inflammatory drugs (NSAIDs), are generally not recommended.

An osteopathic medicine approach can enhance the body's self-healing capabilities and improve health in patients with FM. OMT may offer adjunctive benefits by addressing musculoskeletal somatic dysfunctions and normalizing autonomic tone. OMT, such as myofascial release, may be particularly relevant for patients with FM who often have a lower pain threshold. OMT with a patient-centered approach focusing on symptom management and improved quality of life is essential. Utilizing a multidisciplinary approach to FM treatment can allow for long-term improvement in a patient's health and quality of life.

## INTRODUCTION

Fibromyalgia (FM) is a syndrome characterized by widespread chronic pain, fatigue, sleep disturbances, and cognitive difficulties. There are several pathophysiologic theories regarding FM. Firstly, FM is likely the result of dysregulated central pain processing.<sup>1</sup> This results in changes in sensitization, manifesting as a lower threshold for pain, allodynia, and hyperalgesia.<sup>2</sup> Brain imaging in several studies has shown that patients with FM had decreased mu-opioid-receptor binding potentials compared to healthy controls and also had an imbalance

between excitatory and inhibitory neurotransmitters, particularly within the insula.<sup>2</sup> Another potential etiology involves a disordered autonomic nervous system.<sup>1</sup> Although symptoms differ from person to person, similar patterns have been noted in patients with FM. Common symptoms include, but are not limited to, widespread pain, headaches, and fatigue. Patients can also have increased muscle tone and tenderness, along with sleep disturbances.<sup>2</sup> Like with many other chronic conditions such as irritable bowel syndrome or musculoskeletal pain in which there exist associations with increased inflammatory response or neuropathic involvement, potential involvement of these associations in patients with FM has not been ruled out.<sup>3</sup> As a result of their symptoms, many patients with FM often experience a variety of psychosocial consequences, including depression, increased stress, and decreased quality of life. Treatment is based on patient-directed goals, often ranging from decreasing pain to increasing daily activities. This requires a multimodal approach, targeting several aspects of the condition.

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## HISTORY AND PHYSICAL EXAM

The predominant complaint amongst patients with FM is chronic widespread pain coupled with muscle stiffness or tenderness. A systems-based physical examination with attention to musculoskeletal structures demonstrates this. If localized areas of inflammation, gross joint pathologies, or external trauma are observed, alternative diagnosis should be investigated.<sup>1</sup> Common concurrent symptoms include excessive fatigue and sleep disturbances. Altered cognitive function, such as brain fog, difficulty concentrating, and increasing forgetfulness, may also be present.

To distinguish FM from other chronic pain conditions, the Fibromyalgia Rapid Screening Tool (FIRST) was developed in 2010. FIRST consists of six items requiring “yes/no” responses associated with clinical manifestations of FM.<sup>2</sup> Each item is assigned a value of one point per “yes” answer, and a total score of five or more is considered suggestive of FM. In 2016, further modification of this criteria suggested using a generalized pain criterion, which further decreased misclassification of regional pain syndromes.<sup>4</sup> These criteria require that FM patients have pain in four of five body regions, termed multisite pain (MSP), in contrast to the 1990 definition of chronic widespread pain (CWP).<sup>4</sup>

FIGURE 1: Fibromyalgia Rapid Screening Tool (FIRST).

FIBROMYALGIA RAPID SCREENING TOOL (FIRST)		
SYMPTOM		
I have pain all over my body	YES	NO
My pain is accompanied by a continuous and very unpleasant general fatigue	YES	NO
My pain feels like burns, electric shocks, or cramps	YES	NO
My pain is accompanied by other unusual sensations throughout my body, such as pins and needles, tingling, or numbness	YES	NO
My pain is accompanied by other health problems such as digestive problems, urinary problems, headaches, or restless legs.	YES	NO
My pain has a significant impact on my life, particularly on my sleep and my ability to concentrate, making me feel slower in general	YES	NO
TOTAL*		

\*\_ONE POINT EACH YES ANSWER. A SCORE OF FIVE OR GREATER SUGGESTS FIBROMYALGIA

## TREATMENT

### Nonpharmacologic Therapies

Nonpharmacologic treatments are effective for management in fibromyalgia, especially for debility and pain-related psychosocial issues. These treatments aim to improve health-related quality of life and daily functioning rather than seeking a cure.<sup>5</sup> Patient education regarding fibromyalgia diagnosis is a mainstay of treatment.<sup>2</sup> After

patients understand their diagnosis, helping them create short- and long-term goals is the next step. Clinicians find it helpful to schedule regular follow-up visits to track progress and make goal adjustments as needed.

Cognitive behavioral therapy (CBT) teaches patients how to address negative thoughts and behaviors, helping to promote coping skills to face the mental burden of chronic pain, fatigue, and poor sleep. Systematic reviews demonstrate moderate-quality evidence that patients treated with CBT experience improvement in pain and disability in both the short and medium term.<sup>6</sup> Acceptance and commitment therapy and operant therapy are subtypes of CBT available for use. With decreasing social stigmas surrounding the role of talk therapy and more diverse delivery methods, CBT continues to be a promising treatment option.<sup>6</sup> Furthermore, support groups and stress management techniques, such as mindfulness, enhance coping and resilience.<sup>7</sup>

Low-impact exercise, including aerobic, endurance training, or a combination, produces improvements in quality of life and reduction in fatigue.<sup>8</sup> The proposed mechanism is related to regulating the autonomic nervous system by decreasing sympathetic activity and promoting parasympathetic activity to relax the musculoskeletal structures.<sup>8</sup> This leads to a reduction in stress levels. A personalized exercise regimen must be created based on the patient’s tolerance to physical activity.

Encouraging a healthy anti-inflammatory diet is essential. There are limited studies about specific diets; however, patients have seen benefits with certain diets such as a Mediterranean diet, vegetarian diet, monosodium-glutamate-free, or aspartame-free diet. A personalized diet can be a great complementary lifestyle modification.<sup>8</sup>

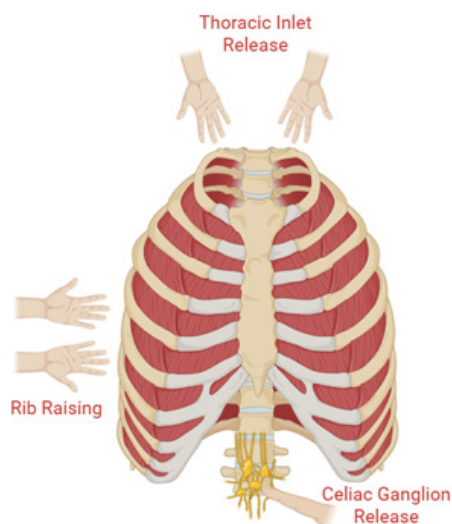
The osteopathic approach to fibromyalgia treatment is another modality with promising results. Using the body’s self-healing capabilities can allow the patient to feel symptomatic relief from a holistic standpoint.<sup>9</sup> OMT has a variety of techniques that can serve both a diagnostic and therapeutic role, making them efficient and robust.<sup>9</sup>

A case report from 2025 analyzed the impact of consistent OMT on a patient with fibromyalgia resistant to other therapies such as pharmacologic agents and acupuncture.<sup>10</sup> Using a systems-based approach, osteopathic scanning and screening techniques uncovered multiple somatic dysfunctions and used them as treatment targets. The goal of treatment was to restore biomechanical and neuromuscular balance.<sup>10</sup> Notable techniques performed included rib raising of the thoracic spine, celiac ganglion release, and thoracic inlet myofascial release, highlighting a multimodal approach of addressing lymphatic and musculoskeletal components of somatic

dysfunction. The patient reported immediate reduction of symptoms posttreatment, and after a 6-week treatment course, reported a decreased pain score from 7/10 to 2/10.<sup>10</sup> Utilization of osteopathic principles should be considered in patients with FM, especially those who have experienced symptomatic improvement with previous OMT. By directly addressing somatic dysfunctions across multiple body regions, OMT at regularly-spaced intervals utilizes an integrative therapeutic approach to manage the musculoskeletal, autonomic, and central nervous system components of FM. Given its viability and low-risk profile, OMT merits further investigation through robust studies regarding its role in comprehensive FM care when tailored to somatic findings and patient needs.

Another intervention that can be utilized in patients with FM is acupuncture. This intervention mirrors osteopathic medicine principles, encouraging the self-healing capabilities of the body. Evidence is limited regarding the efficacy due to small sample sizes, heterogeneity in protocols, and potential placebo effect.<sup>11,12</sup> Acupuncture is currently recommended as an adjunct therapy in the European League Against Rheumatism (EULAR) 2016 guidelines, particularly for patients unresponsive to pharmacologic or exercise-based interventions.<sup>13</sup>

FIGURE 2: OMT for FM.



## Pharmacologic Therapies

While pharmacologic interventions have been reported to improve pain-related symptoms, health-related quality of life from these agents alone is often minimal. However, drug monotherapy with an FDA-approved agent is still considered first-line treatment for FM.

FDA-approved centrally acting drugs such as pregabalin, duloxetine, and milnacipran are commonly utilized.<sup>14</sup> Pregabalin has been shown to address not only pain-

related symptoms but also sleep quality with a low risk of physical dependence, making it a long-term option. Duloxetine is a serotonin-norepinephrine reuptake inhibitor (SNRI) shown to reduce pain and muscle stiffness, with patients expressing benefit coming from reduced fatigue, antidepressive effects, and anxiolytic effects. Milnacipran is another SNRI with similar effects on pain and functionality. Notable is its longer time to diminished therapeutic response (on average, 3 years) compared to duloxetine.<sup>15</sup> Amitriptyline is a non-FDA-approved centrally acting drug also used for the management of FM. Mechanistically, it is thought to involve the activation of descending inhibitory pain pathways that exert effect on the brain.<sup>2,16</sup> Low doses at bedtime are generally recommended upon initiation to reduce daytime fatigue. Other tricyclic agents like nortriptyline may be better tolerated with fewer adverse effects, though fewer studies exist to support their role in the management of FM.<sup>2,17</sup>

Opioid analgesics such as hydrocodone and oxycodone do not have any evidence to suggest that they improve health-related quality of life in FM. Given their side effects of respiratory depression and risk of physical dependence, they are not recommended for routine or prolonged treatment. Nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen and naproxen have not been shown to have increased efficacy over placebo for FM-specific pain and have risks associated with long-term use, such as gastric ulcers and worsening renal function.<sup>18</sup>

Muscle relaxants such as cyclobenzaprine have been shown to improve quality of sleep in patients with FM.<sup>2</sup> Many patients find relief with this drug alone and do not require analgesic agents. Prescribers must consider its use concurrently with serotonergic agents, as it can increase risk for serotonin syndrome and prolonged QT interval.<sup>19</sup>

Low-dose naltrexone (LDN), an opioid antagonist, has gained increasing relevance as a treatment option for FM. Research suggesting that endogenous opioid levels in FM patients are higher compared to those without the condition has laid the foundation for its use.<sup>20</sup> Anti-inflammatory mechanisms of LDN via antagonizing toll-like receptor 4 and downregulating glial cell activity, further support its potential therapeutic role in amplified pain syndromes.<sup>20</sup> Standard dosages range between 1 and 4 mg.<sup>21</sup>

Recent investigations into the potential of intravenous ketamine in treating pain secondary to FM have shown promising results compared to placebo for not only pain relief but also for physical function and health-related quality of life (HRQoL).<sup>22</sup> Further studies looking at alternative delivery methods of ketamine such as intranasal, sublingual, and intramuscular injections in patients with FM are currently underway.

Growing evidence regarding magnesium has suggested its potentially beneficial role in the management of FM. Studies have demonstrated lower levels of intracellular magnesium in patients with FM compared to placebo.<sup>9</sup> These deficiencies were associated with low-grade inflammation, paresthesias, and muscle weakness.<sup>23</sup>

Neural therapy, which involves injecting local anesthetic such as lidocaine into trigger points of autonomic ganglia, has also been studied in patients with FM. In 2019, a multicenter study compared neural therapy to exercise in patients with FM. Participants receiving neural therapy showed significant improvement in pain, depression, and quality of life.<sup>24</sup> Pain reduction is attributed to lidocaine's impact on modulating central sensitization.<sup>24</sup>

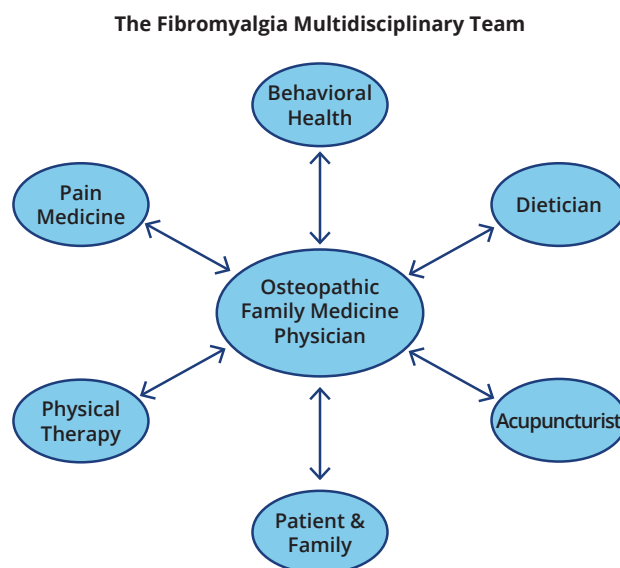
## DISCUSSION

FM remains a multifaceted chronic pain condition that affects patients from a wide range of health backgrounds. With more research focused on the biomechanical pathways underlying pain perception, as well as clinical investigations aimed at understanding the symptomatic manifestations of FM, it has become increasingly accepted that a multidisciplinary approach to management maximizes patients' chances of successful symptom alleviation and return to daily function. This approach aims to leverage the unique skill sets across providers from multiple specialties to deliver integrative care with the mutual understanding that the patient's needs will be more comprehensively and effectively addressed.<sup>25</sup> Key tenets of a multidisciplinary model improve healthcare outcomes via increased patient satisfaction, adherence to treatment, and earlier discharges from hospitalizations, while simultaneously decreasing complications, mortality rates, and inpatient admissions.<sup>26</sup>

This model underscores the value of family medicine within the multidisciplinary team. Team members could include a pain medicine provider, behavioral health specialist, physical therapists, dietitians, acupuncturists, and the patient. The family medicine physician serves as the overseer and organizer of these tenets of care, incorporating relevant osteopathic techniques. Additionally, they can set patient-centered goals with patients to ensure that the treatment regimen appropriately addresses their needs. Once the treatment framework has been established, incorporating these more specialized disciplines enables a more effective regimen by leveraging the clinical expertise these specialties provide for specific concerns.

Ultimately, a robust and well-executed multidisciplinary treatment plan gives patients with FM the highest chance for success in leading functionally and emotionally meaningful lives.

FIGURE 3: Multidisciplinary model for FM treatment team.



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