Fibromyalgia (FM) is a chronic pain syndrome that is quite common. This syndrome is often not diagnosed correctly because the symptoms are heterogeneous and often overlap with other diseases. In 2010, the American College of Rheumatology (ACR) established a feasible diagnostic criterion for FM then in 2016 ACR revised FM criteria. The clinical problems of FM vary widely and depend on the individual’s management, depending on the severity and severity of the complexity, the degree of damage that occurs and the comorbidities in the psychiatric field that most commonly occur in anxiety disorders and depression.

**DEFINITION OF FIBROMYALGIA**

Fibromyalgia (FM) is a rheumatological disease characterized by diffuse and extensive musculoskeletal pain that causes sleep disruptions, cognitive impairment, anxiety, and depression. FM symptoms vary broadly, starting from muscle stiffness, especially in the morning, most sufferers experience tenderness, fatigue, joint pain, headache, back pain, cystitis, vulvodynia, tinnitus, vertigo, tingling, irritable bowel syndrome, sleep disorders, anxiety depression and so on. The etiology of fibromyalgia, as a chronic pain disorder, remains unknown. No evidence of a single etiology for the syndrome has been found; rather, it is aggravated or triggered by a number of physical and mental stresses, including physical and emotional trauma and infection. In the field of psychiatry, fibromyalgia is frequently regarded as a symptom or psychosomatic disorder. FM prevalence in the general population ranges from 2% to 12%, with a 9:1 female-to-male ratio. FM prevalence in Asia is a lot lower, at 0.05%. Other sources say the prevalence of fibromyalgia Fibromyalgia increases with age.

**FIBROMYALGIA PATHOPHYSIOLOGY**

Several mechanisms and pathophysiology of fibromyalgia have been proposed to explain the process of FM. Potential FM mechanisms include central sensitization, neurotransmitter, stress response system and psychiatric comorbidities.

**Central sensitization**

It involves spontaneous neural activity that extends to a large number of surrounding pain receptors (wide geographic distribution of pain) and amplifies the stimulus response in the spinal cord, called abnormality temporal summation or wind-up. Wind-up is a phenomenon where after the presence of an initial painful stimulus will increase the pain response that is more severely than the same initial stimulus, which is related to the N-methyl-D-aspartate (NMDA) receptor situated in the postsynaptic membrane of the dorsal horn of the spinal cord. In FM, repeated acute pain stimuli will cause NMDA receptor activation which will start a process of central sensitization and wind up causing hyperalgesia, referred pain and muscle pain.

**Neurotransmitters**

In FM, there are increased levels of the excitatory neurotransmitter glutamate, nerve growth factor, substance P, and brain-derived neurotrophic factor. Substance P levels in the cerebral fluid of FM sufferers increases 3 times higher than in the control group. Substance P is a nociceptive neurotransmitter that, together with pronociceptive excitatory amino acids that act on the N-Methyl D-Aspartate (NMDA) receptor and other neuropeptides, plays a key role in the formation of neuronal hyperactivity and central sensitization.

**Stress Response System**

Chronic stress can also trigger a disruption in the body’s stress response system which results in FM syndrome. Patients experience disturbances in the main components of the stress response system, namely the hypothalamus pituitary adrenal (HPA) axis and the autonomic nervous system. In reaction to stress, lower levels of norepinephrine, serotonin, and cortisol have a role in descending inhibition in the dorsal horn of the spinal cord in fibromyalgia. In the autonomic nervous system, people with FM show impaired sympathetic response to stress in the form of decreased vasconstrictive responses to cold and acoustic stress, decreased heart rate response to exercise, decreased heart rate variability, decreased epinephrine response to hypoglycemia and sleep disturbances.

**Psychiatric Comorbidities**

People with FM have an increased incidence of psychiatric comorbidities. Observational research suggests
psychopathology plays a role in FM. FM patients with a psychiatric diagnosis show improvement with the treatment of coexisting psychiatric conditions. Several studies have demonstrated an elevated prevalence of depression among FM patients.7

**FIBROMYALGIA DIAGNOSIS**

Current diagnostic criteria for fibromyalgia are the modified criteria from the 2016 American College of Rheumatology (ACR). These criteria include the Symptom severity scale (SSS) and the Widespread Pain Index (WPI).1

**ACR Fibromyalgia criteria (2016 revision)**

A patient is considered to meet these requirements if three of the characteristics below are met:

1. Generalized pain, defined as pain in at least 4 of 5 areas, must be present. Jaw, chest and abdominal pain are not included in the definition of general pain.
2. Widespread pain index (WPI) ≥ 7 and symptom severity scale score (SS) ≥ 5 or WPI of 4-6 and SS score ≥ 9.
3. Symptoms generally have been present for at least 3 months.

**Widespread Pain Indeks (WPI)**

In the previous week, the patient had discomfort in the following areas: This index determines the number of painful locations experienced by the patient. The score ranges from 0 to 19.

1. Region 1 (upper left region), includes: left jaw, left arm up, left shoulder, left arm down
2. Region 2 (upper right region), includes: right jaw, right arm up, right shoulder, right arm down
3. Region 3 (lower left region), includes: the left hip (buttock, trochanter), lower left leg, and left upper leg
4. Region 4 (lower right region), includes: the right hip (buttock, trochanter), right leg down, right leg up
5. Region 5 (axial region), includes: the neck, chest, abdomen, upper back, and lower back.

**Symptom severity scale (SSS)**

The first symptoms to be assessed are the presence or absence of fatigue, waking up feeling unrefreshed and cognitive symptoms. The level of assessment for each of the 3 symptoms uses a scoring with a distribution of scores as follows: score 0 (no problem); score 1 (mild problems are generally mild or intermittent); 2 = (moderate, the problem is quite big, often occurs); score 3 (severe, pervasive, continuous, life-threatening problem). The total score is then added to the total score (0-3) of the second number of symptoms assessed. The second symptom evaluated was one that has affected the patient during the past six months, either headache (0-1), lower abdominal discomfort or cramps (0-1), or depression (0-1). These parameters will yield a final score between 0 and 12.

**Fibromyalgia Criteria by DSM-5**

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) contains its own diagnostic criteria for FM. FM was originally included in somatofrom disorders in DSM-3 and DSM-4 and was later included in Somatic Symptom Disorder (SSD) 300.82 (F45.1). Diagnostic criterion 300.82 (F45.1): 1. Patients have somatic symptom disorder if they experience at least one or more interfering somatic symptoms (such as headache, leg or joint pain, etc.).

2. Preoccupied preoccupation with thoughts, feelings, or behavior associated with somatic symptoms or related health problems as shown by at least judging that they experience at least one of the following:
   a. Excessive time and energy thinking about these symptoms or health problems.
   b. High levels of anxiety about health or symptoms;
   c. Disproportionate and persistent thoughts about the seriousness of the symptoms;

3. While somatic symptoms are not always present, they are chronically symptomatic (usually longer than 6 months). Indicate if with predominant pain (prior pain disorder): This specifier applies to patients whose major somatic symptom is pain. Assess whether recurrent problems are marked by severe symptoms, marked disruption, and prolonged duration (more than 6 months). Determine the present level of severity:
   a. Mild: Just one of the criterion B symptoms is present.
   b. Moderate: Two or more of the symptoms specified in Criterion B are present.
   c. Severe: Two or more of the symptoms described in the criteria are present, in addition to several somatic complaints or a single symptom of extreme severity.

**FIBROMYALGIA MANAGEMENT**

The clinical manifestations of FM are very varied so the management of FM patients is individualized, depending on the main clinical symptoms, comorbidities and functional disorders. In difficult-to-treat FM cases, a multidisciplinary approach is recommended. The goal of therapy for people with FM is to relieve pain, treat co-morbidities and improve quality of life. There are 2 types of FM therapy principles, namely pharmacological and non-pharmacological therapy. The European League Against Rheumatism (EULAR) issued the most recent clinical guidelines for the therapy of FM in 2016, and the following is recommended:

**Non-pharmacological Therapy for Fibromyalgia**

*Educating Patients*

At the time of diagnosis, the first hurdle in FM education is to acquire the patient’s trust. In general, patient responses to the counseling we provide differ based on their prior experiences. Others may feel concerned or upset, having been informed that FM is “not a true diagnosis” or that their FM symptoms are caused by a different ailment, such as lupus or a persistent infection. Include in the first conversation that the management of FM is a long-term, interdisciplinary effort with progressive therapeutic results.9
**Cognitive Behaviour Therapy (CBT)**

CBT aims to educate patients about their illnesses and increase adaptive responses to FM symptoms. A number of sessions spread out over time enable patients to practice adaptive approaches, report replies, and pose new questions along the way; nonetheless, intensive single sessions have been employed. Participation by family members helps debunk myths about FM and boost support. The rationalization of the use of CBT in FM is based on the concept that pain is a distressing sensory and psychological experience which is a complex interaction between biological, cognitive, affective and behavioral factors.\(^{10}\)

**Physical training**

Exercise has been the treatment of choice for fibromyalgia since the disease's inception, and it is the only therapy with a "strong" EULAR recommendation. Whichever exercise you select, you should begin very slowly and progressively increase your intensity over time. Aerobic exercise is typically preferred over resistance training using weights, however mild resistance training can also be advantageous. Water sports exercises also have the same benefits. Exercise training gradually increases to 30 to 60 minutes 2 to 3 times a week.\(^{11}\)

**Sleep Hygiene**

Sleep is an additional therapy. In order to rule out sleep apnea in certain FM patients, a sleep study may be required. Sleep hygiene training may be used in CBT. When employed, pharmaceutical treatment, as detailed in the next section, should be viewed as a supplement to sleep hygiene, not as a replacement for it.\(^{11}\)

**Relaxation technique**

Relaxation therapy can be used in FM patients to manage stress and anxiety. The objective of all relaxation therapies is to reduce anxiety, stress, and tension, but their approaches and foci may differ. The Mindfulness-Based Stress Reduction (MBSR) technique, which is used to manage chronic pain and stress, is a potential example of a psychological treatment. Mindfulness is characterized by giving one’s undivided attention and acceptance to present events, even when they are unpleasant. A meta-analysis revealed substantial short-term improvements in quality of life and pain intensity following mindfulness-based stress reduction (MBSR) for individuals with fibromyalgia, compared to standard treatment and active control therapies.\(^{12}\)

Considering the significance of central sensitivity in FM, non-invasive treatment strategies that might modulate brain activity are currently in the limelight.\(^{13}\) Transcranial Direct current stimulation (tDCS) and Repetitive transcranial magnetic stimulation (RTM) are two examples of non-invasive ones used to treat some chronic pain conditions. Related studies both show promising results as initial therapy in pain relief.\(^{14}\)

**Pharmacotherapy for Fibromyalgia**

More than 50% of the pharmacological therapies we provide for patients with FM are abandoned by patients due to side effects or inefficiencies. Changing medications and polypharmacy are widespread, in part due to excessive therapeutic expectations. Nonetheless, pharmaceutical treatment remains an integral component of FM management. The mechanism of action of the treatment and other details can be found in Table 1 below.\(^{15}\)

Nonsteroidal anti-inflammatory drugs are generally ineffective for patients with FM unless they have a concomitant nociceptive pain input, including osteoarthritis, which supplies additional pain pathways. It has also been discovered that opioids are useless and even exacerbate the condition. Antidepressants that block selective serotonin reuptake (SSRIs) have a place in FM treatment since they can be used to treat depression that is frequent in FM patients.\(^{16}\)

Physicians must have in-depth knowledge of every medication they prescribe, and patients must be warned on severe adverse effects and supplied with detailed written information. The most widely prescribed tricyclic medications for FM are amitriptyline and cyclobenzaprine. The purpose of this drug is to utilize the smallest effective dose to improve sleep quality and reduce discomfort. Patients with FM are typically quite susceptible to medication side effects, particularly sedation the day following dosage. Consequently, relatively modest dosages of tricyclic medications are recommended for initiating treatment, and the pills should be administered at least one to two hours prior to bedtime.\(^{17}\)

Standard precautions for drug-induced sedation should be discussed. The initial dosage should not be administered the day before crucial tasks such as driving

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**Table 1. Used for FM Pharmacotherapy.**\(^{16}\)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Mechanism of Action</th>
<th>Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amytriptyline</td>
<td>Norepinephrine serotonin reuptake inhibition</td>
<td>10 mg qhs, max 75 mg 1-2 hour before bedtime</td>
</tr>
<tr>
<td>Cyclobenzaprine</td>
<td>Similar to amitriptyline</td>
<td>5 mg 1-2 hours before bedtime, max 40 mg 1-2 hours before bedtime or divided daily</td>
</tr>
<tr>
<td>Duloxetine</td>
<td>SNRI</td>
<td>30 mg morning for 1 week, then increase to 60 mg, max 60 mg</td>
</tr>
<tr>
<td>Milnacipran</td>
<td>SNRI</td>
<td>12.5 mg/d increase gradually to 50 mg bid in 1 week, max 100 mg bid</td>
</tr>
<tr>
<td>Pregabalin</td>
<td>Binding to the alpha 2 subunit of voltage-gated calcium channels in the central nervous system</td>
<td>75 mg bid increase to 150 mg bid in 1 week as tolerated, max 225 mg po bid</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>Similar as pregabalin</td>
<td>100 mg qhs, max gradual increase to 2,400 mg/ divided tid</td>
</tr>
<tr>
<td>Tramadol (can be taken together with acetaminophen)</td>
<td>Weak opioid with mild SNRI activity</td>
<td>37.5-50 mg daily, max same dose up to 4 times daily</td>
</tr>
</tbody>
</table>
or operating heavy machinery. The FDA has authorized three medications for FM, all with comparable effectiveness and tolerability. Duloxetine and milnacipran are FDA-approved antidepressants for the treatment of FM. Monotherapy of duloxetine 60-120 mg once daily can reduce pain in the main symptoms of FM and is associated with improvements in patient function and quality of life. Duloxetine is useful for FM patients with or without depressive symptoms. The analgesic effect of this drug does not depend on the patient’s mood. Milnacipran monotherapy may reduce pain and improve the general condition and associated symptoms (such as fatigue and impaired cognitive function). Tramadol is the only known painkiller used in FM. Some clinicians prefer to use it as a supplement after conventional treatment has failed. Since it might reduce the threshold for convulsions, Tramadol should be discontinued if its efficacy cannot be shown. It may need patience and perseverance to determine the optimal therapy regimen for each patient.

## Complementary and Alternative Therapies
FM patients may also seek a number of complementary and alternative medical therapies. These treatment options include acupuncture, chiropractic, music therapy, hyperbaric oxygen, massage therapy, hypnototherapy, and mind-body practices.

## CONCLUSION
Fibromyalgia (FM) is a chronic pain syndrome that is quite common. This syndrome is often not diagnosed correctly because the symptoms are heterogeneous and often overlap with other diseases. Current diagnostic criteria for fibromyalgia are the modified criteria from the 2016 American College of Rheumatology (ACR). These criteria include the Symptom Severity scale (SSS) and the Widespread Pain Index (WPI). Pharmaceutical treatment remains an integral component of FM management. Physicians must have in-depth knowledge of every medication they prescribe, and patients must be warned of severe adverse effects and supplied with detailed written information.

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## REFERENCES