Pain and Fatigue: When It's Fibromyalgia And When It's Not

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An interview with Nancy Faass, MSW, MPH

Four patients, all with chronic pain, and all with a diagnosis of fibromyalgia syndrome (FMS): which of these patients is actually suffering from this disorder?

When I was diagnosed with fibromyalgia, I struggled with constant fatigue and seemed to ache all over. No matter what diet I tried, I was unable to lose weight. After two years of unsuccessfully trying different pain meds and antidepressants, I finally got a second opinion and was diagnosed with a thyroid problem. Once I was put on thyroid medication, the pain went away completely.

I suffered with terrible fatigue and achiness throughout my body, especially my legs. My doctor told me that I had fibromyalgia and gave me an antidepressant. About that time, one of my friends told me that he had the same symptoms, but his pain turned out to be related to his cholesterol medication. I asked my doctor about this, and he took me off the statin drugs I was taking. Within two months the pain went away.

I suffered from pain in all my joints, and my doctor checked me out for rheumatoid arthritis. The results were negative. I was told I had fibromyalgia and was put on several medicines for the pain. After a few months I went to a rheumatologist who did new blood tests and found that I had some type of inflammation. That led to more blood tests, which confirmed Lyme disease. I was put on antibiotics for a while, and the pain went away completely.

Like most of the women in my family, I have always struggled with depression. Three years ago my husband was diagnosed with prostate cancer, and two weeks later I was in an auto accident. Once I healed, I should have been fine, but I was in agony. Even a hug from my little girl was painful. My doctor did a complete work-up. Once he had the test results and put that together with my family history of depression, he diagnosed the pain as fibromyalgia. At that point he started me on a treatment program, and today I'm pain free.

Each of these stories had a happy ending. Why? The physician eventually determined the *actual* cause of the symptoms that were mimicking fibromyalgia. Prospective research tracking the accuracy of FMS diagnosis has found that diagnosis could be confirmed in only 34% of cases at follow-up—a 66% diagnostic error rate.[1] Defining what constitutes classic FMS and ruling out conditions with similar symptoms are crucial aspects of the diagnostic process.

Proper diagnosis is half the cure. If the diagnosis is not correct, how can the treatment be correct?

Defining Classic Fibromyalgia: Central Sensitization

"Classic fibromyalgia syndrome" is a term that we (Brady and Schneider) coined to describe a condition associated with specific symptom patterns in the FMS literature.[2] This systemic disorder is a global pain syndrome, generated by the nervous system, described as central sensitization or central facilitation.

Global pain. In these conditions, the pain is not limited to any particular region of the body. Rather, the symptoms include widespread pain, involving both upper and lower extremities; the pain extends throughout the torso on both sides of the body.

Changes in pain processing. We know that FMS patients experience genuine pain, reflected in abnormal changes in pain processing that are evident on brain imaging.[3] The pain is not psychosomatic.

Heightened sensitivity. In central sensitization syndrome, patients experience extremely heightened awareness and intense sensitivity to stimuli. Not only are they highly sensitive to palpation of soft tissues, they also tend to have multiple sensitivities to light and sound.

A wide range of mechanisms can result in similar symptoms as far as patients are concerned. They are tired, they cannot think, and they hurt.

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Elements of Diagnosis

Diagnosing these types of conditions can be challenging. Important steps in diagnosis include:

- In-depth patient history
- Physical examination: identifying central sensitization
- Comprehensive laboratory testing
- Evaluating neurotransmitters
- Ruling out other pain-related disorders
- Differential diagnosis: medical and metabolic conditions
- Differential diagnosis: musculoskeletal conditions
- Engaging the integrative team

In-Depth Patient History

Classic FMS patients typically experience various hypersensitivities that reflect depressed or depleted neurotransmitter levels.

Checking for comorbidities. Symptoms range from depression, anxiety, and hypervigilance to irritable bowel syndrome (IBS) and irritable bladder syndrome. These are the patients with multiple chemical sensitivities, as well as numerous food allergies and sensitivities.

It is not surprising that fibromyalgia exhibits almost 100% comorbidity with IBS, given that serotonin is a primary neurotransmitter of the enteric nervous system and is involved in both these diagnoses. FMS patients almost all have IBS, and all the patterns we observe in the IBS patients are also present in FMS patients.

Familial history: genetic predisposition to low serotonin. The tendency to fibromyalgia is often repeated within the family, and there is also evidence that some individuals have genetic polymorphisms on serotonin receptor sites. Research evaluating familial associations among FMS patients has also confirmed lower pain pressure thresholds aggregate in families.[4] Neurotransmitters are probably a factor in any type of global pain or chronic pain syndrome, due to the way in which the body reacts to pain and, in particular, chronic pain.

Lower pain thresholds. We know from the literature that people with classic FMS have lower levels of serotonin, not only in the central nervous system (CNS), but also as total body serotonin. Low neurotransmitter levels are associated with lower pain thresholds.

History of trauma, abuse, or chronic stress. Trauma seems to be a factor frequently associated with central sensitization disorders. A study of health plan data evaluating the history of 600 members diagnosed with FMS found that these patients had a significantly higher prevalence of emotional, physical, or sexual trauma, associated with the onset of FMS symptoms.[5]

- *Latent dysfunction.* Low-serotonin disorders can occur as a latent tendency that may later be expressed. In cases of latent depression, it is well recognized clinically that emotional trauma such as a divorce or a death in the family can trigger depression. A similar pattern of progression is often seen in classic FMS patients with central sensitization disorder.
- *Emotional trauma or abuse*. Psychological histories indicate that many of these patients have experienced an extremely difficult childhood, neglect, verbal and emotional abuse, intense psychological trauma, or chronic stress.
- *Physical trauma, injury, or abuse.* Symptoms of FMS may be triggered by physical trauma such as a severe car accident, work-related injury, botched surgery, or physical or sexual abuse.
- *Prevalence.* Disorders related to low serotonin are more prevalent in women, with incidence 10 to 20 times higher than the occurrence in men. Women's hormonal and nervous systems tend to repond somewhat differently to stress and trauma than those of men.[6]

It is important to connect the dots, identifying the commonality in disruption of neurotransmitter function and also aberrant stress physiology that occurs in disorders such as FMS. This accounts to some degree for the symptoms associated with these syndromes, such as anxiety, insomnia, and unrefreshed sleep. Patients tend to be hypervigilant, due to overactivity of the limbic system and hypothalamic-pituitary-adrenal axis. For many patients, these are ongoing chronic patterns in nervous system function and in neurochemistry.

Trauma can cause an excessive stress response, as well as significant and chronic pain, which can then alter the processing of pain and incoming stimuli in susceptible individuals. Ultimately these disruptions can result in dysfunction in limbic and descending anti-nociceptive systems, as well as widening of the receptive fields of pain, leading to global pain syndrome.

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Physical Examination: Identifying Central Sensitization

Ideally the clinician will provide a hands-on evaluation, palpating the muscles with light pressure. This can be a defining aspect of the examination, since many of these patients hurt almost anywhere they are touched. It is important to note that while the newest American College of Rheumatology (ACR) criteria for diagnosis of FMS no longer include a hands-on physical examination, it is these authors' opinion that this remains an essential element in differential diagnosis of global pain.

Global or regional pain? One of the first steps in a good case history is to determine whether the complaint is widespread or regional. Does the patient have global pain, and is it fibromyalgia?

- *Musculoskeletal pain*. The patient, responding to a symptom checklist, may check off neck pain, back pain, and shoulder pain. However, this person may actually have a bad back accompanied by some neck pain and a certain amount of shoulder pain. Ultimately, the patient's back is the source of the pain; rather than fibromyalgia, this could be an indication of an injury to the lumbar spine.
- *Myofascial pain*. Other patients experiencing chronic pain actually have some type of regional or localized musculoskeletal disorder, such as myofascial pain syndrome.

When we see new patients who have been told that they have fibromyalgia, frequently we can rule out a widespread pain disorder simply by asking a few key questions to identify the locus of pain. In our experience, at least 80% of these patients do not actually have classic FMS, but some other condition.

Muscle or nerve pain? When light pressure is applied to the muscles of patients with classic FMS, these patients will perceive that stimulation as painful. "Tender points" on the body are often sensitive to touch, although typically there is no impairment in the tissue, in contrast to the changes observed in the "trigger points" of myofascial pain syndrome. Stimuli that should not be painful may be perceived as extremely painful, as a result of hypersensitivity of the nervous system. Normal sensory stimuli such as tickling or even light touch can be perceived as painful.

A neurologic condition or metabolic disorder? We use the term "pseudo fibromyalgia" to describe the numerous conditions that resemble FMS, which do not meet the criteria of classic FMS. Is the pain systemic? Is it metabolic? A metabolic disorder such as a thyroid condition typically involves widespread achiness in the muscles rather than overt hypersensitivity to touch. The nervous system is affected to a greater degree in classic fibromyalgia syndrome, and frequently there is much more dysfunction. In differentiating FMS from a functional metabolic disorder, the individual with metabolic dysfunction is less likely to have a sleep disorder, chronic anxiety, or irritable bowel syndrome, all comorbidities associated with classic FMS. The job of the clinician is to tease out these factors.

Allodynia. *The hallmark symptom that differentiates FMS from most other medical conditions is the pronounced tenderness to even the mildest palpation or physical touch. This extremely low tolerance to sensory stimulation fits the definition of allodynia, that is, the perception of pain to a normally non-painful stimulus. Allodynia is quite pronounced in the classic presentation of FMS; it has been found to be multimodal (pressure, heat, electrical stimulation) and widespread throughout many body regions, not just the 18 tender points originally identified by the ACR consensus committee. The presence of allodynia typically infers a disorder of nociceptive pathways within the central nervous system (central sensitization), and not an abnormality of peripheral tissues themselves. There are recent data to support the idea that the widespread allodynia associated with FMS is indeed caused by central nervous system dysfunction (central sensitization) as documented by functional magnetic resonance imaging (MRI) and positron emission tomography brain (PET) scans of patients with FMS receiving innocuous sensory stimulation*[3]*… A review of the FMS literature leads these authors to suggest that physicians need to take a hard look at the validity of the diagnosis of FMS as a single clinical entity and explore the alternate idea of multiple subsets of patients with myriad causes for their widespread pain and fatigue*.[2]

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Comprehensive Laboratory Testing

In patients who complain of generalized pain and fatigue, it is imperative that the physician rule out the presence of any medical condition or disease known to cause the symptoms associated with classic FMS. Symptoms of vague and diffuse musculoskeletal pain associated with pronounced fatigue can be caused by cancer, multiple sclerosis, Lyme disease, autoimmune disorders, rheumatoid arthritis, hypothyroidism, and anemia.[7] Laboratory testing will include any or all of the following screening tests:

- Complete red and white blood cell count with white cell differential
- Thyroid function tests (total and free T3 and T4, TSH, and thyroid antibodies)
- Standard blood chemistry
- C-reactive protein and/or erythrocyte sedimentation rate (ESR)
- Lyme and rheumatic profile (as necessary)
- Salivary cortisol
- Organic acids

As simple as these tests are to perform, it is not uncommon for doctors to fail to order laboratory testing before rendering a diagnosis of FMS. According to the American College of Rheumatology (ACR) guidelines and criteria, a diagnosis of FMS should *not* be rendered until all lab tests have come back negative and failed to detect any obvious medical reason for the pain symptoms.[8]

Evaluating Neurotransmitters

The body has its own hierarchy of responses to pain, an inherent descending nociceptive system. Although the brainstem nuclei release endorphins that can block pain, these nuclei are controlled by higher structures in the limbic system, which involve several neurotransmitters.

Serotonin and norepinephrine. These neurotransmitters control the release of endogenous opioids. Research from the pharmaceutical industry has shown that drugs that increase both norepinephrine and serotonin seem to have greater pain-relieving benefit than selective serotonin reuptake inhibitors alone. Hence the shift to the use of SNRIs (serotonin-norepinephrine reuptake inhibitors), rather than SSRIs.

GABA-like substances. Pharmaceutically the use of drugs such as Lyrica™ and Neurontin™ have been shown to raise the pain threshold in fibromyalgia, decreasing pain by stimulating the production of GABA-like substances that function as inhibitory neurotransmitters.

Direct laboratory measurement of neurotransmitters. There are multiple ways to evaluate this biochemistry. The lab NeuroScience Inc. performs evaluations for neurotransmitters in urine and some saliva testing. Anecdotal reports by practitioners suggest that when they base some of their interventions on these tests, they have good outcomes. However, the hard-core research, data, and methodology on this type of testing are very light.

Neurotransmitter metabolites: organic acids testing. A much more solid approach does not evaluate neurotransmitters directly, but instead measures neurotransmitter metabolites through organic acids testing. Rather than testing for serotonin, we look for 5-hydroxyindoleacetic acid, or 5-HIAA, the metabolite of serotonin that appears in the urine. The same approach is used to assess levels of stress hormones (the catecholamines) such as epinephrine and norepinephrine, which produce a compound termed vanillylmandelic acid (VMA) that is found in the urine.

Organic acid testing can be a useful tool in the diagnosis of patients complaining of persistent fatigue, achiness, and other symptoms of FMS. This test methodology is very solid and well accepted, with the caveat that it is not reflective of neurotransmitter production in the central nervous system, but rather provides indicators of total body production. This is an important distinction since in the case of serotonin, 95% of this neurotransmitter is made outside the central nervous system, outside the brain, primarily in the enteric nervous system (in the gut).

A diagnostic trial of medication. In mainstream clinical medicine, most of the people diagnosed with FMS are put on one of the fibromyalgia medications. In the past, physicians prescribed Elavil or one of the tricyclic antidepressants. Today FMS patients are prescribed medications in the Lyrica family or preferably the SNRIs. Interestingly, the medications frequently have diagnostic value. If patients do well on the medication,

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they are more likely to actually have fibromyalgia than if they do not do well. Unfortunately, patients are often just kept on the drug if the physician does not know what else to do to determine what is wrong. Most physicians do not have the time, and in some cases are not adequately trained, to explore all the underlying causes of the patient's condition.

Correlation of test results with fibromyalgia. These results are neither linear nor predictive: not everyone with low serotonin has global pain or fibromyalgia. However, most people who truly have global pain or classic fibromyalgia statistically have a much higher prevalence of low serotonin in the central nervous system, including serotonin in cerebral spinal fluid. Elevated substance-P, pain-modulating peptide, is inversely proportional to serotonin. A high level of substance-P in the CNS is associated with segmental facilitation and widening of the receptive fields of pain and global tenderness. A great many of these biochemical correlations are currently being established, but we do not always have the methodology or know the mechanisms by which the association results in causality.

Ultimately, the issue is still a matter of identifying the basis for the neurotransmitter dysfunction. One can modulate neurotransmitter levels with drugs, but what is the underlying cause?

Ruling Out Other Pain-Related Disorders

Classic FMS is the correct diagnosis only when all other medical conditions that could account for the symptoms have been ruled out. The following is a partial list of medical, metabolic, and musculoskeletal diagnoses that can cause the symptoms of widespread pain and fatigue.

Medical Conditions
Cancer
Diabetes
Intracellular infections such as Lyme disease and viral infections such as Epstein-Barr (EBV), cytomegalovirus (CMV), etc.
Multiple sclerosis (MS)
Rheumatoid arthritis
Autoimmune disorders including ankylosing spondylitis and scleroderma
Intestinal dysbiosis
Anemia

Functional Metabolic Disorders
Hypothyroidism
Mitochondrial dysfunction
Subtle endocrine imbalances
Adrenal stress dysfunction
Reactive dysglycemia
Post-viral immune suppression
Chemical sensitivities
Food allergies and sensitivities
Reactions to medication
Nutrient deficiencies including low levels of B complex, vitamin D, CoQ_{10}, carnitine, magnesium, malic acid, etc.
Cumulative toxic load

Musculoskeletal Disorders
Myofascial referred pain
Painful trigger points
Nerve root irritation/compression
Injuries to the cervical spine
Disc degeneration
Sacroiliac joint dysfunction

Mind-Body Conditions
Post-traumatic stress disorder
Depression, anxiety, and panic attacks
IBS (irritable bowel syndrome)
Neuroendocrine dysfunction

Physicians frequently use the single term "fibromyalgia" to describe a complex of symptoms that can have multiple causes.

Differential Diagnosis: Medical and Metabolic Conditions

We use the term "pseudo fibromyalgia" to describe the numerous conditions that resemble fibromyalgia, but which are not "classic fibromyalgia." In some cases the issue may be straightforward, but in others the problem is covert. The patient may have a serious medical disorder such as cancer or MS that was missed. He or she may have a profound iron deficiency or B-vitamin deficient anemia, but many patients have a more subtle type of functional problem. Disorders that frequently elude diagnosis include hypothyroidism and dysfunction in energy metabolism within the mitochondria.

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Hypothyroidism. Functional conditions mistaken for FMS frequently have a metabolic cause. One of the best examples is hypothyroidism, including true primary hypothyroidism and sub-clinical/sub-laboratory hypothyroidism. Patients with low thyroid hormone levels often report that they ache all over and are fatigued, depressed, and suffer from mild cognitive impairment. Many of them, in a cursory exam, are misdiagnosed with fibromyalgia syndrome and treated with antidepressant drugs. In actuality, all they really need is thyroid hormone replacement therapy.

In some cases, hypothyroidism takes the form of low T3 syndrome, sometimes referred to as euthyroid sick syndrome or thyroid peripheral conversion disorder, frequently associated with elevations in cortisol due to acute or long-term stress. In these situations, patients often do not feel relief from their symptoms when placed on T4 thyroid hormone replacement therapy alone. The use of a combination of thyroxine (T4) and triiodothyronine (T3) therapy, such as porcine thyroid preparations (i.e., Armour Thyroid™ or NatureThroid™), or synthetic HRT combinations (i.e., Synthroid™ and Cytomel™) are gaining popularity with many physicians attempting to manage patients who do not adequately respond to T4 therapy alone.

Mitochondrial disorders. Mitochondrial dysfunction is one of the most common of the metabolic disorders that result in pain and fatigue. This dysfunction can be caused by the toxins that are ubiquitous in our environment, as well as those internally produced. We live in a toxic soup, and the resulting burden due to our exposure to herbicides, pesticides, petroleum products, and heavy metals impairs the enzymes of energy production within the mitochondria. Mercury, for instance, has an impact on cellular energy due to specific down-regulatory effects on the 5-prime-deiodinate system, which converts thyroid hormones into their active form. Mitochondrial DNA are approximately 20 times more susceptible to oxidative stress than nuclear DNA. Oxidative stress damages the mitochondrial DNA, and as a result, the mitochondria simply cannot self-manufacture the enzymes and proteins required to optimally make energy in the form of ATP (adenosine triphosphate).

- *Fatigue*. Patients in an energy-deficient state as a result of mitochondrial dysfunction will certainly be tired, because ATP is the currency of energy. In fact, these patients are likely to be tired and fatigued all the time.
- *Cognitive dysfunction*. These patients are also likely to experience cognitive dysfunction (brain fog) because the brain is highly dependent on energy and ATP. Consequently it is not surprising that someone with mitochondrial down regulation has difficulty thinking clearly.
- *Muscle soreness*. The majority of the mitochondria are located in the muscles and somatic tissues. If they are not functioning well, the biochemistry of the body is affected. Instead of making ATP by utilizing oxygen in the normal way, the body will shift into increased anaerobic metabolism, comparable to the effects of overexercise or overexertion. Virtually any phenomenon that results in oxygen debt will cause sore, achy muscles. One of the reasons for this discomfort is the acidic waste products that accumulate as a result of altered metabolism, such as lactic acid buildup. When these acidic waste products hit pain receptors, the patient will be achy and sore all over. Note that the cause of pain involves metabolism within the muscle, in contrast to pain that is mediated by the nervous system in classic fibromyalgia.

In our experience, it is not uncommon for someone with classic FMS to also have sub-clinical hypothyroidism or mitochondrial dysfunction. As the saying goes, "The patient has the right to more than one disorder at any given time." Often the constellation of symptoms makes diagnosis difficult for clinicians who do not have the time to stay current with the literature.

Differential Diagnosis: Musculoskeletal Conditions

Fibromyalgia diagnosis is most ideally achieved through a team approach—an appropriate partnership for structural medicine (chiropractors, osteopaths, physiatrists, physical therapists, and related disciplines) and functional medicine providers.

Physical medicine requires in-depth training. We believe that it is difficult to be highly skilled in both functional and physical medicine—to have the requisite understanding of the biochemistry and metabolic aspects of a case and be equally proficient in structural medicine. On the question of whether a practitioner of functional medicine can receive adequate training in structural therapies and diagnosis via workshops, we have observed that it is difficult to obtain substantial training in physical medicine in a short period of time. Naturopathic physicians are taught some physical medicine. If they are at an institution such as the

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University of Bridgeport, where there is also a College of Chiropractic, they probably receive more in-depth training in structural therapies. However, they are still not trained in structural medicine at the level of the chiropractor. Medical physicians receive virtually no training in physical medicine unless they go into specialties such as physiatry or rehabilitation.

Referring to musculoskeletal practitioners. Periodically we are asked where physicians can refer fibromyalgia patients for a structural assessment. It is important that the referring physician indicate clearly whether the patient has "classic fibromyalgia" or some other type of comorbidity or musculoskeletal (MSK) condition. Doctors of chiropractic (DC) and physical therapists (PT) are the professionals who are best trained to perform a thorough hands-on examination of the MSK system. However, it is important to find a DC or PT who has experience working with fibromyalgia patients and understands the issues involved in differential diagnosis as discussed in this article. The referring physician needs to be aware of the strengths and weaknesses of both of these professionals before making a patient referral.

A DC with strong MSK differential diagnostic skills usually stands out in his/her community and has already established good working relationships with many local physicians. The DCs to avoid are those who treat all patients—including those with fibromyalgia—with the same methodology and who push long-term treatment plans. A PT with a strong MSK examination skill set is also typically well known in his/her medical community as having additional orthopedic/manual therapy training or certification. The PTs to avoid are those who treat all patients—including those with fibromyalgia—with standard strength and physical conditioning exercises, instead of trying to identify specific MSK pain generators.

Applying an Integrative Team Approach

Today, medicine continues to function in a series of disciplinary silos, and integrative medicine is clearly a work in progress. Many integrative centers and practices are not truly integrated. Although providers from different disciplines work in the same location, patients are merely shuttled from one provider to another. In a truly collaborative practice, providers evaluate, plan, and manage patient care as a team. Ultimately, limitations in the integration of care may reflect issues in funding.

Creating a virtual team. In an ideal world, when people come in with widespread pain and fatigue, they need to be seen in a clinic where there are practitioners who can address musculoskeletal issues, as well as medical, psychological, and functional medicine problems.[9] That requires a team of very good people. In our own clinical practices (in Connecticut and Pennsylvania, respectively), we have each created a virtual team of skilled practitioners whose work we know personally, in order to provide these services for our patients. Disciplines and skill sets important in diagnosing fibromyalgia include the following:

- *Integrative and functional medicine*. The first step in an assessment is a thorough medical evaluation to rule out possible causes of pain. It is also important to have an evaluation by a provider who understands internal biochemistry and metabolism from a pathological and functional perspective.
- *Physical medicine*. A structural evaluation is integral to FMS diagnosis, in an assessment of musculoskeletal, biomechanical, and exercise physiology, by a chiropractor, osteopath, physiatrist, or physical therapist with training in differential diagnosis for FMS disorders.
- *Mind-body medicine*. Frequently, it is helpful to work with a professional trained in psychology or counseling who can perform an evaluation of the patient for issues such as stress and lifestyle. Finding a therapist familiar with FMS and typical patterns seen in post-traumatic stress syndrome (PTSD) is recommended.
- *Systems medicine*. Once the testing and initial assessment have been completed, there is the need for a health care professional skilled in FMS diagnosis and functional or physical medicine who can tease out the subtle aspects of the case and provide a careful analysis.

Individualizing care. As with other complex conditions such as back pain, there are subsets within primary symptom patterns. Using back pain as an example, optimal diagnosis is based on the inquiries "What type of back pain?" and "What type of treatment for what type of back pain?" Taking a similar approach to fibromyalgia, rather than looking for a single magic bullet, we want to be asking, "What is the best treatment or combination of treatments for which type of patient, particularly one who has been rendered the label of FMS and may or may not have widespread pain and fatigue?"

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We would like to see more health care providers across disciplines who have the expertise to distinguish the symptoms of classic fibromyalgia from other disorders, whether those providers are conventional medical doctors, rheumatologists, functional medicine doctors, naturopathic doctors, chiropractic doctors, or other providers. We also want to increase the awareness of health care providers to the symptoms and impact of central sensitization syndrome. For the sake of our patients, it is vital that we be able to differentiate true medical diseases from more subtle functional and metabolic conditions.

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Editorial. Nancy Faass, MSW, MPH, is a writer and editor in San Francisco who has worked on more than 40 books, as well as articles and web content. For more information, see www.HealthWritersGroup.com.

Notes

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