A World of Hurt

A new generation of researchers is getting inside the mind of chronic pain—and unlocking powerful psychotherapies against what might be the nation's biggest health crisis.

BY **ILIMA LOOMIS**

When Jill Clendenning woke up one morning with aching joints, she thought she might be coming down with the flu. Twenty-two years old and fresh out of college, Clendenning describes herself as "somewhat fanatical" about her health and fitness—power-walking at least five miles a day, and lifting weights at the gym. She was excited to be launching her career with a challenging newspaper job. She felt strong, happy.

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Clendenning decided to skip her walk that day—and again the next. The flu never materialized, but the body aches kept getting worse. By the time a few weeks had gone by, she knew something was wrong.

"At the most extreme, I couldn't walk, couldn't drive a car, couldn't function," she recalls. "Here I was in my 20s, having always taken care of myself—physically fit, active—and suddenly I was incapacitated."

But no matter how many doctors she saw over the next few years, nobody could figure out what was wrong with her. Test after test came back normal. Doctors offered her powerful opioids just to get her out of their office. Some even questioned whether she was making everything up. Somewhere along the line, she was told she had fibromyalgia, a mysterious condition characterized by systemic muscle and tissue pain. But the diagnosis gave her little satisfaction. "With fibromyalgia, you don't have answers; you just have a name," she says.

After more than two years of being shuffled from specialist to specialist, Clendenning was referred to a pain clinic, where she met a psychologist. His prescription: stop all medication, quit her job, and start meditating up to three hours every day.

"He told me, 'You're going to start taking control of your own health,'" she recalls. "I thought he was crazy."

By some measures, chronic pain is one of the country's top health issues—a 2011 National Academy of Sciences study called it a national crisis. An estimated 100 million Americans today experience chronic pain—more than the number affected by heart disease, diabetes, and cancer combined. The economic cost of chronic pain is estimated to be as high as $635 billion annually. And yet, for many reasons, reliable, effective treatments remain maddeningly elusive.

One reason chronic pain might be so hard to treat is that it's complex. Dozens of physiological disorders are known causes of long-term pain, from lower-back injury to cancer to shingles—to mysterious systemic disorders with no clear point of origin or cause. At the same time, psychology plays a role. Research shows that having a history of depression or anxiety can put someone at greater risk of developing chronic pain. The prevalence of opioid addiction and misuse—affecting, by some estimates, as many as 10 percent of all chronic-pain patients—further complicates treatment. And the modern health-care system, where most doctors have only a few minutes to examine and diagnose each

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patient before moving on, can be ill equipped to tease apart multilayered health problems.

But perhaps most bewildering of all is the nature of pain itself: personal, subjective, and innately immeasurable.

"It cuts to the heart of deep philosophical questions," says psychotherapist Eric Garland, "about the relationship between mind and body, and the nature of consciousness and physical reality, and the biological pathways that link them."

"PAIN IS PERCEPTION"

Garland, an associate professor at the University of Utah College of Social Work and the associate director of integrative medicine in supportive oncology at the Huntsman Cancer Institute, is among the new generation of researchers challenging our understanding of pain—where it comes from and why some people recover from their injuries while others continue to feel pain long after they have apparently healed. At the center of the science, he says, is a provocative question: what *is* pain?

"Pain is perception," he says. "Pain is not in the body. Pain exists in the interaction between the body and the mind."

Increasingly, research is focusing not on the diseases and injuries where pain first begins but on the neurological systems and brain pathways that cause pain to become chronic. Recent studies have found not only that the structure and wiring of a brain can make a person predisposed to chronic pain, but also that long-term pain can actually change the brain's pathways over time.

"We think there is an active process that's driving these subjects to become chronic, and part of that process is this rewiring," says neuroscientist Vania Apkarian, a pain researcher and professor of physiology at the Northwestern University Feinberg School of Medicine. In a recent study, Apkarian conducted brain scans of patients with lower-back pain, one of the most common causes of chronic pain. The scans found significant differences between patients who recovered from their injuries and those who were still in pain a year later. Around 80 percent of the time, the brain scans were able to predict whether a patient's pain would persist long term.

In the scans, the patients whose pain became chronic showed more activity in areas of the brain associated with sensory perception, emotion, and addiction, he says. At the

All in Your Head?

While new research identifying the brain as ground zero for pain empowers some patients to take more control over their recovery, others find that it further stigmatizes their suffering.

"Patients come in all the time and say, 'Please don't tell me it's all in my head,'" says Tobi Fishel, a psychologist for the Center for Integrative Health at Vanderbilt University. She says being told that their problems are psychosomatic, emotional, or otherwise "not real" is a common source of frustration. "When a patient hears that, they experience it as, 'You're crazy, you're making it up, you should just push through it, and you're not really experiencing this pain,'" she says.

But just because pain is a matter of perception doesn't make it any less real, says psychotherapist Eric Garland. "It's a false distinction," he says. "The whole idea of pain being in your head is ridiculous, because anything that's in your mind is in your brain, and anything that's in your brain is in your body."

Instead, patients—and health-care providers—should think of the mind as a powerful tool in the struggle for control over chronic pain.

"Once people get that, it's fairly liberating," Garland says. "It can be empowering for people to realize that your mental experience can impact your physiology."

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Wabi-Sabi Buddha
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same time, their patterns of brain activity changed and evolved over time, while those of the patients who recovered did not.

"We think the wiring of these areas is the main reason people are at risk of becoming chronic-pain patients," Apkarian says. "Once they have an injury, the brain's response to the injury is what creates this whole cascade of events: either the subject gets over the condition and becomes normal, or the process continues for months and years and becomes a chronic-pain condition."

Researchers are already working on a new class of drugs that would treat chronic pain neurologically, he says, and an upcoming study will look at mechanisms that could stop the brain from transitioning from an acute injury to chronic pain.

From a psychological perspective, Garland says the patients he treats share a number of emotional traits that seem to contribute to their pain becoming chronic. These include hypervigilance: constantly scanning the body for signals that something is wrong. This process can often lead the person to fixate on an innocuous twinge and interpret it as a sign of oncoming pain.

"The more the person focuses on those sensations and begins to catastrophize them, the more anxious or stressed the person can become—which in turn exacerbates the sensations, increasing pain," he says. "The person can get stuck in a downward spiral."

For many patients, the emotional response to pain causes more suffering than the pain itself, says JoAnne Dahl, a psychologist and the author of *Living beyond Your Pain*.

"The actual pain here and now could be caused by damaged tissue or a progressive disease—something that's happening in your body," she says. "But as soon as we feel this, we go into a mental representation. We start thinking, 'What is this? Have I felt this before? What does this mean?' All these are repercussions that mentally exacerbate it."

Patients then often react to their fear, sometimes making the problem worse. This could mean avoiding physical activity because they anticipate it will hurt, or getting into the habit of taking medication in the hope of preventing any discomfort. As a first step toward recovery, Dahl urges her patients to let go of their fear and allow themselves to simply experience their pain and feel what it's really like.

"When they stop avoiding it, they'll notice that the pain is often not the way that they think it is," she says.

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PAIN'S EMOTIONAL JOURNEY

Tobi Fishel was in yoga class, struggling through what should have been an easy triangle pose. Born with scoliosis, Fishel had always felt physically awkward, unable to move the way she felt she should. As she fell out of the pose for the third time, she felt a familiar sense of anger toward her own body begin welling up. That's when she saw her teacher standing over her.

"She said, 'You have the most beautiful snake spine,'" Fishel recalled. "She said, 'I have scoliosis, too. Let me help you.' She recognized beauty in me when I felt like I was wrong or damaged."

Fishel is not only a patient but also a psychologist specializing in treating patients with chronic pain at the Vanderbilt Center for Integrative Health. She says that while the root cause of chronic pain might be different for every patient, the emotional struggle—such as that sense of being ugly or "damaged"—can be remarkably similar.

Patients commonly feel grief for the loss of their old way of life; anxiety, especially about physical movement; and shame that they are no longer meeting their responsibilities to family and friends. "I have parents with chronic migraines so severe that they can't take care of their little kids," Fishel says. "That feels very shameful, very depressing."

Shame—as well as a sense of disconnect from family and friends—leads many chronic-pain patients to pull back from their social circles, removing a crucial layer of support.

Jill Clendenning felt "a huge sense of guilt" about missing events like her niece's birthday party and her best friend's graduation. After a while, it was easier to just avoid people altogether. "You can't look at somebody and know they're in pain, so to everybody else I looked normal. People didn't understand why I couldn't do the things I said no to," she says. "It isolated me. I withdrew because I didn't want to be in situations where I had to keep saying no."

Pain can also have a big impact on the patient's most intimate relationships. "You don't feel well, and you're afraid to move," Fishel says. "You might be fearful of engaging in sexual activity, and that leads to a disconnect with your partner."

That divide can be deepened by a spouse who may not know how to respond to their loved one's changing health.

"Healthy partners may become worried about how their lives will change," says Annmarie Cano, a psychologist who heads the Relationships and Health Lab at Wayne State University. "Some partners will react by being dismissive of the concerns of the person with pain. Others may react by being too helpful and not allowing the person with pain

Partners in Pain

Successful couples communicate and collaborate to overcome chronic pain, says psychologist **Annmarie Cano**.

What are some of the ways chronic pain can affect couples?

Some couples approach pain as a shared problem or challenge. These are the couples that make the best of the situation. Other couples, however, think of pain as only one partner's problem. In these cases, one spouse is left to deal with the pain alone, and this situation can definitely put a strain on the individual but also the couple's relationship.

What should a partner know or do when their spouse is suffering from chronic pain?

Open communication is key, and so is compassion for each partner's inner experiences. It's also important that both partners learn how to use the pain-management skills (for example, muscle relaxation) so that the partner can confidently assist the person with pain in their pain-coping attempts.

Can someone "pain-proof" their relationship?

There really is no way of preventing pain or any other stressor from affecting one's relationship. However, it makes all the difference when people shift their thinking from "My illness means the end of a meaningful life" to "I can live a meaningful life with my illness." This goes for relationships too. If both partners can approach the pain as something that is part of their lives together, not something that defines their lives together, they can begin to identify and live out their goals.

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to act in a way that respects their autonomy."

It's important to address any relationship problems as they arise, Cano says, since research has found that people in unhappy relationships are more likely to drop out of pain-management programs, giving them a poorer prognosis for recovery.

Open communication is key to avoiding frustration and tension, Fishel adds. People in pain should advocate for themselves and be clear about what they need in the moment, whether it's an encouraging push to work harder in physical therapy or the compassion to join them in quiet meditation.

"Your partner might not know what to do unless you speak up," Fishel says. "Incorporating them into the healing process can be really helpful."

TREATING THE MIND

While traditional treatments for chronic pain focus on the point of injury, a growing field of therapies is harnessing the power of the mind to help chronic-pain patients improve their quality of life—and, in many cases, to reduce the pain itself.

"It's just been fascinating to see how psychological techniques can alleviate physical symptoms," says Garland, who has used therapies like mindfulness training, cognitive behavioral therapy, and hypnosis in his practice. "I've treated people with severe and disabling chronic pain—to the extent that they were in a wheelchair—and through the practice of mind-body training they were able to regain mobility and quality of life."

In a 2012 study published in the journal *Psychotherapy and Psychosomatics*, Garland found that a program of mindfulness training for chronic-pain patients—he developed a system he calls Mindfulness-Oriented Recovery Enhancement—was effective in breaking the cycle of pain-attentional bias, or the hypervigilance that causes people to focus on, and exacerbate, unpleasant sensations.

"When a chronic-pain patient is afraid of pain or angry about how it's impacting their life—when they focus on the pain—those emotions really influence the process," he said. "But with mindful attention, you're disentangling it from the emotional component."

> "We have this label: pain. But what is it really? What are the sensations? It seems that when people learn to analyze it, the pain just doesn't impact them as much."

Counterintuitively, the training starts by asking patients to pay close attention to their pain. But instead of describing it in emotional terms ("My back is killing me!") the patient is asked to regard it analytically, listing the physical

sensations in as much detail as possible ("There's a sensation of tightness in the lower-left quadrant of my back; I feel tingling in the muscles; I feel heat near my spine").

The exercise helps patients learn to regulate their attention and focus, and it empowers them to take more control over how they experience bodily sensations, he says. It also allows them to perceive their pain with more emotional detachment.

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Another mindfulness practice is "savoring," he says, or the practice of fully experiencing life's pleasures. Garland might bring in a fresh bouquet of flowers and ask a patient to focus on it completely, paying attention to every detail of its beauty, scent, and texture and noticing all the positive emotions that arise.

The exercise strengthens the ability to shift attention to the things that bring pleasure and joy—emotions that help buffer the depression and anxiety that can result from chronic pain. "The person learns to focus on and appreciate these experiences without clinging to them," he says.

Other mind-body practices that have shown benefits in some chronic-pain patients include cognitive behavioral therapy, a talk-therapy technique in which the therapist helps the patient to reason through negative assumptions and to challenge them with evidence; and Acceptance and Commitment Therapy, in which patients learn to observe their pain and accept it without judgment.

Outside of talk therapy, Garland says clinical hypnosis has been one of the most effective pain treatments he's seen. Not only can hypnosis help a patient dissociate from the pain—in other words, to disengage and observe it from a distance—but it can actually help a person alter the sensations experienced in the body. In other words, through hypnosis, a patient might be able to replace the sensations of tension, pressure, or tenderness with a perception of relaxation, comfort, or even pleasure.

Although not all patients will be able to reduce their pain through psychological interventions, these kinds of therapies can help them learn to live with their pain—and ultimately reclaim their quality of life, says Dahl.

"It's an acceptance that pain is inevitable but suffering is optional," she says.

The meditation, combined with biofeedback training, showed Clendenning that she could take some control over her body's response to pain.

Find out why some patients become emotionally attached to their pain at spiritualityhealth.com/attatched-to-pain.

TAKING CONTROL

Clendenning says she was skeptical at first but decided to take her therapist's advice and try meditation. She started by learning Jon Kabat-Zinn's "body scan," a gentle guided meditation in which the practitioner learns to bring attention to and relax every part of the body. Eventually, she was able to spend up to three hours a day sitting in quiet awareness.

"It was extremely hard, because I'm very active and I think way too much," she recalls. "Especially when you're in pain, your mind keeps wanting to go back to that, so it adds another layer of difficulty. But thank God, he said, 'You have to do this.'"

After about a month, she started to see results. The meditation, combined with biofeedback training, showed Clendenning that she could take some control over her body's response to pain. It also gave her enough physical relief to try other therapies, like massage, hydrotherapy, tai chi, and yoga. For the past decade, she has been able to successfully manage her pain.

"All of those things combined are what keeps me functioning," she says.

Yes, she says, the therapies and practices do reduce the pain itself—but more important, they gave her back her quality of life. Twenty years after she first started feeling pain, she says she is no longer isolated, is able to work full time and raise her two children, and has learned how to be realistic about her limits so she can enjoy the activities she loves most.

"I'm always in pain. I'm never without pain," she says. "There are good days and really, really bad days, but I've learned how to manage it and not let it be in control."—S&H

Ilima Loomis is the managing editor of *Spirituality & Health*.